

G8 Crop Cruiser Series 3

OPERATOR'S MANUAL MY25

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OCTOBER 2025
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GOLDACRES

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Under: Parts & Service > Owner-Operator Manuals:

Model - Self Propelled	Year	Revision	Part Number
G8 Crop Cruiser Series 3	2025	00	GA9500077

Under: Parts & Service > Parts Manuals:

Model - Self Propelled	Year	Revision	Part Number
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1 Foreword - **Important Information**



Welcome

Congratulations on your Selection of the Goldacres G8 Crop Cruiser Series 3.

Goldacres has been designing, building, supplying and servicing Australian farmers with high quality, innovative & technologically advanced spraying solutions for over 45 years.

Our advanced equipment is specifically designed & developed in Australia for Australian conditions.

Founded in 1978, Goldacres continue to produce Australia's finest range of spraying equipment embodying the spirit of Australian rural ingenuity. We keenly value the unique relationships we develop and enjoy with the owners of our equipment.

We welcome you as a Goldacres Owner and look forward to assisting you to make your spraying applications as easy and efficient as possible.

This Operators Manual outlines all you need to know about the operation of your sprayer, along with operating guidance and the overall maintenance & care of your machine.

Our Customer Care booklet, called the Delivery & Warranty Registration Manual (supplied separately) explains in simple, easy to understand terms the Pre-Delivery, Post-Delivery, Warranty, Servicing and Maintenance of your Sprayer.

Please read, understand and use these comprehensive manuals to gain complete understanding of your spayer for its reliable, safe, accurate & efficient operation.

Do not hesitate to contact your Goldacres Dealer or Goldacres for further information as explained in these manuals.

Roger Richards
Managing Director

About this Manual

This manual provides instructions for some items requiring assembly on delivery, setting up instructions, calibration procedures, pre-operation requirements, operating instructions and maintenance requirements to achieve the best performance of this G8 Crop Cruiser Series 3.

Some options explained in this manual may not be installed on your sprayer. Other options fitted may require another operator manual for instructions.

Please ensure this manual and other relevant manuals are passed onto the new owner if the sprayer is sold.

How to Use/Read this Manual

This manual includes a Contents page and 10 Chapters - with each Chapter beginning with a list of Headings & Subheadings.

Each page contains written instructions with pictures, illustrations, decal & symbol instructions, above & below providing visual support and information to each instruction.

Numerical values & settings shown in the manual are instuctional examples only and may not be representative for your machine or local situation.

Decal/Symbol Instructions

Danger, Warning, Caution & Note symbols & decals are used throughout this manual and on your G8 Crop Cruiser Series 3 instructing you of risks, procedures & operator safely.

It is important to familiarise yourself with these & understand their meaning to be able to quickly identify risks, procedures, operator safety & safety of others, as outlined below:

⚠DANGER

- Conveys highest risk of injury or death to convey that action must be taken to protect personal health.
- Serious injury or death may occur if you don't follow instructions!

- **Danger Symbol** - used for areas where the highest personal risk of injury or death is present.

  Always read the information on these decals and ensure you are taking the precautions necessary to prevent risk of injury or death.

  You may be killed or seriously hurt if you don't follow instructions!

⚠CAUTION

- Conveys the potential for personal injury and/or damage to the machine itself.
- Injury and/or damage your machine, if you don't follow instructions!

- **Caution Symbol -** used where there is potential for personal injury and/or damage to the machine itself.

  Injury and/or damage your machine may occur if you don't follow instructions

⚠WARNING

- Conveys risk of injury highlighting the need for action to be taken to protect personal health.
- Serious injury may occur if you don't follow instructions!

- **Warning Symbol -** used in areas where there is potential for risk or injury highlighting the need for action to be taken to protect personal health.

  You can be seriously hurt if you don't follow instructions!

NOTE

- Conveys useful operating information and procedures.
- It is not hazard related.

- **Note Symbol -** is used to inform the operator of installation, operation or maintenance information & procedures that are important for the best ways of operating this sprayer.

  The Note symbol is not hazard related.

Operator Responsibilities

All operators of the G8 Crop Cruiser Series 3 should be adequately trained in the safe operation of this equipment.

It is important that all operators have read and fully understand the operator's manual prior to using this equipment.

All operators of this Crop Cruiser must **read all Operator Manuals** for this machine including but not limited to:

- This G8 Crop Cruiser Series 3 Operators Manual
- Delivery & Warranty Registration Manual
- G8 Crop Cruiser Series 3 Parts Manual (available online only).
- Raven Rate Control Module Operation Manual
- CLAAS Modular cab X11 Operator's Manual
- Other Manuals as required,

and fully understand:

- All risks & safety concerns
- Installation & assembly
- Pre-operation checks
- Calibration of the sprayer
- Operating the sprayer
- Sprayer lubrication & maintenance
- Use of protective clothing
- Risks of using chemicals & spraying.

All new operators should be trained in an area without bystanders or obstructions and become familiar with the sprayer prior to operation.

1 Foreword - **Important Information**



The serial number plate located on the chassis at the front left hand side by the cabin access ladder.

Tyre Size	Part No	Description	Rating	Max Load per Tyre	Max kPa (PSI)	Recommended Pressure kPa (PSI)			
						Front Std	Front Tank Option	Rear Std	Rear 48m Boom
480/80R50	GA1500081	Tyre, 480/80R50, VF, VDR900, Ascenso	179D	7750kg	358 (52)	179 (26)	358 (52)	317 (46)	358 (52)
580/85R42	GA1500097	Tyre, 580/85R42, VF, VDR900, Ascenso	186D	8750kg	200 (29)	138 (20)	200 (29)	158 (23)	200 (29)

Crop Cruiser G8 Series 3 - Tyre Options, Specifications & Recommended Pressures.

Identification & Parts Ordering

When ordering parts or requesting service information for your sprayer it is important to quote the serial number of your machine in order to receive accurate information.

The serial number plate on your machine is located on the chassis at the front left hand side by the cabin access ladder.

When ordering parts from your Goldacres dealer, please quote:

- Machine serial number
- Part number required
- Part description
- Quantity required.

The Goldacres Parts Manual (available online) includes the relevant information you need when ordering parts from your dealer.

When returning parts to a Goldacres dealer for service or repair, all parts MUST be cleaned thoroughly before sending them.

Dealers will not expose their service technicians to the many potentially hazardous pesticides & substances that may have been used.

Use only Genuine Goldacres parts on Goldacres equipment.

Wheels & Tyres

Tyre pressures need to be checked **regularly - check every 8 to 12 hours of operation.**

There are many factors concerning the appropriate tyre pressure for a particular tyre and load. The many factors include:

- Tyre size,
- Rim type,
- Tyre status (driven or free rolling),
- Load,
- Speed,
- Haul length and
- Load Indiex.

All factors need to be considered when determining the tyre pressure.

For information on wheel maintenance please refer to Chapter 8 “Lubrication & Maintenance”.

NOTE

Tyres wider than 480mm will increase total machine width to over 3500mm.

NOTE

To identify the exact options fitted to your particular sprayer, refer to the original quotation and/or build sheet.

If needed, a copy of the build sheet may be obtained by contacting your dealer and quoting your machine serial number as described above.

NOTE

Please ensure all parts are clearly labelled with the owner’s details and a brief description of the fault.

Dealers are not liable for the return of any goods to a Goldacres Dealer. Goods must be returned to point of sale.

NOTE

If a tyre is replaced with a different brand or size, please contact the supplier for correct air pressures to suit the load carrying capacity of this machine.

NOTE

Converting Kilopascals (Kpa) to Pounds per Square Inch (PSI):

PSI = Kpa x 0.145

Eg. 282 Kpa x 0.145 = 40.9 PSI

Sprayer Dimensions

The following G8 Crop Cruiser Series 3 dimensions are provided as a guide only.

Variations in dimensions may occur without notification.

Dimensions show here do not include aerials and other attachments.

To ensure that the dimensions are accurate for your sprayer **it is recommended that you measure your sprayer individually**.

Aerials on the roof may also need to be removed to meet clearance requirements for over head power lines, while on the road and also in some paddocks.

NOTE

Aerials on the roof may also need to be removed to meet clearance requirements for over head power lines, while on the road and also in some paddocks.

NOTE

Sprayer dimensions are based on 480/80R50 tyres fitted with airbags inflated.

Be aware dimensions given have no aerials fitted.

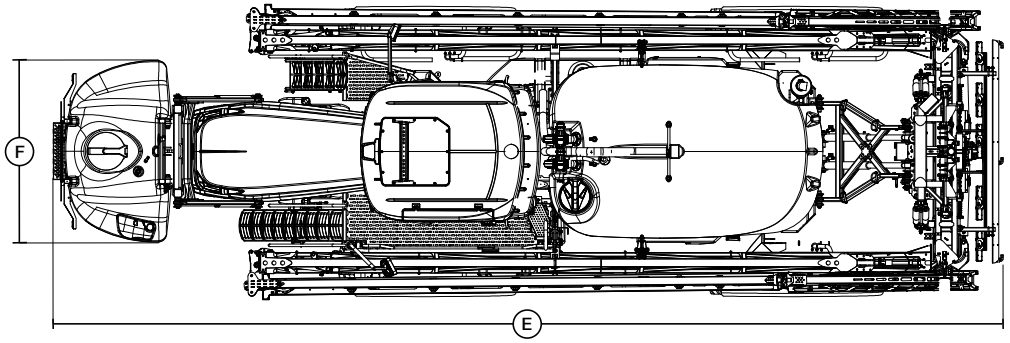
NOTE

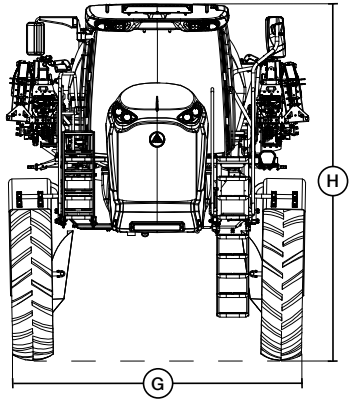
The Crop Cruiser sprayer is approximately 4.15m in height and with aerials on the roof, can be much higher.

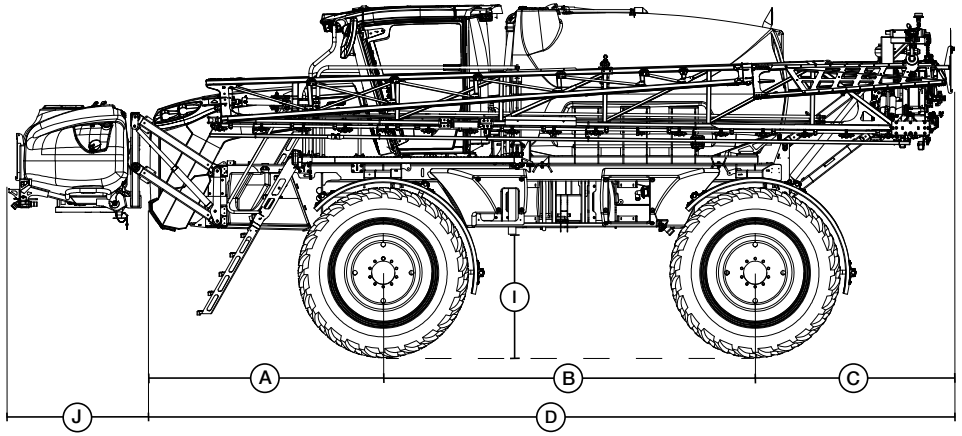
Check regulations in your state for maximum vehicle height restrictions. When driving on roads it may be necessary to remove aerials to meet the required height restrictions.

At time of publishing, table information was incomplete -

Contact your Goldacres Dealer for up-to-date Weights & Dimensions.

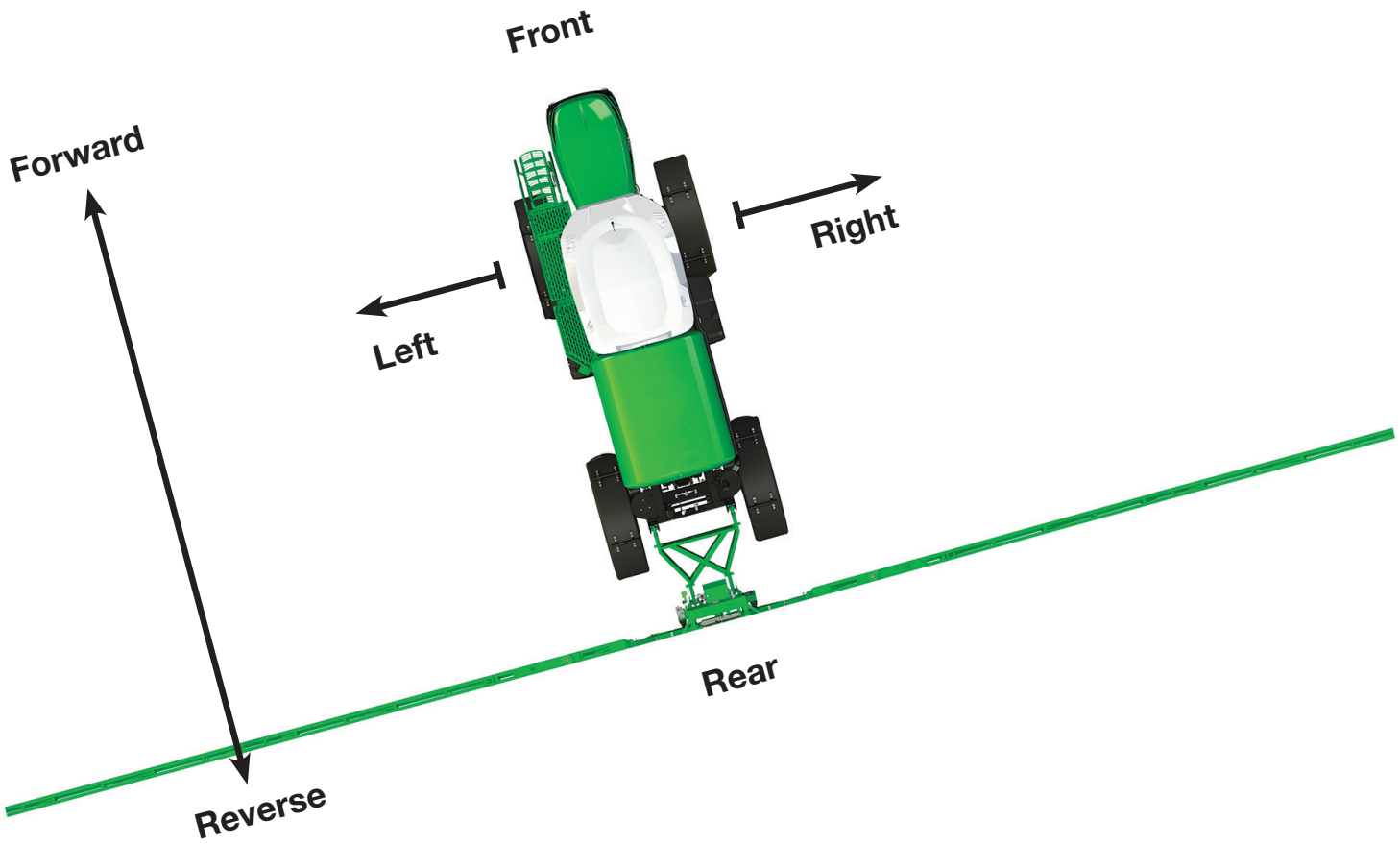






MODEL	Boom Size (m)	Vehicle Mass (kg)				Dimensions - Folded (m)									
		Tare	Gross	Tare w-3PL Tank	Gross w-3PL Tank	A	B	C	D	E	F	G	H	I	J
G6 S3	36						4.45	2.36	9.62			3.5		1.48	
G6 S3	42						4.45	2.36	9.62			3.5		1.48	
G6 S3	48						4.45	2.36	9.62			4.2		1.48	
G8 S3	36	14600	22600	16100	26000	2.8	4.45	2.36	9.62	11.29	2.2	3.5	4.2	1.48	1.68
G8 S3	42					2.8	4.45	2.36	9.62	11.29	2.2	3.5	4.2	1.48	1.68
G8 S3	48					2.8	4.45	2.36	9.62	11.29	2.2	4.2	4.2	1.48	1.68

Note: **Weights & Dimensions** are taken with 480/80R50 tyres fitted. **Height** is measured at ride height. **Deduct** 130mm for transport height.



Sprayer Orientation

Throughout this manual instructions are given with reference to the front, rear, left and right of the sprayer including moving forward and reversing.

To avoid any confusion or misunderstandings these are given using the orientation of the sprayer as illustrated (above).

Paint Codes

For repairs or touching up damaged paintwork use Australian Standards AS2700 codes:

Wheels:	N23 Neutral Grey
	RAL 9005 Jet Black
Steel (Green):	G13 Emerald Green
Steel (Black):	N61 Black

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2 Essential Risk Management - **Safety**



Crop Cruiser G6-G8 Series 3.



Front cover of Australian Standard for Chemical protective clothing AS3765 publication.

Critical safety information to keep you free from danger, injury or death is outlined in the following pages.

Safety is a very high priority of Goldacres and must be for all operators. All safety and warning instructions MUST be followed to ensure the safe operation of your sprayer.

1 Operator Safety

Always read and understand the operator manuals provided with your sprayer prior to its operation.

It is the responsibility of the operator to ensure there are no damaged or missing decals on the equipment and that any damaged or missing decals are replaced prior to operation.

Training & Certification

Operational training for your sprayer will be given by your dealer or at the point of sale.

If required, please ask for this training again.

Chemical certification through a local government body is recommended for all those working with chemicals.

Not Okay to Operate!

Do not operate this sprayer if you are:

- Intoxicated (Never operate a sprayer while under the influence of any drugs or alcohol)
- Fatigued (Never operate a sprayer if you are excessively tired)
- Untrained (Never operate a sprayer if you are not qualified)
- Stressed or mentally unfit for work!

First Aid

Before spraying make sure you are aware of first aid requirements relative to the chemicals being used.

Read the appropriate Chemical Safety Data Sheets(CSDS) and know the location of an appropriate First Aid Kit.

Make sure you have a first aid action plan in place whenever chemical handling/spraying.

It is recommended an appropriate First Aid Kit be kept with your sprayer.

Personal Protective Equipment (PPE)

Chemicals can be extremely harmful to humans so the use of appropriate PPE when handling chemicals is essential.

Ensure the correct Personal Protective Equipment (PPE) is available & worn before using agricultural chemicals & operating the sprayer.

PPE must be appropriate to both chemicals and sprayer.

Always refer to the chemical manufacturer's label for the guidelines on the appropriate PPE for the chemical(s) you are using.

Always wear close fitting clothing and appropriate safety equipment for the job at hand.

Goldacres strongly recommends that you read and understand the following Australian standards:

- Australian Standard for Chemical protective clothing AS3765.
- Australian Standard for Respiratory protection devices AS1715.

Poisons Information Centres - Call 131 126 (AU)

Minimum PPE

Minimum Personal Protective Equipment requires:

- Coveralls
- Elbow length rubber gloves
- Approved respirator &
- Face shield.

Passengers

Your sprayer is equipped with one training seat with a seatbelt. To minimize the risk of injury in the event of an accident, the operator and anyone in the training seat must wear the seat belts at all times.

Any other passengers (not recommended) will not be protected by the roll-over protection system and must not be on the machine.

Do not stand on or carry passengers on the steps or platform when the machine is in motion or when the booms are being folded or unfolded.

Avoid Excessive Noise Exposure

Exposure to loud noise over an extended period can cause permanent hearing impairment or loss.

Be pro-active in conservation of your hearing and wear appropriate hearing protection at all times.



Do not operate or make alterations to the sprayer outside the guidelines or limitations given in all the manuals.

Machine Alterations

Any unauthorised modifications to this sprayer may affect its function and create a serious safety risk.

Any part of a Goldacres sprayer that is altered or operated outside the guidelines or limitations given may not be warranted by Goldacres for successful operation or performance.

Operators working outside standard specifications & limitations do so at their own risk, unless specific advice has been sought from, and approved by Goldacres in writing.



2 Chemical Safety

The safe use of Agricultural (Ag) chemicals with this equipment is the responsibility of the owner/operators. Owners & operators should be trained in the safe use of Ag-chemicals.

Safe Chemical Usage

Agricultural chemicals can cause serious illness and even death if they are handled incorrectly or enter the body.

Risks of chemical entering the body include:

Orally - Drinking, splashing into mouth, eating/drinking with dirty hands

Never attempt to clean parts or nozzles by blowing with your mouth

Never attempt to siphon chemicals or substances by sucking.

Inhalation - Inhaling chemical vapours &/or spray droplets as Airborne Particles

Always stand well clear of equipment during operation

Any spray drift is dangerous and may be hazardous to humans & other animals.

Dermal Absorption – Absorption of chemical through the skin. Risks are increased if your skin is broken.

Make sure your PPE is appropriate for the chemicals to be used.

Goldacres recommends a relevant spraying course is completed by owners and operators prior to operating the sprayer.

Always read & follow chemical manufacturer's guidelines for safe application as per the chemical labels & Material Safety Data Sheets.

Particular attention should be given to the recommended target application rate of the chemical being applied as per chemical guidelines.

Keep Operator Areas Clean

Use disposable gloves or triple rinse multiple-use gloves.

Carefully remove all potentially contaminated PPE & clothing before entering the Cabin (if applicable) to ensure no chemical enters your working environment.

If chemical contacts your body, rinse with fresh water immediately & seek medical attention.



Personal Protective Equipment (PPE) must be appropriate to both chemicals and sprayer.

Chemical Handling

You should have all relevant Chemical Labels, Material Safety Data Sheets (MSDS) and technical guides available to you.

These can be found on the manufacturer's website if you do not have hard copies.

Ensure you have familiarised yourself with all documentation - including chemical labels & Material Safety Data Sheets, before opening & mixing chemicals.

Always understand the complexities of the chemical you are using, the safety measures & have an appropriate safety plan in place.

Safe Spraying Application

Safe application starts with being familiar with the safety requirements of the chemical being used.

Be sure to familiarise yourself with all the documentation supplied with your chemical drum or shuttle before you start mixing and spraying.

2 Essential Risk Management - **Safety**



Crop Cruiser G8 Series 3.

In addition to operator safety, it's important that the chemical being sprayed hits the target and drift is minimised.

The following conditions are generally unsuitable for spraying:

- Rain
- High winds above 15km/h
- Excessive humidity
- Cold air and low pressure systems that increase the risk of inversion

Delta T has become a widely used measure for acceptable spraying conditions with regards to temperature and humidity.

Observe all weather conditions, temperature, humidity, wind direction & speed before you start spraying & for the duration of the job.

Take all steps necessary to minimise spray drift and the risk of inversion.

If you have any doubt consult with a qualified advisor or agronomist.

Spray Application Risk Assessment

Answer the following risk questions to assess risks & safety before spraying:

Weather Conditions?	**Yes /**	**No**
Are winds or gusts likely to present risk of drift?	☐	☐
Are humidity and Delta T in the appropriate operating range?	☐	☐
Are weather conditions likely to change before the task is complete?	☐	☐
Have all pre-start checks been undertaken?	☐	☐
Is the sprayer in good working order?	☐	☐
Is the operator fit for work?	☐	☐
Has the operator been trained in the use of this machine & the chemicals?	☐	☐
Have all appropriate PPE items been made readily available?	☐	☐
Is the operator aware of the risks posed by the chemical(s) being used?	☐	☐

Physical risks and the work environment		
Is there any danger posed by power lines?	☐	☐
Is there any uneven terrain to be considered?	☐	☐
Is there any likelihood of untrained bystanders or children in the area?	☐	☐
Is there a first aid station nearby?	☐	☐

Disposal of Chemicals & Containers

Flush all chemicals from the sprayer immediately after use.

When draining fluids from the sprayer, use appropriate, leak proof containers.

Do not use food or beverage containers because someone may consume the contents by mistake.

Dispose of unused chemicals & empty chemical containers in the correct manner..

For information on correct disposal of unwanted farm chemicals, visit ChemClear.org.au or call 1800 008 182.

Label the product for disposal and store it securely away until it is able to be collected for disposal.

Disposal must be carried out by a licensed waste disposal company or chemical collection program.



Personal Protective Equipment (PPE) must be appropriate to both chemicals and sprayer.

Personal Safety

Change out of protective clothing and shower as soon as possible after working with chemicals.

Wash hands and face thoroughly before eating, drinking or smoking.

Provide clean water at all filling sites and on the sprayer in case of emergency.

Wash & clean respirators regularly & replace respirator cartridges at recommended intervals.

Goldacres Equipment

Our equipment uses several materials that may be harmful to the environment.

Potentially harmful waste used includes such items as oil, fuel, coolant and batteries.

If disposed of incorrectly these can threaten the surrounding environment and ecology. Waste products can leech into surrounding water sources and contaminate the area.

Certain chemicals may be unsuitable for use with Goldacres standard plumbing designs. Consult your Goldacres dealer if required.



Hydraulic boom wing fold cylinder on a G8 Crop Cruiser Series 3.

3 Maintenance Safety

Correct sprayer maintenance is an important part of eliminating the risk of incorrect spraying applications and ensuring overall safety.

Always maintain the sprayer to ensure it is in good working order for its next use.

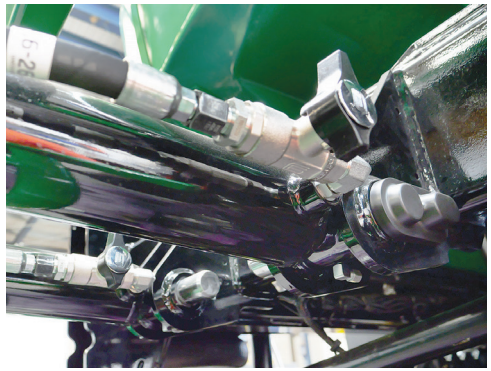
Keep the sprayer clean - inside & out to minimise wear and allow easier recognition & identification of problems that might arise.

When pewrforming maintainance on the Crop Cruiser, ensure appropriat Personal Protective Clothing (PPE) is used.

Hydraulic Inspection, Adjustment & Repair

Periodic inspection & assessment of hydraulic systems and especially hoses is recommended and should include:

1 The age of hoses.
2 Condition of hose fittings.
3 Rub marks and potential wear points from hose contact.
4 Unexplained hydraulic oil leaks.
5 Excessive corrosion of fittings.



For safety, ensure hydraulic boom lift cylinder safety valves on a G8 Crop Cruiser Series 3 are closed before maintenance.

If any faults are found, do not operate the machinery until the issues have been rectified.

Where practicable, all inspections and maintenance/servicing work should be conducted by a person competent in hydraulics systems and maintenance, including testing & commissioning.

Maintenance and routine checks should be conducted to ensure adequate hydraulic fluid levels and filter cleanliness are fully maintained.

Manufacturer's recommendations should be adhered to as excessive or inadequate fluid levels can cause system failure and present serious risks.

Injury Risks

Incumbent with all sprayer maintenance is the risk of injury from:

Cuts, Stabs & Punctures:

- When servicing a machine, be mindful of sharp edges on parts such as trimmed cable ties, hose clamps, cut reinforced hose, edges of plates and brackets as they may cause cut, stab or puncture injuries.



Pay attention to maintenance safety crush hazard warning decals on a G8 Crop Cruiser Series 3 .

Crush Hazards:

- Never attempt maintenance on axles, wheels or components within the vicinity of the wheels with the engine running.
- Never attempt to do maintenance under any hydraulically raised boom or structure. For safety, close taps on lift cylinders before doing maintainance.

Pinch Hazards:

- When operating moving components such as a boom, access ladder, bonnet or other components, keep fingers and hands away from potential pinch points.

Burn Hazards:

- Hydraulic oil increases in temperature with pressure and use
- Components may be very hot to touch and could result in contact burns
- Oil leaks may spray hot oil and cause eye injury & burns
- Avoid any contact of the entire exhaust system of the machine when at operating temperature



Outer boom section of a G8 Crop Cruiser Series 3.

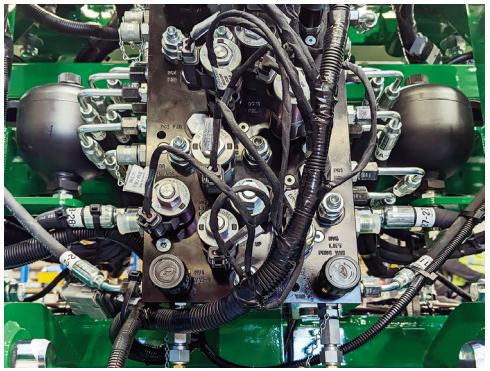
- Avoid contacting the hydraulic tank and all hydraulic lines when at operating temperature.
- Full coverage clothing minimises the risk of oil burns and is recommended with this type of equipment.

Injection Injury

- Injection injuries occur when a jet of hydraulic fluid pierces the skin and enters the blood stream.
- This may occur if a hydraulic line is pierced or damaged. Be aware that injection injuries are extremely dangerous and have the potential to cause death.

Hose Whip/Striking

- Hose whip or striking injuries may occur when an unrestrained hose releases oil pressure quickly causing whipping back & forth until the oil and energy is fully released.
- The most common point for failure in a hydraulic hose is at the fittings, where corrosion and stress related damage is most likely to occur.



Hydraulic block on the boom centre section of a G8 Crop Cruiser Series 3.

Fluids Under Pressure

Fluids escaping from high pressure lines can cause serious injury to skin. High pressure hydraulic oil can easily penetrate human skin.

Do not disconnect any hoses, nozzles or filters while equipment is operating. Disconnecting these components while under pressure may result in uncontrolled fluid discharge which may be hazardous.

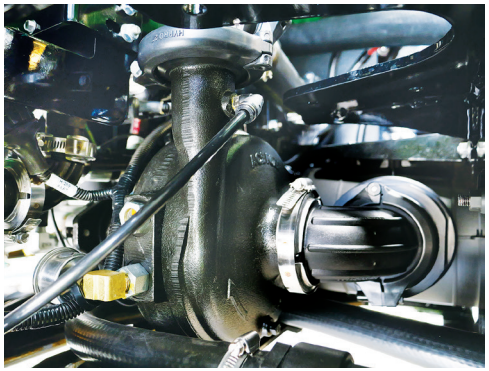
Pressure in the fluid lines must be released before any maintenance is undertaken.

Be mindful of the location of pressurised lines in the vicinity of the work area when using equipment such as grinders, oxy torches and welders.

Such equipment poses two major risks:

- Equipment may easily cut through lines
- Heat generated may cause line to rupture and/or burn.

Ensure all fittings and lines are fully/tightly secured before re-pressurizing after repairs.



Centrifugal pump located behind the side fill station of a G8 Crop Cruiser Series 3.

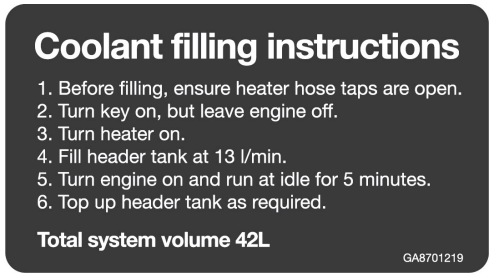
Pumps, Pressure Lines & Valves

It is important that the liquid flow systems of this sprayer are understood and well maintained because liquids under pressure create serious risks of injury.

Pressurised spaying and hydraulic systems operate at pressures up to 20 bar (284 psi) for spraying and (3000 psi) for hydraulics.

To avoid risks of injury, it is important to:

- Read and understand the operator's manual
- Never undo fittings, cut hoses or carry out maintenance when a pump is running or when a system is under pressure
- Do not exceed maximum pressures as stated in operators manual.



Pay attention to the radiator coolant instruction decal on a G8 Crop Cruiser Series 3.

Cooling System

At operating temperature, liquid in the cooling system is under pressure. Only remove the radiator cap when the engine is turned off and the engine has cooled down.

Loosen the radiator cap slowly to relieve the pressure before removing the cap completely.

Coolant should be added only when the engine is cool and turned off.

Stored Energy Hazard

Even when a machine is not running, energy can be stored in components such as hydraulic accumulators, air tanks, tyres, air conditioning hoses and springs.

Hydraulically supported components such as the boom center are also a source of stored energy.

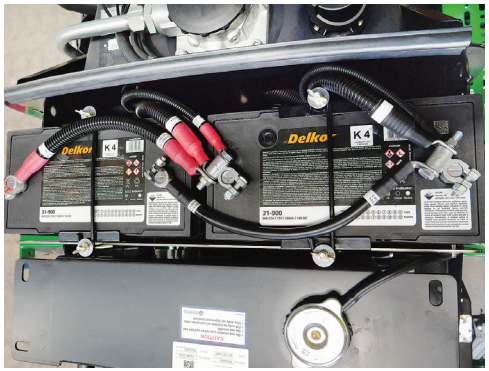
Before working on the machine, ensure that these parts are relieved of their energy in a safe manner.

⚠CAUTION

When adding engine coolant following filling instructions:

- Be sure the engine has cooled down (not hot).
- Before adding coolant, ensure the engine Off.

Failure to follow instructions can result in injury.



Batteries on the G8 Crop Cruiser Series 3.

The sprayer is supplied with sealed, non-serviceable batteries.

The battery electrolyte contains sulfuric acid which is an highly dangerous liquid. Batteries therefore should be handled with the greatest degree of care. Sulfuric acid can cause blindness, burn skin and dissolve clothing.

Batteries also produce flammable hydrogen gas (especially when charging), so keep them separated from any sources of sparks & flames.

An operator can avoid these hazards by:

- Wearing the correct personal protective equipment
- Avoid spilling or dripping electrolyte
- Place the battery into a plastic collection tray ready for disposal if its case is found to be damaged.

Emergency Procedure

If an electrolyte gets in your eyes, flush your eyes with clean water for at least 15 minutes, then get immediate medical assistance.

Also thoroughly wash all other affected areas on your body with water & remove all clothing.

If you swallow any electrolyte seek medical attention immediately.

Lifting a Sprayer

Before raising a sprayer off the ground:

- Ensure that the boom is in its closed position.
- Park on a flat level, firm area and engage the park brake.
- Empty the spray tank where possible.
- Chock all wheels that remain on the ground.
- Securely lift the sprayer using a rated lifting device and support the machine on work stands.
- Do not work under the machine when supported solely by a jack.
- Do not support the machine using materials that may crumble.



Be aware of wheel nut warning decals on a G8 Crop Cruiser Series 3.

Changing Wheels & Tyres

An experienced person with the correct equipment should mount the wheels on the sprayer.

When changing a wheel on the sprayer ensure the machine is on firm level ground and the wheels are chocked.

Tyre Maintenance

Maintain correct tyre pressure at all times. Inflation of tyres above or below the recommended pressure exerts additional pressure on the tyre, which may result in tyre damage.

Extreme caution is required during the inflation of tyres. Rapid inflation of a tyre may cause separation and/or explosion of the rim. Such an event can inflict serious or fatal injuries to the operator of close bystanders.

Always use a tyre inflation gauge.

Be pro-active and continually check the condition of your tyres during operations.

Do not weld, heat or modify a tyre rim.



Never get underneath a suspended machine or suspended part of a machine.

Working Heights above Ground

Please contact your local government on the restrictions and safety requirements needed to operate at various heights above the ground.

Do not climb on machine to get access. There is a risk a falling if a person has climbed onto the machine.

Use ladder or work platform to get access to parts or areas of the machine above local government restrictions.

Working On or Underneath the Sprayer

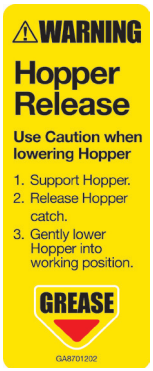
When working on or underneath a sprayer, always take measures to make sure that the sprayer cannot move.

Never get underneath a suspended machine or suspended part of a machine.

If you must work under the machine ensure the machine or machine part is solidly supported.



Pay attention to the overflow decal on a G8 Crop Cruiser Series 3.



Be aware of the chemical induction hopper warning decal on a G8 Crop Cruiser Series 3.



Fuel fill point of a G8 Crop Cruiser Series 3.



Be aware of boom fold warning decals on a G8 Crop Cruiser Series 3.

Slippery Surfaces

The surface of the sprayer platform has raised portions to minimise the risk of slipping.

Keep platform surface clean of mud and other material to avoid risks of slipping.

Main Spray Tank

Danger – The main spray tank is a confined space and you must not enter because the lack of oxygen and chemicals can cause asphyxiation and death..

Do not enter the tank for any purpose.

Entanglement Hazard

Rotating drives can cause serious injury or even death when entanglement occurs.

Keep hands, feet, hair and clothing away from all moving parts to prevent injury.

Never operate a machine with covers, shrouds, or guards removed.

Decals

Decals are an important part of making operators aware of risks and correct operations.

Understand the safety decals and their purpose to assist the safe operation of your machine.

It is the responsibility of the owner/operator to replace damaged and/or missing decals.

All decals on the sprayer must be maintained in good order and replaced if damaged or missing.

Regularly review decals with operators. It is very important to ensure that all new machine components and replacement parts include current hazard identification decals.

Decals have a part number to assist in their identification & replacement.

Replacement decals can be ordered from your Goldacres' dealer.

Part numbers and descriptions of the decals on this machine can be found on the Goldacres website.

Safety Guards

All safety guards should be replaced if damaged to ensure that risks of injury are controlled as intended.

Some examples of safety guards includes fan blade guards, PTO guards and hydraulic hose covers.

Exhaust Fumes

Diesel engine exhaust fumes are harmful and can cause severe sickness or death.

If it is necessary to run the engine in an enclosed area use an exhaust pipe extension.

If an exhaust pipe extension is unavailable ensure that all doors are fully open and the room is very well ventilated.

Refueling

Handle fuel with extreme caution.

Do not refuel the machine while smoking or near open flames or sparks.

Always stop the engine before refueling.

To prevent fires always keep the machine clean of grease & debris.

Do not use electronic devices when re-fueling.

Before Operating

Inspect all equipment thoroughly for damage and wear before operating.

Lubricate the sprayer as recommended before operating.

Reversing

The machine is fitted with a reverse warning beeper and a reversing screen (camera) when the machine is put into reverse.

Be vigilant and aware of bystanders and other obstacles when attempting to reverse.

Sprayer Lighting

Keep lighting and signs in good order and replace any damaged or faulty fixtures.

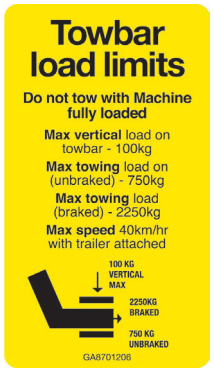
Egress & welcome lights are fitted for safe entry and exit from the machine.



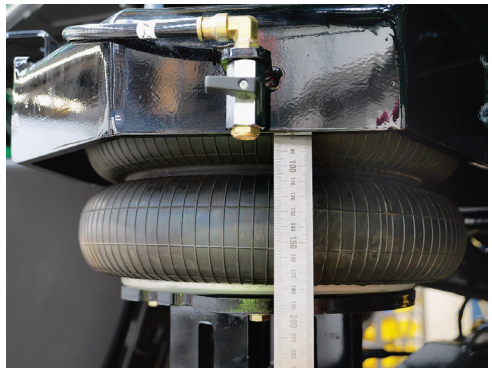
Rear view of a G8 Crop Cruiser Series 3 with booms folded.



Be aware of the local machinery safety & road rules which may apply to Crop Cruiser operations.



Towbar decal used on the G8 Crop Cruiser Series 3.



When loading & transporting a sprayer, deflate all air-bags for more load stability. Check airbag settings after reinflation.

4 Transport Safety

Check the wheel nut tension on a regular basis, especially before and when traveling on roads.

The torque and inspection frequency is outlined in the maintenance section.

Brake performance should be checked regularly. The inspection frequency is outlined in the maintenance section.

Always ensure that the boom is securely supported when traveling on roads.

Collision Risk & Warning Lights

Before driving the sprayer check with the relevant road management authorities for information regarding safe and legal transport on public roads in the state where the machine is being operated.

To assist in the prevention of collisions with other road users the sprayer is fitted with warning lights and signs in accordance with national road regulations.

Public Roads

In your locality there may be special vehicle licencing conditions that govern the use and movement of your self-propelled sprayer.

Check with relevant government authorities for the relevant road laws in your area (these can vary from area to area). It is the responsibility of the operator to know these laws.

Depending on the width of the machine, a pilot or escort vehicle may be required. Any wide vehicle must display an “Oversize” sign.

Most self-propelled sprayers driven on public roads have requirements for flashing lights.

Make sure the sprayer complies with all relevant road regulations before traveling or transporting on public roads.

Always follow the laws requiring pilot vehicles, escorts and signage when traveling with oversized loads.

Even if a pilot vehicle is not legally required, if vision or maneuverability is limited, it is strongly recommended that an escort accompanies the equipment for road transport

Always ensure a vehicle load does not exceed loads allowed for the towing vehicle (consult operators manual).

Where possible travel with your sprayer and tow when tanks are empty or near empty.

This sprayer can only be driven on public roads during daylight hours. However, there are some exceptions for night driving. Always check for your locality.

Always use safety chains when towing a trailed vehicle.

Towing the Sprayer

A disabled sprayer must not be towed unless the engine is running (as the steering and brakes require engine power to operate).

Before towing, front & rear tail shafts should be disconnected due to the risk of damage to the transmission.

While towing do not travel at a speed greater than 10 Km/h.

An operator must be in the cabin to steer and brake the sprayer under tow.

The park brake must be manually released if engine is not able to run. Refer to Chapter 8, Service & Maintenance for instructions.

Transporting the Sprayer

A disabled sprayer is best transported on a drop deck trailer.

Use chains to secure the machine via the tie down attachment point located under the front and rear axles.

Loading & Unloading

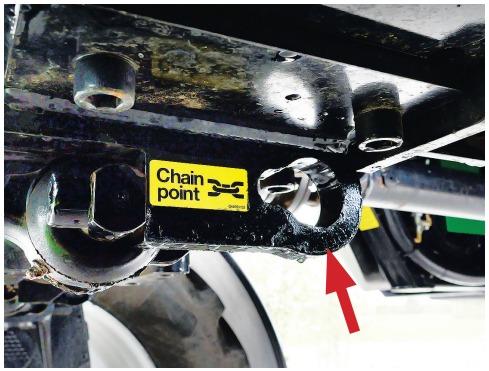
Off loading a sprayer from a truck is an especially dangerous task. Similarly, loading a sprayer onto a truck.

This is not a one-person job and must be performed by people qualified for the task at hand and with equipment of sufficient capacity.

When loading onto a truck, always use the tie downs point provided.

Deflate the sprayer air-bag suspension system to provide more load stability.

Secure all components of the sprayer that might come loose or move during transport.



Tie-down Chain Points.

1 Loading onto a Truck

Before loading:

- Rinse & drain product tanks
- Fold the boom & close the boom lift cylinder taps
- Strap the boom ends in
- Remove cabin roof antennae.

Drive the Crop Cruiser onto the truck, then:

- Place in Neutral & apply Park Brake
- Release air pressure from the airbags by opening the dump valves & air tank drain valves
- Fasten the Crop Cruiser with chains to all tie-down Chain Points (4).

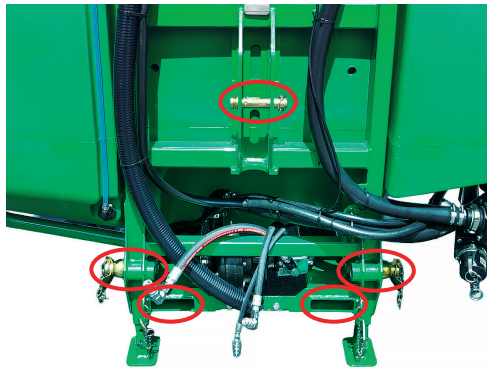
2 Unloading

Before unloading:

- Remove tie-down chains
- Check airbag dump valves & the air drain valves are closed
- Inflate the airbags.

Drive the Crop Cruiser off the truck, then:

- Remove the boom tie-straps
- Refit the cabin roof antennae
- Open the boom lift cylinder taps
- Check the product tank drain valves are closed.



3PL & fork pocket lifting points.

Lifting the Front Tank

The 3 Point Linkage 1500L Front Tank can be lifted off the ground using either the 3PL connection points or the fork tine pockets provided.

When lifting the 1500L Front Tank, always:

- Park on a flat level, firm area.
- Empty the spray tank where possible.
- Lift the spray tank & extend the spray tank leg stands, then lower the spray tank onto the stands.
- Do not work under the spray tank without a solid supports in place. Do not rely on linkage hydraulics.

⚠ CAUTION

Only rated approved equipment should be used to lift and support the 3 Point Linkage 1500 litre Front Tank.
Failure to follow these instructions may result in injury.



Front tank supported with extended leg stands.

Working On or Underneath the 3PL Front Tank

When working on or underneath the 3 point linkage front tank, always take measures to ensure the spray tank cannot move:

- Lift the spray tank & extend the leg stands, then lower the sprayer onto the stands.
- Never work under the machine without a solid supports in place.
- Do not rely on linkage hydraulics.
- If required to work under a machine ensure the 3PL front tank or sprayer part is solidly supported.

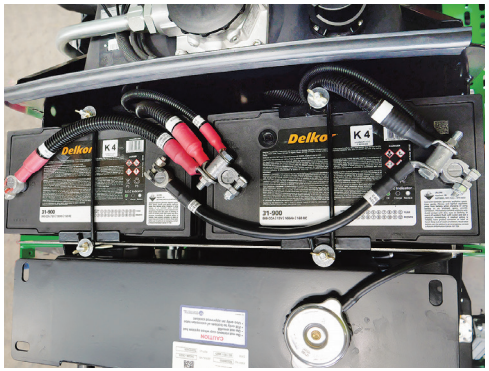


Front access ladders of the G8 Crop Cruiser Series 3.



3 Point Linkage Front Tank step for tank lid access.





Batteries at the front of the G8 Crop Cruiser Series 3.

5 Operating Safety

Ladders & Steps

Ladders present a number of risks to an operator. Therefore use them appropriately.

Not all ladders are configured the same. Familiarise yourself with the steps, handles, rails of your ladder.

Be mindful of wearing appropriate, enclosed foot wear with good grip when operating a sprayer and working with chemical.

Always maintain three points of contact when using steps & ladders.

Do not stand on any Crop Cruiser platforms when the sprayer is moving or when booms are being folded in or out.

⚠ CAUTION

Do not stand on any platform of the Crop Cruiser when the sprayer is moving or when booms are being folded in or out.

Failure to follow these instructions may lead to injury.

3PL Front Tank Step

The 3PL Front Tank step is to be used only when the Front Tank is resting on the ground.

Do not stand on the step while the tank is being raised or in a raised position.

Driving under loaded conditions

If fitted to a Crop Cruiser avoid driving with the 3PL Front Tank full & the Main Spray Tank (rear) empty, as it could effect braking and steering performance of the Crop Cruiser.

E lectrical Safety

Only qualified persons should disassemble or service electric components of the sprayer.

If an electrical device or accessory is supplied with a three-pronged, earthed plug, ensure it is used correctly with a compatible earthed 240V power source.

Electrical looms should be checked on a regular basis for fraying and any signs of wear, corrosion, damage or defects.

Do not use an electrical device in or near an area where it may fall or be pulled into water, other liquids or in the rain.

Do not touch an electrical device that has fallen into water.

In case of an electrical fire, shut off the power and use a suitable fire extinguisher.

Never use water to put out an electrical fire. Water used on an electrical fire may result in fatal shock.

Battery Safety

Lead acid batteries generate flammable and explosive gases. Keep sparks and flames away from batteries. Injury or death can occur.

When disconnecting the battery, do not ground out the (red) positive side of the battery as electrocution or shock can occur.

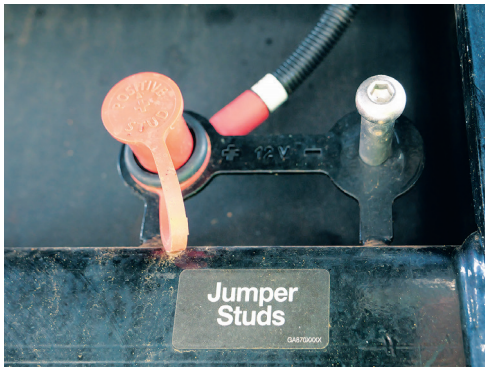
Wear safety goggles or a face shield when inspecting or cleaning lead acid batteries.

If acid enters an eye, immediately flood the eye with running water for at least 15 minutes. See a doctor as soon as possible.

If acid contacts the skin, wash the affected area immediately with plenty of water.

Smoking or naked flames should never be present in battery area.

Be aware that poor connections to a battery may spark and be an ignition source for a fire.



Jumper lead studs under the front of the G8 Crop Cruiser Series 3.

Battery Jumper Lead Tips

If it is necessary to use jumper leads, it is important to follow the correct procedure.

Improper jumper cable connections can cause an explosion resulting in personal injury.

Ensure the donor battery is the same voltage as the Goldacres 12V system if a battery is flat.

If vehicles are involved, make sure the vehicles are in either Neutral or Park, with the handbrake on and/or have the wheels chocked. Ensure vehicles are not touching.

The Crop Cruiser has jumper studs located on the chassis behind its fuel tank.

To connect jumper leads:

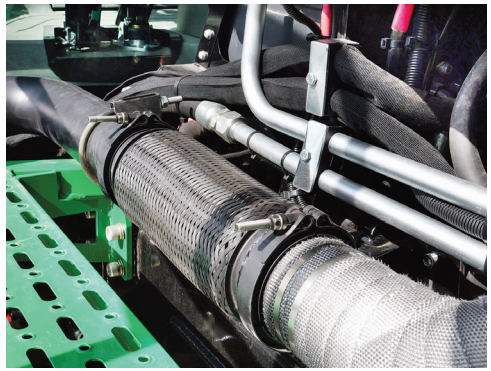
1 Securely attach the red positive (+ive) end of the jumper lead to the positive (+ive) jumper stud (red) on the Crop Cruiser.

2 Securely attach the other end of the red positive (+ive) jumper lead to the positive (+ive) terminal on the good battery.

3 Attach one end of the black negative (-ive) jumper lead to the negative (-ive) jumper stud (black).

4 Attach the other end of the black negative (-ive) jumper lead to a spot of clean, unpainted metal on the donor vehicle but not near the battery.

5 Disconnect the jumper leads in the reverse order of connection. Remove the black negative jumper lead first from the Crop Cruiser jumper stud, then from the donor vehicle. Likewise the red jumper lead.



Engine exhaust on the RHS of a G8 Crop Cruiser Series 3.



Engine exhaust decal on a G8 Crop Cruiser Series 3.

Engines

Be aware of warning labels on your engine which highlight operating risks.

Risks include:

- Burns from hot engines and exhausts
- Fire while filling an engine with fuel or flammable material contacting a hot exhaust
- Entanglement in belt-drive components and moving parts.
- Carbon monoxide poisoning from operating an engine in an enclosed space

To minimise risk:

- Do not touch hot exhaust and engine components.
- Do not refuel engines near naked flames or ignition sources. Be especially vigilant when refueling the engine.
- Always clear away flammable materials (such as dry grass) that might come into contact with the engines exhaust.
- Do not wear loose clothing when operating equipment.
- Keep hands well away from moving parts.
- Do not operate the engine in an enclosed area.

Be aware of the risk of fire due when flammable materials are present.

Keep firefighting equipment nearby if necessary.

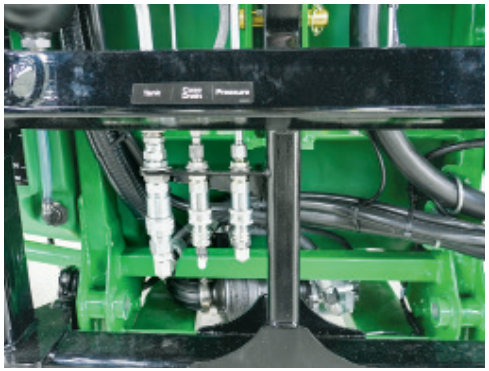
Always follow the engine manufacturer's instructions.



Boom Lift Isolation vlave closed (RHS side shown [1 of 2]).



Optional 3PL Front Tank Isolation valve open (RHS side shown [1 of 2]).



3PL Front Tank hydraulic hose connections.



3PL Front Tank linkage & Quick Hitch mechanism without Front Tank.

Hydraulic Safety

Hydraulic systems used on the Crop Cruiser include hydraulic cylinders, motors, pumps, manifolds, accumulators and oil coolers.

Hydraulic systems used with the optional 1500L 3 Point Linkage Tank also include hydraulic motors, manifolds & accumulators.

Various hydraulic hoses, fittings and couplings used are all specific for purpose and rated to take the pressures used in the system.

Hydraulic system components are sometimes operated at very high pressures and temperatures.

Hydraulic system components may also be pressurised which may cause unexpected movement or hydraulic pressure release.

When the Crop Cruiser is in operation, it is mandatory that all lifting cylinder isolation taps are open to prevent damage to the sprayer.

For these reasons it's very important that the operator be familiar with the functions and limitations of the system.

Read and understand the operator's manual carefully before operating any of the sprayer's hydraulic systems.

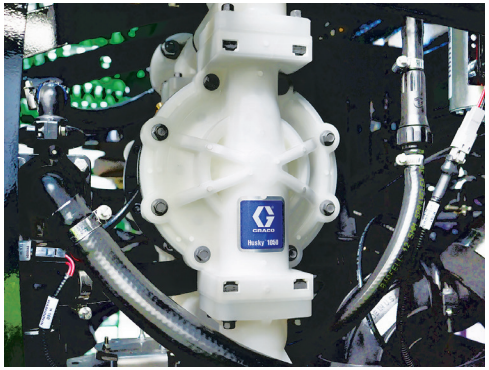
Hydraulic functions

Hydraulically controlled moving parts should never be touched whilst in operation.

Hydraulically controlled components should be isolated and released of any hydraulic pressure before they are worked on or serviced.

This applies to all hydraulic cylinders and accumulators.

When the Crop Cruiser is in operation, it is mandatory that all lifting cylinder isolation taps are open to prevent damage to the sprayer.



Connecting Hoses

Hydraulic hoses are coded to aid in correct identification when connecting the 1500L 3 Point Linkage Front Tank.

Always double check hose connections, after maintenance work, especially the return line.

Failure to properly connect the return line will result in "dead heading" the system and can lead to a pressure failure.

Refer to the sprayer operator manuals for full details.

3PL Front Tank Quick Hitch

The 3PL Front Tank Quick Hitch mechanism has many possible crush & snag hazard points.

Ensure when lifting or lowering the 3PL Front Tank or connecting or disconnecting the Front Tank Quick Hitch mechanism:

- Noone is near or under the linkage arms, Front Tank or Quick Hitch mechanism
- No hand or other item is near that can be snagged or crushed in linkage arms, cylinders or Quick Hitch mechanism.



3PL Front Tank linkage & Quick Hitch mechanism must be fully raised for operating.

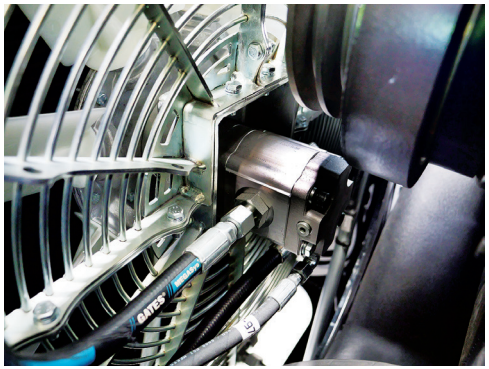
3PL Front Tank Operating Height

The 3PL Front Tank & Quick Hitch is designed only for operating in the fully Up position.

Operating the Crop Cruiser with the 3PL Front Tank or Quick Hitch in anything position other than fully Up is not an option.

Lowering the 3PL while operating, increases risk of damage to the operator & sprayer through snagging, grounding out & alteration to vehicle/weight distribution dynamics.

The linkage should only be lowered when the Crop Cruiser is stationary.



Fan at the front of the Crop Cruiser.

Working with Fans

The fan for cooling the engine & oil systems simply moves air to cool liquid.

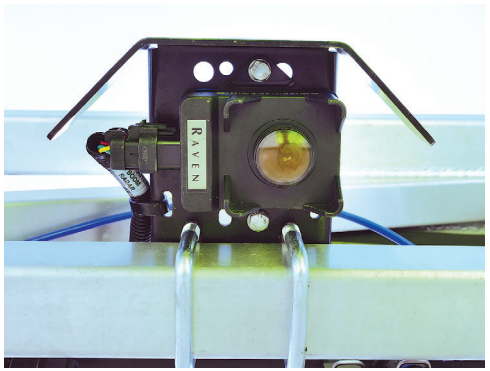
It is vital all supplied guards remain in place and are replaced if damaged or fatigued.

Be mindful the air inlet side is often the most dangerous side because the suction created by fans can quickly and unexpectedly pull in hands, hair or objects such as loose clothing or tools.

On the downwind side of a fan, the most common danger is loose objects being propelled at high speed.

Serious injury or death may occur if the warnings below are not followed:

- Keep body parts and loose objects away from rotating fans
- Never try to adjust or clean the fan while it is engaged and operating
- Never allow untrained personnel or children near the fans while in operation
- Always ensure fans are stopped completely before repairing, cleaning or inspecting fans.



XRT boom height sensor.

Boom Height Control System

If a boom height control system is fitted, keep clear of the boom as it could potentially move without notice.



Crop Cruiser G8 Series 3.

Opening & Closing Booms

Be attentive to opening, closing & parking of hydraulically controlled booms at all times:

- Always check for clear and available space before operating booms
- Be especially vigilant of bystanders or power lines
- Regularly check for loose or damaged structures or components. These can be snagged or fail during operation
- Be sure a folded boom is properly positioned and locked into position before driving. A loose boom arm can be very dangerous.
- Be aware that in opening or closing a boom, it also changes the weight distribution of a sprayer
- Never allow the boom to be operated by untrained personnel.

Bogged Sprayer

The Goldacres mechanical drive system delivers efficient, positive power to the ground for superior traction.

If your sprayer becomes bogged and the wheels subsequently locked, **do not engage first gear and maximise engine revs**.

With the wheels 'locked' in a bog situation, transmitting full power **WILL DAMAGE the driveline.**

Goldacres strongly recommends that bogged sprayer's situations are addressed prudently by **using the assistance of a tow vehicle**.

Failure to heed this advice and doing otherwise can cause significant driveline damage and **VOID WARRANTY**.



Engage Park Brake before leaving a sprayer.

Operating Tips

1. Before leaving the sprayer, the transmission must be placed in neutral, the park brake engaged & engine shut off.
2. **Never engage the Park Brake while the sprayer is moving**. Damage to the driveliine may result.
3. When leaving the machine, the Battery Isolator Switch automatically disengages battery power 15 minutes after the engine is stopped & ignition key is turned Off.
4. A supply of fresh water should be maintained on the sprayer at all times.
5. Water tanks are not designed for use with diesel fuel or any other flammable liquid.
6. Do not use this machine in ambient temperatures exceeding 40 degrees Celsius.
7. Ensure that all bolts are tightened and secured before operation.



Main tank lid.

Main Spray Tanks

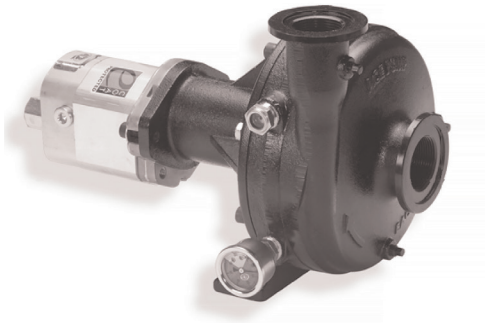
Main spray tanks are confined, dangerous spaces which should never be personally entered for any reason because the lack of oxygen & chemicals may cause asphyxiation, poisoning and death.

Do not personally enter a spray tank for any reason or purpose.

⚠ DANGER

Main spray tanks are confined, dangerous spaces. Never personally enter any spray tank because lack of oxygen & chemicals may cause asphyxiation, poisoning & death.

Serious injury or death may occur if you don't follow this instruction!



Centrifugal Spray Pump - model FMCWS-650F-HYD.



Take notice of warning signs for overhead power lines.



Centrifugal Spray Pump

Never run a centrifugal pump without fluid in the pump chamber. Running a pump dry will damage the pump seals and cause pump failure.

Ensure the pump is fully primed before use.

Care should be not to operate at speeds exceeding 4200 rpm.

Do not exceed the maximum spraying pressure of 8 Bar.

Hydraulic wet seals of the pump can be damaged by excessive continuous pressure & pressure spikes.

6 In-field Safety

Each paddock or field presents its own risks which must be assessed correctly to ensure safe spraying application.

Sloping or Uneven Ground

Operating machinery on sloping or uneven ground creates risk of machine roll overs.

There is also a risk of towed vehicles sliding and/or pulling the towing vehicle sideways.

Always be aware of the ground conditions and grip levels of both personal footing and the sprayer.

When operating the sprayer:

- Slow down for slopes exceeding 10 degrees
- Do not operate on slopes exceeding 15 degrees
- Slow down when operating the sprayer on irregular or uneven country.

Pay special attention to ground surface conditions while operating as these will vary throughout the area and the duration of the work.

Be especially mindful when turning corners on sloping ground. Due to forces involved when turning corners it's very easy to exceed safe operating limits.

Hazard identification

Power Lines

Operating the sprayer too close to power lines can have serious consequences. The operator is responsible to maintain a safe distance from power lines and its supporting structures.

Keep in mind a sprayer with a high potential to conduct electricity such as a wet spray boom does not need to touch a power line for it to arc down through the sprayer to reach the ground.

Minimum safe distance from power lines, for equipment or operators will vary from 1 to 6 metres depending on the transmission voltage (240 to 220,000 volts).

High humidity and dusty air will increase the danger of high voltage power lines.

Turn off automatic height control systems when under a power line to avoid the boom unexpectedly lifting up.

Changing weather conditions such as high temperatures will cause lines to sag & high winds will cause lines to move - changing the position of the power cables.

See your local authority for further information.

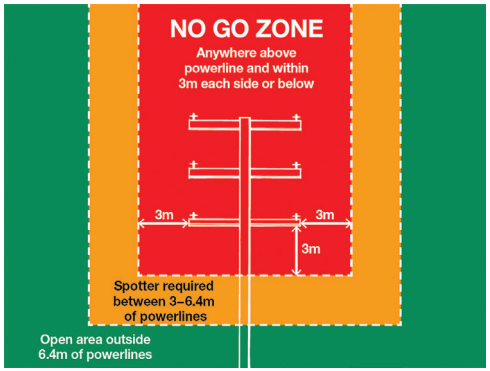
https://www.safeworkaustralia.gov.au has useful, comprehensive information as do most state safety offices.

Most Shires or Councils can assist with risk assessment and how to best manage the risk of power lines.

Large booms

The end of large booms can be difficult to judge whilst spraying.

Be mindful hitting power poles, trees or other objects with boom tips because this can cause damage to the boom, the power pole as well as risking electrocution.



Be aware of unsafe & safe distances from power lines.



Carefully plan for spray applications.



Ensure travelling speed is safe for the loads & configuration of the Crop Cruiser.

Potential Risks

1 Proximity of the work to the overhead power lines and the height of the overhead power lines.

2 Environmental conditions, such as rain, wind, high humidity and uneven terrain may bring an increased risk.

3 Visibility of the overhead power lines and their supporting structures.

4 Location of overhead power lines and supporting structures such as poles & towers.

5 Frequency of work to be done near overhead power lines.

6 Proximity of operating plant and equipment to the overhead power lines.

7 Boom lift &/or tilt & radio antenna may be in danger of striking power lines.

8 Walking on the sprayer platform may put you in danger of electrocution when near power lines.

Control measures

Once the risks and hazards of spraying near overhead power lines have been assessed, control measures should be taken to eliminate the risks.

1 Using a spotter to decrease the risk of striking the power lines accidentally.

2 Planning a different travel/spray route so the sprayer does not travel close to the power lines.

3 Use barriers or fences, if possible, so that no one can drive in the high risk areas identified.

4 Where practical have low lying power lines replaced with lines underground.

5 Do NOT walk on the machine platform when near power lines.

6 Do NOT use boom lift &/or tilt and radio antenna near dangerous power lines.

A combination of these control measures is recommended as best practice.

Keep clear of overhead obstructions, especially power lines, as contact can be fatal.

Chemical & Water Densities

Care should be taken when transferring liquid into the sprayer tank to ensure the gross weight of the vehicle does not exceed the specified safe braking and carrying capacity of the vehicle.

1 Litre water = 1 Kg.

Water weighs 1kg per litre. However conversion factors must be used when spray liquids are heavier or lighter than water.

For example: Liquid nitrogen has a density of 1.28 kg/L. It will therefore significantly increase vehicle load if the tank were to be filled completely, ie, 8000 litres of water weighs 8000kg. 8000 litres of liquid nitrogen weighs 10240kg. 8000kg of liquid nitrogen is only 6250 litres.

The total weight of a tank full of chemical, should not exceed that of a tank full tank of water only.

Sprayer damage can result if the vehicle is overloaded/over-weight.

For more information, refer to Chapter 6 ‘Operation’, ‘Filling the Sprayer’ instructions.

Operating & Traveling Speed

Check with Goldacres’ specifications and follow the instructions for operating, transporting and/or towing.

Ensure that maximum speed of the vehicle, when loaded is within recommended limits.

The sprayer is designed for a maximum speed of 60 km/h. This speed must only be used with suitable terrain & conditions.

50km/h limitation applies when front tank is installed.

All components i.e. tyres, brakes, suspension, steering and chassis are designed and built this for maximum speed.

However, high speed turning places severe stress on the wheels and axles and should be avoided.



Pay attention to boom fold DANGER decals on a G8 Crop Cruiser Series 3.

It is also essential to be aware of the stresses that turning imposes on an open spray boom.

Excessive turning speeds transmit great stresses to the spray boom and **will cause boom damage**.

Maximum speed when cornering or turning **at an angle greater than 45º or driving on a slope or uneven terrain is 5km/h**.

Modification of the sprayer to increase maximum speed is **Strictly Prohibited.**

When fitted with narrow wheel track with high centre of gravity, the machine may become unstable when turning at excessive speed or when operating on excessively steep terrain.

Do not ride on the sprayer when moving.

Stand well clear of sprayer when operating.

Ensure equipment is securely fastened or attached to vehicle at all times

Never stand within the radius of the boom wings.

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Know Your Cabin

Learn all Cabin controls for safe & efficient operation.

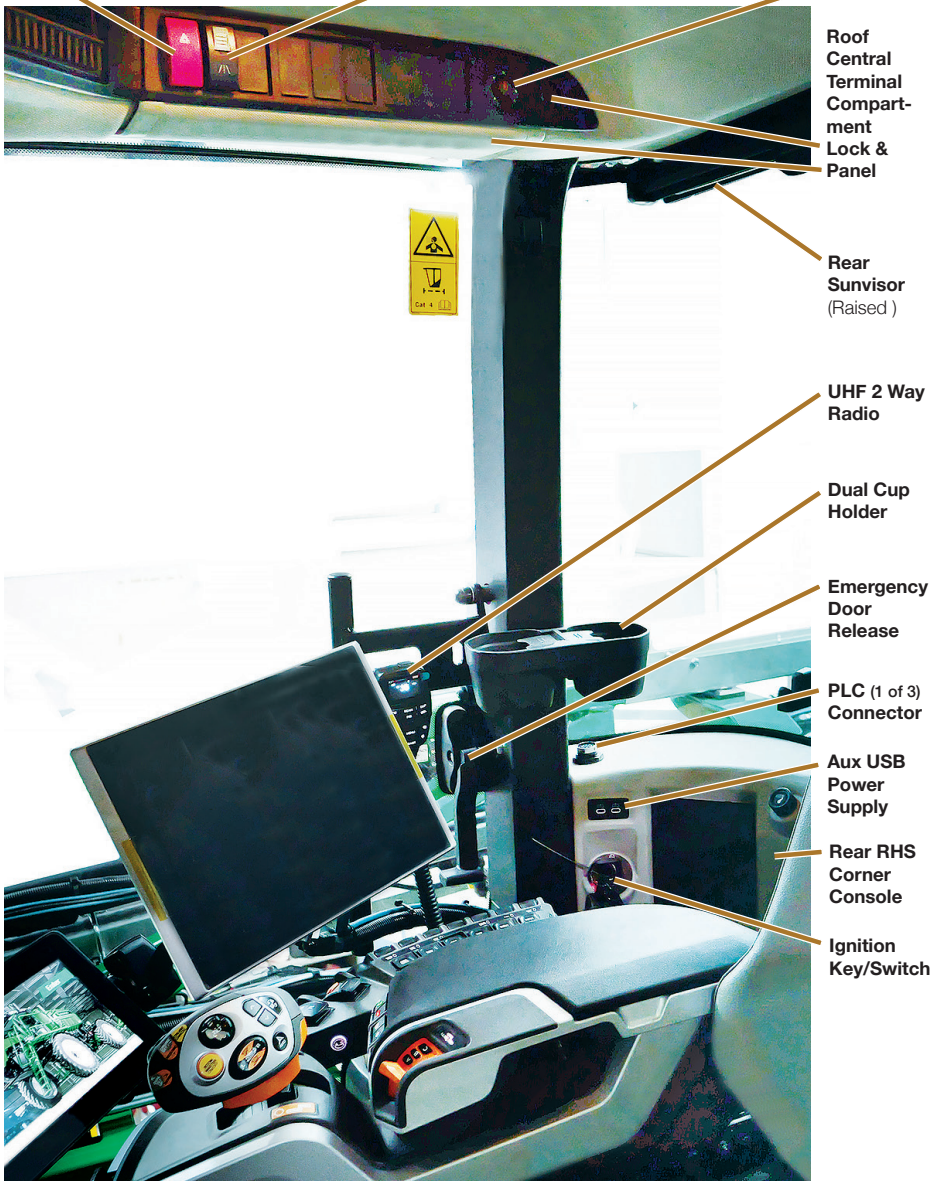
Cabin controls are identified with further information given in this chapter and detailed operating instructions in later chapters.



Information for each item of the Cabiin (shown above) is provided on pages that follow using the item description.



Information for each item of the Overhead Console (shown above) is provided on pages that follow using the item description.



Information for each item of the RHS Overhead Console & Corner (shown above) is provided on pages that follow using the item description.



Folding stairway & walkway platform provide cabin access.

Folding Ladder

Entrance to the cabin is via a folding ladder which is pneumatically:

- Raised for transport & spraying.

  It is lifted up to its transport position only when the ignition key is on and the park brake is released.

- Lowered into position when parking.

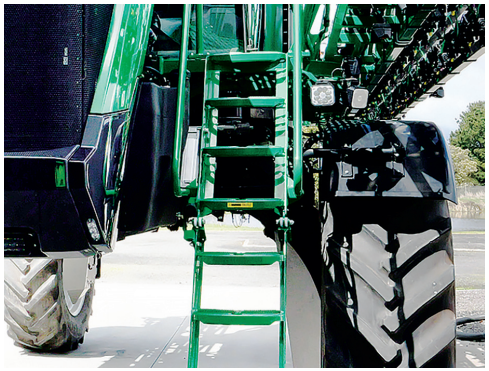
  It is lowered into park position only when the park brake is applied &/or the ignition key is turned off.

The operator must take extra care applying & releasing the park brake to ensure no person is standing on or near the folding ladder.

In emergency, the ladder can be lowered by applying the park brake, turning off the ignition or removing the supply hose from the air cylinder.

⚠WARNING

The operator must take extra care to ensure no person is standing on or near the folding ladder when applying or releasing the sprayer's park brake (as folding is started by releasing & unfolding is started by applying the park brake).
Failure to follow instructions may cause serious injury.



Use the stairway & walkway platform to enter the cabin. Understand its Warning decal before operating.

Entering the Cabin

To enter the cabin:

1 Carefully climb up the lowered ladder - retaining three points of contact with the steps and rails at all times.

  Understand the implications of the Warning decal (located on the step) before operating the sprayer.

2 Walk along the walkway platform, past the cabin door.

Understand the implications of this Warning decal (located on the ladder step) before operating the sprayer.

⚠WARNING
Keep clear folding ladder
GA8701129



Use the cabin's external lockable door handle to open the cabin door.

3 Unlock the door (if locked) & open the door to enter the cabin.

4 Close the door after entering by firmly pulling the door handle inwards.

The steps and walkway platform must be kept clean from mud & other substances that may cause a person to slip and incur injury.

Always wear appropriate footwear and clothing to ensure easy, safe movement in and out of the cabin.

NOTE

The cabin door will open wider if the left hand boom rest is in its outer position.

⚠CAUTION

Care must be taken climbing the ladder:

- Always face the ladder and
- Retain three points of contact with steps & rails at all times when ascending or descending the ladder.



Squeeze the door handle lever to open the cabin door latch, then push the door handle to open the door.

Exiting the Cabin

To exit the cabin:

1 Squeeze the door handle lever to release the cabin door latch.

2 Use the door handle to push the door open and exit the cabin

3 Once out of the cabin, close the cabin door and walk along the walkway platform to the ladder stairs.

  Always lock the cabin door if finished & leaving the sprayer.

4 Carefully climb down the lowered ladder - retaining three points of contact with the steps and rails at all times.

⚠CAUTION

To prevent injury to individual operators, all seat settings for position, weight, height and comfort must be adjusted and checked for each operator before driving.
All adjustments must be made while the vehicle is stationary.
Failure to follow these instructions may result in injury.

Know Your Operator's Seat

Learn all seat adjustments for safe & efficient operation.

Refer to numbered items on this page for instructions.



Cabin Seats

The cabin is equipped with an Operator's seat and a fold-up Training seat.

Operator's Seat

The Operator's Seat has its own air compressor - operating as soon as the ignition is On.

All seat settings for position, weight, height and comfort must be adjusted & checked for each operator before driving.

All adjustments must be made while the vehicle is stationary. Adjustments are shown above.

Seat Adjustment Instructions

1 Lap Seat Belt

Pull the Seat Belt (1) across your Lap & clip it into the Latch (14) whenever seated in the cabin before driving *(shown above)*.

2 Seat Fore/Aft Adjustment Lever

Lift the Fore/Aft Adjustment Lever & move the seat forward or rearward to the desired position, then release the lever to lock it into place *(shown right)*.

3 Seat Cushion Fore/Aft Adjustment

Push the Fore/Aft Adjustment Lever (3) down & slide the seat back or forwards to the position desired, then release the lever to lock it in place *(shown left & below)*.

4 Seat Pan Rotation Adjustment Lever

Push down the Rotation Adjustment Lever (4) and exert pressure on the front or rear part of the seat to rotate the Seat Base Cushion (up to 15 degrees left or right) for optimal operating position, then release the lever to lock it in place *(shown left & below)*.

5 Seat Base Cushion Inclination Lever

Push down the Seat Base Cushion Inclination Lever (5) & adjust the seat base cushion inclination to the position desired, then release the lever to lock it in place *(shown left & below)*.

6 Weight & Height Adjustment Switch

Press the Weight & Height Adjustment Switch to adjust seat height for optimal operating height & weight support, then release the switch to lock its position *(shown left & next page [top left])*.

7 Horizontal Suspension Lever

Pull up the Horizontal Suspension Lever to unlock the horizontal suspension.

Push down the Horizontal Suspension Lever to lock the horizontal suspension *(shown left & below)*.

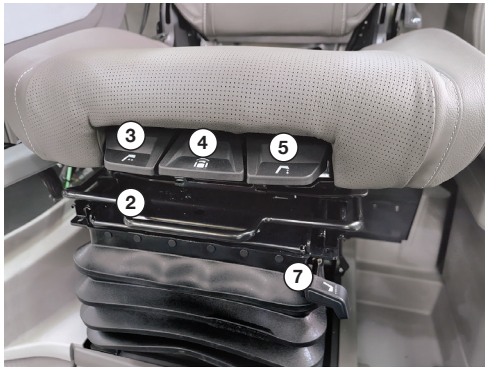
8 Head Rest

Head Rest is height & angle adjustable *(shown above left)*.

9 Lumbar Adjustment Lever/Rotary Knob

The lumbar cushion is height adjustable (raise/lower lever) & curvature adjustable (rotate knob) for operator comfort *(shown next page [top left])*

Seat front adjustment items 2, 3, 4, 5 & 7.





Armrest side adjustment items 6, 10, 11, 12, 13 & 14.

10 Seat Ventilation Switch

Push the Ventilation Switch (10) to switch seat ventilation On or Off *(shown above)*.

11 Seat Heater Switch

Push the Heater Switch (11) to switch the heater On or Off *(shown above)*.

12 Armrest Inclination Wheel

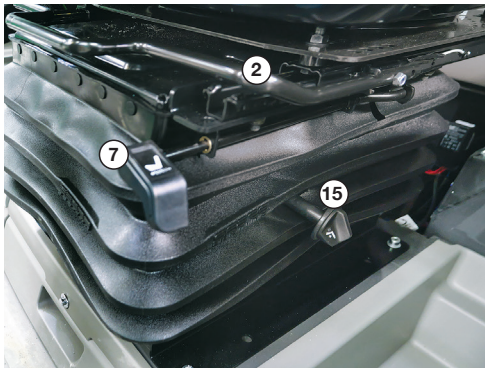
Armrest Inclination can be altered by rolling the wheel clockwise or anticlockwise *(shown above)*.

13 Back Rest Inclination Lever

Push down the Seat Back Inclination Lever (13) to adjust seat back forwards or backwards, then release the lever to lock it into place *(shown above)*.

14 Lap Seat Belt Latch

To release the seat belt (refer item 1), push-in the red latch *(shown above)*.



Lower front & side seat adjustment items 2, 7 & 15.

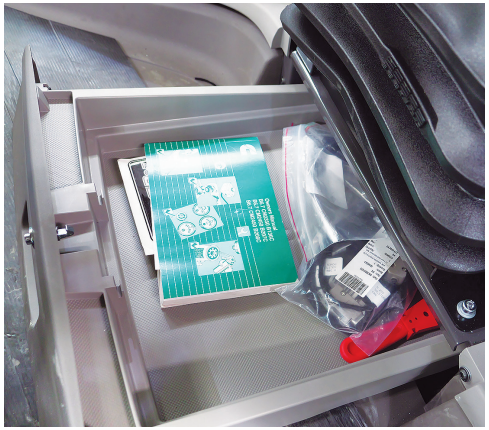
15 Shock Absorber Rotary Control

Rotate the Shock Absorber Rotary Control knob (15) In/Out to adjust shock absorber firmness for personal comfort *(shown above)*.

Operator's Seat Storage Tray

The Storage Tray is located at the base & front of the Operator's Seat *(shown below)*.

Storage tray at the base & front of the operator's seat.





The Training Seat with the lap seat belt.

Training Seat

The Training Seat is fitted with a lap seat belt which must be worn at all times when operating with a trainee or passenger present.

Storage area with bottle holders located between operator & trainee seats.





Underneath the Training Seat is a fridge facility. Lift the seat to open. Push buttons for colder (left arrow) & less cold (right arrow).

A cold storage fridge facility *(shown above)* is directly underneath the seat - easily accessed by lifting the training seat.

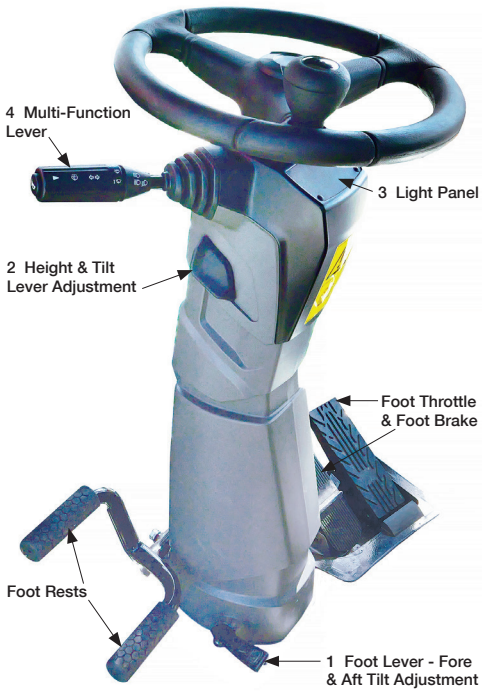
Lift the seat to open the fridge. Close/lower the seat to shut the fridge.

Two push buttons allow the fridge to be adjusted colder or less cold.

Press the:

- Right push button *(left arrow shown above)* for colder
- Left push button *(right arrow shown above)* for less cold.

A floor level storage area with bottle holders *(shown left)* is located between the operator & trainee seats.



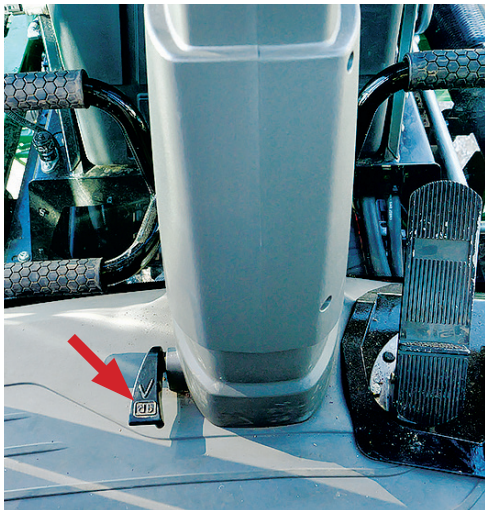
Steering Column - 1 Fore & Aft Foot Adjustment Lever; 2 Height & Tilt Adjustment Lever: Foot Rests, Foot Throttle & Foot Brake: 3 Light Panel & 4 Multi-Function Lever.

Steering Column

The Steering Column provides operator functions & adjustments to quickly & easily position the steering wheel for the operator.

1 Foot Lever Fore/Aft Tilt Adjustment

The Foot Lever Fore/Aft Adjustment allows the steering column to be quickly moved forward or rearward as required when entering and exiting the operator's seat.



Foot Lever used for Steering Column Tilt Adjustment. Press down the Lever, then adjust column fore or aft & release lever to lock the column in position.

To make adjustment:

i) While sitting in the operator's seat, hold the steering wheel with both hands, press the foot lever downwards (located on left hand side of column base) with your foot to release the column tilt lock.

ii) While the tilt lock is released, move the steering column (with your hands) forward or rearward as desired.

iii) Release the foot lever to lock the column tilt in position.

When exiting the operator's seat, use the foot lever to quickly move the steering wheel away for easy exit.

Similarly, when entering the operator's seat, use the foot lever to quickly move the steering wheel into the desired operating position.



Unlock the Height & Tilt Lever, by Lifting Up the lever (left hand) and adjust the steering wheel height (right hand). Release the lever to lock-in the desired height.

2 Height & Tilt Lever Adjustments

Adjustments using the Height & Tilt Lever allows the operator to refine steering wheel height & angle for optimum comfort & steering efficiency.

To adjust the Steering Wheel Height:

i) While sitting in the operator's seat with the column tilt position set, hold the steering wheel with the right hand, then use the left hand to Lift Up the Height & Tilt Lever to unlock the height adjustment.

ii) While holding the Height & Tilt Lever upwards, raise or lower the steering wheel to its desired height.

iii) Release the lever to lock-in the desired steering wheel height.



Unlock the Height & Tilt Lever, by Pulling Back the lever (left hand) and adjust the steering wheel tilt (right hand). Release the lever to lock-in the desired steering wheel tilt.

To adjust the Steering Wheel Tilt:

i) While sitting in the operator's seat with column tilt & steering wheel height set, hold the steering wheel with the right hand, then use the left hand to Pull Back the Height & Tilt Height Lever to unlock the steering wheel tilt adjustment.

ii) While holding the Height & Tilt Lever rearwards, move the steering wheel tilt to the preferred operating position.

iii) Release the lever to lock-in the desired steering wheel tilt.

Repeat steering column procedures 1 & 2, if required, to further refine the steering wheel position & tilt.



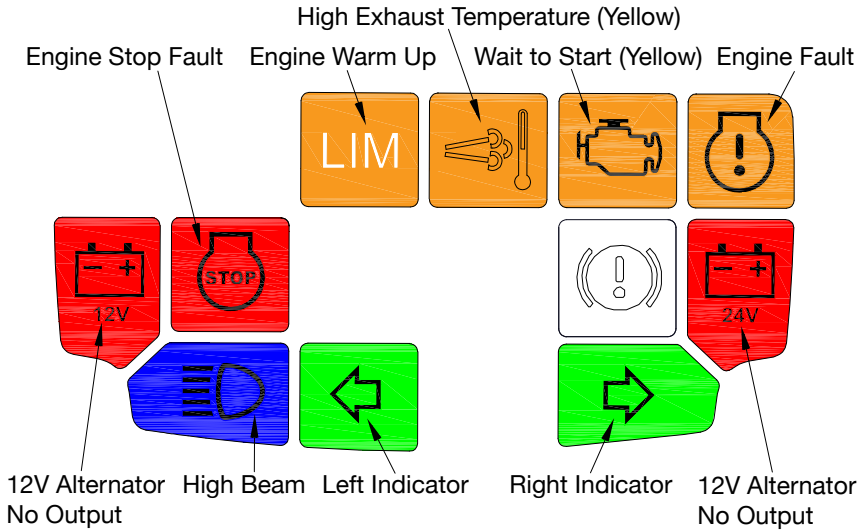
Light Panel located on top of the steering column, directly under the steering wheel.

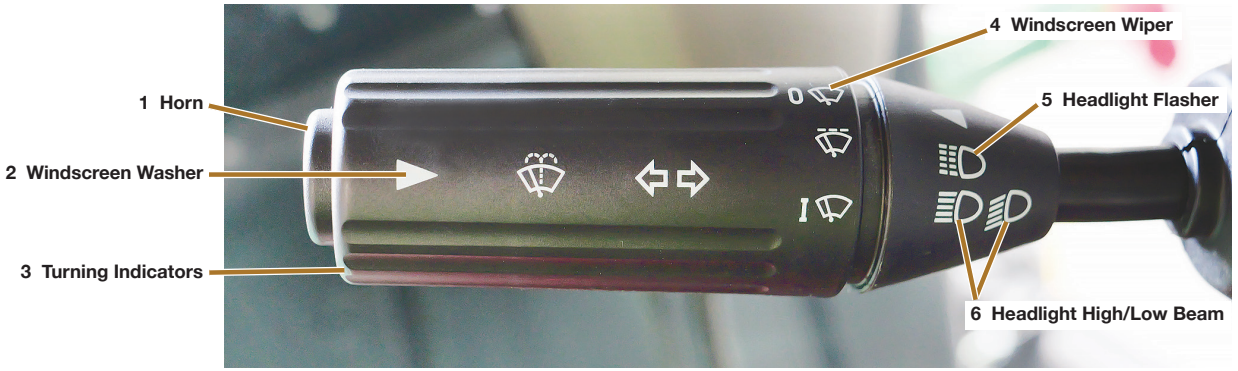
3 Light Panel

The Light Panel located on top of the steering column (directly under the steering wheel) provides current information on:

- Engine Stop Fault
- Engine Warm Up
- High Exhaust Temperature
- Wait to Start (Yellow)
- Engine Fault
- Alternator 12V
- Hi Beam
- Left Indicator
- Hazard Lights
- Right Indicator
- Alternator 24V (option).

Light Panel symbol/function illustrations shown below.





The Multifunction Lever (located on the left hand side of the steering column below the steering wheel) controls six functions. Refer to numbered information & headings on this page for instructions.

4 Multifunction Lever

The Multifunction Lever, located on the left hand side of the steering column below the steering wheel, has six functions:

1 Horn
2 Windscreen Washer
3 Windscreen Wiper
4 Turning Indicators
5 Headlight High/Low Beam
6 Headlight Flasher.

1 Horn

The Horn button is located on the outer end of the Multifunction Lever *(shown above)*.

Use a left hand fingertip to press the Horn button inwards (toward the steering column) to sound the Horn.

Release the button to stop the horn sounding.

2 Windscreen Washer

The Windscreen Washer barrel switch is the outer barrel of the Multifunction Lever *(shown above)*.

Use the left thumb & fingers to grasp the end of barrel, then push & hold the barrel inwards (toward the steering column) to activate the switch and pump water through the windscreen washers.

To stop water flowing through the windscreen washers, release the barrel.



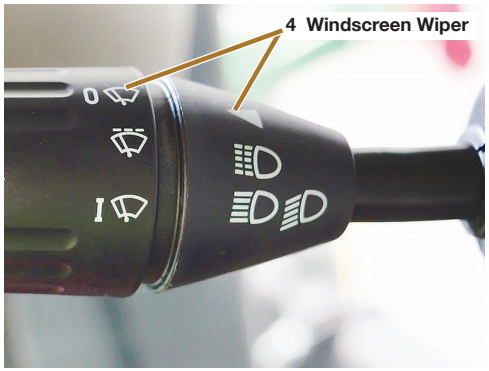
Pull Rearward to activate the left hand indicator (shown below)
Push Forward to activate the right hand indicator (not shown).

3 Turning Indicators

To activate the Left Turning Indicator, pull the Multifunction Lever rearward *(shown above)*.

To activate the Right Turning Indicator, push the Multifunction Lever forward *(not shown)*.

Return the Multifunction Lever to neutral (off position) after turning is completed *(shown previous page)*.



To operate the Windscreen Wiper, rotate the Multifunction Lever barrel to align arrow to the wiper functions.

4 Windscreen Wiper

The Windscreen Wiper switch is activated by rotating the barrel to align with the wiper functions with the arrow *(shown above)*.

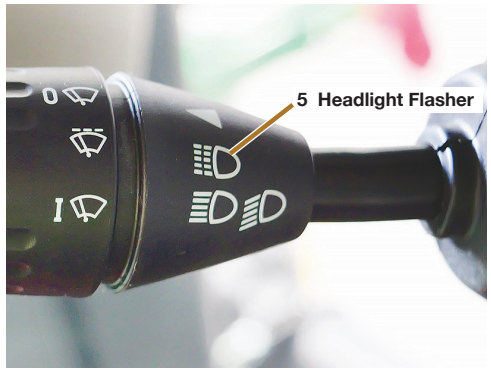
Use the left thumb and fingers to rotate the barrel (top forward) to the desired switch setting (aligning the arrow with):

0 Off position

--- Intermittent wiper function

I Constant wiper function.

Rotate the barrel switch in the opposite direction (top rearward) to return the wiper function to Off position.



Headlight Flasher symbol.

5 Headlight Flasher

With the left hand, lift the Multifunction Lever fully upwards intermittently to flash the headlights On/Off for warning *(shown below)*.

The flasher function works with or without the overhead console light switch On.

Lift the lever fully upwards intermittentely to flash the headlight On/Off for warning.





Headlight High beam & Low beam symbols.

6 Headlight High/Low Beam

The headlights must first be turned On with the Overhead Console headlight switch *(refer to 'External Lights Switch Panel' in this chapter).*

In the centre position (horizontal) the headlights will be on high beam *(shown above)*.

With the left hand, move the Multifunction Lever downward for low beam *(not shown)*.

Return the Multifunction lever upward to centre high beam position as required.



First engage the Battery Isolator Switch (located below the ignition key) to connect power to the Crop Cruiser systems.

Battery Isolator Switch

The Battery Isolator Switch (located below the ignition key on the RHS rear corner console *[shown above]*) must first be engaged to provide power to the Crop Cruiser systems.

Engage the Battery Isolator Switch by pressing the rocker switch for 2 seconds. When engaged, the switch is illuminated.

The Battery Isolator Switch will automatically disengage the battery power & egress lighting 15 minutes after the engine is stopped & the ignition key is Off. Turn all lights Off.

Ignition Switch

The Ignition Switch (located on the right hand side rear corner console of the cabin *[shown above right]*) is used to start and stop the engine and all electrical functions of the Crop Cruiser.

NOTE

Before starting the engine:

- All fluid levels must be checked.
- Ensure the battery isolator switch is engaged - to provide power to the sprayer systems.
- Ensure the transmission in neutral. Otherwise the engine will not start.



The Ignition Switch has 3 functions: Stop, On/Accessories (lightning symbol) & Engine Start (rotating arrow symbol).

The Ignition Switch has 3 positions/functions:

- Stop (position)
- On/Accessories (lightning symbol)

  Insert the key and rotate the key clockwise to the On/Accessories (lightning symbol) position to energise all electrical cabin functions.
- Engine Start (rotating arrow emblem)

  The transmission must be in neutral to start the engine.

  Rotate the key further to the Engine Start position to crank & start the engine.

  Release the key when the engine starts. The key automatically returns to the On/Accessories position.

  To stop the engine, rotate the ignition key counter clockwise to its vertical Stop/Off position.



Rotate the key to Engine Start position (rotating arrow emblem). Release the key when the engine starts.

To Start the Engine:

1. Ensure the transmission is in Neutral and Park Brake engaged, then insert & rotate the ignition key to the Engine On/ Accessories position (lightning symbol).
2. Wait to hear the reverse beeper sound.
3. Rotate the key further to the Engine Start position (rotating arrow emblem) to crank & start the engine.
4. Release the key when the engine starts. The key automatically returns to the On/ Accessories position.

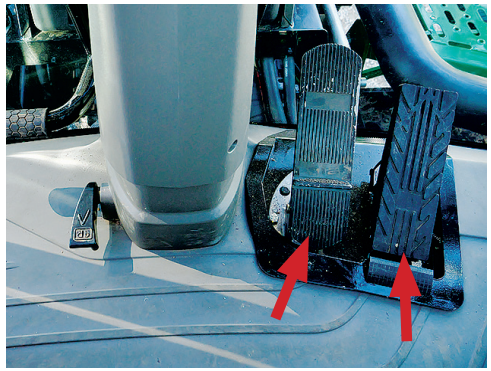
To Stop the Engine:

To stop the engine, rotate the ignition key counter clockwise to its vertical Stop/Off position.

NOTE

To switch between High and Low beam Headlights, use the Multi-Function Lever located on the left hand side of the steering column.

The Main Lights switch must be On for the High/Low beam Multi-Function Lever to function.



The Foot Brake (left arrow) & Accelerator (right arrow) - located on the floor at the RHS of the steering column.

Foot Brake & Accelerator

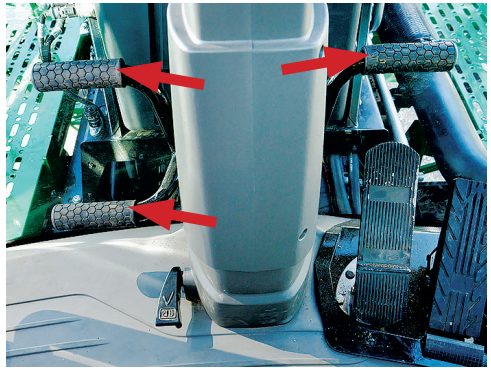
The Foot Brake & Accelerator are located on the floor of the cabin at the right hand side of the steering column *(shown above)*.

The Foot Brake & Accelerator are used to:

- Slow/Stop - Crop Cruiser travel
- Drive - Increase/Decrease engine & travel speed.

Fixed Foot Rests are located on each side of the steering column for operator comfort *(shown below).*

Fixed Foot Rests are located on each side of the steering column.





Sprayline Pressure gauge (top left) & Hydraulic Oil Pressure gauge (lower right) on RHS of the steering column.

Pressure Gauges

Four pressure gauges, in front of the steering column, display current operating information:

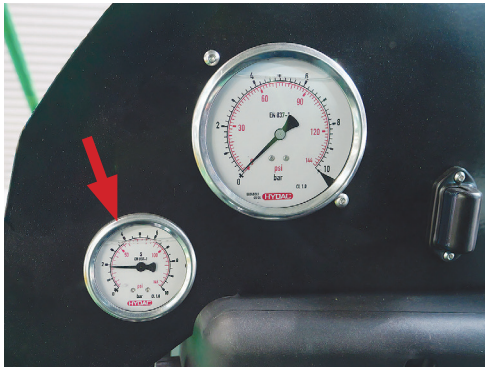
1 Sprayline Pressure - operating liquid pressure of the sprayline *(shown above)*.

2 Hydraulic Oil Pressure - operating pressure of the closed centre hydraulic pump *(shown above)*

3 Sprayline Pressure (optional) - operating liquid pressure for 2nd sprayline option *(shown below)*.

4 RapidFire Air Pressure - operating air pressure of the RapidFire system *(shown below)*.

RapidFire Air Pressure gauge (upper right) & optional 2nd Sprayline Pressure gauge (arrow) on LHS of steering column.





The Front Sunvisor shown in a lowered position. Push upwards on the lower rail to raise the sunvisor.

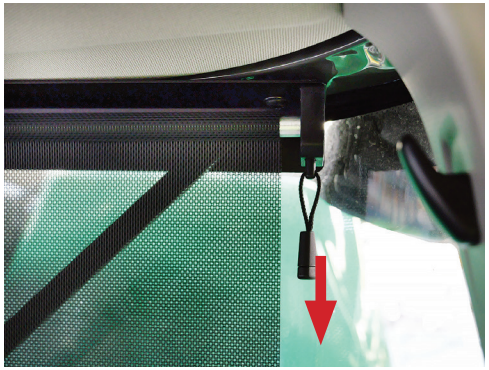
Sunvisors - Front & Rear

The cabin is fitted with Sunvisors at the front and the rear of the cabin to reduce sun glare when required.

To Lower the Front Sunvisor, use your hand and pull the bottom rail of the sunvisor down to the level required *(shown above)*.

To Raise the Front Sunvisor, push-upwards on the lower rail tab of the sunvisor. It may be necessary to push on the outer stays to start raising the sunvisor.

Pull downwards on the release chord at the top right hand side of the rear sunvisor to roll it up.





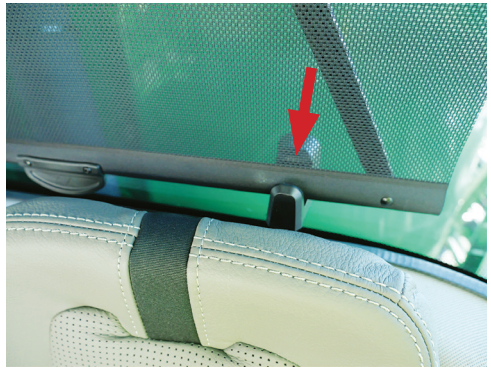
Rear Sunvisor shown in its fully lowered position.

To Lower the Rear Sunvisor, turn to the rear of the cabin and use your hand and pull the bottom rail of the sunvisor down to the level required *(shown above)*.

When the sunvisor is fully lowered, locate the sunvisor rail in the holding brackets (2) at the base of the rear window *(shown below)*.

To Raise the Rear Sunvisor, pull down on the Release Chord in the top right hand corner of the sunvisor *(shown below left)*. The spring-loaded mechanism of the sunvisor automatically returns it to the rolled-up position.

Locate the Rear Sunvisor in the holding brackets on each side of the cab when fully lowered.





Entrance door shade in lowered postion - latch shown in inset (bottom right of photo).

Shades - Side Windows

The cabin is fitted with roll-up Shades at the top of both Entrance & Emergency doors to enable reduction of sun glare & heat when required.

To Lower a Door Shade, pull the bottom of the shade down & hook it on the knob provided on the glass *(shown above)*.

To Raise the Front Sunvisor, unlatch the shade from the knob & it will automatically rewind.

Emergency door shade in its lowered postion - latch shown in inset (bottom right of photo).



Overhead Console

The cabin ceiling and Overhead Console *(shown right)* conveniently locates air vents, speakers, mirror adjustment knob, light switches, air conditioning controls & vents, AM/FM radio/CD player and storage area.

A/C Storage Compartment

An Air Conditioned Storage Compartment, located in the left corner of the Overhead Console *(partially shown right & door opened below)*, provides convenient storage for various items such as food, drink and other goods requiring cooling.

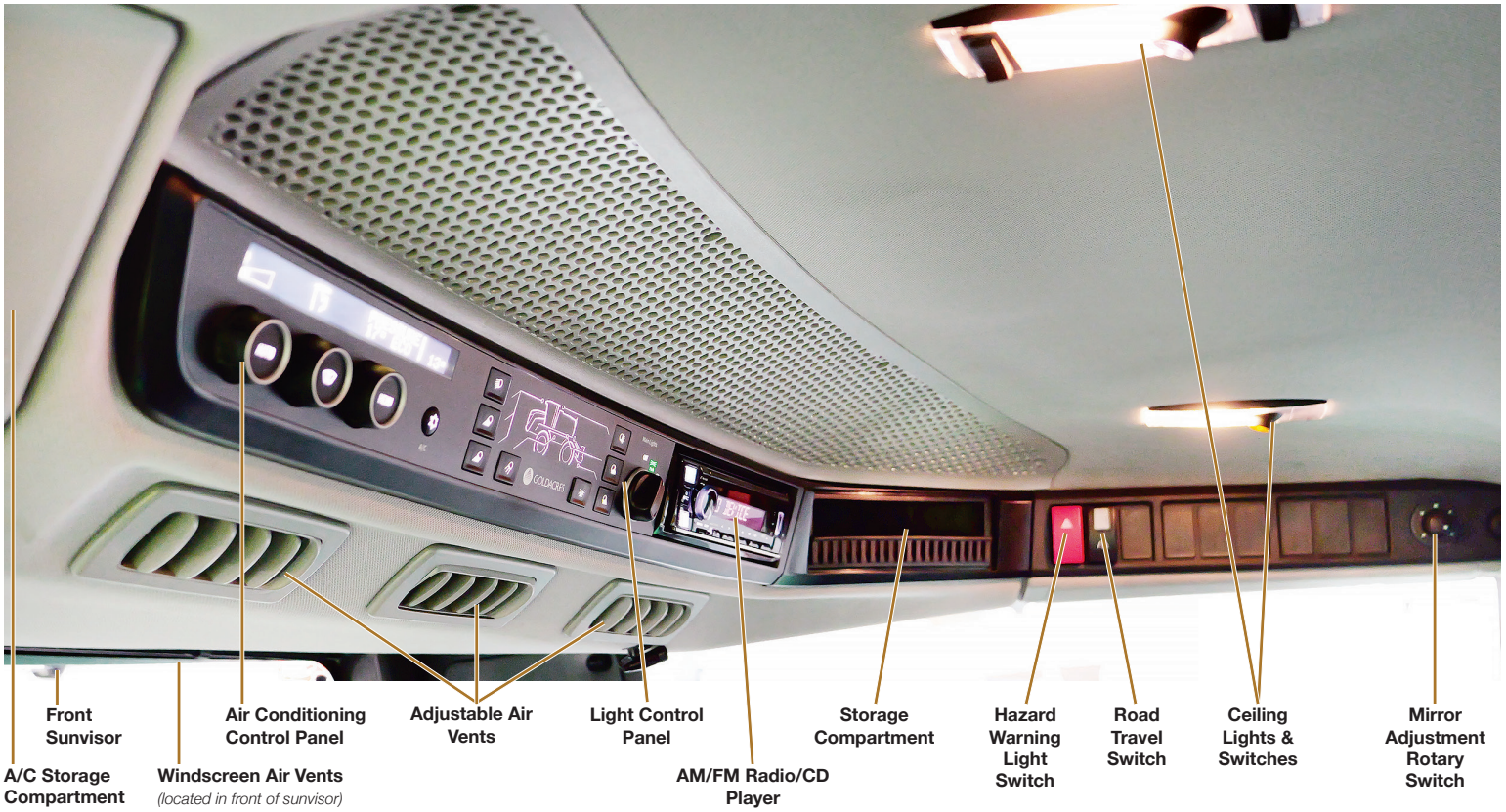
The Storage Compartment is heated or cooled by the climate control and can be used to cool or warm items if required.

To access the compartment, push the latch at door opening and the door opens downwards.

Return the door to close the Storage Compartment before operating.

Windscreen Air Vents

Four Windscreen Air Vents direct air from the top of cabin downward onto the glass for defogging the front windscreen.



Information for each item of the Overhead Console (shown above) is provided on pages that follow using each the description.

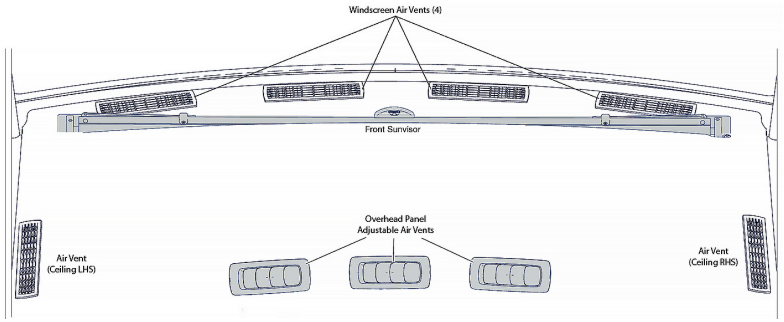
Storage Compartment in the left corner of the Overhead Console with door open. Close it before operating.



Other Air Vents are located in the cabin ceiling above each of the cabin doors for defogging the glass.

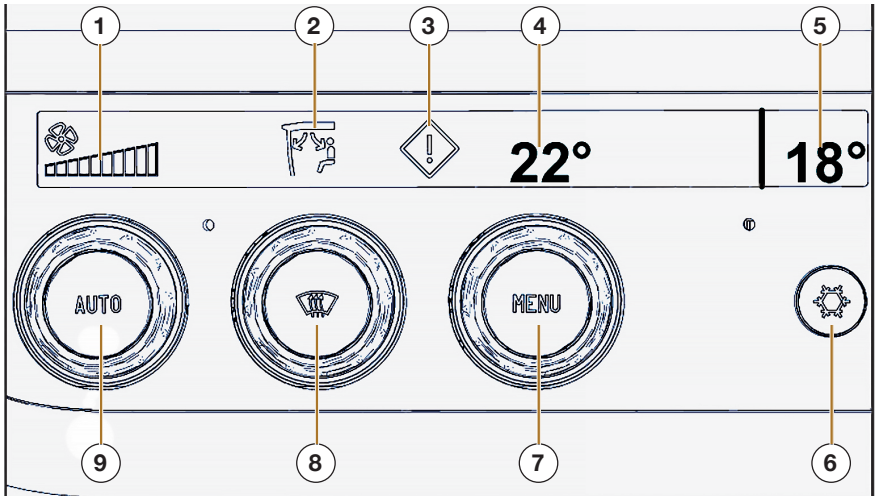
The airflow from these air vents is controlled by the settings used in the air conditioning control panel (see instructions next page).

Air Vent illustration - windscreen, above door & overhead console.



Adjustable Air Vents

Three Adjustable Air Vents located in the Overhead Console, above & in front of the operator *(shown left & above)*, allow air-conditioned airflow to be manually directed toward or away from the operator for personalised comfort.



Air Conditioning Control Panel

The Air Conditioning Contol Panel *(illustrated above)* is located on the left side of the Overhead Panel. Numbered controls (*shown above)* are used to operate the cabin's climate control.

Control Panel Numbers (shown above) are:

1 **Fan Speed** symbol - shows fan speed.

2 **Air Flow Distribution** symbol - shows airflow direction (toward glass &/or operator).

3 **Fault Message** symbol.

4 **Pre-set Cab Temperature** value.

5 **Outside temperature** reading.

6 **A/C push button** - Pressing this button switches the air conditioner compressor On (illuminated green) or Off (not illuminated).

7 **MENU push button** - Maintenance counter reading of air conditioner cab recirculating filter; Automatic air conditioner normal mode; Automatic air conditioner mode with higher fan speed; Symbol (4) reads <BLOWER OFFSET ON>; FILTER BOOST (Applies to Category 4 cab filtering).

7 **MENU turning knob** - Anti-clockwise lowers set cab temperature & Clockwise raises set value.

8 **DEMIST press button** (On illuminated green) - At outside temperatures below 2 °C (De-icing cab windows by operating the air conditioner compressor continuously at maximum fan speed, heater output & air flow on windows or - At outside temperatures above 2 °C (Drying the cab windows by operating the air conditioner compressor continuously at maximum fan speed).

9 **AUTO turning knob** - Selects air flow distribution (Operator, Windscreen or Operator & Windscreen).

9 **AUTO push button** - Automatically fully controls Temperature & Air flow (On illuminated green)

9 **AUTO turning knob** - Anti-clockwise reduces fan speed until air conditioner is switched Off - Symbol (5) reads <OFF> & Clockwise: raises the fan speed.



AUTOMATIC mode of the air conditioner.

Use the push buttons & control knobs of the Air Conditioning Panel to choose & regulate the airflow, temperature & humidity of the cabin.

Operating Modes include:

1 **AUTOMATIC** - (A/C push button On [illuminated} & Auto push button On [illuminated]) *(shown above)*.

In Automatic mode, the air conditioner heater, compressor & ventilation operate automatically to constantly maintain the pre-set cabin temperature.

Use of the Automatic mode is ideal for high outside temperatures.

2 **MANUAL** - (A/C push button illuminated & Auto push button not illuminated) *[shown below].*
In Manual mode, the heater & compressor are automatically controlled (dependent on settings) while the fan speed is manually controlled by rotating the Auto knob:

- Clockwise to increase fan speed &
- Anti-clockwise to decrease fan speed.

MANUAL mode of the air conditioner.





AUTOMATIC ECON mode of the air conditioner.

3 **AUTOMATIC ECON** - (A/C push button Off [not illuminated] & Auto push button illuminated) *[shown above].*

In AUTOMATIC ECON mode, the A/C compressor is shut Off while the heater & ventilation (dependent on settings) are controlled automatically.

This mode is used when cooling is not required.

4 **MANUAL ECON** - (A/C push button Off [not illuminated] & Auto push button Off {not illuminated]) *[shown below].*

In MANUAL ECON mode, the A/C is off while the heater is controlled automatically (dependent on settings) and the fan speed is manually controlled by rotating the Auto control knob:

- Clockwise to increase fan speed &
- Anti-clockwise to decrease fan speed.

MANUAL ECON mode of the air conditioner.





DEMIST mode of the air conditioner (shown above).

5 **DEMIST** - (A/C push button On {illuminated} & Demist push button On {illuminated}) *[shown above].*

Demist Mode is used for demisting cabin windows. The compressor runs constantly at maximum fan speed while the A/C compressor & heater automatically operate at pre-set values.

To Activate the Air Conditioner:

Switch the Ignition On & start the engine.

The air conditioning mode will display the settings last active before switching-off.

Adjusting Air Flow Vents

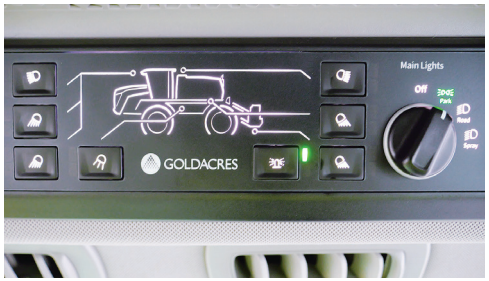
Air conditioner air flow is distributed inside the cabin through the overhead panel adjustable airflow vents.

Each vent can be adjusted directionally or turned On or Off to suit the individual needs of

For example, to heat the leg area, close all upper vents and direct air flow of the lower vents to the floor area.

⚠CAUTION

Both cabin doors (entrance door & emergency escape door) must be completely closed to protect the operator from contaminated air.



The Main Lights switched to Park (illuminated & the Hazard press button On (illuminated).

External Lights Switch Panel

The External Lights Switch Panel (located in the centre of the overhead panel) is used to operate all external lights *(shown above & below)*.

With the engine running, the Main Lights switch (RHS of the panel) is used to turn lights:

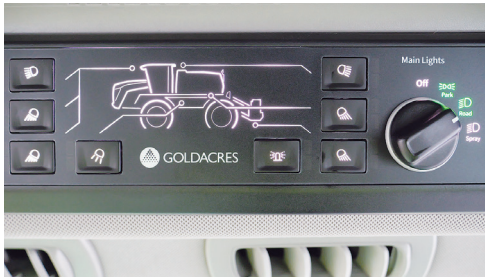
- Off - (none illuminated)
- On - Park (illuminates when selected)
- On - Road (illuminates when selected)
- On - Spray (illuminates when selected).

Eight press button switches (on the LHS of the panel) are used to select & turn On or Off the external lights of the Crop Cruiser - as shown on the Crop Cruiser outline.

To Operate External lights:

1 Rotate the Main Lights switch to turn On the light function required - Park, Road or Spray.
2 Use the press button switches to switch On or Off the external lights of the Crop Cruiser as required.

The Main Lights switched to Road (illuminated).





The Main Lights switch turned to Road (illuminated).

AM/FM Radio/CD Player

An entertainment radio (located in the Overhead Panel in front of the operator) comprises an AM/FM radio tuner & single CD player *(shown above & below)*.

A Bluetooth compatible phone system is also installed in the unit.

Operating instructions for AM/FM Radio/CD Player are provided in the Entertainment AM/FM Radio/CD Player manual supplied with the Crop Cruiser.

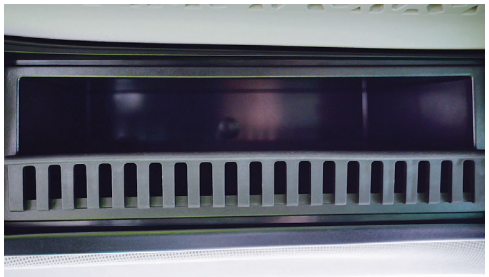
NOTE

The Battery Isolator switch does not isolate lights from the battery and the operator can use the Egress Lighting for safe exit & entry from the Crop Cruiser at night.

The operator must turn the 'Main Lights' to Off position before exiting the cabin at the end of day operations.

The Main Lights switched to Spray (illuminated).





Storage Compartment for documents & smaller items.

Storage Compartment

A Storage Compartment (located in the right corner of the Overhead Console) provides convenient storage for documents and other smaller items *(shown above)*.

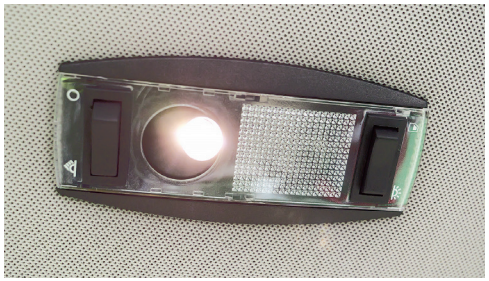
NOTE

The Crop Cruiser engine must be running and the Main Lights switch must be On for the press button switches to activate external work lights.

All lights can be turned Off by returning the Main Lights switch to Off.

NOTE

When outside temperatures go below 10°C, the Automatic Mode shuts down the air conditioner compressor.



Ceiling Light showing rocker switches and directional (Map) light switched On.

Ceiling Lights

There are 2 Ceiling lights in the cabin which can be operated together or individually *(shown above)*.

A Welcome light for cabin entry and how the light panel flashes can be programmed as desired. Refer to the instructions in Chapter 4, 'Setting Up'.

Rocker switches are used to switch the directional (Map) & Ceiling lights On & Off as required.

The directional map light can be adjusted as desired.
All Ceiling lights must be turned Off before leaving the cabin at end of day operations.

Egress Lighting

The Crop Cruiser is fitted with Egress lighting to assist safe cabin entry & exit when parking dark conditions.

The G-Hub Controller keeps outside work lights on for 30 seconds after the engine is stopped & the ignition key turn off or removed.

NOTE

Map Lights only operate when the ignition key is On (in the "Accessories" or "Run" position.
Egress lighting functions are programmable



Press the Hazard Warning Light Switch to switch the flashiing orange light On & Off as required.

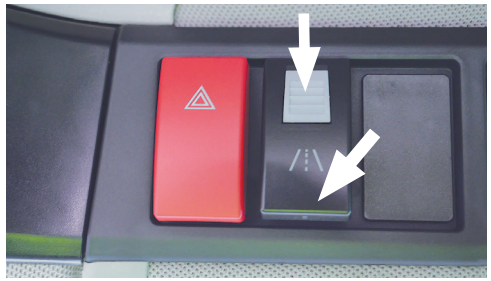
Hazard Warning Light Switch

The Hazard Warning Light Switch (located at the front of the right hand side overhead panel) is used to switch the Hazard Warning Light (orange flashing Light) On & Off.

Press the switch to turn On the flashing light. Press the switch again to turn Off the light.

NOTE

The Hazard Warning Light only operates when the ignition key is On (in the "Accessories" or "Run" position.



Slide the switch lock down, then press the switch & release the switch lock. In Road Travel the road emblem illuminates.

Road Travel Switch

The Road Travel Switch (located next to the hazard warning light switch) is a safety switch which must be used whenever road traveling *(shown above)*.

The switch locks out field steering functions not permitted for road travel.

For Road Travel - the switch must be switched Off & Locked

To do this, slide the switch lock down, then press the switch Off & release the switch lock to stop field steering functions.

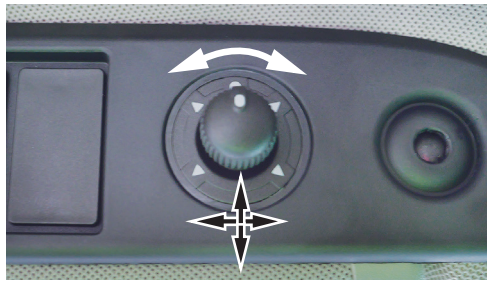
The road emblem on the switch is illuminated when field function are Locked Off.

For Fieldwork - the switch must be Unlocked & switched On.

To do this, slide the switch lock down, then press/release the switch back to On & release the switch lock. When On, the road emblem is not illuminated and field steering functions are engaged.

NOTE

The Road Travel Switch only operates when the ignition key is On (in the "Accessories" or "Run" position.
Switching the Road Travel Switch On & Off can be used to reset the steering orbital function.



Rotate Rear Mirror Rotary Switch left or right to select the mirror, then push switch up/down & left/right for adjustment.

Rear Mirror Rotary Switch

The Rear Mirror Rotary Switch allows the operator to adjust the top only rear vision mirrors from inside the cabin *(shown above)*. Bottom mirrors are adjusted manually.

To Adjust the LHS Upper Mirror:

1 Rotate the Mirror Rotary Switch *(shown above)* anti-clockwise to the left hand mirror position.

2 Push or pull the switch up or down (vertically), then, left or right (sideways) to adjust the mirror to the desired position *(shown below)*.

Left hand rear vision mirrors.





Right hand rear vision mirrors.

To Adjust the RHS Upper Mirror:

1 Rotate the Mirror Rotary Switch *(shown above left)* clockwise to the right hand mirror position.

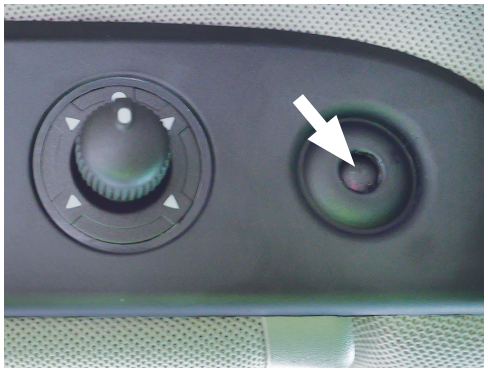
2 Push or pull the switch up or down (vertically), then, left or right (sideways) to adjust the mirror to the desired position *(shown above)*.

Roof Central Terminal Compartment

The Roof Central Terminal Compartment (located within the right hand side overhead console) provides service access to wiring and switches of the console.

The Roof Central Terminal Compartment cover opened.





To open the Roof Central Terminal Compartment cover, press-in the Lock - use a screwdriver or ignition key if necessary.

Access to the compartment is via the lock6576 located next the rear mirror rotary switch which allows the compartment cover to drop down *(shown above).*

To Open the Compartment, press-in the Compartment Lock *(shown above)* to release the cover & allow it drop down giving access for service *(shown below left)*.

To Close the Compartment, lift-up the compartment cover and push upwards until the cover locks into place *(shown below)*.

To close the compartment, lift-up the panel & push-up the compartment to lock it in position.





Two Way Radio hand piece located in the right hand rear corner of the cabin.

UHF Two Way Radio

A UHF Two Way Radio module is located in the right hand corner of the cabin *(shown above)*.

Operating instructions for UHF two way radio are provided in the UHF Two Way Radio manual supplied with this manual.

Dual Cup Holder

A dual cup holder is located in the rear right hand corner of the cabin above the ignition switch *(shown below)*.

Dual Cup Holder located in the rear right hand corner of the cabin above the ignition switch.





USB-C Power supply (2), Cigarette lighter, Ignition key, UHF Radio connector, Battery Isolator switch (On) shown.

Cabin Corner Panel

The Cabin Corner Console *(partly shown above & below)* located in the right hand rear corner of the cabin, incorporates the following:

- USB-C Power Supply (2) *(shown above)*
- IsoBus Connector (not *shown)*
- Cigarette Lighter (*shown above)*
- Ignition Key Switch (*shown above)*
- UHF 2 Way Radio Connector (*shown above & below)*
- Battery Isolator Switch (*shown above & below)*
- Bilberry Lights Switch (option) (*shown below)*
- Bilberry Power Switch (option) (*shown below)*
- Storage Area (*shown below).*

UHF Radio connector, Battery Isolator switch & Bilberry Light & Power switch options for Bilberry camera system only.



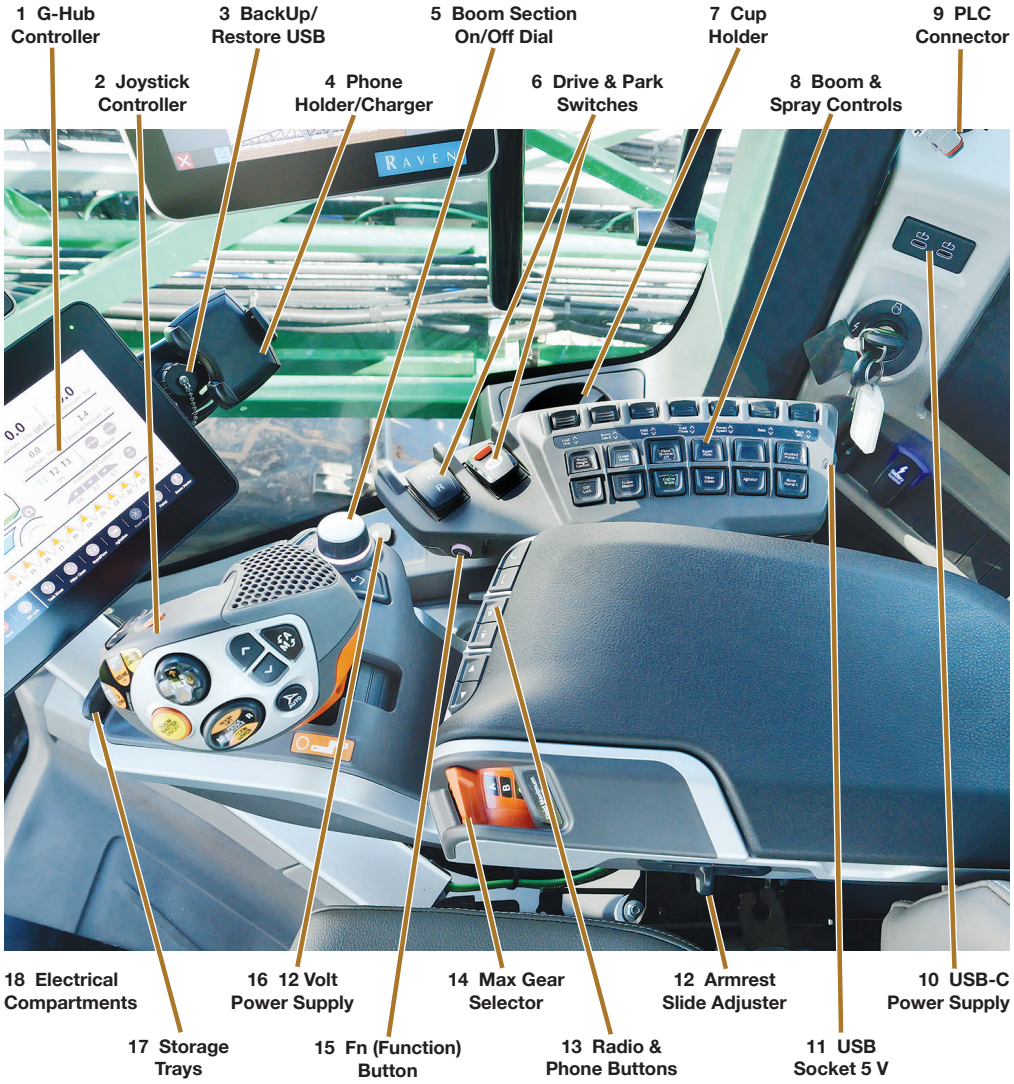


The Armrest Control Centre - see details right.

Armrest Control Centre

The Armrest Control Centre *(shown above & right)* is the main operating Control Centre designed for operator comfort and hand/ fingertip control of all Crop Cruiser spraying & driving functions The Control Centre includes:

1 G-Hub Controller
2 Joystick Controller (G-Motion)
3 Back-Up/Restore USB-C
4 Phone Holder/Charger
5 Boom Section On/Off Dial
6 Drive & Park Switches
7 Cup Holder
8 Boom & Spray Control
9 PLC Connector (1 of 3)
10 USB-C Power Supply
11 USB-A Socket 5 V
12 Armrest Slide Adjuster
13 Radio & Phone Buttons
14 Max Gear Selector
15 Fn (Function) Button
16 12 Volt Power Outlet
17 Storage Trays
18 Electrical Compartments.



Information on each item of the Armrest Control Centre (shown above) is given on following pages using the item no. & title.



Goldacres G-Hub Controller Home Touch Screen Display.

1 G-Hub Controller

The G-Hub Controller (Goldacres advanced Touch Screen Control system known as 'G-Hub') is a fully integrated electronic control system developed by Goldacres.

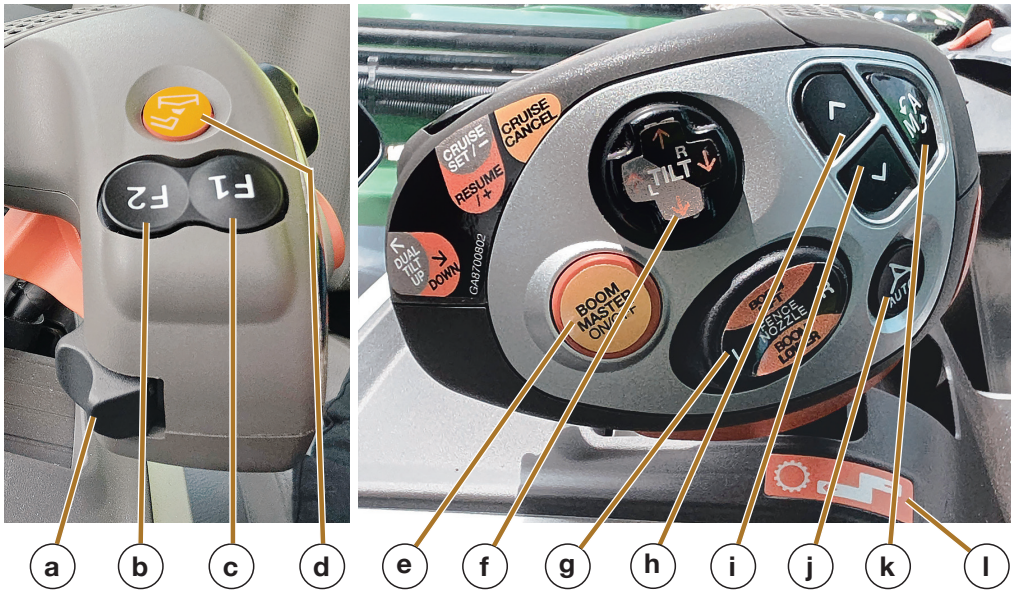
The G-Hub controls & monitors all critical machine functions using:

- In-Cabin G-Hub Touch Screen
- Boom & Spray Control Centre
- External Control Screens integrating all fill & cleaning functions
- PLC (programmable logic controller),
- I/O modules,
- Sensors & Switches

The fully integrated G-Hub system operates with all leading steering and mapping providers using the ISOBUS protocol.

On-board diagnostics allow an operator to quickly pin point any problems that might arise without the need of a laptop, specialised service tools or internet connections to minimise cost & downtimes.

Refer to the G-Hub Controller section later in this chapter for information & Chapter 6 'Operation' for operating instructions.



Joystick Controller rocker switch & push buttons - information on each item (shown above) is provided on following pages.

2 Joystick Controller (G-Motion)

The Joystick Controller incorporates a rocker switch *(letter 'a' above)* & 10 push button functions (*Letters 'b' to 'k' above)* in the top of the Joystick

The Rocker Switch & 10 Push Buttons in the top the Joystick are:

a Dual Boom Tilt Up/Down (rocker switch).

b Cruise Resume/Increase (F2).

c Cruise Set/Decrease (F1).

d Cruise Cancel (toggle Off/On).

e Boom Master - On/Off

f Boom Tilt Up/Down (Right Up & Right Down, Left Up & Left Down).

g Boom Raise/Lower &

Fenceline Nozzles On/Off (Left & Right).

h Gear Change Up.

i Gear Change Down.

j GPS - Autosteer On/Off.

k Auto/Manual Gear Selection.

The Movement of the Joystick has a variety of functions depending on G-Hub settings *(Letter 'l' above}*.

l Joystick Movement Functions - Foreward/ Rearward/Sideways movements can be used to control D-N-R (Drive-Neutral-Reverse) selection, throttle (engine) speed and Cruise Control target speed.

Refer to information that follows in this chapter and also Chapter 6 'Operation' for operating instructions.



Dual Tilt rocker switch of the Joystick is used to simultaneously tilt boom wings Up (A) or Down (B).

a) Dual Boom Tilt Up/Down

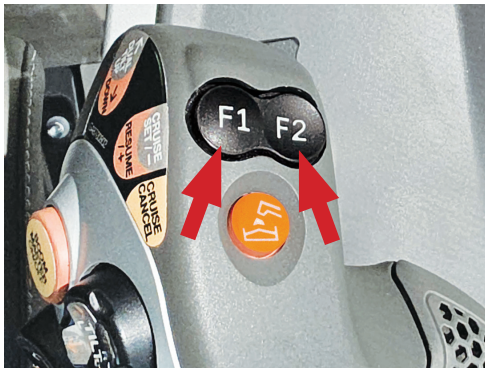
The Dual Boom Tilt Up/Down rocker switch (located on the front of the Joystick) is used to simultaneously raise or lower right & left boom wings *(shown above)*.

Boom wings pivot on the centre section and both left & right boom wings are raised or lowered simultaneously. The outer end of the wing moves the furtherest.

Press the front of the rocker switch to raise boom ends, Press the rear of the rocker switch to lower boom ends,

Refer to Chapter 6 'Operation' for instructions.

.



Cruise Resume/Increase push button (F2) and Cruise Set/ Decrease push button (F1).

b) Cruise Resume/Increase

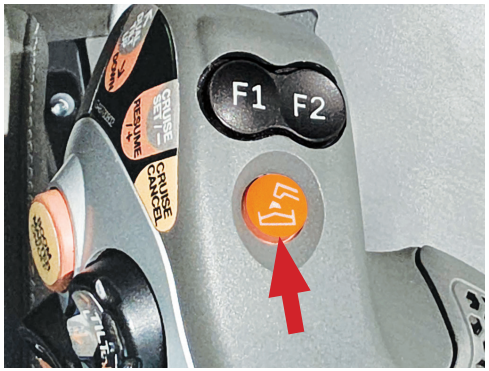
The Cruise Resume/Increase push button *[shown above (F1)]* is used to resume the previously set current ground speed of the Cruise Control and to increase the set ground speed.

Refer to Chapter 6 'Operation' for instructions.

c) Cruise Set/Decrease

The Cruise Set/Decrease push button *[shown above (F2)]* is used to set the current ground speed of the Cruise Control Speed and to decrease the set ground speed.

Refer to Chapter 6 'Operation' for instructions.



The Cruise Cancel push button on top of the Joystick used to cancel the Cruise Control function..

d) Cruise Cancel

The Cruise Cancel push button is used to cancel active Cruise Control.

Applying the Foot Brake also cancels the Cruise Control.

The Cruise Cancel switch is used to cycle the Cruise Control between On [active] and Off [inactive].

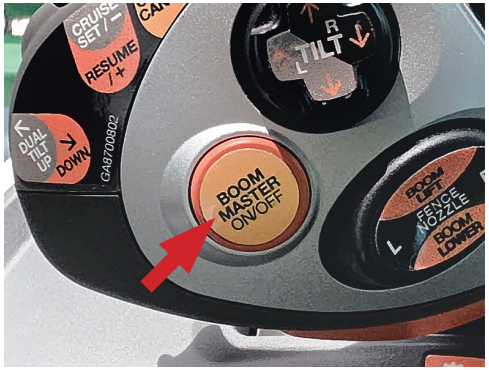
Refer to Chapter 6 'Operation' for instructions.

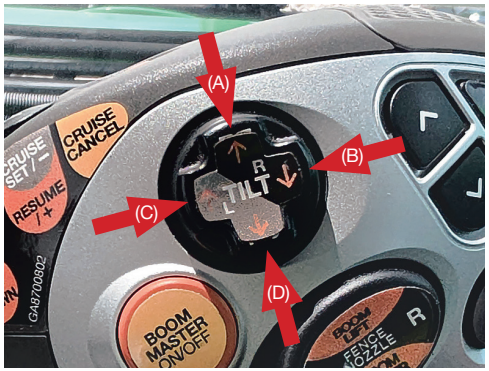
e) Boom Master

The Boom Master push button is used to switch boom spraying On/Off *(shown below)*.

Refer to Chapter 6 'Operation' for instructions.

The Boom Master push button (shown below) is used to start & stop boom spraying.





The Left & Right Boom Tilt push button is used to tilt the individual boom end Up & Down.

f) Boom Tilt - Right Up/Down & Left Up/Down

The Boom Tilt - Left Boom Up/Down & Right Boom Up/Down push button is used to individually lift or lower the angle of each boom wing to accommodate undulating ground conditions.

- Right Up *[shown above (A)]* & Right Down *[shown above (B)]* individually lift or lower the angle the right boom.
- Left Up *[shown above (C)]* & Left Down *[shown above (D)]* individually lift or lower the angle the Left boom *(shown above)*.

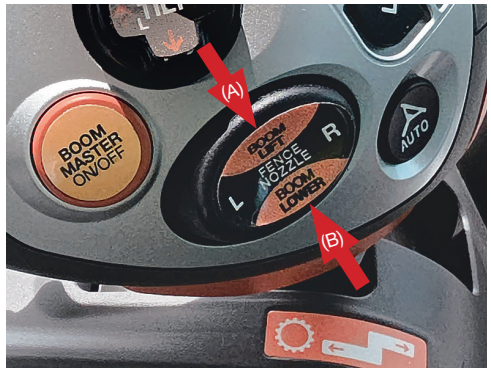
Boom wings pivot on the centre section and outer ends of boom wings move furtherest.

Second stage press for dual tilt option can be set in G-Hub settings.

Refer to Chapter 6 'Operation' for instructions.

⚠ DANGER

Always check for power lines while folding, unfolding and tilting the boom because getting too close or any contact with power lines can be fatal.



The Boom Raise/Lower push button used to raise & lower the boom height as required.

g) Boom Raise/Lower

The Boom Raise/Lower push button is used to raise *[shown above (A)]* and lower *[shown above (B)]* the boom as required.

Refer to Chapter 6 'Operation' for instructions.

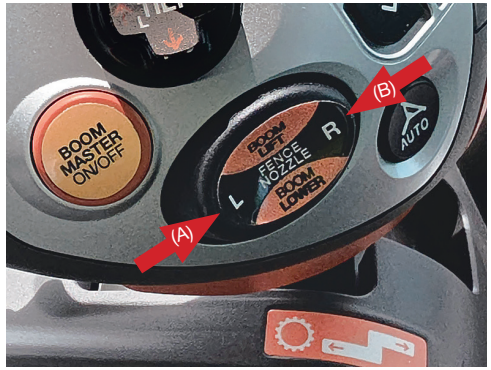
g) Fenceline Nozzles On & Off

The Fenceline Nozzles On/Off push button is used to switch On & Off - the Left nozzle *[shown below (A)]* & Right nozzle *[shown below (B)]*.

Second stage press can be used for over ride.

Refer to Chapter 6 'Operation' for instructions.

The Fenceline Nozzles push button is used to switch the Left & Right fenceline nozzles On & Off.





Gear Change Up push button.

h) Gear Change Up

The Gear Change Up push button *(shown above)* is used to change the transmission to a higher gear in Manual mode.

If operating in Auto mode, the use of this push button changes operation to Manual mode.

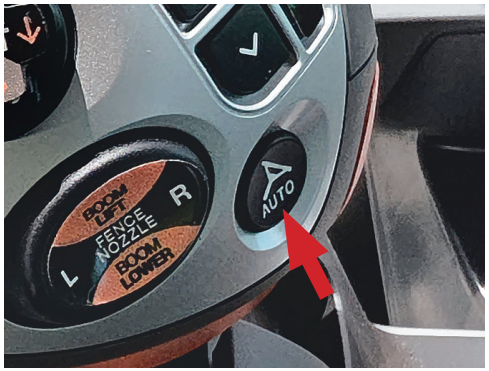
i) Gear Change Down

The Gear Change Down push button *(shown below)* is used to change the transmission to a lower gear.

If operating in Auto mode, the use of this push button changes operation to Manual mode.

Gear Change Down push button.





The GPS Autosteer On/Off push button is used to engage & disengage the GPS Autosteer.

j) GPS Autosteer On/Off

GPS Autosteer satellite functions are retrofitted by the dealer/customer according to the owner's requirements.

The black Autosteer push button *(shown above)* is used to cycle the GPS Autosteer On & Off as required.

Refer to Chapter 6 'Operation' for instructions.

k) Auto/Manual Gear Selection

The Auto/Manual Gear Selection push button *(shown below)* shifts between Auto & Manual operating mode. Press for 1 second to change the operating mode.

The Auto/Manual Gear Selection push button is used to shift between Auto & Manual mode.





The forward/rearward & sideways movement of the Joystick provides a variety of functions depending on G-Hub

l) Joystick Movement Functions

Depending on the G-Hub Driveline Settings, Joystick Movement functions include:

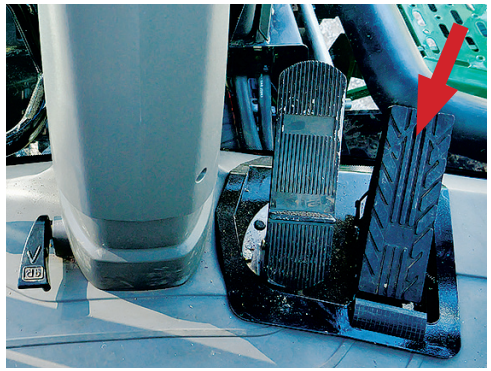
1 Foot Throttle only - If Driveline Setting is set to G-Motion Hand Throttle 'Disabled' & the Gear Selector is set to 'Console Switch', moving the Joystick has no function.

2 G-Motion 1 - If Driveline Setting is set to G-Motion Hand Throttle 'Enabled' & the Gear Selector is set to 'Console Switch' (factory default settings), Joystick movement controls engine speed only.

3 G-Motion 2 - If Driveline Setting is set to G-Motion Hand Throttle 'Enabled' & the Gear Selector is set to 'G_Motion', Joystick movement controls D-N-R (Drive-Neutral-Reverse) selection & engine speed.

4 Cruise Control - 3 Cruise Control modes are available for setting spraying target speed, namely 'Classic', 'Variable' & 'Variable Plus'.

Refer to Joystick Movement functions provided on the following pages & refer to Chapter 6 'Operation' for Cruise Control operating instructions.



Foot Throttle used to control engine speed..

1 Foot Throttle Only

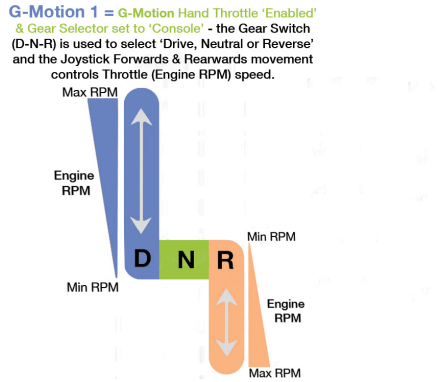
With the G-Hub Driveline Settings set to:

- G-Motion Hand Throttle 'Disabled' &
- Gear Selector set to 'Console Switch', moving the Joystick has no function.

With these settings, the Crop Cruiser gear selection is controlled by the Console Switch *(shown below)* and engine speed is controlled only by the foot throttle *(shown above).*

The Console 'D-N-R' rocker switch used to select Drive, Neutral or Reverse.





G-Motion 1 illustration: Console switch controls D-N-R & Joystick controls Throttle (Engine) RPM speed (white arrows).

2 G-Motion 1

With the G-Hub Driveline Settings set to:

- G-Motion Hand Throttle 'Enabled' &
- Gear Selector set to 'Console Switch',

the Joystick Movement (Forwards & Rearwards) acts as a Hand Throttle to control the engine speed *(see illustration above)*.

The D-N-R switch *(shown below left)* is used to select Drive, Neutral or Reverse.

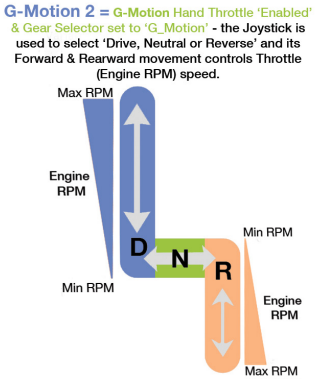
Moving the Joystick toward Neutral position reduces engine speed. Placing the Joystick in Neutral cancels the hand throttle.

The Foot throttle can be used with the Joystick (hand throttle) active - which ever has the highest setting has control of Engine RPM.

Use of the foot throttle for more than 30 second will cancel the hand throttle

Use of the foot brake cancels the Joystick hand throttle.

After stopping the Crop Cruiser, the Console D-N-R switch must be placed in Neutral *(shown left)*.



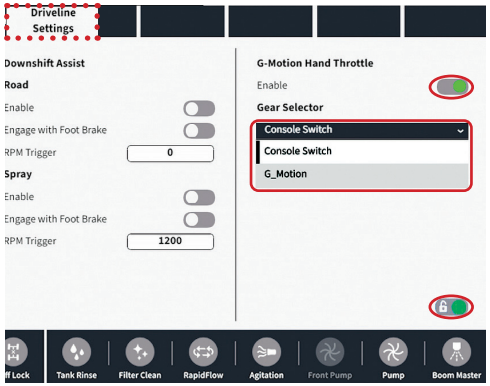
G-Motion 2 illustration: Joystick movement selects D-N-R and controls Throttle (Engine RPM) speed (white arrows).

3 G-Motion 2

With the G-Hub Driveline Settings set to:

- G-Motion Hand Throttle 'Enabled' &
- Gear Selector set to 'G_Motion', the Joystick Movement:
  - Forwards & Rearwards) acts as a Hand Throttle to control the engine speed
  - Left & Right selects Drive, Neutral & Reverse *(see illustration above).*

The 'Driveline Settings' screen allows the 'G-Motion Hand Throttle' to be Enabled or Disabled'. Enabled is the factory default setting. The Gear Selector setting allows selection of 'Console Switch' or 'G_Motion'.





G-Motion 2: From Neutral the **Joystick** *is moved* **Full Left**, *then* **Forwards** *to engage Drive & Joystick Throttle (engine) speed control.*

When the **Joystick** is shifted **Full Left**, & moved **Forwards,** it engages Drive & controls the Throttle (engine) speed *(shown above)*.

Moving the Joystick back toward Neutral decreases engine speed and the Drive will disengage when the Joystick is placed in the Neutral gate.

The D-N-R switch is not functional with the G-Motion 2 settings.



G-Motion 2: From Neutral the **Joystick** *is moved* **Full Right**, *then* **Rearwards** *to engage Reverse & Joystick Throttle (engine) speed control.*

When the **Joystick** is shifted **Full Right**, then moved **Rearwards,** it engages Reverse & controls the Throttle (engine) speed *(shown above)*.

Moving the Joystick back toward Neutral position decreases engine speed & disengages Reverse when the Joystick is placed in the Neutral gate.

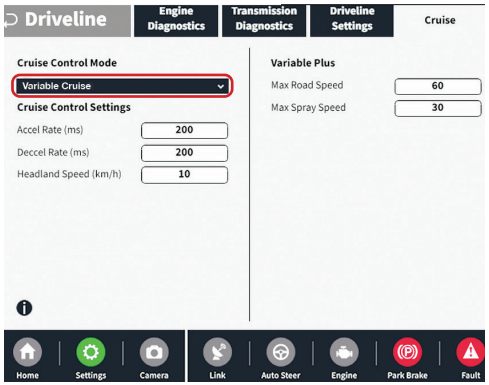
The Foot throttle can be used with the Joystick (hand throttle) active - which ever has the highest setting has control of Engine RPM.

Refer to Chapter 6 'Operation' for operating instructions.

Use of the foot throttle for more than 30 second will cancel the hand throttle

Use of the foot brake cancels the Joystick hand throttle.

After stopping, the Park Brake must be applied.



'Variable Cruise' selected in 'Cruise Control Mode' of the Driveline/Cruise settings screen.

4 Cruise Control Mode

When using Cruise Control mode, the operator sets a target spraying speed, then the Crop Cruiser automatically accelerates toward & maintains the target speed while in Cruise Control mode.

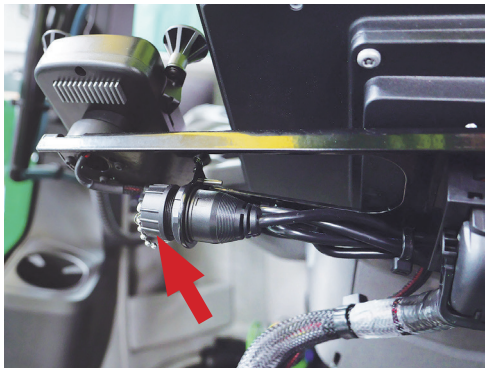
The G-Hub control system provides three Cruise Control modes:

1 Classic Cruise
2 Variable Cruise
3 Variable Cruise Plus.

Refer to Chapter 6 'Operation' 'Cruise Control' for more information & operating instructions.

The selected Cruise Control Mode, eg. 'Variable Cruise' displays on the G-Hub Home screen.





Back-Up/Restore USB C port used for backing-up, updating & restoring settings & data.

3 Back-Up/Restore USB

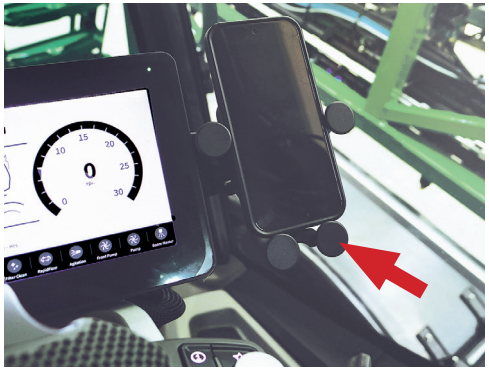
The Back-Up/Restore USB-C port *(shown above)* is located behind the G-Hub touch screen & phone holder. It provides for backing-up, updating software & restoring system settings & data for the G-Hub Controller only. It is not a charging port.

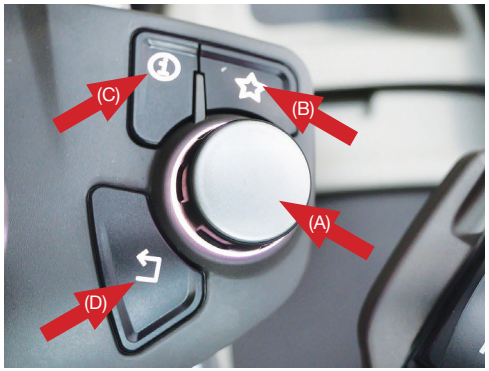
Refer to the Chapter 4 'Setting-Up' for Instructions.

4 Phone Holder/Charger

A convenient Mobile Phone (located on the RHS of the G-Hub touch screen & back-up/restore USB-C port is both a holder & a charger.

Conveniently located phone holder/charger.





Boom Section On/Off Dial (A) and push buttons for instant access to Settings (B),Help Information (C) & Rear Camera

5 Boom Section On/Off Dial

The Boom Section On/Off Dial (located on the RHS of the Joystick) is used for turning Boom Sections (Nozzles) On & Off - by rotating the dial anti-clockwise & clockwise *[shown above (A)]*.

Adjacent to the Boom Section On/Off Dial are 3 push buttons for instant G-Hub access *(shown above)*:

(B) Settings - on screen display by pressing the Star push button *[shown above (B)]*.

(C) Quick Info - displays a quick popup of useful information on the home screen by pressing the i/Circle push button (*shown above (C)]*.

Quick Info provides current status of:

- Drive Selector
- Hand Throttle
- Engine Brake
- Auto fold
- Hydraulic Lockout

(D) Rear Camera - displays on screen by pressing the Return Arrow push button) *[shown above (D)]*.

Pressing the Return push button a 2nd time goes to the Settings Menu.



The Drive Switch (left) & Park Switch (right) on the front section of the Boom & Spray Controls console.

6 Drive & Park Switches

The Drive & Park Switches *(rocker switches shown above)* are conveniently located on the front corner of the Boom & Spray Controls console & next to the Boom On/Off Dial.

The Drive & Park Switches are:

1 D/N/R (Drive/Neutral/Reverse) - used to engage forward Drive & Reverse and disengage gears returning to Neutral.

2 Park Brake On/Off - used to engage & disengage the Park Brake.

Refer to Chapter 6 'Operation' for instructions.

NOTE

The console Drive (D-N-R) switch can be disabled in the G-Hub Settings.



Single Cup Holder located - on the RHS of the Boom & Spray Controls Console [next to the RHS emergency door].

7 Cup Holder

A convenient single Cup Holder is provided on the RHS of the Boom & Spray Controls Ccnsole next to the RHS emergency door *(shown above)*.



Armrest Boom & Spray Control console comprises a row of rocker switches (top row) & 2 rows of push buttons (centre & front rows) for easy control of all boom and spraying functions - Bi-fold 36m boom model shown.

8 Boom & Spray Controls

The Armrest Boom & Spray Control console *(shown above)* features the D/N/R & Park rocker switches *(LHS)*, and a single row of rocker switches and 2 rows of push button switches *(RHS)* for convenient & efficient control of all boom and spraying functions:

Seven Rocker Switch functions *(shown above - left to right - top row)*:

- Boom Rest
- Fold One - In/Out
- Fold Two - In/Out
- Blank
- Pump Speed - Increase/Decrease
- Rate - Increase/Decrease
- Front 3PL - Up/Down (If fitted).

Six Push Button functions *(shown above - left to right - middle row)*:

- Boom Height Control
- Cruise Mode
- Hand Throttle Off
- Rapid Flow
- Product Pump 2
- Product Pump 1.

Six Push Button functions *(shown above - left to right - front row)*:

- Centre Diff Lock
- Cruise Master
- Engine Brake
- Filter Clean
- Agitator
- Rinse Pump 1.

Refer to Chapter 6 ‘Operation’ for instructions.

NOTE

The Armrest Boom & Spray Control console of a Crop Cruiser fitted with a Bi-fold 36m boom (shown above) is similar but different to a Crop Cruiser fitted with a Trifold 48m boom which requires some extra key functions. Refer to Chapter 6 for more details.



One of three PLC Connectors provided in the cabin to connect & integrate chosen spray controllers.

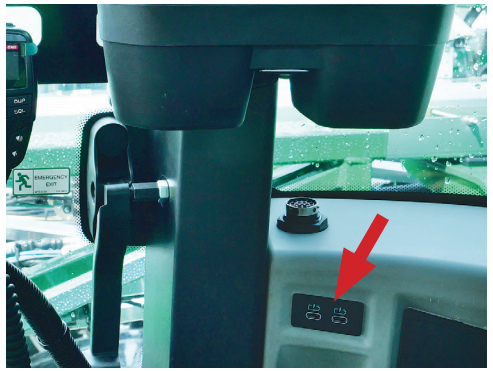
9 PLC Connectors

Three PLC Connectors (3) are provided in the cabin to connect & integrate controllers chosen for spraying operations *(one shown above)*.

10 Aux USB Power Supply

Dual USB-C outlets (located above the ignition key) enables charging of phones, tablets or other USB devices *(shown below)*.

Dual USB-C outlets (located above the ignition key) enable charging of a phones, tablets or other USB devices.





USB-A Socket 5 V outlet located on the end of the Boom & Spray Control console.

11 USB Socket 5 V

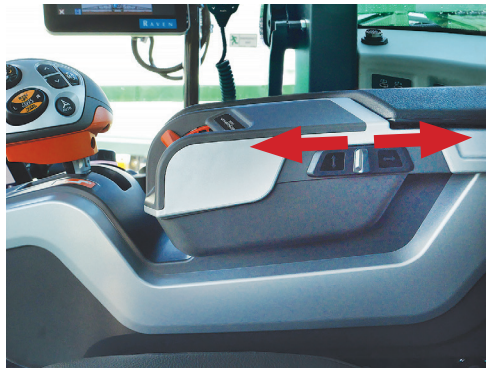
A USB-A Socket 5 V outlet (located on the end of the Boom & Spray Control console) enables charging of phone & accessories *(shown above).*

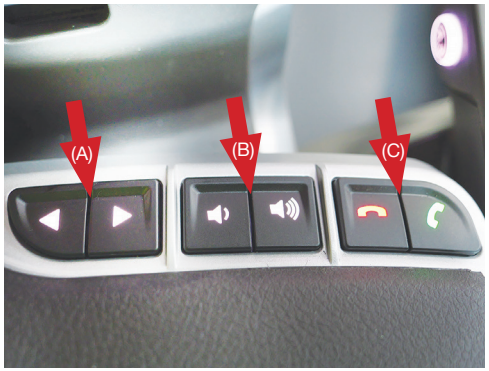
12 Armrest Slide Adjuster

The Armrest Slide Adjuster (located centrally on the LHS of the armrest) allows the operator to adjust the console height and fore/aft for personal comfort *(shown below)*.

Move the Slide Adjuster forwards to raise or lower the console & rearwards to adjust the console fore or aft. Centre locks its position.

Move the Slide Adjuster forwards to raise & lower the Armrest console & rearwards to adjust the console fore & aft.





Push buttons for Radio station selection (A), Volume Up/Down (B) and Phone Accept call & Dial out/End call (C).

13 Radio & Phone Buttons

Three pairs of push buttons on front of the armrest *(shown above)* provide convenient radio & phone controls:

(A) Arrows - Radio station selection

(B) Sound - Volume Up/Down

(C) Phone - Accept call/Dial out/End call.

14 Maximum Gear Selector

The Maximum Gear Selector (on front LHS of the armrest) *(shown below)* allows the operator to select maximum gears (pre-set in G-Hub Settings) during spray applications.

Maximum Gear Selector on front LHS of the armrest.





Fn (Function) Button currently reserved for new & improved functions.

15 Fn (Function) Button

The Fn (Function) Button (located below the Drive & Park Brake rocker switches) is currently reserved for new & improved functions *(shown above)*.

16 12 Volt Power Supply

A 12 Volt Power Supply is located below the Boom & Spray Controls Console next to the Emergency door *(shown below)*.

12 Volt Power Supply located below the Boom & Spray Controls Ccnsole next to the Emergency door.





Push out the small storage tray (located in front of & below the Joystick Controller).

17 Storage Trays

A small storage tray is located in front of and below the Joystick Controller *(shown above)*.

Two Storage Trays (located on top of the electrical compartments along the right hand side of the cabin) are provided on top of electrical compartments covers *(shown below & above right)*.

First of two Storage Trays (located on top of a electrical compartment in the right hand side of the cabin).



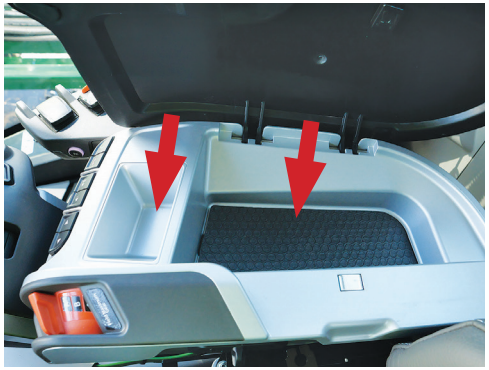


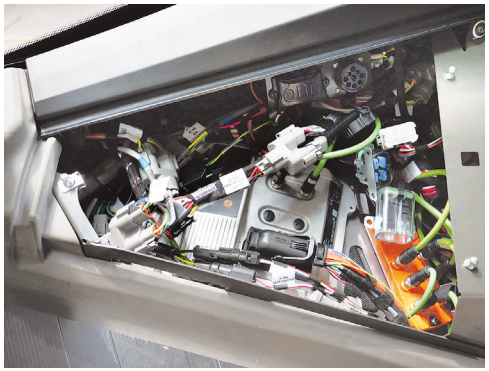
Second of two) Storage Trays (located on top of a electrical compartment in the right hand side of the cabin).

There are also two storage trays under the Armrest. Lift-up the Armrest to access these trays *(shown below)*.

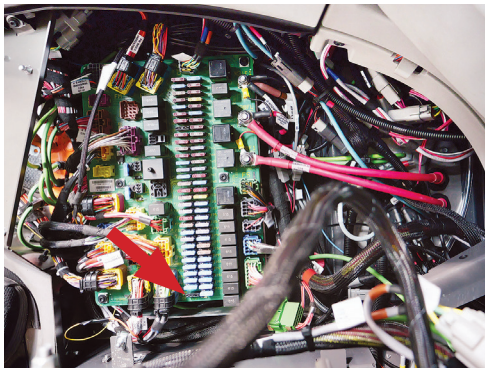
Lifting-up the Armrest also gives access to release a lock bolt when then allows the whole Armrest Control Centre to be raised to access electrical compartments.

Two storage trays located under the Armrest. Lift-up the Armrest to access the trays.





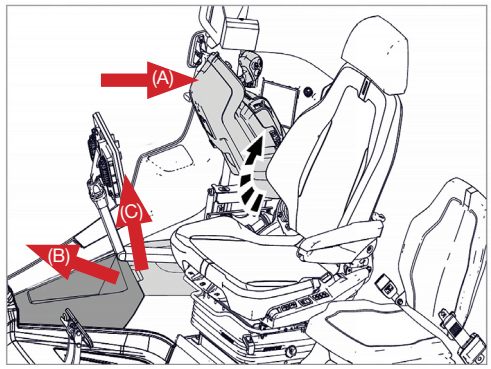
First (front) Electrical Compartment with the storage tray cover removed.



Second Electrical Compartment with the storage tray/cover removed - Arrow showing 'Fuse Test Point'.



Lift-up the Armrest and remove the black mat.



Lift-up the Armrest Control Centre (A), remove the front storage tray (B), then remove the rear storage tray (C).

18 Electrical Compartments

Electrical Compartments (*shown above & below)* are located below the Armrest Control Centre on the right hand side of the cabin - under storage trays *(shown previously)*.

A third electrical compartment is located behind the operator's seat (Bilberry option).

These compartments contain main fuse boxes and various fuses, relays to activate the machine circuitry and the connectors for GPS steering systems.

Fuses are designed in the system to protect the system against electrical faults and incorrect connections. If a fault or incorrect connection occurs, a fuse will blow and disconnect the related circuit.

If a fuse has blown, identify the corresponding components in the circuit and investigate the cause before reconnecting with a new fuse.

See Chapter 10 'Integrated Systems', 'Cabin Electrical Compartment' for further information.

To Access Electrical Compartments

1 Securely park & switch Off the machine.

2 Lift-up the Armrest & remove the black mat to access the lock bolt which locks down but also releases the Armrest Control Centre to be lifted up.

3 Rotate the lock bolt (half turn) to release the lock using a 13mm spanner *(shown below)*.

Rotate the lock bolt (half turn) to release the lock using a 13mm spanner



4 Lift-up the Armrest Control Centre *[illustrated above (A)]*.

5 Unlock & remove the front storage tray/ cover *[illustrated above (B)]*.

6 Unlock & remove the rear storage tray/ cover *[illustrated above (C)]*.

After completion of servicing in the electrical compartments:

- Refit the storage trays/covers
- Return the Armrest Control Centre to its operating position
- Rotate the lock bolt with a 13mm spanner & lock the Control Centre in place
- Refit the black mat and close the armrest.

⚠CAUTION

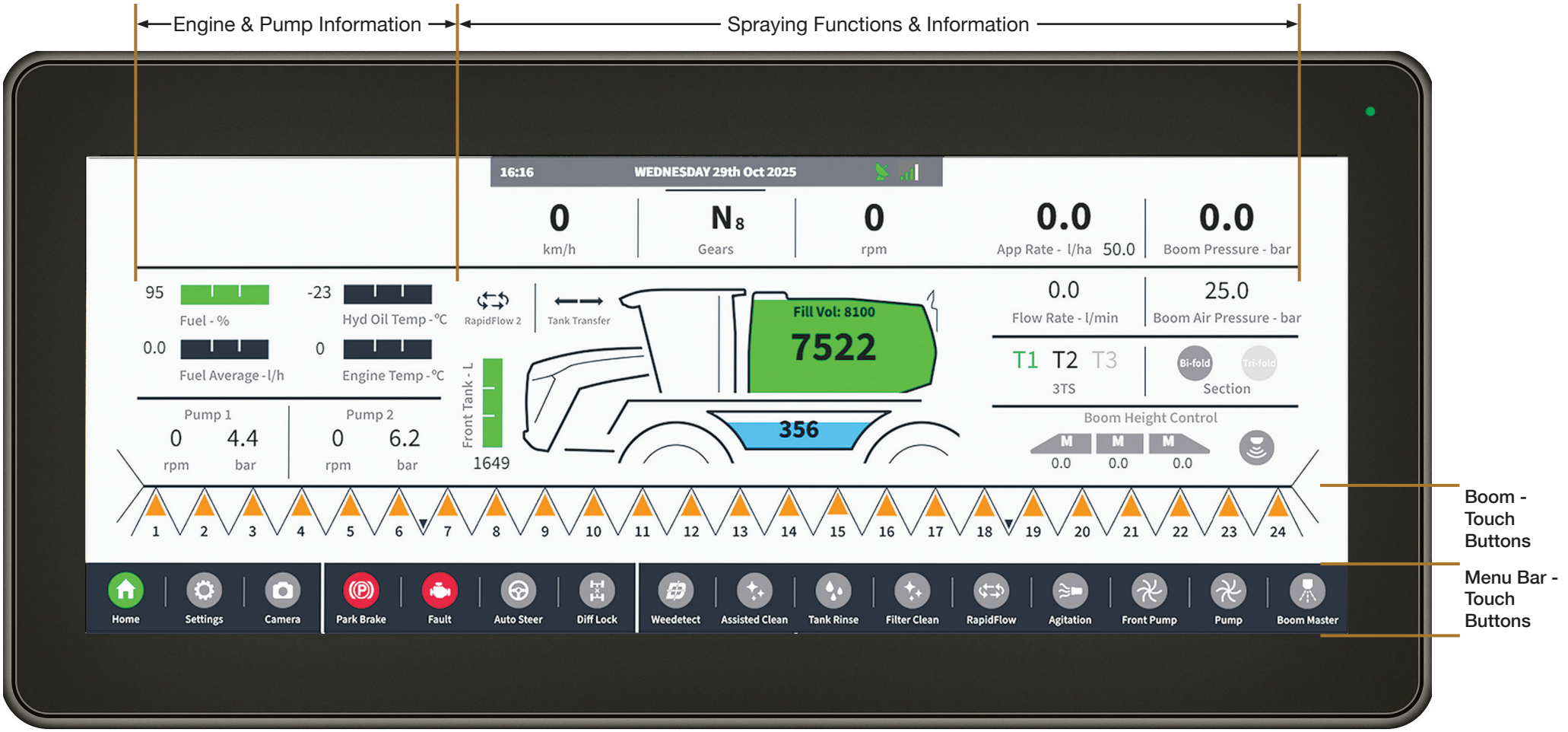
When abruptly braking a Crop Cruiser, any loose objects that are pointed or heavy maybe forced from open storage trays and move without control in the cab.

Secure such objects in the storage trays or remove them from the cab.

⚠CAUTION

When a fuse is replaced it is important that the fuse is replaced with another fuse of the same rating. Do NOT use a higher rated fuse in an attempt to correct an electrical fault. Failure to follow these instructions may cause damage to the machine which cannot be covered by warranty.

3 Your Sprayer at a Glance - **Cabin**



G-Hub Controller

Goldacres G-Hub Controller with touch button controls (Home Screen *[shown above]*) is a fully integrated electronic control system facilitating easy in-cab controls & monitoring of all critical machine & spraying functions.

This chapter provides an overview of the G-Hub Controller systems, screens & functions.

The G-Hub Controller integrated system is designed to operate seamlessly with leading steering and mapping providers using the ISOBUS protocol.

On-board diagnostics allow the operator to quickly pinpoint problems without the need for laptops, specialised service tools or internet connection (Refer to Chapter 9 'Trouble Shooting' for more information).

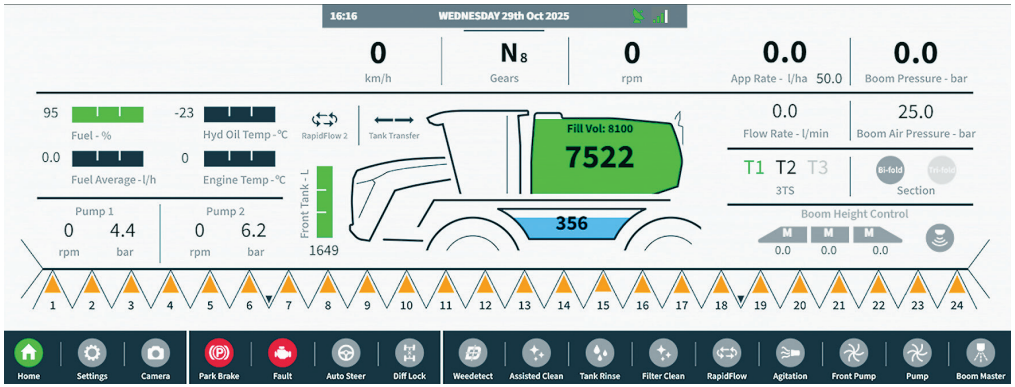
See Chapter 6 'Operation' for operating instructions, as well as the External G-Hub Control Screen for filling & cleaning functions.

Engine & Pump Information

The Engine & Pump Information (on the Home screen *(shown above)* displays essential information on current engine and pump operation.

Spraying Functions & Information

The Spraying Functions & Information (on the Home Screen *[shown above]* include touch buttons for spraying functions and display information of the Crop Cruiser spraying functions.



Spray Home Screen

The Spray Home Screen *(shown above)* displays up to 16 Menu touch buttons along the screen base (depending on options fitted).

Menu Bar touch buttons (along the screen base) include:

- Home
- Settings
- Camera
- Link
- Autosteer
- Engine
- Park Brake
- Fault
- Diff Lock
- Tank Rinse
- Filter Clean
- Rapid Flow
- Agitation
- Front Pump
- Pump
- Boom Master.

Menu Bar touch buttons show:

- Green - when selected or On
- Grey - when Off.

Boom Touch Buttons - Up to 24 touch buttons display (depending on boom size).

Boom Nozzle/Fenceline touch buttons display:

- Green when On
- Amber when Waiting
- Clear when Off.

Upper Screen Information shown includes:

- Time
- Date
- Signal Strength

- Km/h (travel speed)
- Gears
- rpm (engine)

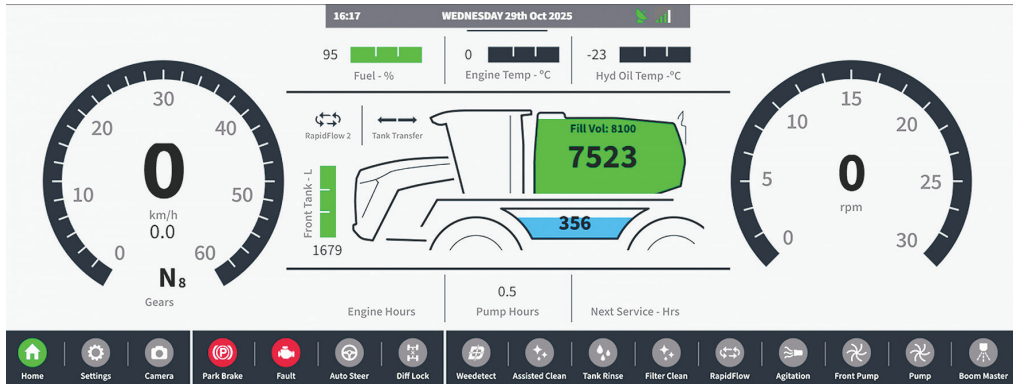
- Fuel - %
- Fuel Average - l/hr
- Hydraulic Oil Temp - °C
- Engine Temp - °C
- Pump 1 - rpm & bar

- Product Tank (litres in tank)
- Rinse Tank (litres in tank)
- Clean - symbol
- Camera - symbol

- App Rate - l/ha
- Boom Pressure - bar
- Flow Rate - l/min
- Boom Air Pressure - bar
- 3TS - T1, T2 & T3
- Section - Bifold & Trifold symbols
- Boom Height Control symbols.

Information symbols display:

- Green On, Grey Off & Red Alarm/Fault.



Road Home Screen

The Road Home Screen *(shown above)* displays up to 16 Menu touch buttons along the base of the screen (depending on options fitted).

The **Menu Bar** (along the screen base) is the same as the Spray Home Screen.

Upper Screen Information shown includes:

- Time
- Date
- Signal Strength

- Fuel - %
- Engine Temp °C
- Hyd Oil Temp °C

- Km/h (travel speed)
- Gears
- Product Tank (litres in tank)
- Rinse Tank (litres in tank)
- Clean - symbol
- Camera - symbol
- Engine Hours
- Pump Hours
- Next Service Hours
- rpm (engine).

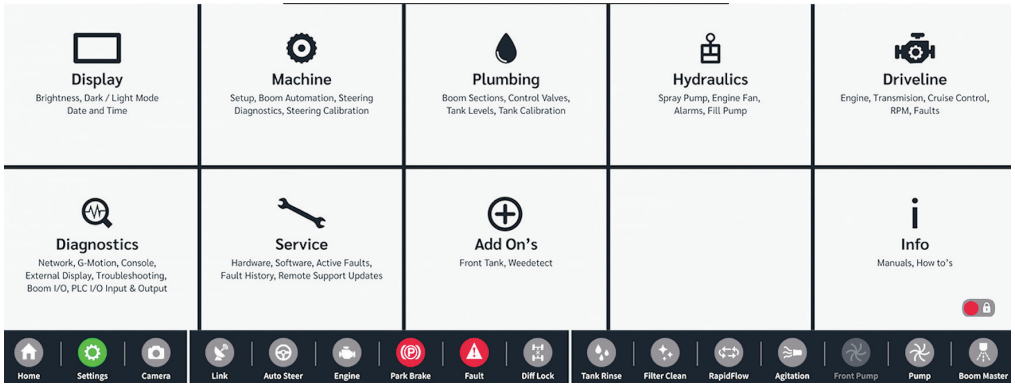
Information symbols display:

- Green On, Grey Off & Red Alarm/Fault.

Press the 'Home' touch button to change from the Spray Home Screen to the Road Home Screen and vice versa.

The 'Road/Spray' Switch can also be used to change between these screens.

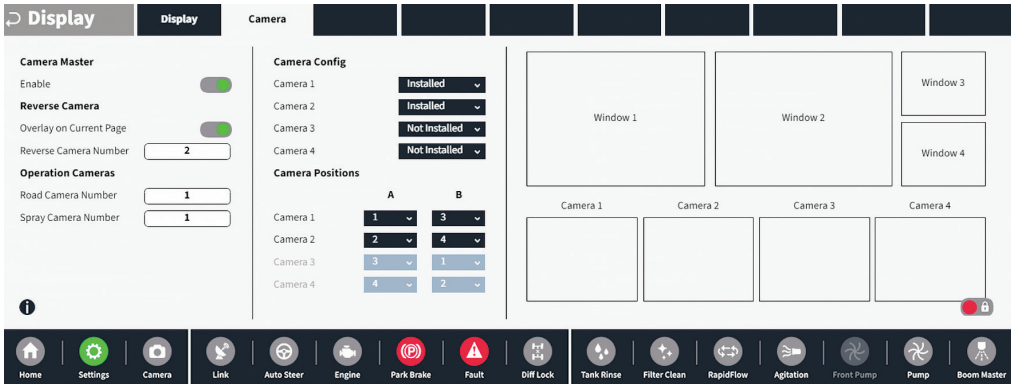
Your Sprayer at a Glance - **Cabin**



Settings Menu

The Settings Menu screen *(shown above)* displays 9 Menu touch buttons:

- Display
- Machine
- Plumbing
- Hydraulics
- Driveline
- Diagnostics
- Service
- Add On's
- Info
- Touch button for Security Lock.



Display Menu

The Display menu [2 tab menus] opens with the Display screen *(shown below)* & displays settings for:

- Date/Time
- Display Mode
- Display Backlight
- Display Themes
- Heading
- Alerts
- Audio Player
- Touch buttons for Security Lock & Information.

Camera

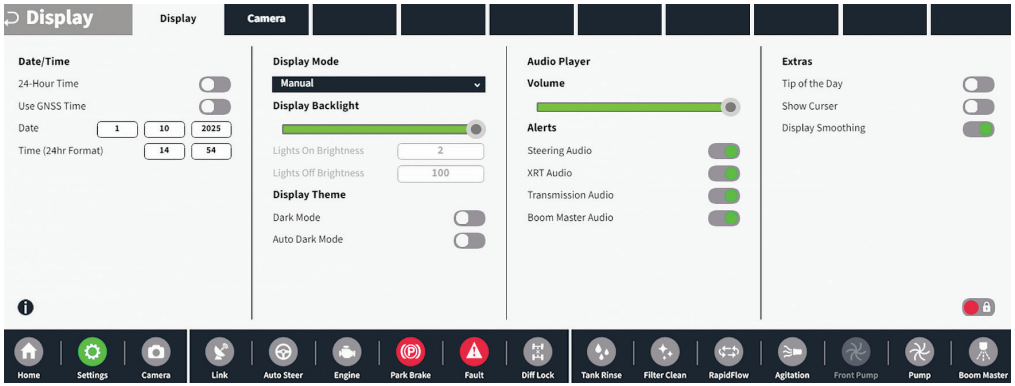
The Camera menu screen *(shown above)* displays settings for:

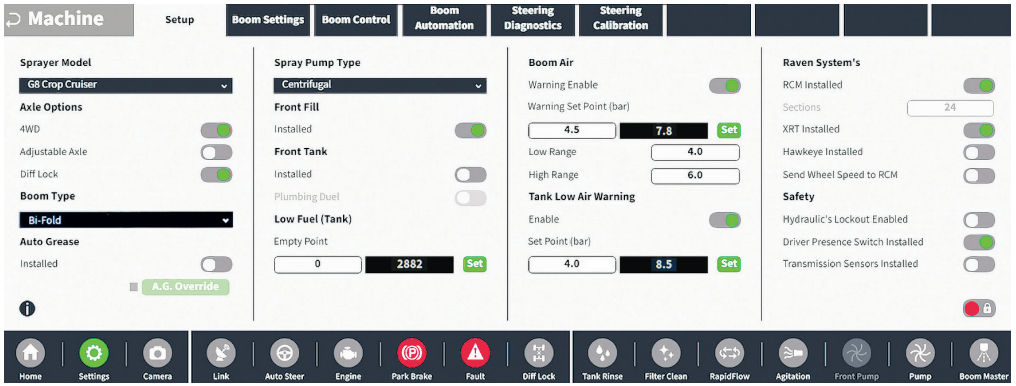
- Camera Master
- Reverse Camera
- Operational Cameras
- Camera Config
- Camera Positions
- Touch buttons for Security Lock & Information.

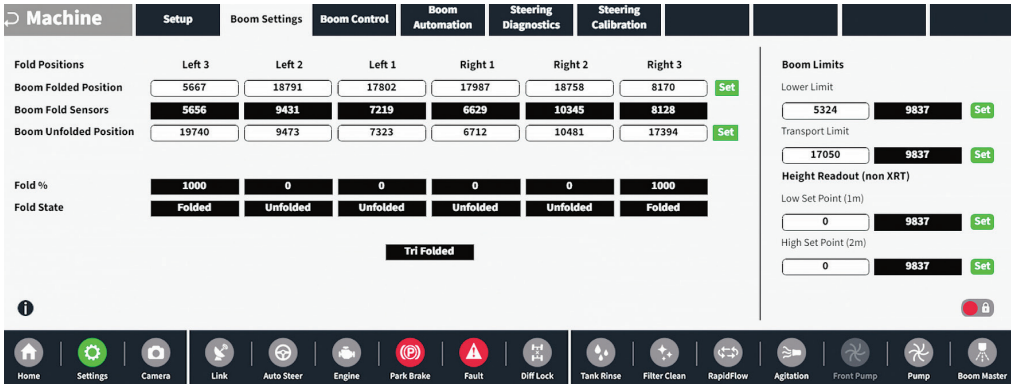
Machine Menu

The Machine Menu [displays 6 tab menus] opens with the Setup screen *(shown below)* & displays settings for:

- Sprayer Model
- Boom Type
- Spray Pump Type
- Front Tank
- Auto Grease
- Boom Air
- Low Tank Warning
- Hydraulic Oil Pressure Warning
- Low Fuel (Tank)
- Touch buttons for Security Lock & Information.



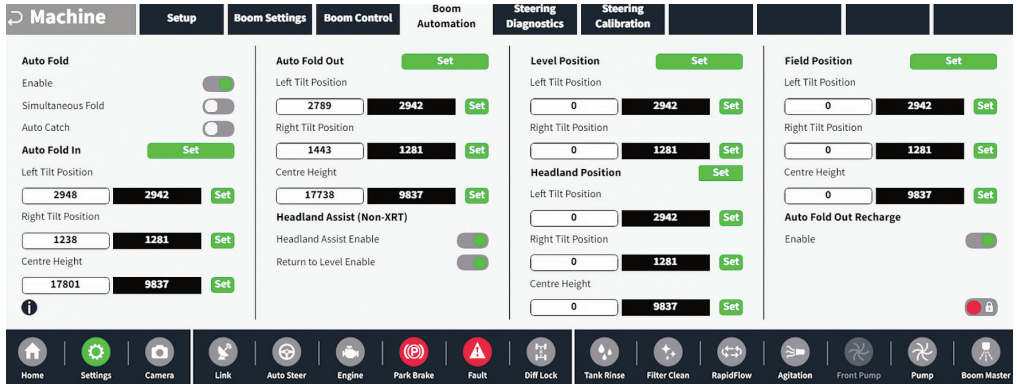




Boom Settings

The Boom Settings screen *(shown above)* displays settings for:

- Fold Positions
- Boom Folded Position
- Boom Fold Sensors
- Boom Unfolded Position
- Fold %
- Fold State
- Boom Limits
- Height Readout (non XRT)
- Touch buttons for Security Lock & Information.



Boom Control

The Boom Control screen *(shown below)* displays settings for:

- Boom Fold
- Boom Fold Stage 1
- Boom Fold Stage 1
- Boom Fold Stage 1
- Boom Tilts
- Folded Speed
- Unfolded Speed
- Touch buttons for Security Lock & Information.

Boom Automation

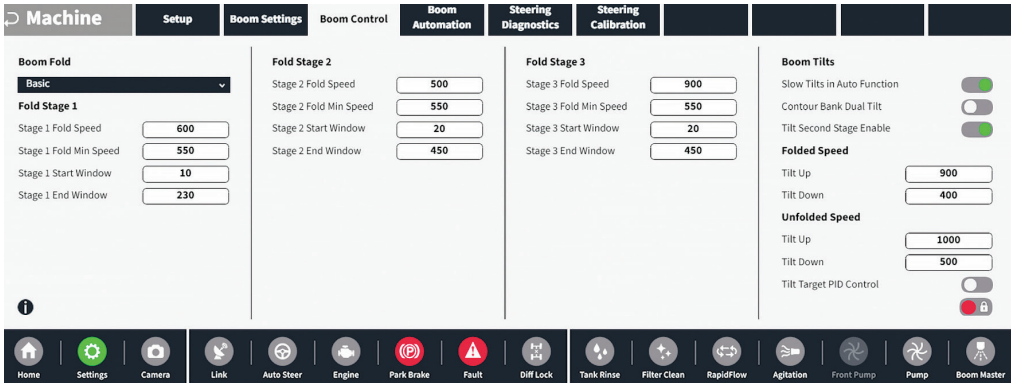
The Boom Automation screen *(shown above)* displays settings for:

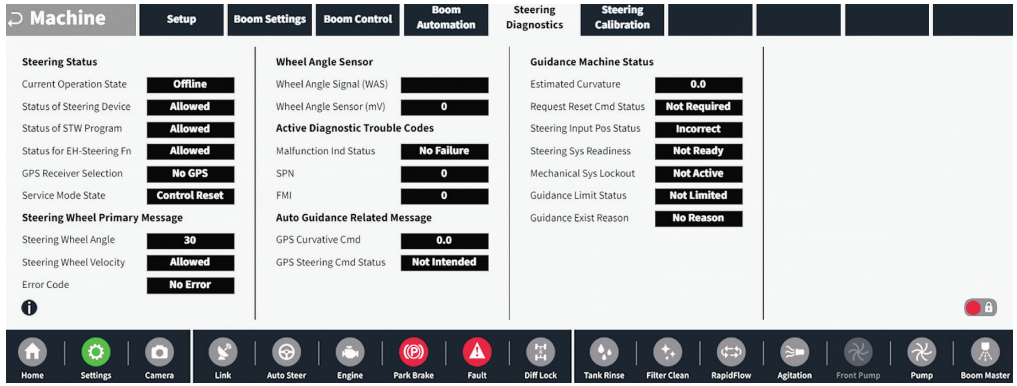
- Auto Fold
- Headland Assist (Non XRT)
- Auto Fold Out Recharge
- Touch buttons for Security Lock & Information.

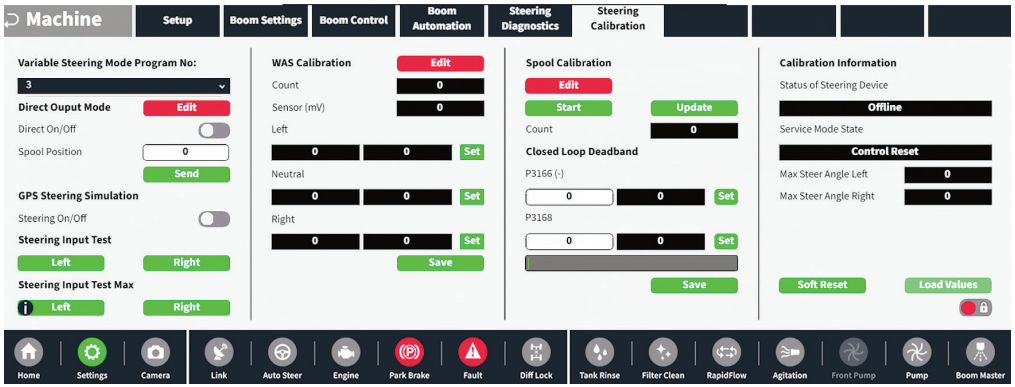
Steering Diagnostics

The Steering Diagnostics screen *(shown below)* displays:

- Steering Status
- Steering Wheel Primary Message
- Wheel Angle Sensor
- Active Diagnostic Trouble Codes
- Auto Guidance Related Message
- Guidance Machine Status
- Touch buttons for Security Lock & Information.







Steering Calibration

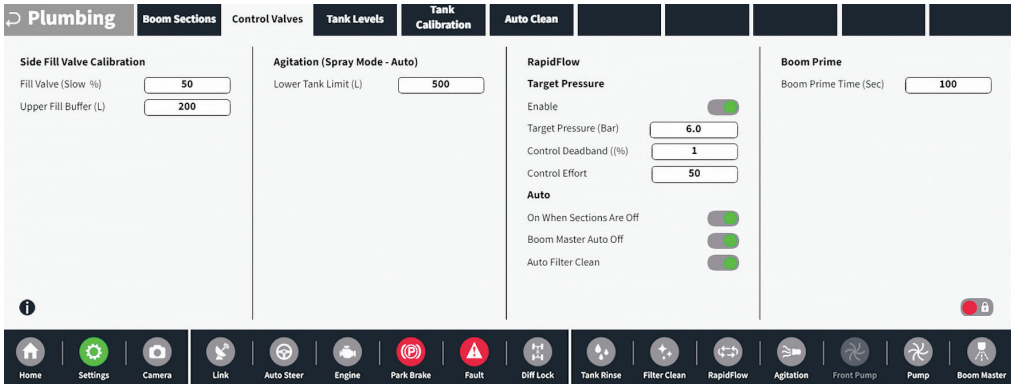
The Steering Diagnostics screen *(shown above)* displays settings for:

- Variable Steering Mode Program No:
- Direct Output Mode
- Steering Simulation
- Steering Input Test
- Steering Input Test Max
- WAS Calibration
- Spool Calibration
- Calibration Information
- Touch buttons for Security Lock & Information.

Plumbing Menu

The Plumbing menu [5 tab menus] opens with Boom Sections screen *(shown below)* displays settings for:

- Outer Wing Sections (Bi-fold)
- Middle Wing Sections (Tri-fold)
- Auto Fold Section Shutoff
- Vitrual (Universal) Switch Box
- Wheel Section Control Mode
- Touch buttons for Security Lock & Information.



Control Valves

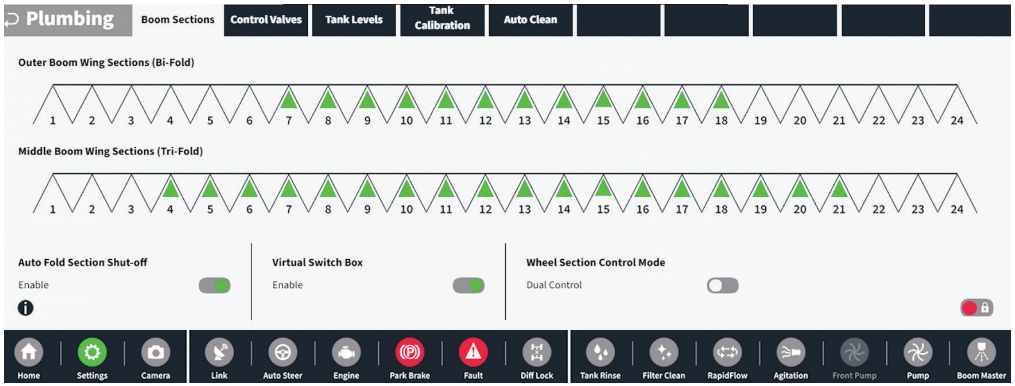
The Contol Valves screen *(shown above)* displays settings for:

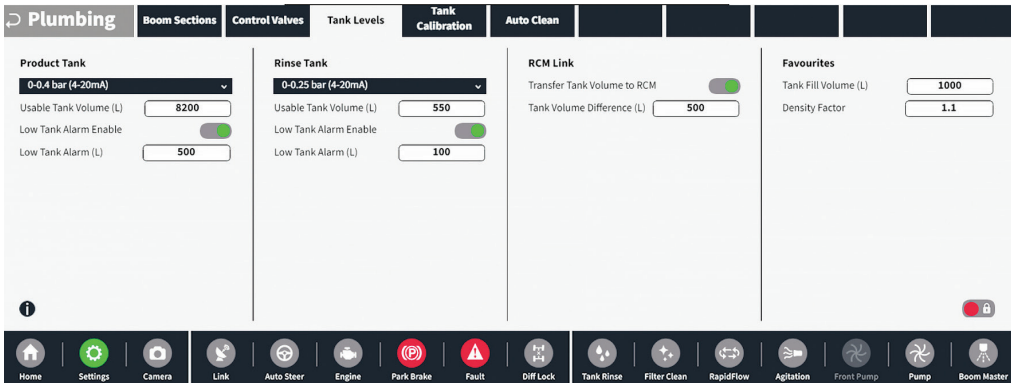
- Side Fill Valve Calibration
- Agitation (Spray Mode - Auto)
- RapidFlow (Auto)
- Boom Prime
- Touch buttons for Security Lock & Information.

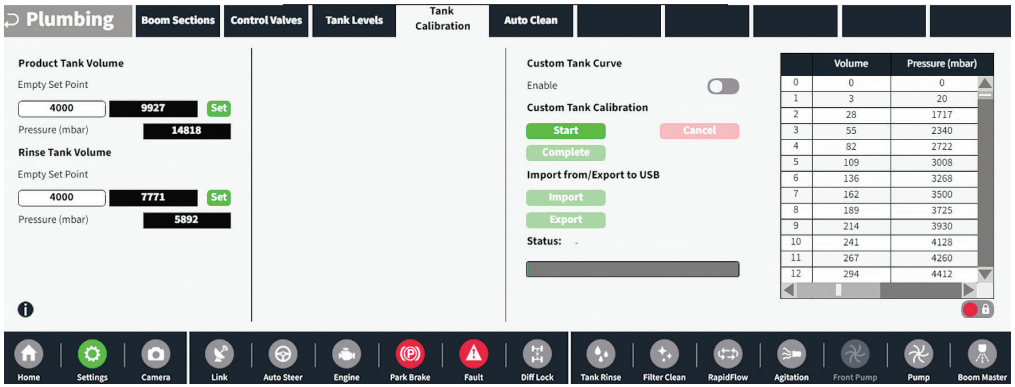
Tank Levels

The Tank Levels screen *(shown below)* displays settings for:

- Product Tank
- Rinse Tank
- RCM Link
- Favourites
- Touch buttons for Security Lock & Information.







Tank Calibration

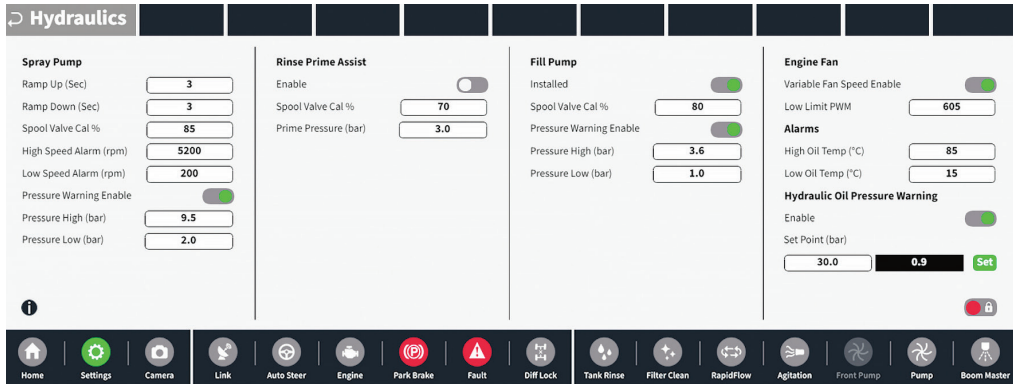
The Tank Calibration screen *(shown above)* displays settings for:

- Product Tank Volume
- Rinse Tank Volume
- Front Tank Volume
- Custom Tank Curve
- Custom Tank Calibration
- Import from/Export to USB-C
- Status
- Touch buttons for Security Lock & Information.

Auto Clean

The Auto Clean screen *(shown below)* displays settings for:

- Auto Clean Profile
- Function Configuration
- Auto Clean Table
- Info
- Import from/Export to USB-C
- Status
- Touch buttons for Security Lock & Information.



Hydraulics Menu

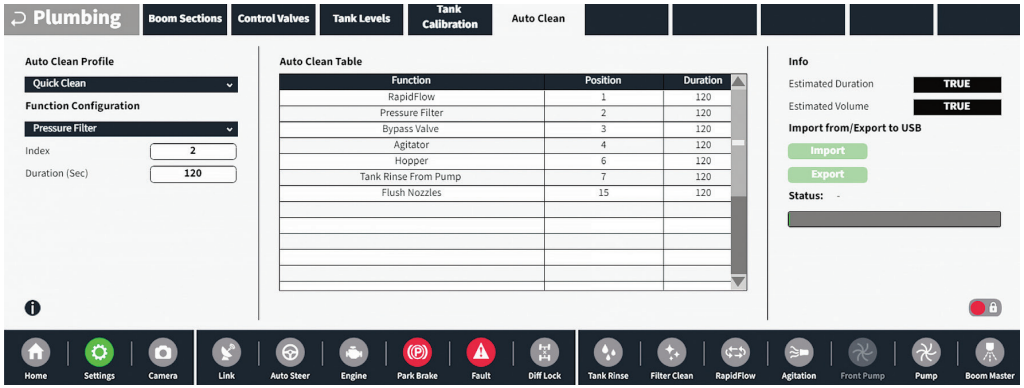
The Hydraulics menu *(shown above)* displays settings for:

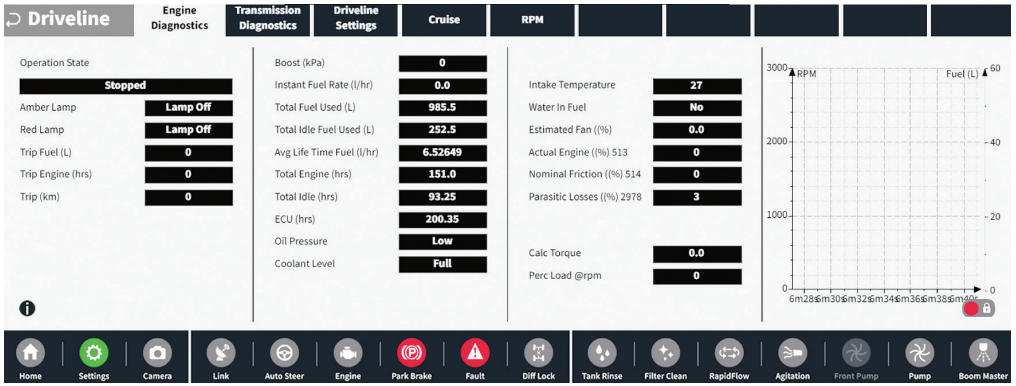
- Spray Pump
- Rinse Prime Assist
- Fill Pump
- Engine Fan
- Alarms
- Touch buttons for Security Lock & Information.

Driveline Menu

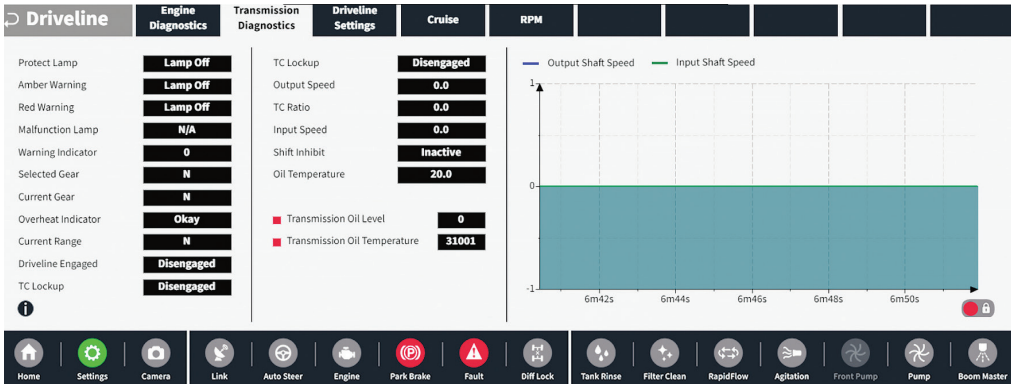
The Driveline menu [5 tab menus] opens with the Engine Diagnostics screen *(shown below)* & displays:

- Operation State
- Amber Lamp
- Red Lamp
- Trip Fuel (L)
- Trip Engine (hrs)
- Trip (kms)
- Boost (kPa)
- Instant Fuel Rate (l/hr)
- Total Fuel Used (l/hr)
- Total Idle Fuel Used (l/hr)
- Total Engine (hrs)
- Total Idle (hrs)
- ECU (hrs)
- Oil Pressure
- Coolant Level
- Intake Temperature
- Water In Fuel
- Estimated Fan (%)
- Actual Engine (%) 513
- Nominal Friction (%) 514
- Parasitic Losses (%) 2978
- Calc Torque
- Perc Load @rpm
- Graph
- Touch buttons for Security Lock & Information.





Your Sprayer at a Glance - **Cabin**



Transmission Diagnostics

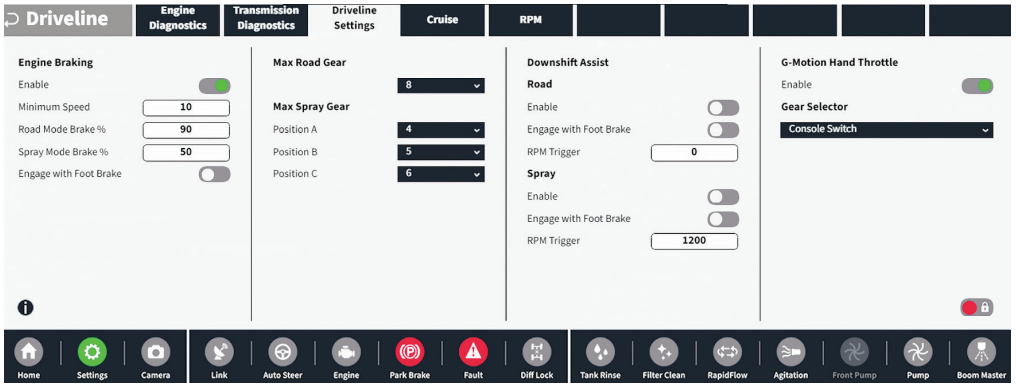
The Transmission Diagnostics screen *(shown above)* displays:

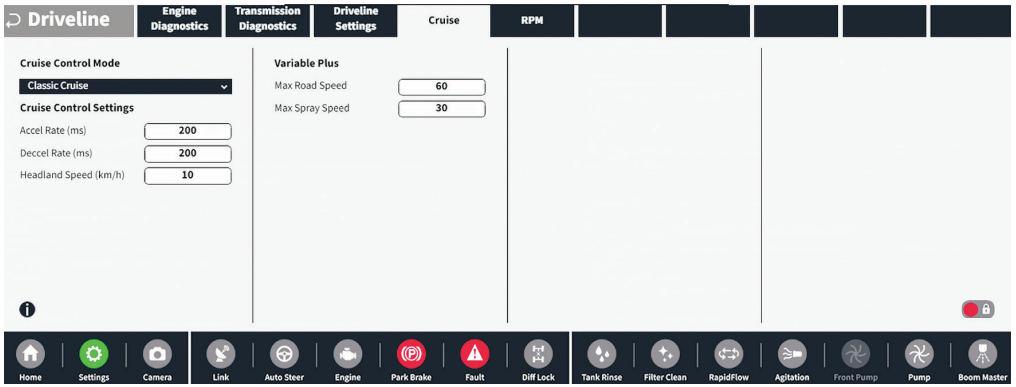
- Protect Lamp
- Amber Warning
- Red Warning
- Malfunction Lamp
- Warning Indicator
- Selected Gear
- Current Gear
- Overheat Indicator
- Current Range
- Driveline Engaged
- TC Lockup
- TC Lockup
- Output Speed
- TC Ratio
- Input Speed
- Shift Inhibitl
- Oil Temperature
- Transmission Oil Level
- Transmission Oil Temperature
- Output Shaft Speed Graph
- Input Shaft Speed Graph
- Touch buttons for Security Lock & Information.

Driveline Settings

The Driveline Setting screen *(shown below)* displays settings for:

- Engine Braking
- Max Road Gear
- Max Spray Gear
- Downshift Assist
- Road
- Spray
- Temp Downshift
- G-Motion Hand Throttle
- Gear Selector
- Transmission Sensors Installed
- Touch buttons for Security Lock & Information.





Cruise

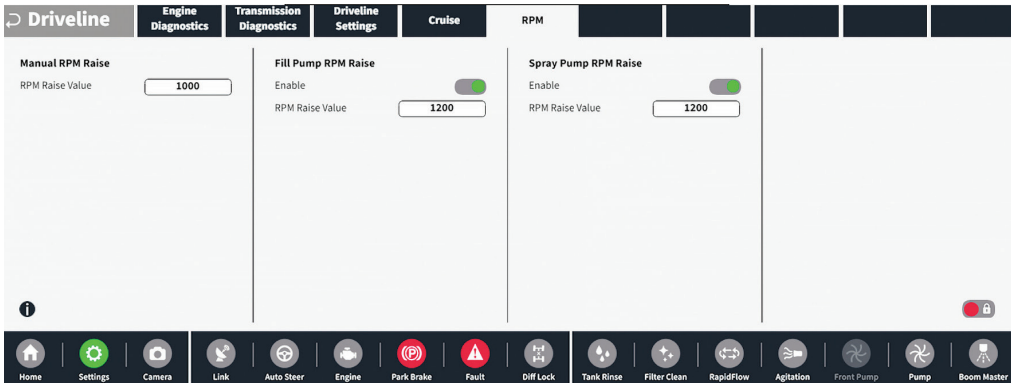
The Cruise Setting screen *(shown above)* displays settings for:

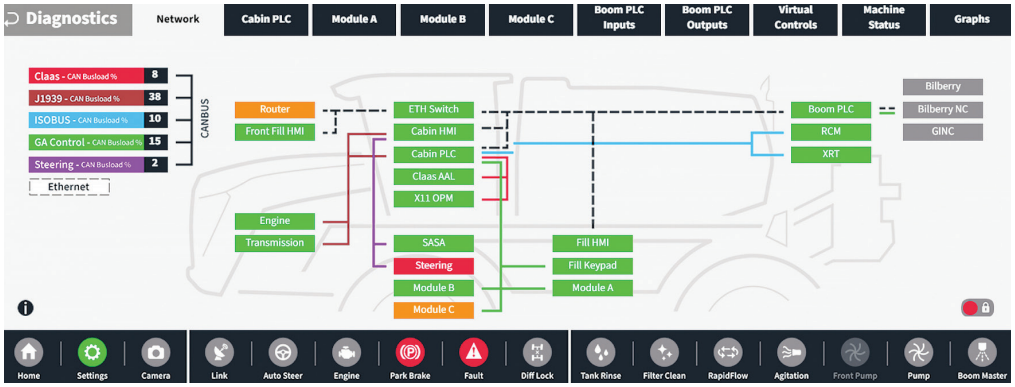
- Cruise Control Mode
- Cruise Control Settings
- Target Speed
- Off Target
- On Target
- Variable Plus
- Touch buttons for Security Lock & Information.

RPM

The RPM Setting screen *(shown below)* displays settings for:

- Manual RPM Raise
- Fill Pump RPM Raise
- Spray Pump RPM Raise
- Touch buttons for Security Lock & Information.





Diagnostics Menu

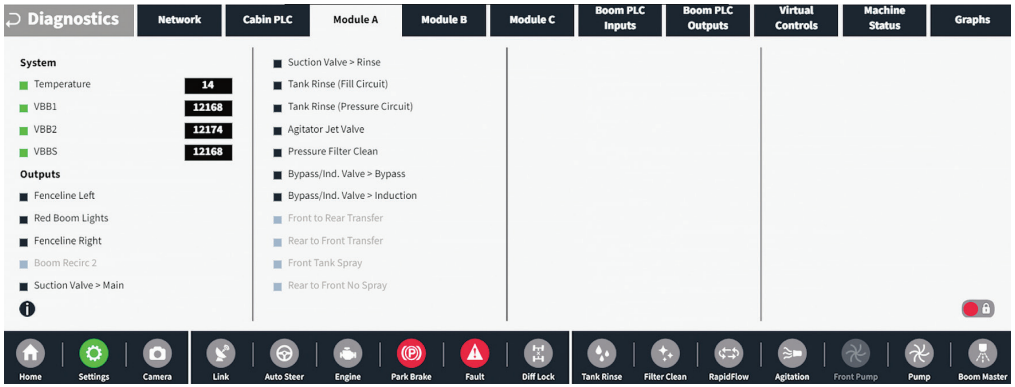
The Diagnostics menu [10 tab menus] opens with the Network screen *(shown above)* & displays:

- CANBUS
  - Class
  - JI939
  - ISOBUS
  - GA Control
  - Steering
  - Ethernet
- Router
- Front Fill HMI
- Engine
- Transmission
- ETH Switch
- Cabin HMI
- Cabin PLC
- Claas AAL
- X11 POM
- SASA
- Steering
- Module B
- Module C
- Fill HMI
- Fill Keypad
- Module A
- Boom PLC
- RCM
- XRT
- Bilberry
- Touch buttons for Security Lock & Information.

Cabin PLC

The Cabin PLC screen *(shown below)* displays:

- System
  - Logic Power
  - System Power
  - Temperature
  - Group 0 Voltage
  - Group 0 Current
  - Group 1 Voltage
  - Group 1 Current
- Inputs
  - Drive Select
  - Reverse Select
  - Park Brake
  - Field Mode Input
  - Accelerator On Idle
  - Accelerator Off Idle
  - Armrest Button
  - Driver Presence Switch
  - Accelerator Pedal Position
  - Value Power
  - Joystick Sensor Left
  - Joystick Sensor Right
  - Joystick Sensor Forwards
  - Joystick Sensor Backwards
- Outputs
  - Engine Crank
  - Front Tank Lift
  - Front Tank Lower
  - Front Flood Trigger
  - Spray Pump Drive
  - Warning Beeper
  - Spray Pump Drive
  - Adjustable Axle In
  - Adjustable Axle Out
  - Unloader
  - Joystick 5V
- Touch buttons for Security Lock & Information.



Module A

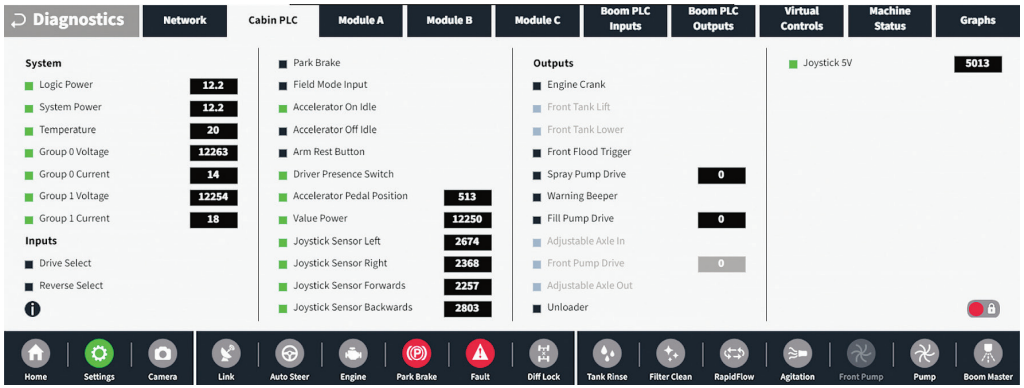
The Module A screen *(shown above)* displays:

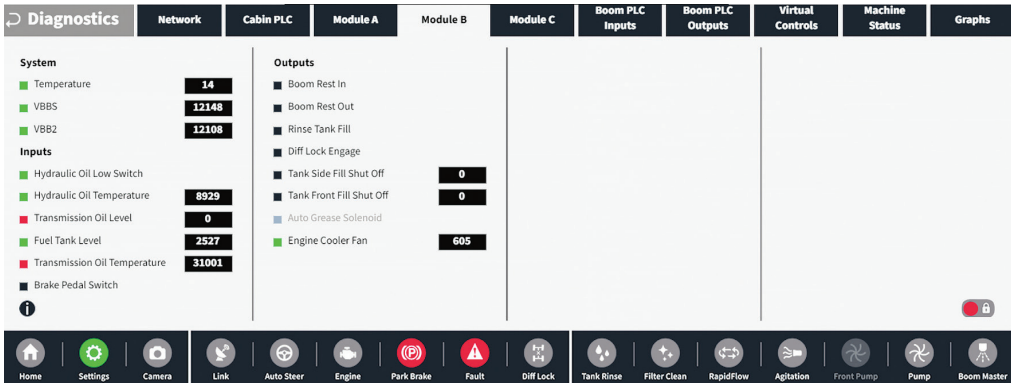
- System
  - Temperature
  - VBB1
  - VBB2
  - VBBS
- Outputs
  - Fenceline Left
  - Red Boom Lights
  - Fenceline Right
  - Boom Recirc 2
  - Suction Valve > Main
  - Suction Valve > Rinse
  - Tank Rinse (Fill Circuit)
  - Tank Rinse (Pressure Circuit)
  - Agitator Jet Valve
  - Pressure Filter Clean
  - Bypass/Ind. Valve Bypass
  - Bypass/Ind. Valve Induction
  - Front to Rear Transfer
  - Rear to Front Transfer
  - Front Tray spray
  - Front Tank spray
  - Rear to Front No Spray
- Touch buttons for Security Lock & Information.

Module B

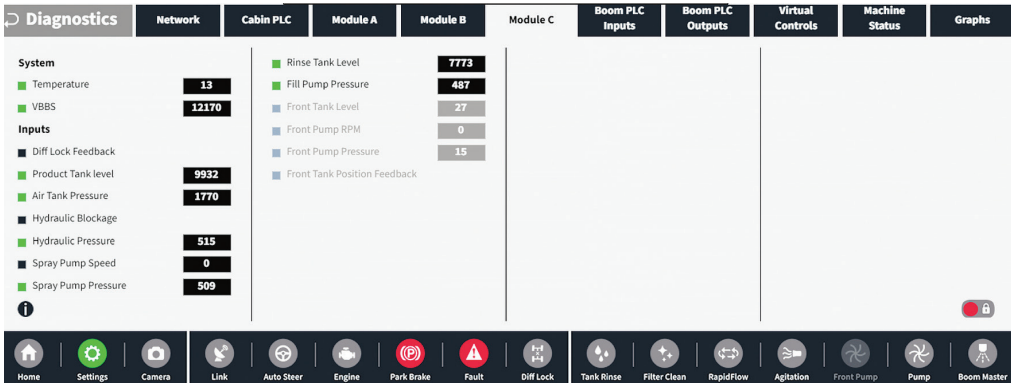
The Module B screen *(shown above)* displays:

- System
  - Temperature
  - VBBS
  - VBB2
- Inputs
  - Hydraulic Oil Low Switch
  - Hydraulic Oil Temperature
  - Transmission Oil Level
  - Fuel Tank Level
  - Transmission Oil Temperature
  - Brake Pedal Switch
- Outputs
  - Boom Rest In
  - Boom Rest Out
  - Rinse Tank Fill
  - Diff Lock Engage
  - Boom Rest Out
  - Tank Side Fill Shut Off
  - Tank Front Fill Shut Off
  - Auto Grease Solenoid
  - Engine Cooler Fan
  - Rinse Tank Fill
- Touch buttons for Security Lock & Information.





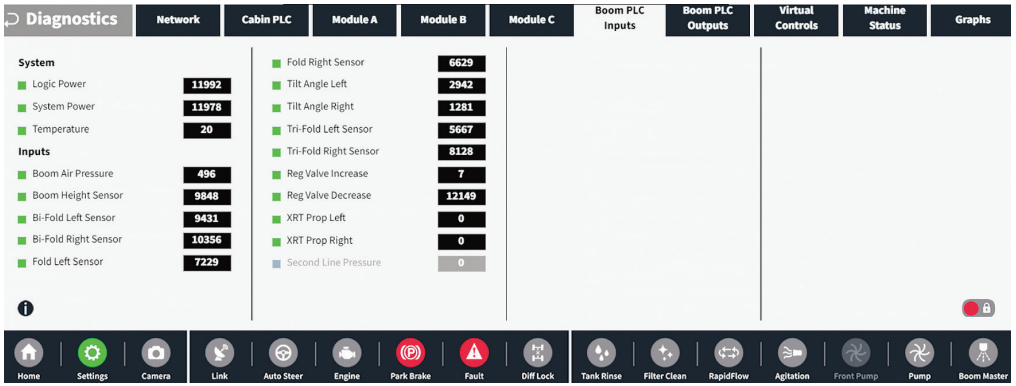
3 Your Sprayer at a Glance - **Cabin**



Module C

The Module C screen *(shown above)* displays:

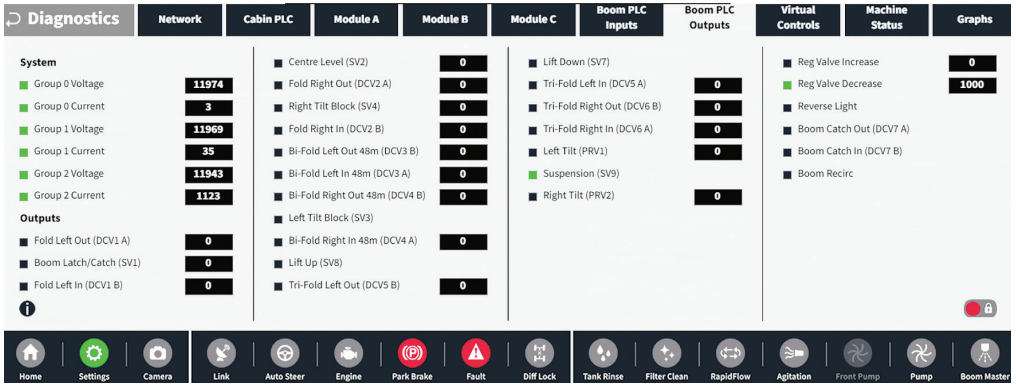
- System
  - Temperature
  - VBBS
- Inputs
  - Diff Lock Feedback
  - Product Tank Level
  - Air Tank Pressure
  - Hydraulic Blockage
  - Hydraulic Pressure
  - Fuel Tank Level
  - Spray Pump Speed
  - Spray Pump Pressure
  - Rinse Tank Level
  - Fill Pump Pressure
  - Front Tank Level
  - Front Pump RPM
  - Front Pump Pressure
- Touch buttons for Security Lock & Information.



Boom PLC Inputs

The Boom PLC Inputs screen *(shown below)* displays information on:

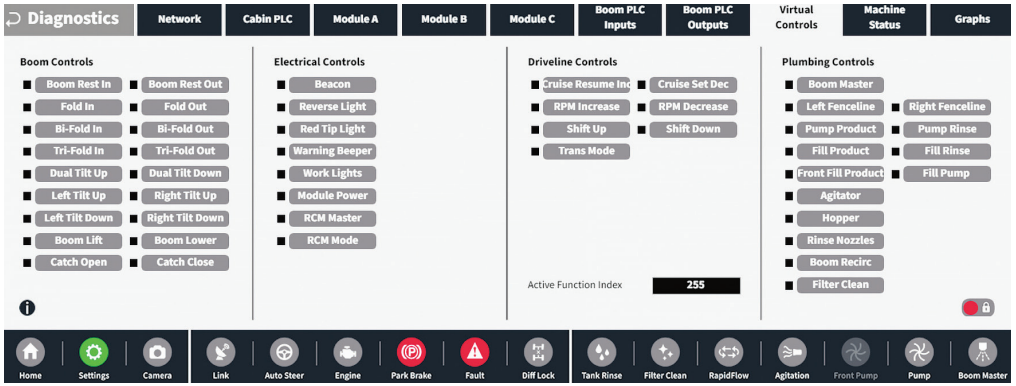
- System
  - Logic Power
  - System Power
  - Temperature
- Inputs
  - Boom Air Pressure
  - Boom Height Sensor
  - Bi-fold Left Sensor
  - Bi-fold Right Sensor
  - Fold Left Sensor
  - Fold Right Sensor
  - Tilt Angle Left
  - Tri-Fold Left Sensor
  - Tri-Fold Right Sensor
  - Fill Pump Pressure
  - Reg Valve Increase
  - Reg Valve Decrease
  - XRT Prop Left
  - XRT Prop Right
- Touch buttons for Security Lock & Information.



Boom PLC Outputs

The Boom PLC Outputs screen *(shown above)* displays:

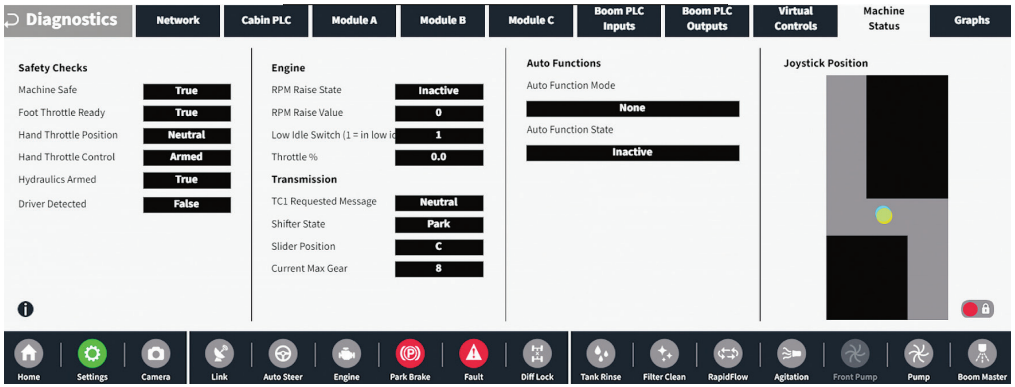
- System
  - Group 0 Voltage
  - Group 0 Current
  - Group 1 Voltage
  - Group 1 Current
  - Group 2 Voltage
  - Group 2 Current
- Outputs
  - Fold Left Out (DCV1 A)
  - Boom Latch/Catch (SV1)
  - Fold Left In (DCV1 B)
  - Centre Level (SV2)
  - Fold Right Out (DCV2 A)
  - Right Tilt Block (SV4)
  - Fold Right In (DCV2 B)
  - Bi-fold Left Out (DCV3 A)
  - Bi-fold Left In (DCV3 B)
  - Bi-fold Right Out (DCV4 A)
  - Left Tilt Block (SV3)
  - Bi-fold Right In (DCV4 B)
  - Lift Up (SV8)
  - Tri-fold Left Out (DCV5 B)
  - Lift Down (SV7)
  - Tri-fold Left In (DCV5 A)
  - Tri-fold Right Out (DCV6 B)
  - Tri-fold Right In (DCV6 A)
  - Suspension (SV9)
  - Right Tilt (PRV2)
  - Reg Valve Increase
  - Reg Valve Decrease
  - Reverse Light
  - Boom Catch Out (DCV7 A)
  - Boom Catch In (DCV7 B)
  - Boom Recirc
  - Touch buttons for Security Lock & Information.



Virtual (Universal) Controls

The Virtual Controls screen *(shown below)* displays:

- Boom Controls
  - Boom Rest In
  - Boom Rest Out
  - Fold In
  - Fold Out
  - Bi-fold In
  - Bi-fold Out
  - Tri-fold In
  - Tri-fold Out
  - Dual Tilt Up
  - Dual Tilt Down
  - Left Tilt Up
  - Right Tilt Up
  - Left Tilt Down
  - Right Tilt Down
  - Boom Lift
  - Boom Lower
  - Catch Open
  - Catch Close
- Electric Controls
  - Beacon
  - Reverse Light
  - Red Tip Light
  - Warning Beeper
  - Work Light
  - Module Power
  - RCM Master
  - RCM Master)
- Driveline Controls
  - Cruise Resume In
  - Cruise Resume In
  - Bi-fold Set Dec
  - RPM Increase
  - RPM Decrease
  - Shift Up
  - Shift Up
  - Trans Mode
- Plumbing Controls
  - Boom Master
  - Left Fenceline
  - Right Fenceline
  - Pump Product
  - Pump Rinse
  - Fill Product
  - Fill Rinse
  - Front Fill Product
  - Fill Pump
  - Agitator
  - Hopper
  - Rinse Nozzles
  - Boom Recirc
  - Filter Clean
- Touch buttons for Security Lock & Information.



Machine Status

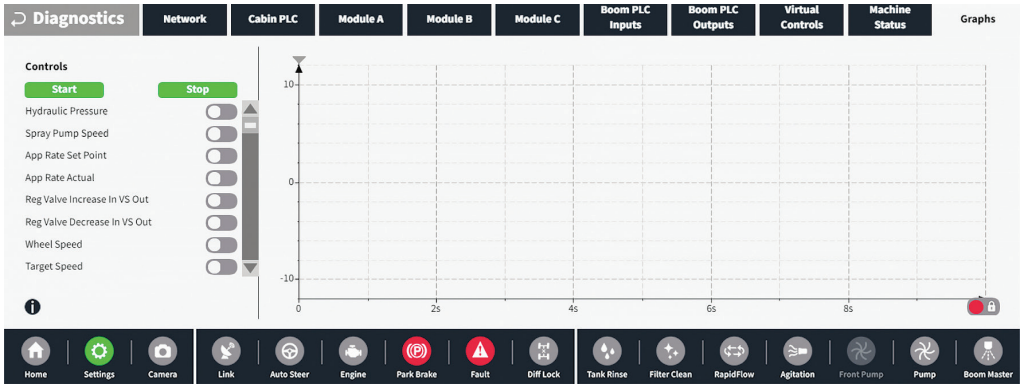
The Machine Status screen *(shown above)* displays:

- Protect Lamp
  - Machine Safe
  - Foot Throttle Ready
  - Hand Throttle Position
  - Hand Throttle Control
  - Target Speed State
  - Hydraulics Armed
  - Driver Detected
- Engine
  - RPM Raise State
  - RPM Raise Value
  - TC Lockup
  - Throttle %
- Transmission
  - TC1 Requested Message
  - Shifter State
  - Slider Position
  - Current Max Gear
- Auto Functions
  - Auto Function Mode
  - Auto Function State
- Joystick Position
- Touch buttons for Security Lock & Information.

Graphs

The Graphs screen *(shown below)* displays Controls ('Start' & 'Stop') for checking:

- Hydraulic Pressure
- Spray Pump Speed
- App Rate Set Point
- App Rate Actual
- Reg Valve Increase In VS Out
- Reg Valve Decrease In VS Out
- Wheel Speed
- Target Speed
- Touch buttons for Security Lock & Information.





Service

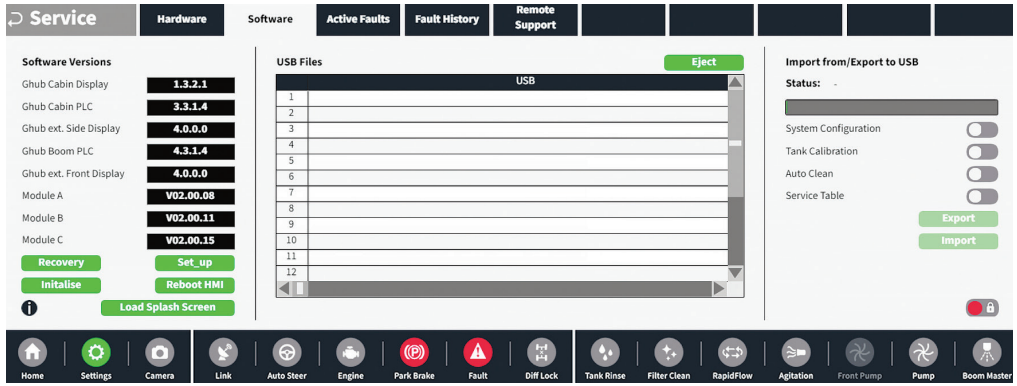
The Service menu [5 tab menus] opens with the Hardware screen *(shown above)* & displays:

- Spray Pump
  - Rinse Prime Assist
  - Fill Pump
  - Engine Fan
  - Alarms
- Service History
- Edit Service Table
  - Touch buttons for Add Machine, Add Custom, Add Pump & Delete
- Import from/Export to USB-C
  - Touch buttons for Import/Export & Status
- Touch buttons for Security Lock & Information.

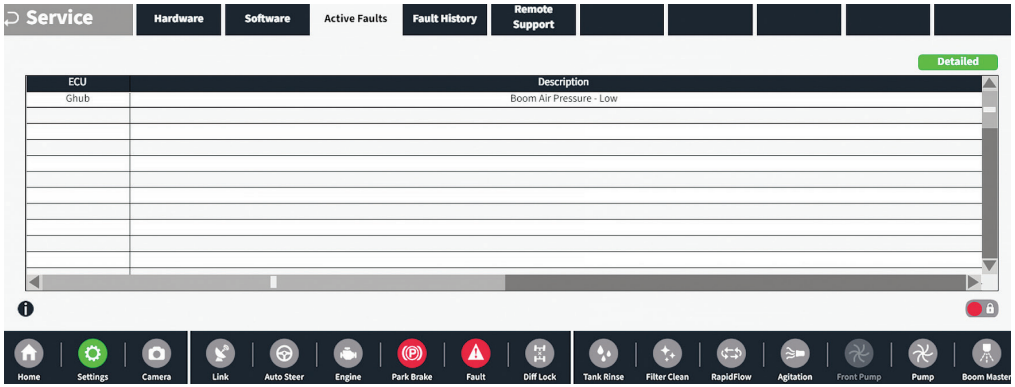
Software

The Software screen *(shown below)* displays:

- Software Versions
  - Ghub Cabin Display
  - Ghub Cabin PLC
  - Ghub ext. Side Display
  - Ghub Boom PLC
  - Ghub ext. Front Display
  - Module A
  - Module B
  - Module C
  - Touch buttons for Recovery, Set_up, Initialise, Reboot HMI & Load Splash Screen
- Import from/Export to USB-C
  - Touch buttons for Import/Export & Status
  - Touch buttons for System Configuration, Tank Calibration, Auto Clean & Service Table
- Touch buttons for Security Lock & Information.



3 Your Sprayer at a Glance - **Cabin**



Active Faults

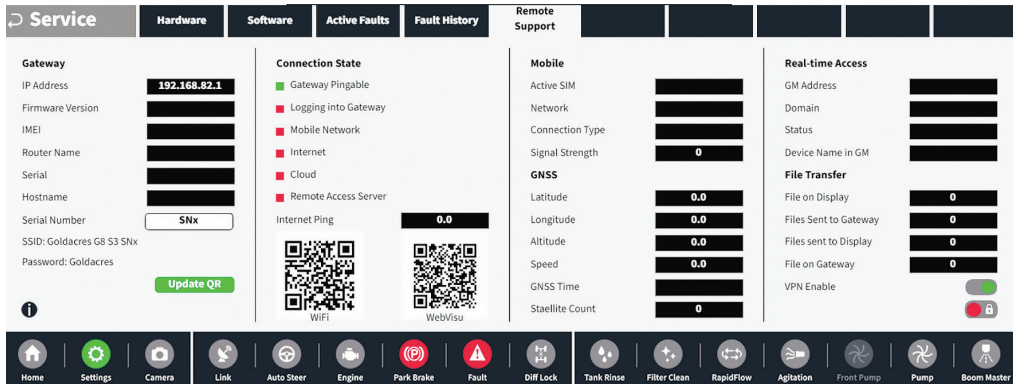
The Active Faults screen *(shown above)* displays active ECU faults with Description and:

- A 'Detailed' touch button
- Touch buttons for Security Lock & Information.

Fault History

The Fault History screen *(shown below)* displays an ECU Fault History with Description, Timestamp, Count and:

- A 'Clear' touch button
- Touch buttons for Security Lock & Information.



Remote Support

The Remote Support screen *(shown above)* displays WiFi software version status:

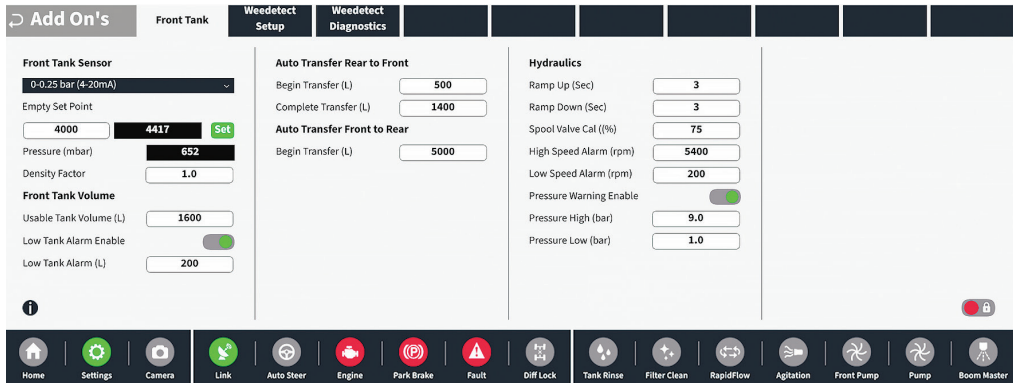
- Gateway
  - IP Address
  - Firmware Version
  - IMEI
  - Router Name
  - Serial
  - Host Name
  - Serial Number
  - SSID: Goldacres G8 S3 SNx
  - Password Goldacres
- Connection State:
  - Gateway Pingable
  - Logged into Gateway
  - Mobile Network
  - Internet
  - Cloud
  - Remote Access Server
  - Internet Ping
  - WiFi *(QR code)*
  - Wed Visu *(QR code)*
- Mobile:
  - Active SIM
  - Network
  - Connection Type
  - Signal Strength
- GNSS
  - Latitude
  - Longitude
  - Altitude
  - Speed
  - GNSS Time
  - Satellite Count
- Real Time Access
  - GM Address
  - Domain
  - Status
  - Device Name in GM
- File Transfer
  - Files on Display
  - Files sent to Gateway
  - Files sent to Display
  - Files on Gateway
  - VNA Enable
- Touch buttons for Security Lock & Information.

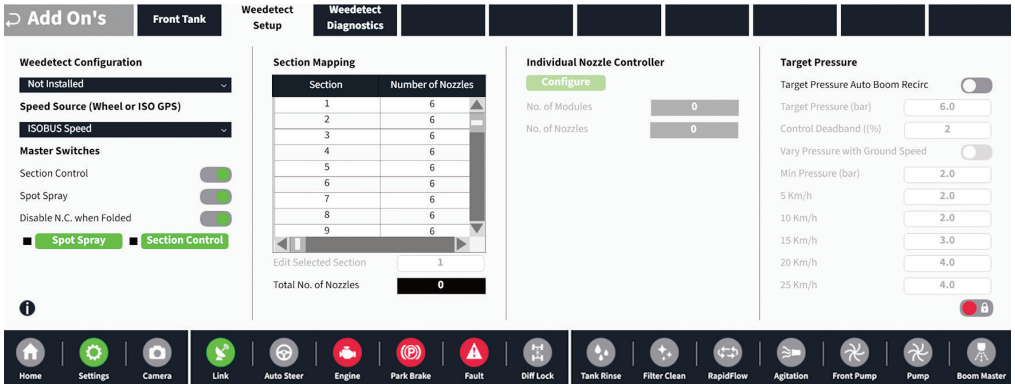
Add On's Menu

The Add On's menu [3 tab menus] opens with the Front Tank screen *(shown below)* & displays:

- Front Tank Sensor
  - Empty Set Point
  - Pressure (mbar)
  - Density Factor
- Front Tank Volume
  - Usable Tank Volume (L)
  - Low Tank Alarm Enable
  - Low Tank Alarm (L)
- Auto Transfer Rear to Front
  - Begin Tranfer (L)
  - Complete Tranfer (L)
- Auto Transfer Front toRear
  - Begin Tranfer (L)
- Hydraulics
  - Ramp Up (Sec)
  - Ramp Down (Sec)
  - Spool Valve Cal (%)
  - High Speed Alarm (rpm)
  - Low Speed Alarm (rpm)
  - Pressure Warning Enable
  - Pressure High (bar)
  - Pressure Low (bar)
- Touch buttons for Security Lock & Information.







Weedetect Setup

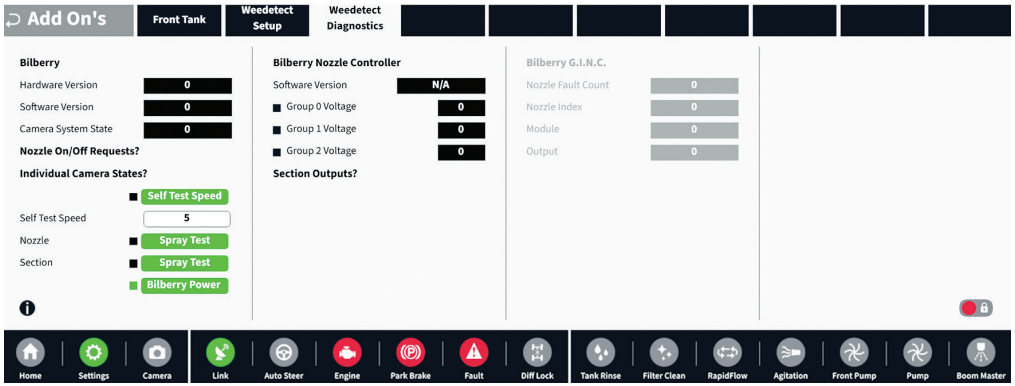
The Weedetect Setup screen *(shown above)* displays:

- Bilberry Configuration
- Speed Source (Wheel or ISO GPS
- Master Switches
  - Section Control
  - Spot Spray
  - Disabled N.C. when Folded
  - Touch buttons for 'Spot Spray' & 'Section Control'
- Section Mapping (Section & Number of Nozzles)
  - Edit Selected Section
  - Total No. of Nozzles
- Individual Nozzle Controller
  - Configure touch button
  - No. of Modules
  - No. of Nozzles
- Auto Recirc
  - Auto Boom Recirc
  - Target Pressure bar)
  - Vary Pressure with Ground Speed
  - Min Pressure (bar) for 5, 10, 15, 20 & 25 Km/h
- Touch buttons for Security Lock & Information.

Weedetect Diagnostics

The Weedetect Diagnostics screen *(shown above)* displays:

- Bilberry
  - Hardware Version
  - Software Version
  - Camera System State
- Nozzle On/Off Requests
- Individual Camera States
  - Self Test Speed touch button & display
  - Spray Test - Nozzle touch button
  - Spray Test - Section touch button
  - Bilberry Power touch button
- Bilberry Nozzle Controller
  - Software Version
  - Group 0 Voltage
  - Group 1 Voltage
  - Group 2 Voltage
- Section Outputs?
- Bilberry G.I.N.C.
  - Nozzle Fault Count
  - Nozzle Index
  - Module & Output
- Touch buttons for Security Lock & Information.

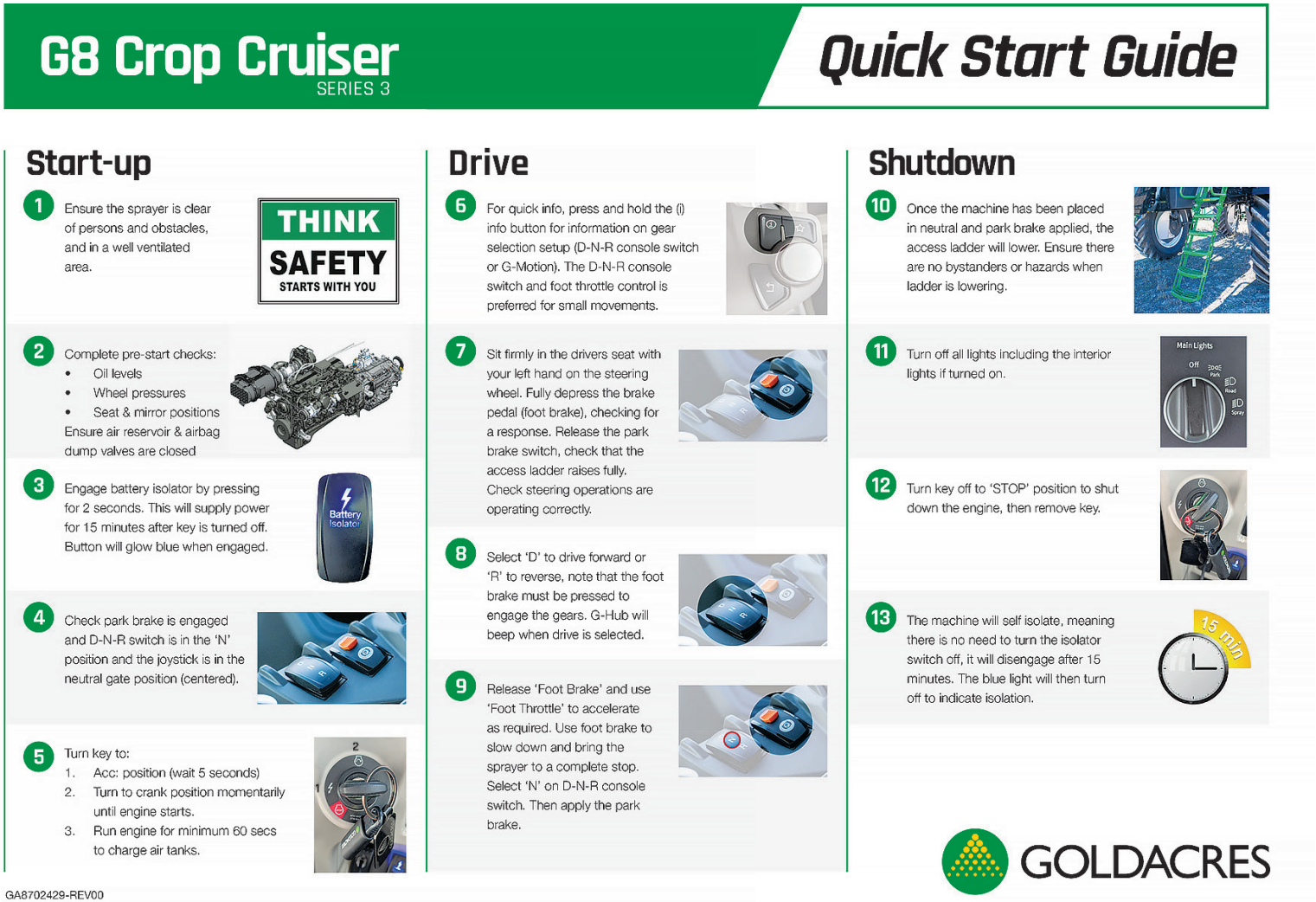




Manuals Menu

The Manuals menu *(shown above)* gives access to manuals in the G-Hub and touch buttons for viewing the manuals:

- Dropdown list
- 0 / 0 (Page Count)
- - 0 +
- Expand
- Rotate
- Search
- Up / Down arrows
- X (Cancel)
- Visable
- Touch buttons for Security Lock & Information.



A plastic coated Quick Start Guide is provided in the cabin for convenience & safety.

Quick Start Guide

A plastic coated Quick Strart Guide is attached to the right hand safety door rail of the cabin for a quick reference for the Starting, Driving & Shut Down procedures of the Crop Cruiser.

The guide diagramatically presents the steps for the Crop Cruiser:

- Start Up
- Drive
- Shut Down.

Refer to Chapter 6 'Operation' for detailed operating instructions.

4 - **Setting Up** – Preparation for Use 67

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Goldacres Autosteer System 68
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Installing John Deere Autosteer 70
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Cabin GPS, Steering, ISO, Terminal & Diagnostic Connections 72
Cabin ISO Bus UT, Power & Ground Connections 73
Roof GPS Connection 73
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2 Camera Settings 83
3 Machine 84
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5 Boom Control 87
6 Boom Automation 88
7 Plumbing 89
8 Control Valves 89
9 Tank Levels 90
10 Tank Calibration 91
11 Auto Clean 92
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14 Cruise 96
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Pre-Set AutoBoom XRT (Option) 101
Pre-Set Bilberry - Goldacres Weedetect (Option) 101
Raven RCM Operation Manual 101
3PL Front Tank Option 102
Connecting the 3PL Front Tank 102
Disconnecting the Front Tank 105
Check Boom Settings 106



Carefully fit the new carbon filters.

Install Carbon Air Filters

Carbon filters are not factory fitted (sealed items) & must be installed before operating.

To Install Carbon Air Filters:

1 Unlock the two locking knobs of the air filter cover (above the cabin door), then open the air filter cover upwards.

2 Unseal, then carefully fit the new air filters into their housings *(shown above & below)*.

3 Close the air filter cover, then lock the two locking knobs *(shown below)*.

New carbon filters fully inserted.



Close the air filter cover, then lock both cover locking knobs.





Third party John Deere StarFire 6000 GPS Antenna.

Autosteer Installation

The Crop Cruiser is equipped to be fitted with 3rd party GPS Autosteer systems.

Inbuilt Autosteer connectors are located in the Electrical Compartment located below the armrest control console, as well as the top of the cabin.

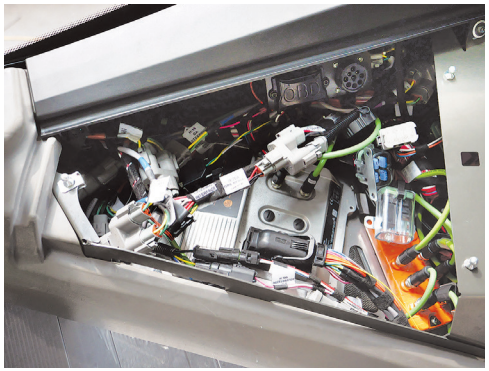
Instructions give provide explanation for accessing, locating and connecting relevant components for Raven, Trimble & John Deere steering systems.

Other systems may be used but details are not provided here.

Refer to installation instructions in this chapter for your chosen autosteering system.

NOTE

While it is recommended to gain full access to the electrical compartment via the right hand cabin door, it should be noted that more limited access to the electrical compartment can be made from within the cabin.



Most inbuilt Autosteer connectors are located in the 1st (front) Electrical Compartment in the cabin.

Accessing the Electrical Compartment

Inbuilt Autosteer connectors are located in the Electrical Compartment and roof top.

To access Electrical Compartments, refer to the instructions given in Chapter 3, ‘Know Your Cabin’ in section ‘17 Electrical Compartments’.

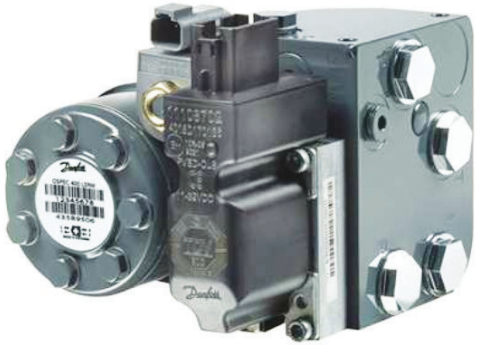
Autosteer Connectors

Inside the electrical compartment, Autosteer connectors are available for fitting and connecting your chosen Autosteer system.

Components required for Raven, Trimble & John Deere systems are provide when ordered. For details of components required, refer to the ‘GPS & Autosteer Components’ page in this chapter.

If chosen, the Raven system is factory fitted and tested.

All other systems are Dealer fitted.



Danfoss Autosteer unit.

Goldacres Autosteer System

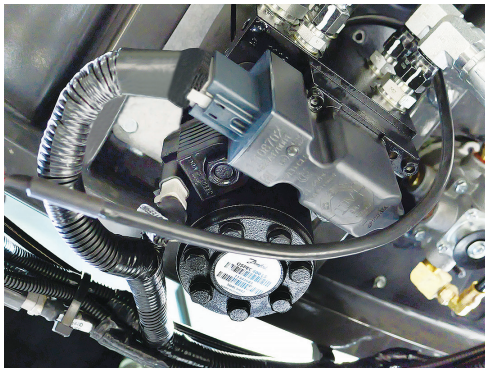
Goldacres high performance Danfoss OSPE steering unit with PVED CLS control valve is a fully integrated GPS steering ready solution.

The control valve is compliant with all current legislation and safety standards, and removes the need for a customer to add any extra hydraulic valves to the machine.

While providing a fully integrated solution the steering will function correctly if no GPS system is installed.

The steering system runs on a dedicated CAN bus network (separate from the ISO BUS) and includes a CAN SASA sensor to measure the current steering wheel angle and speed for steering break out control, as well as, an analogue wheel angle sensor (WAS) to report the angle of the front wheels.

All CAN addresses are setup to utilise the default GPS steering controller source address of ‘28’.

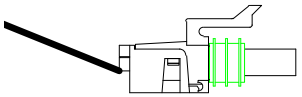


Danfoss Autosteer unit fitted under the cab.



Fitted Danfoss Autosteer components.

GPS RESUME			
APTIV P/N 12015791			
CAV	CIR	COLOR	FUNCTION
A	168	BRN	ISO/STEER RESUME



LABEL:
H: 28
GPS RESUME

Mating connector PN 12010996.

Machine Steering is controlled via the manual steering wheel via the steering orbital or via CAN commands sent via the steering system to the CLS valve over the CAN bus network.

The safety information, like vehicle speed and MMI information is sent from the G-Hub Controller display located in the cabin.

The valve is also electrically locked out when the field road mode switch is in the 'Road' position to prevent accidental activation.

Maximum engage speed & maximum turn angle setting limits are controlled by the GPS steering system.

NOTE

For safety reasons, when the Crop Cruiser is used in Road Mode, the unit shuts down the autosteering function.

The valve can be directly controlled by any steering system that can steer this valve on other model machines.

The wheel angle can be read from the Danfoss valve on the steering CAN bus network.

The steering valve is pre-tuned at the factory with the finer adjustments to be made in the field.

Individual Autosteer systems are fitted by the Goldacres dealer.

Refer to the Goldacres Steering System information and Autosteer Electrical Layout drawing provided.

Switched & Unswitched Power Terminals

Inside the cabin electrical compartment are electrical terminals provided for the easy connection of optional Autosteer controllers and equipment.

Inside the compartment you will see these power studs clearly labelled.

Ensure all connected equipment is suitably fused.

GPS Remote Switch Momentary +12V

The G-Hub Controller is set to send a CAN command for the resume switch and a hard wire has also been included if required.

It is used for the connection of the G-Motion GPS momentary switch from the joystick mounted on the Armrest Control Console.

When this single pin connector is connected to the GA3000323 cabin harness, it will provide a momentary 12 volt signal when the steering touch button is pressed.

Steering CAN bus Network Connection

The Steering CAN bus Network Connection is provided for connecting to the steering CAN bus network.

This enables the steering system to send CAN steering commands to the orbital.

ISO Bus CAN Network Connection

The ISO Bus CAN Network Connection is provided to connect the steering CAN bus network.

It enables the steering system to send CAN steering commands to the orbital.

It is labelled H24 'ISO Steering Interface" in the back right side of the electrical compartment.

Seat Safety Switch

The Seat Safety Switch or operator presence switch causes the Autosteer system to turn off when the operator leaves their seat as a safety feature.

The switch is connected to Autosteer systems to detect the presence of an operator on the seat. For safety, it is recommended this sensor be connected.

Installing Trimble Autosteer

The Trimble Autosteer system requires installation of three components:

- Autosteer Module,
- GPS Antenna and
- Display console.

To Install the Autosteer Module:

1 Obtain the optional Goldacres connecting cable for a Trimble autosteer module.

2 Fit the appropriate components using the:

- ‘GPS & Autosteer Components’ page in this chapter
- ‘Cabin GPS, Steering, ISO, Terminal & Diagnostic Connections’ page in this chapter
- ‘Cabin ISO Bus UT’ (Universal Terminal) page in this chapter.
- ‘Roof GPS Connection’ page in this chapter.

Further information pages available are ‘CANBUS System/Network Layout’ & ‘Chassis Connection Points’ in Chapter 10 - Integrated Systems – Appendix.

To Fit the Trimble Console:

1 Obtain the optional Goldacres Raven ISO to Trimble connecting cable.

2 Fit the Raven ISO to Trimble cable connnector to the Terminal ISO connector located on the rail in right hand side of the cabin.

3 Fit the Trimble Autosteer Console to the ball mount of the cabin.

4 Fit the other end of the Raven ISO to Trimble cable connector to the connector on the back of the Autosteer Console

6 On completion of the Autosteer installation, refit the cover of the Electrical Compartment.



Optional Goldacres connecting cable (Part No.GA3000423) for a Solsteer GPS Module.

Installing John Deere Autosteer

The John Deer Autosteer system requires installation of three components:

- Solsteer GPS Module or Agra GPS Bridge,
- StarFire GPS Receiver and
- Display console & harness.

To Install the Autosteer Module:

1 Obtain the optional Goldacres JD connecting cable (Part No. GA3000423) for a Solsteer or Agri GPS Module.

2 Fit the components as shown using the:

- ‘GPS & Autosteer Components’ page in this chapter
- ‘Cabin GPS, Steering, ISO, Terminal & Diagnostic Connections’ page in this chapter
- ‘Cabin Virtual, Power & Ground Connections’ page in this chapter.
- ‘Roof GPS Connection’ page in this chapter.

Further information pages available are ‘CANBUS System/Network Layout’ & ‘Chassis Connection Points’ in Chapter 10 - Integrated Systems – Appendix.

GPS & Autosteer Components

GNSS RECEIVERS
CONNECT TO CABIN ROOF HARNESS

H:69
ROOF GPS CONNECTION

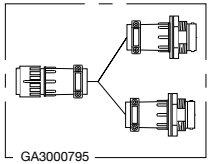


VT SCREEN INTERFACES
CONNECT TO CABIN FLOOR HARNESS

H:26
VIRTUAL TERMINAL 1

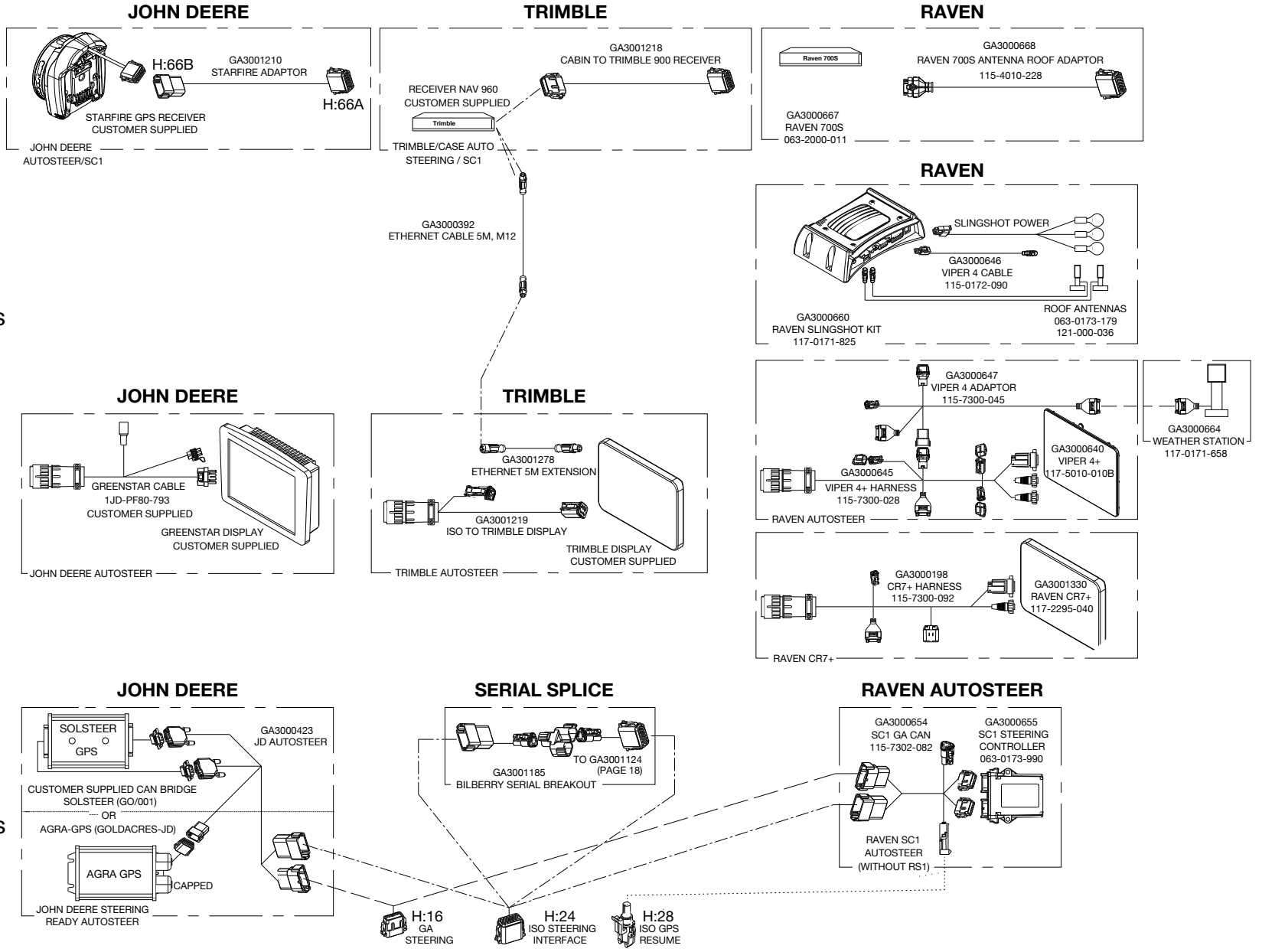
H:45
VIRTUAL TERMINAL 2

H:47
VIRTUAL TERMINAL 3

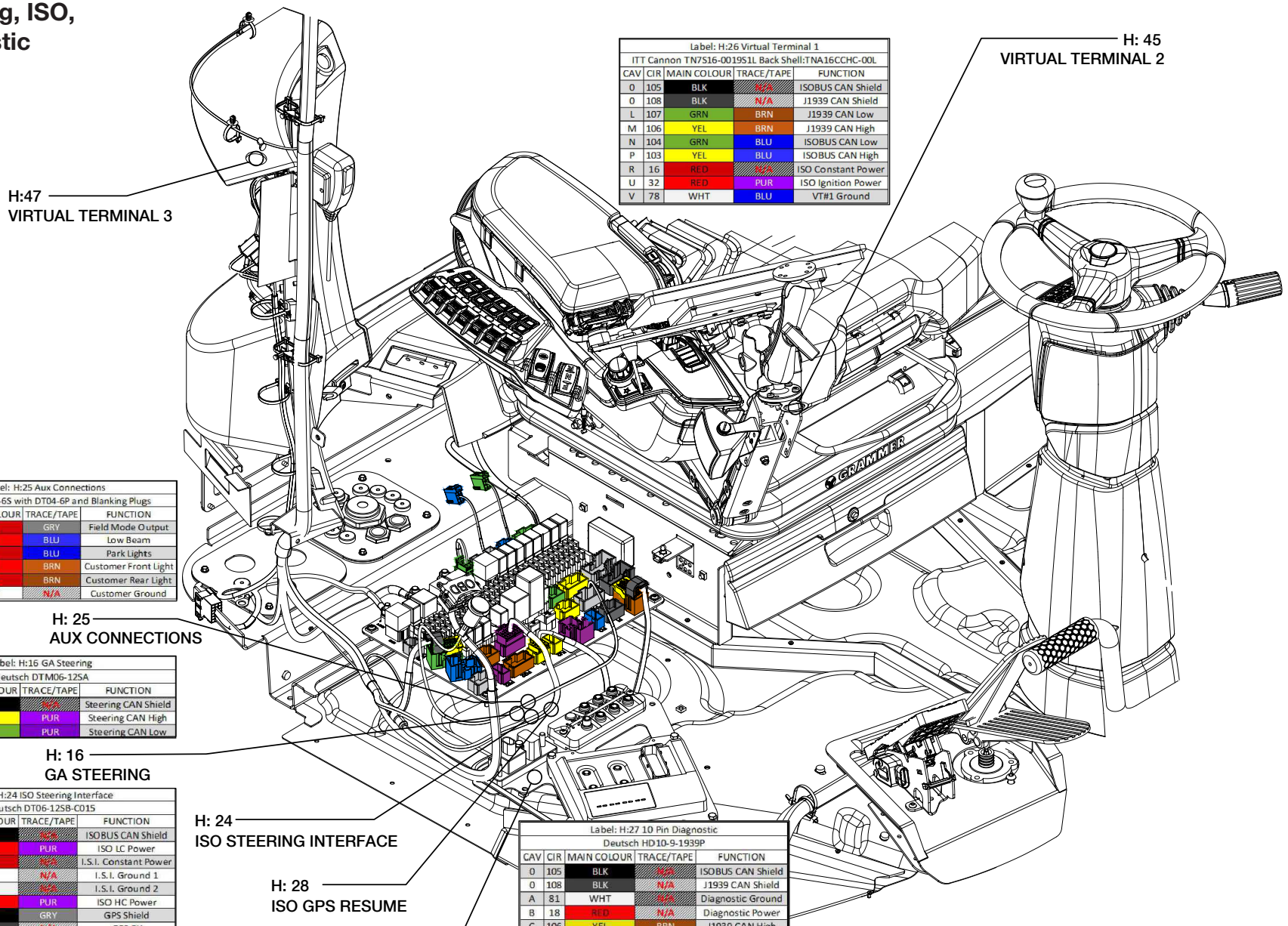


GA3000795
ISO Y SPLITTER

ISI STEERING INTERFACES
CONNECT TO CABIN FLOOR HARNESS



Cabin GPS, Steering, ISO, Terminal & Diagnostic Connections



Label: H:26 Virtual Terminal 1
ITT Cannon TN7S16-0019S1L Back Shell:TNA16CCHC-00L

CAV	CIR	MAIN COLOUR	TRACE/TAPE	FUNCTION
0	105	BLK	N/A	ISOBUS CAN Shield
0	108	BLK	N/A	J1939 CAN Shield
L	107	GRN	BRN	J1939 CAN Low
M	106	YEL	BRN	J1939 CAN High
N	104	GRN	BLU	ISOBUS CAN Low
P	103	YEL	BLU	ISOBUS CAN High
R	16	RED	N/A	ISO Constant Power
U	32	RED	PUR	ISO Ignition Power
V	78	WHT	BLU	VT#1 Ground

Label: H:25 Aux Connections
Deutsch DT06-6S with DT04-6P and Blanking Plugs

CAV	CIR	MAIN COLOUR	TRACE/TAPE	FUNCTION
1	67	RED	GRY	Field Mode Output
2	11	RED	BLU	Low Beam
3	14	RED	BLU	Park Lights
4	50	RED	BRN	Customer Front Light
5	44	RED	BRN	Customer Rear Light
6	83	WHT	N/A	Customer Ground

Label: H:16 GA Steering
Deutsch DTM06-12SA

CAV	CIR	MAIN COLOUR	TRACE/TAPE	FUNCTION
0	111	BLK	N/A	Steering CAN Shield
1	109	YEL	PUR	Steering CAN High
12	110	GRN	PUR	Steering CAN Low

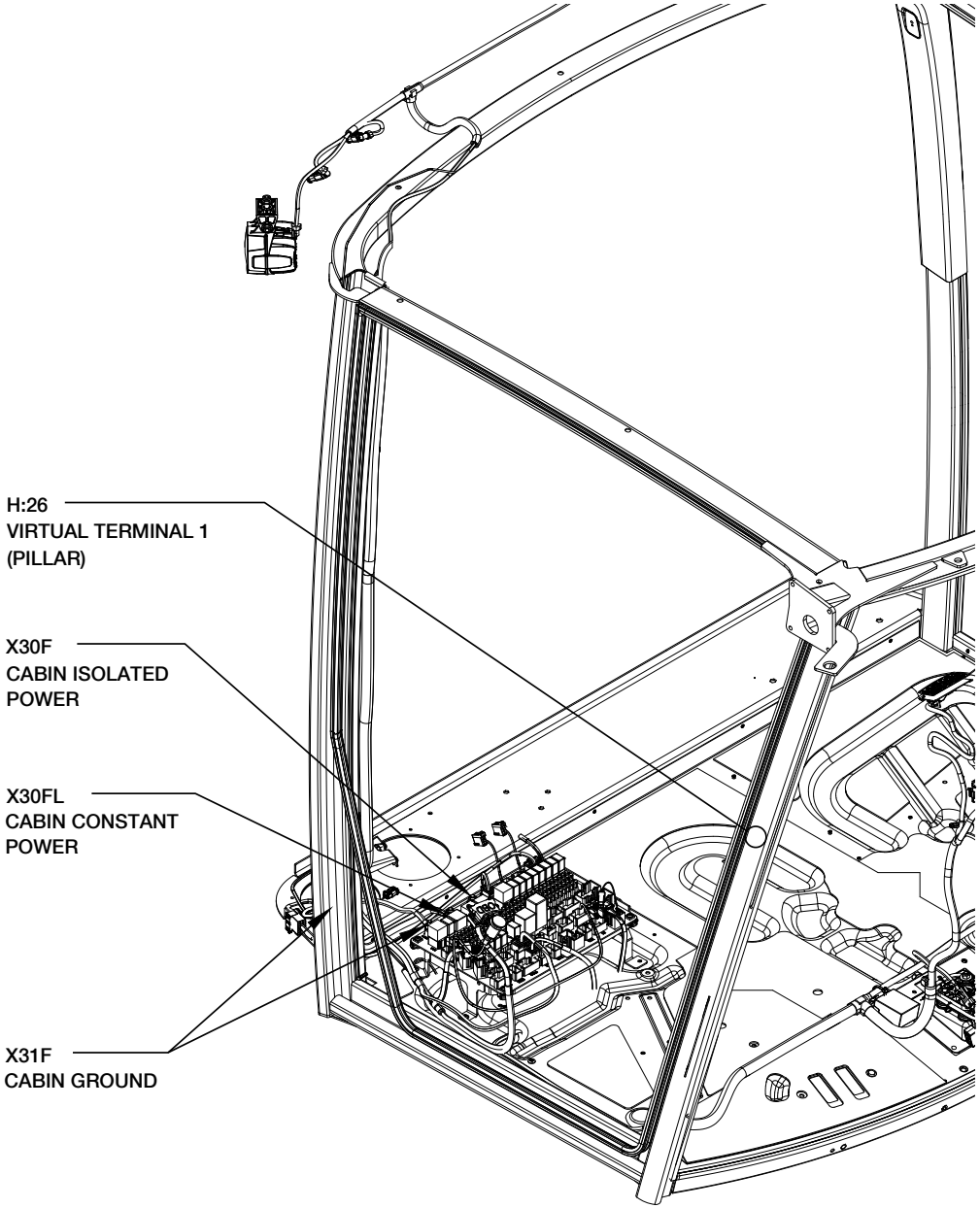
Label: H:24 ISO Steering Interface
Deutsch DT06-12SB-C015

CAV	CIR	MAIN COLOUR	TRACE/TAPE	FUNCTION
0	105	BLK	N/A	ISOBUS CAN Shield
1	33	RED	PUR	ISO LC Power
2	175	RED	N/A	I.S.I. Constant Power
3	86	WHT	N/A	I.S.I. Ground 1
5	87	WHT	N/A	I.S.I. Ground 2
6	22	RED	PUR	ISO HC Power
8	99	BLK	GRY	GPS Shield
9	155	BLK	N/A	GPS RX
10	156	RED	N/A	GPS TX
11	104	GRN	BLU	ISOBUS CAN Low
12	103	YEL	BLU	ISOBUS CAN High

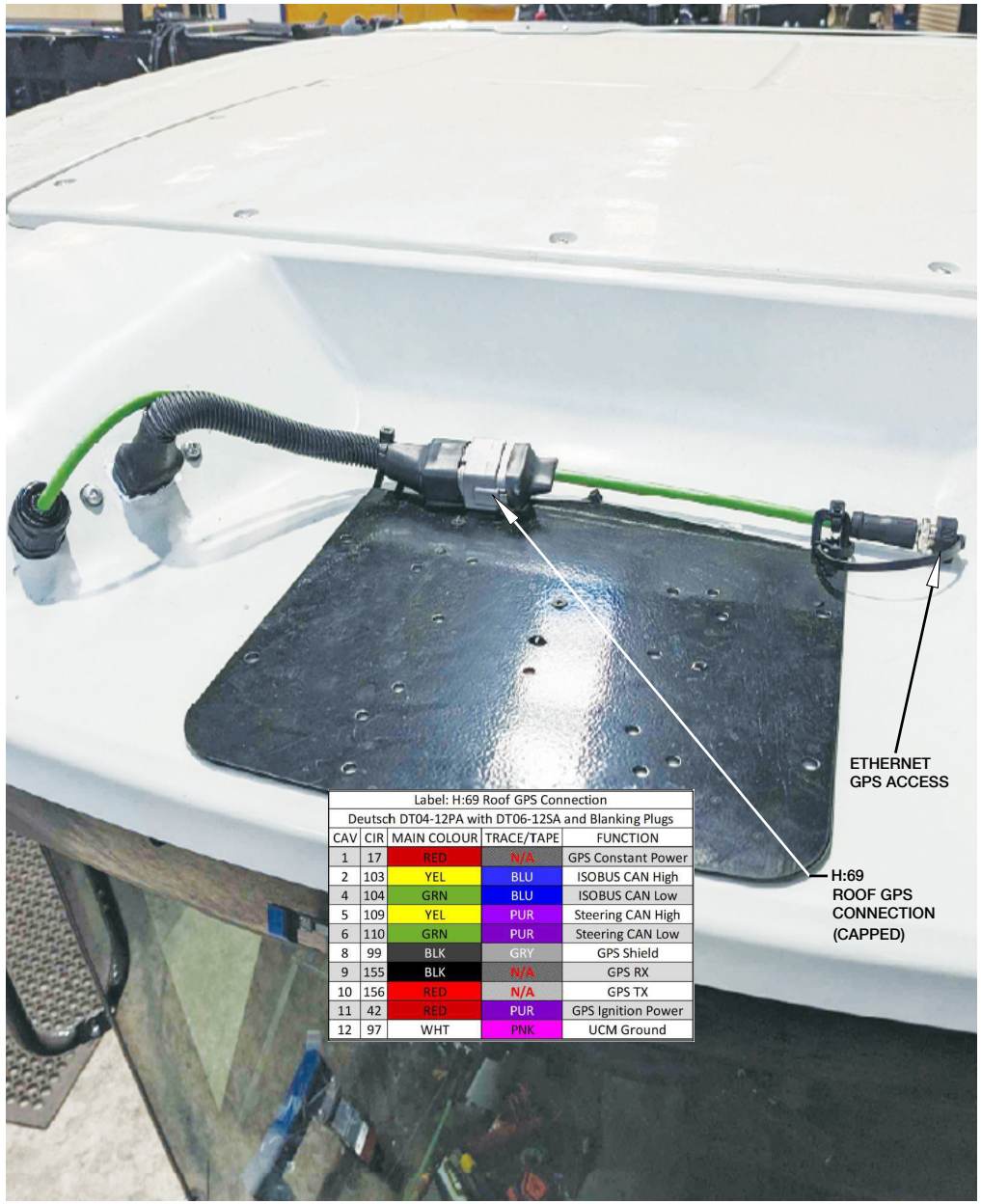
Label: H:27 10 Pin Diagnostic
Deutsch HD10-9-1939P

CAV	CIR	MAIN COLOUR	TRACE/TAPE	FUNCTION
0	105	BLK	N/A	ISOBUS CAN Shield
0	108	BLK	N/A	J1939 CAN Shield
A	81	WHT	N/A	Diagnostic Ground
B	18	RED	N/A	Diagnostic Power
C	106	YEL	BRN	J1939 CAN High
D	107	GRN	BRN	J1939 CAN Low
H	103	YEL	BLU	ISOBUS CAN High
J	104	GRN	BLU	ISOBUS CAN Low

Cabin ISO Bus UT, Power & Ground Connections

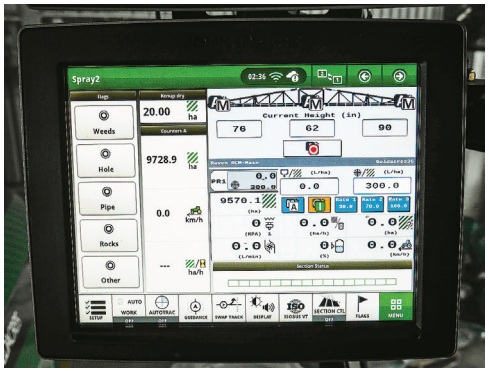


Roof GPS Connection



Label: H:69 Roof GPS Connection
Deutsch DT04-12PA with DT06-12SA and Blanking Plugs

CAV	CIR	MAIN COLOUR	TRACE/TAPE	FUNCTION
1	17	RED	N/A	GPS Constant Power
2	103	YEL	BLU	ISOBUS CAN High
4	104	GRN	BLU	ISOBUS CAN Low
5	109	YEL	PUR	Steering CAN High
6	110	GRN	PUR	Steering CAN Low
8	99	BLK	GRY	GPS Shield
9	155	BLK	N/A	GPS RX
10	156	RED	N/A	GPS TX
11	42	RED	PUR	GPS Ignition Power
12	97	WHT	PNK	UCM Ground



Fit & connect the John Deere Console.



Optional Raven Control screen (CR7+) fitted in the cabin.

To Fit the John Deere Console:

1 Fit the Greenstar cable connector to the virtual terminal ISO connector of the cabin.

2 Fit the John Deere Autosteer Console to the ball mount of the cabin.

3 Fit the other end of the cable connector to the connector on the back of the Autosteer Console.

Fit & connect the Starfire Receiver on the roof mounting.

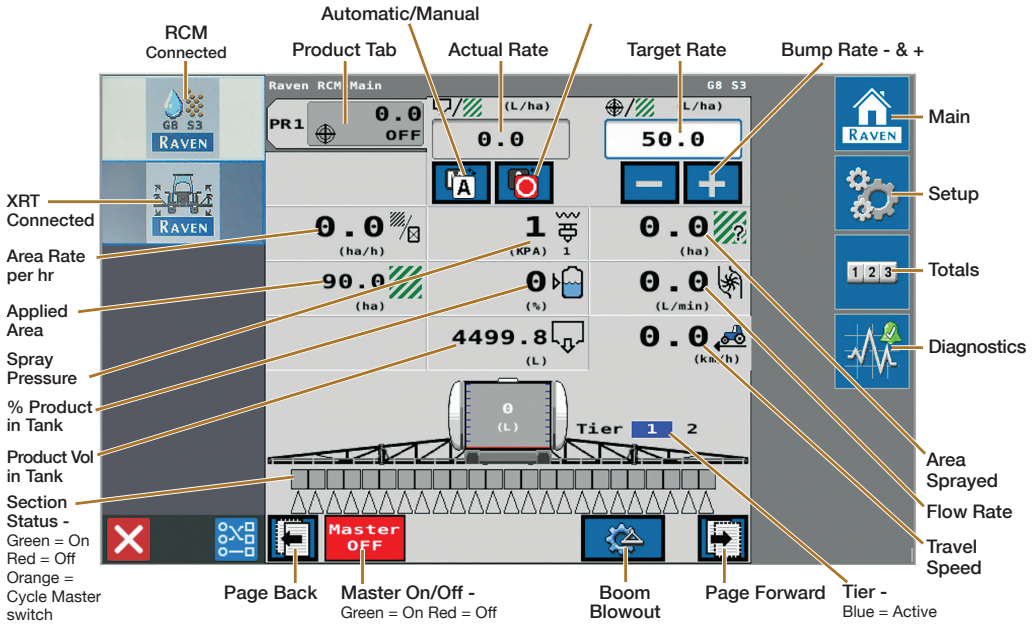


Pre-Set the Raven Control Module (RCM)

The Raven Control Module (RCM) (Spray Rate Controller CR7+) is pre-set and tested for spraying applications prior to delivery.

However, it is recommended that all settings and operation be checked and tested for the accuracy prior to spraying applications.

It is the operator's responsibility to correctly operate all controller and sprayer functions at all times.



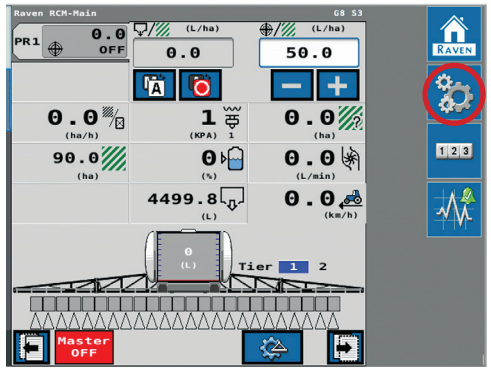
The Main Spray Control screen of the optional Raven Control Module (CR7+).

To Pre-Set the RCM:

1 Turn the Crop Cruiser Igniton key to Accessories and allow the G-Hub & RCM displays to activate.

2 Press the 'Main' touch button of the RCM screen & the Home Spray screen appears.

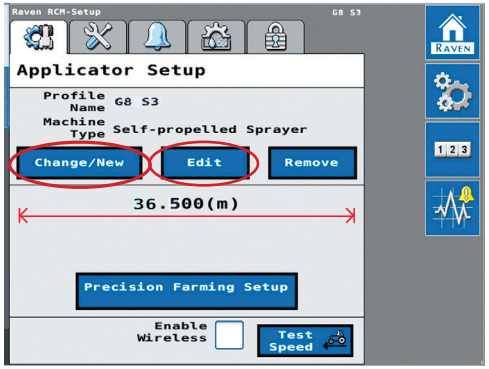
Press the Set-Up touch button on the home screen.



3 Press the 'Set-Up' touch button on the RCM Home screen *(shown below left)*, and the 'Raven RCM Setup' screen appears *(shown next page, top left)*, with 5 tabs tab touch buttons along the top:

- Applicator Setup *(opening screen)*
- System Settings
- Alarm Settings
- Rates Setup
- Feature Unlocks.

4 On the Applicator Setup screen, press the 'Change/ New' or 'Edit' touch button and a 'Confirmation' screen appears *(shown next page, bottom left)*.



Press the 'Change/New' or 'Edit' touch button.

5 Press the 'Tick' touch button to confirm and a 'Name Profile' screen appears *(shown above right)*.

This screen begins a 'Setup Wizard' which goes through all RCM pre-settings using the 'Arrow' (Page Forward) touch key *(shown above right).*

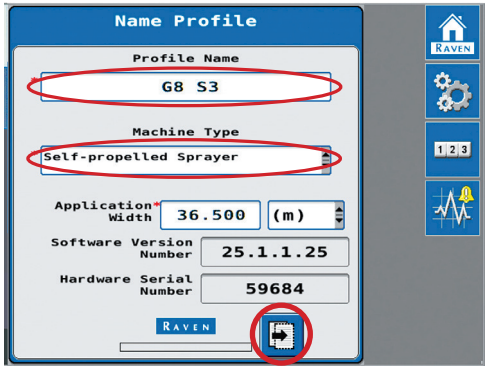
Pressing the 'Arrow' (Page Forward) touch key imitates the next pre-setting screen - until each RCM pre-set is completed.

6 Press the 'Profile Name' touch button and an alphabetical keypad appears.

Press the touch buttons to create a profile name, eg 'G8 S3', then press the Arrow (Page Forward) touch button.

Press the 'Tick' touch button to confirm.





Press the 'Profile Name' touch button to change the name. Press the 'Machine Type' the change it, if needed.

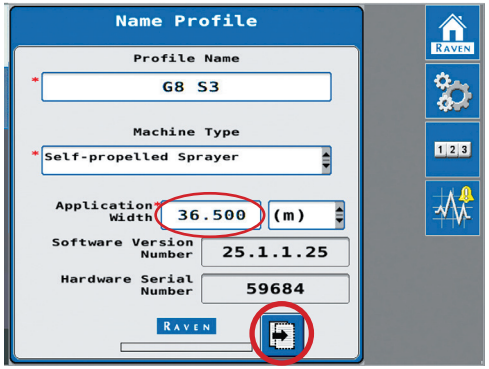
The screen returns to the Name Profile screen with 'G8 S3' displayed in the Profile Name *(shown above)*.

7 Press the 'Machine Type' touch button and a machine type menu appears *(shown below)*.

8 Select & press 'Self-propelled Sprayer' and the screen returns to the Name Profile screen with selection 'Self- propelled Sprayer' displayed.

Select & press 'Self-Propelled Sprayer'





Press the 'Application Width' touch button.

9 Press the 'Application Width' touch button and a numerical keypad appears *(shown above right)*.

Before entering the Application Width, it is important the 'Application Width' of the machine is properly determined.

Firstly, inspect how the boom is plumbed. Booms are plumbed with either *(see below)*:

- Centreline (Rowcrop) plumbing - A single nozzle at the boom centre or
- Broadacre plumbing - Two nozzles either side of the boom centre.

A single nozzle plumbed to the centre of the boom- refered to as centreline or row crop plumbing.





Before entering an Application Width, inspect & count the number of nozzles on the boom

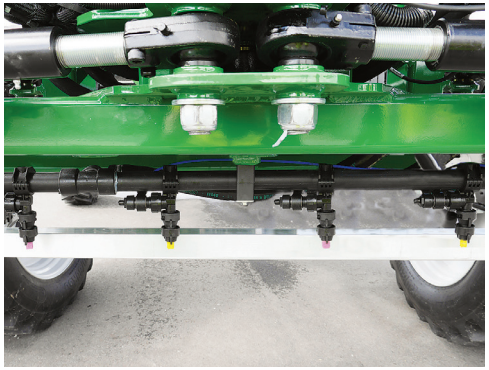
Each has a different spray application width, for example, on a 36m boom:

- Centreline plumbing has 73 nozzles x 500mm = 36.5m application width.
- Broadacre plumbing has 72 nozzles x 500mm = 36m application width.

See the Centreline & Broadacre Plumbing Tables & Nozzle Layout for a 36m boom on the next pages.

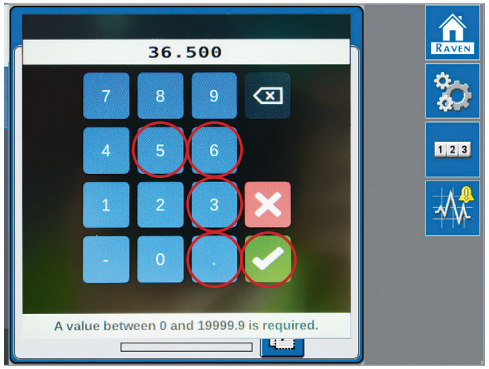
For full details of each Boom, Plumbing & Nozzle Layouts for 36m, 42m & 48m booms, refer to Chapter 10 Integrated Systems - Appendix.

Two nozzles plumbed either side of the centre of the boom - refered to as broadacre plumbing.



Section Details of a 36m Boom with **Centreline** Plumbing			
Section Number (L to R)	Nozzle Spacing (m)	No Nozzles in Section	Section Width (m)
1	0.5	3	1.5
2	0.5	3	1.5
3	0.5	3	1.5
4	0.5	3	1.5
5	0.5	3	1.5
6	0.5	3	1.5
7	0.5	3	1.5
8	0.5	3	1.5
9	0.5	3	1.5
10	0.5	3	1.5
11	0.5	3	1.5
12	0.5	3	1.5
13	0.5	4	2.0
14	0.5	3	1.5
15	0.5	3	1.5
16	0.5	3	1.5
17	0.5	3	1.5
18	0.5	3	1.5
19	0.5	3	1.5
20	0.5	3	1.5
21	0.5	3	1.5
22	0.5	3	1.5
23	0.5	3	1.5
24	0.5	3	1.5
Total No of nozzles:		**73**	
Spray Application Width:			**36.5m**

Section Details of a 36m Boom with **Broadacre** Plumbing			
Section Number (L to R)	Nozzle Spacing (m)	No Nozzles in Section	Section Width (m)
1	0.5	3	1.5
2	0.5	3	1.5
3	0.5	3	1.5
4	0.5	3	1.5
5	0.5	3	1.5
6	0.5	3	1.5
7	0.5	3	1.5
8	0.5	3	1.5
9	0.5	3	1.5
10	0.5	3	1.5
11	0.5	3	1.5
12	0.5	3	1.5
13	0.5	3	1.5
14	0.5	3	1.5
15	0.5	3	1.5
16	0.5	3	1.5
17	0.5	3	1.5
18	0.5	3	1.5
19	0.5	3	1.5
20	0.5	3	1.5
21	0.5	3	1.5
22	0.5	3	1.5
23	0.5	3	1.5
24	0.5	3	1.5
Total No of nozzles:		**72**	
Spray Application Width:			**36.0m**



Press the touch buttons to enter the boom width, eg. '36.5' metres, then press the 'Tick' touch button.

To accurately calculate Application Width, count the number of nozzles on the boom line, then multiply by the nozzle spacing.

Press the touch buttons to enter the boom width, eg '36.5' metres, then press the 'Tick' touch button.

The screen returns to the Name Profile screen with '36.500' displayed *(shown above right)*.

10 Press the 'Units' touch button and a units menu appears *(not shown)*.

Select & press 'm' (metres) and the screen returns to the Name Profile screen with selection 'm' displayed *(shown above right)*.

NOTE

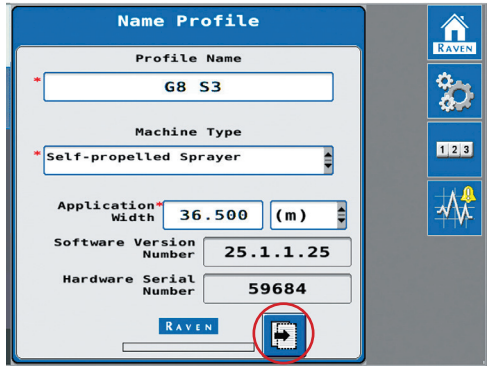
The best way to determine the Width of a Section is to count the nozzles.

Start at section 1 which is on the left end of the boom by counting the number of nozzles in the section.

For example, section 1 has 3 nozzles. Three nozzles @ 500mm spacing gives a section width of 1.5m.

Repeat the procedure for each section.

This procedure is applicable to both Broadacre & Rowcrop plumbed booms *(Refer to the boom illustration next page)*.



Press the 'Page Forward' touch button to move to the next setting screen.

11 Press the 'Page Forward' touch button *(shown above)* and a 'Setup System' screen appears *(shown below)*.

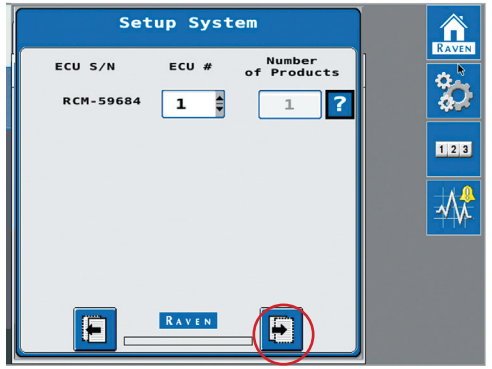
12 Press the 'ECU #' touch button and a drop down menu appears *(not shown)*.

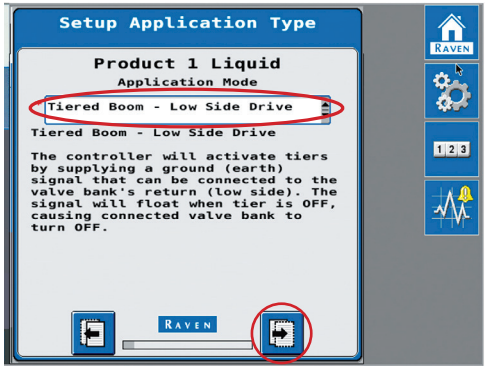
Select & press the appropriate 'ECU 1' and the number 1 appears in the Setup System screen *(shown below)*.

The 'Number of Products' is not used.

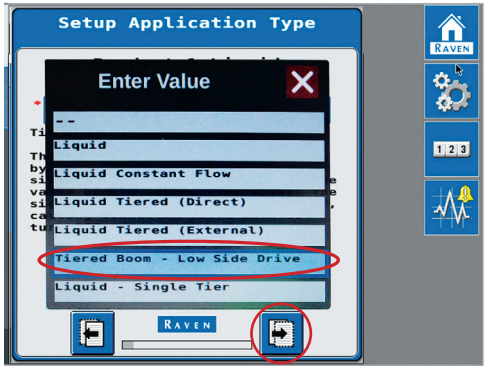
14 Press the 'Page Forward' touch button and a 'Setup Application Type' screen appears *(shown next page)*.

After entering a number for ECU & Product, press the page forward touch button to move to the next setting screen.

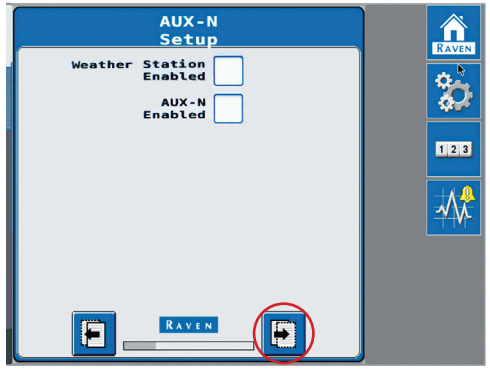




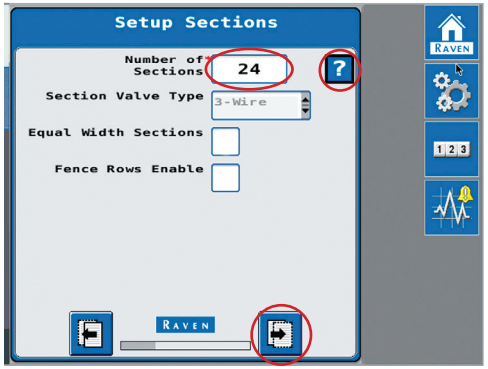
Press the 'Application Mode' touch button and a drop down menu appears (shown right)



Select & press 'Tiered Boom - Low Side Drive' & it appears in the Setup Application Type, then press 'Page Forward'.



Leave AUX-N items blank (unless purchased) & press 'Page Forward' touch button.



Enter the 'Number of Sections' and leave other touch buttons blank, then press the 'Page Forward' touch button.

15 Press the 'Application Mode' touch button and a drop down menu appears *(shown above right)*.

16 Select & press the 'Tiered Boom - Low Side Drive' mode *(shown above right)*, and 'Tiered Boom - Low Side Drive' appears in the Setup Application Type screen.

17 Press the 'Page Forward' touch button *(shown above)* and an 'AUX-N Setup' screen appears *(shown above right)*.

Unless purchased, leave both items blank.

NOTE

For full details on number of nozzles, their location & parts for Broadacre & Centreline plumbing of 36m, 42m & 48m booms with 24 boom sections, refer to Chapter 10 Integrated Systems 'Boom, Plumbing & Nozzle Layout'.

18 Press the 'Page Forward' touch button *(shown above)* and a 'Setup Sections' screen appears *(shown above right)*.

19 Press the 'Number of Sections' touch button and a numerical keypad appears *(not shown)*.

20 Press the touch buttons to enter the boom width, eg '24', then press the 'Tick' touch button.

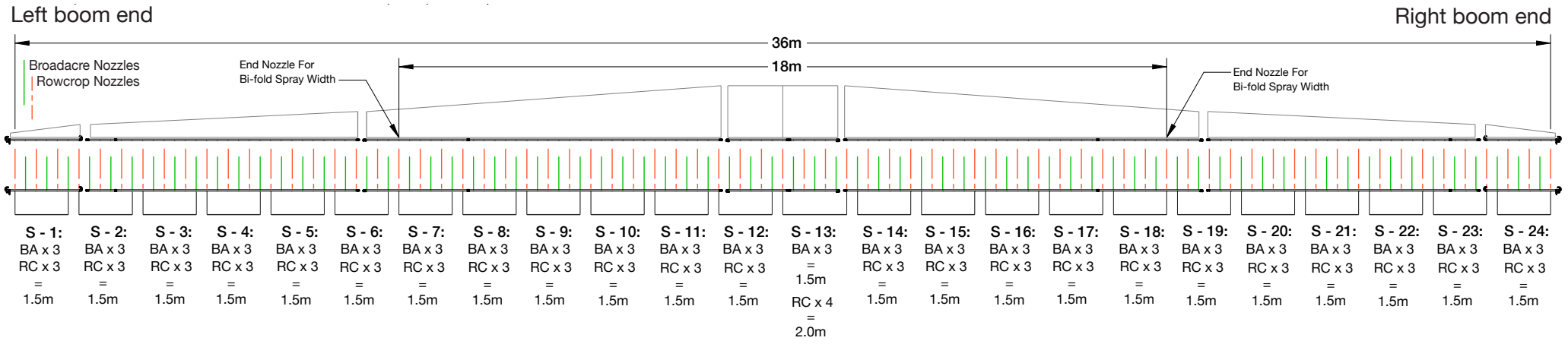
The screen returns to the Setup Sections screen with '24' displayed in the number of sections box *(shown above)*.

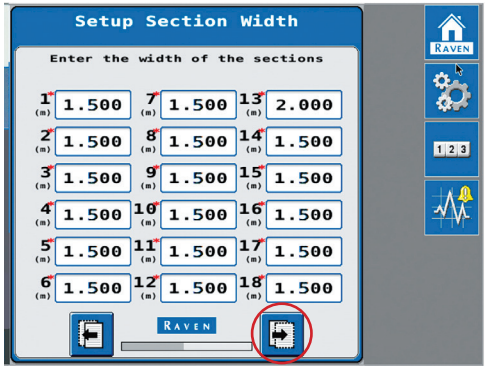
21 Leave the 'Equal Width Sections' box unchecked (blank) as Goldacres booms are plumbed with varying section widths.

22 Leave the 'Fence Rows Enable' box unchecked (blank) as the Fence Rows are enabled in the Goldacres G-Hub.

23 If more information is required, press the Help Menu '?' touch button and a Help menu appears *(shown next page, bottom left)*.

An illustration of a 36m Centreline (Rowcrop) plumbed boom showing the details of the 24 boom sections.
Sections are numbered 1 to 24 starting from the left hand side. Dotted vertical lines illustrate Centreline (rowcrop) plumbing nozzle locations. Solid vertical lines illustrate the Broadacre plumbing nozzle location option.





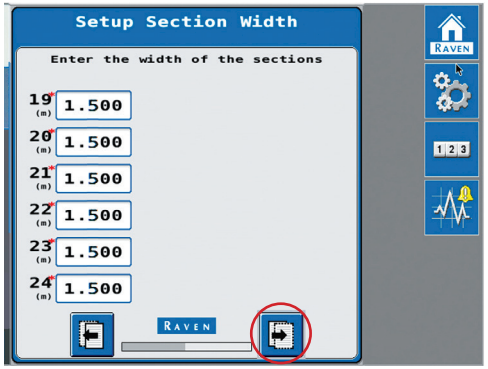
Individually enter the Section Width for sections 1 to 16, then press Page Forward' for the.

24 Press the 'Page Forward' touch button and a 'Setup Section Width' screen appears *(shown above)*.

25 Individually press each 'Section Width' touch button and a numerical keypad appears *(not shown)*.

Enter the section width, eg '1.5 or 2.0' metres, then press the tick touch button.

The screen returns to the 'Setup Section Width' screen with '1.5 or 2.0' respectively displayed *(shown above).*

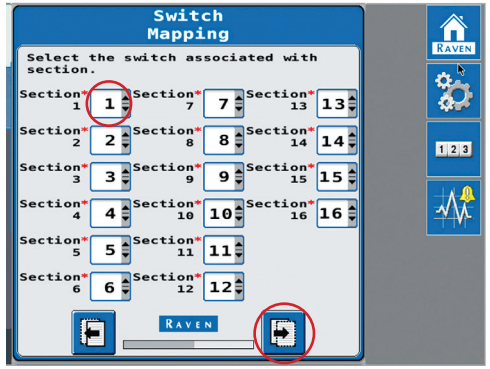


26 Press the 'Page Forward' touch button and a second 'Setup Section Width' screen appears *(shown above)*.

Repeat steps 24 & 25 for each of the 24 sections until complete.

Each time a value is entered, the screen returns to the 'Setup Section Width' screen with '1.5 or 2.0' respectively displayed *(shown above left & above)*.

27 On completion, press the 'Page Forward' touch button and a 'Switch Mapping' screen appears *(shown above right)*.



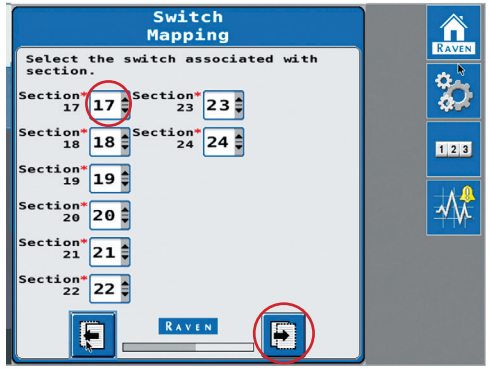
Individually enter switch numbers for each 'Section' - 1 to 16, then press Page Forward' to complete the settings.

28 Individually press each 'Section' touch button (1-16 on this screen) and a numerical list appears *(shown below)*.

Choose & press a switch number, eg '1' and the screen returns to the Switch Mapping screen with '1' displayed.

Apply a switch number for each section.

29 On completion of setting switch numbers for sections 1-16, press the 'Page Forward' touch button and a second 'Switch Mapping' screen appears *(shown above right)*.

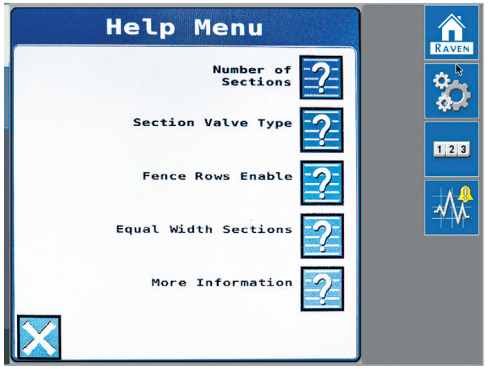


Individually enter switch numbers for each 'Section' - 17 to 24, then press Page Forward' to complete the settings.

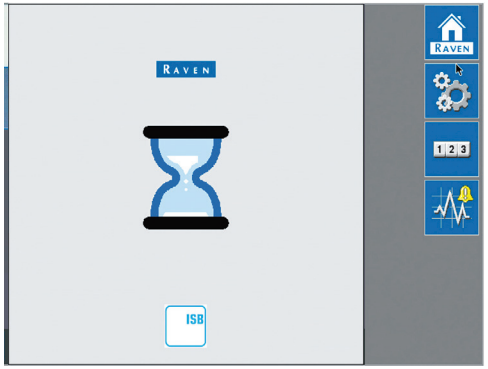
30 Continue to apply a switch number for each section. On completion of setting switch numbers for sections 17-24 *(shown above)*, press the 'Page Forward' touch button and a 'Setup Pressure Sensors' screen appears *(shown below)*.

31 Press the 'Pressure Sensor 1' touch button and a Setup Pressure Sensors screen appears *(shown next page)*.

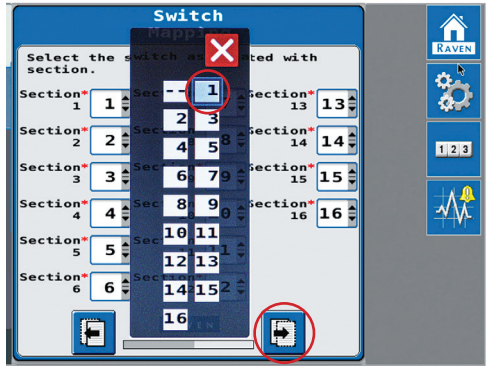
Select & press the Help Menu '?' touch button if required. To exit press the 'X' touch button.



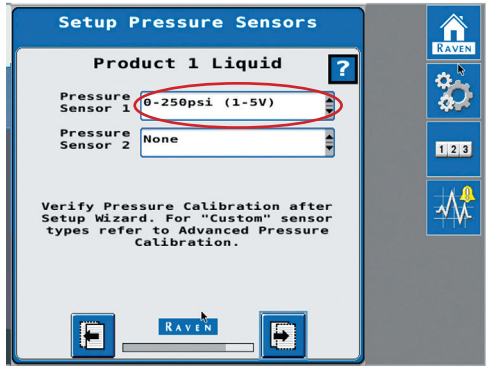
If a 'Busy' screen appears after pressing 'Page Forward' or 'Page Rearward'. Wait. It clears as processing completes.

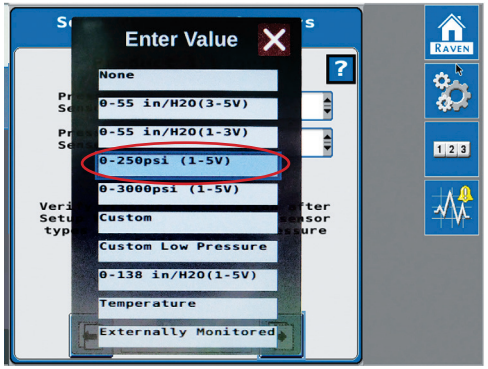


Choose & press a switch number, eg.'1'. After completing all 16 sections, press Page Forward' to continue.



Press the 'Pressure Sensor 1' touch button and a Pressure Sensors menu appears (shown next page).





Select & press the '0-250psi (1-5v)' touch button pressure sensor setting.

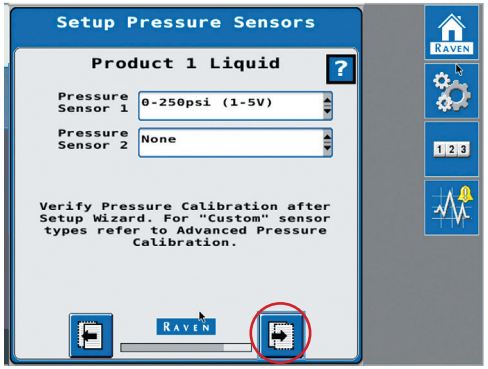
32 Select & press the '0-250psi (1-5v)' pressure sensor setting and the screen returns to the Setup Pressure Sensors screen with '0-250psi (1-5v)' displayed *(shown below)*.

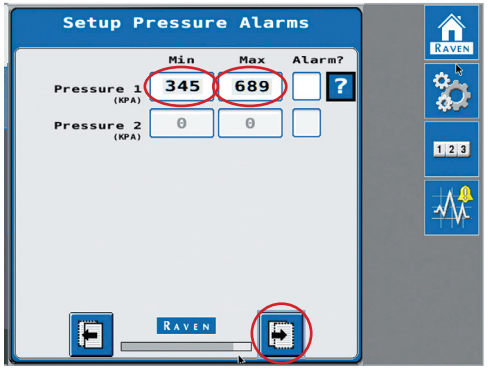
33 Press the 'Page Forward' touch button and a 'Setup Pressure Alarms' screen appears *(shown above right)*.

34 Press the 'Min' touch button and a 'Set Pressure Alarms' keypad appears *(not shown)*.

35 Press the touch buttons to set the minimum pressure value, eg '345', then press the 'Tick' touch button.

Press the 'Page Forward' touch button





Set the Minimum & Maximum Alarm Pressure requirements, then press the 'Page Forward' touch button.

The 'Setup Pressure Alarms' screen returns with the value '345' showing in the 'Min' display *(shown above)*.

36 Press the 'Max' touch button and a 'Set Pressure Alarms' keypad appears *(not shown)*.

Press the touch buttons to set the minimum pressure value, eg '689', then press the 'Tick' touch button.

The 'Setup Pressure Alarms' screen returns with the value '689' showing in the 'Max' display *(shown above)*.

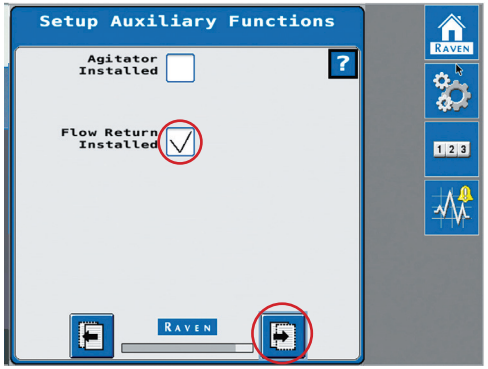
37 Leave the 'Alarms' touch button 'blank' as this is controlled by the G-Hub.

38 Press the Help Menu '?' touch button to read notes on Alarm settings, if required *(shown next page, bottom left)*.

39 Press the 'Page Forward' touch button and a 'Setup Auxiliary Functions' screen appears *(shown above right)*.

NOTE

If the 'Tier 3' boom option for 3TS Pro is chosen & unlocked (from RCM 'Feature Unlocks'), it will appear in the 'Setup Tiered Boom' screen as 'Tier 3 Max Flow Rate' and requires appropriate pre-setting (see steps 42 & 43 on this page).



Check the 'Flow Return Installed' box, then press 'Page Forward' touch button.

40 In the Setup Auxiliary Function panel:

- Leave the 'Agitator Installed' box blank as agitator is controlled by the G-Hub.
- Press the 'Flow Return Installed' box to select the Flow Return Installed. A "Tick" appears when selected *(shown above).* The box is blank when unselected.

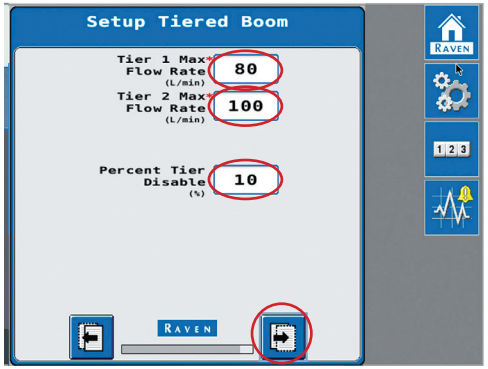
This stops the 'Warning Pop-Up' when the boom RapidFlow is On (Automatic mode).

If using Manual Mode in the G-Hub, an operator may choose to leave this box unchecked to be reminded of switching Off the RapidFlow for spraying.

41 Press the 'Page Forward' touch button *(shown above)* and a 'Setup Tiered Boom' screen appears *(shown above right)*.

Setting-up the 'Tiered Boom' requires the operator to calculate the maximum flow rates of nozzles fitted to the Tier 1 & Tier 2 boom sections.

Refer to Chapter 6 'Calibration' for the information required to determine Maximum Tier Flow Rates & Nozzle Charts.



Set the Tier 1 & Tier 2 Max Flow Rates & Percent Tier Disable, then press the 'Page Forward' touch button.

42 Press the 'Tier 1 Max Flow Rate' touch button and a keypad appears *(not shown)*. Press the touch buttons to set the Max Flow Rate value, eg '80' (L/min), then press the 'Tick' touch button.

The 'Setup Tiered Boom' screen returns with '80' (L/min) displayed in the 'Tier 1 Max Flow Rate' setting *(shown above)*.

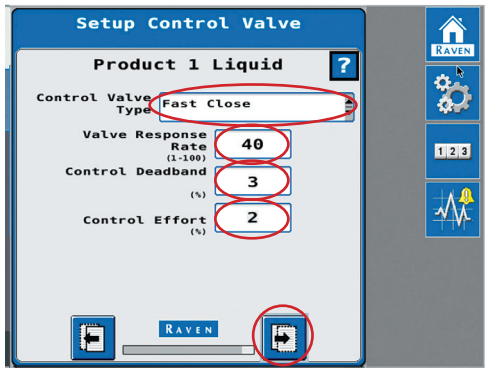
43 Press the 'Tier 2 Max Flow Rate' touch button and a keypad appears *(not shown)*. Press the touch buttons to set the Max Flow Rate value, eg '100' (L/min), then press the 'Tick' touch button.

The 'Setup Tiered Boom' screen returns with '100' (L/min) showing in the 'Tier 2 Max Flow Rate' setting *(shown above)*.

44 Press the 'Percent Tier Disable' touch button and a keypad appears *(not shown)*. Press the touch buttons to set the value, eg '10' (%), & press 'Tick' touch button.

The 'Setup Tiered Boom' screen returns with '10' (%) showing in the 'Percent Tier Disable' setting *(shown above)*.

Max Flow Rates & Tier Disable values will vary with nozzle type selected.



Select 'Fast Close Valve Type' & enter 'Valve Response Rate', 'Control Deadband' & 'Control Effort' values, then 'Page Forward'.

45 Press the 'Page Forward' touch button *(shown above left)* and a 'Setup Control Valve' screen appears *(shown above)*.

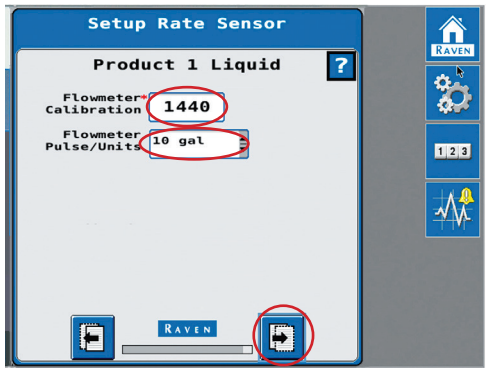
46 Press the 'Control Valve Type' touch button and a list appears *(not shown)*.

Select & press the 'Fast Close' Control Valve Type and the screen returns to the Setup Control Valve screen with 'Fast Close' displayed *(shown above)*.

48 Press the 'Valve Response Rate' touch button and a keypad appears *(not shown)*.

Press the touch buttons to set the value to '40', then press the 'Tick' touch button.

The 'Setup Control Valve' screen returns with '40' showing in the 'Valve Response Rate' display *(shown above)*.



Enter the 'Flowmeter Calibration' number and set the 'Flowmeter Pulses/Units' to 10 gal, then 'Page Forward'.

49 Press the 'Control Deadband' touch button and a keypad appears *(not shown)*.

Press the touch buttons to set the value to '3' (%), then press the 'Tick' touch button.

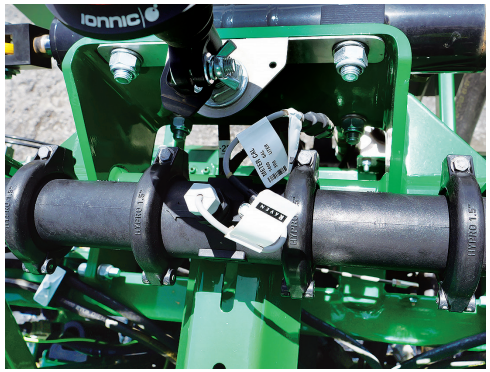
The 'Control Valve Type' screen returns with '3' (%) showing in the 'Control Deadband' display *(shown above left)*.

50 Press the 'Control Effort' touch button and a keypad appears *(not shown)*.

Press the touch buttons to set the value to '2' (%), then press the 'Tick' touch button.

The 'Control Valve Type' screen returns with '2' (%) showing in the 'Control Effort' display *(shown above left)*.

51 Press the 'Page Forward' touch button *(shown above left)* and a 'Setup Rate Sensor' screen appears *(shown above)*.



Check the tag of flowmeter located on the top of the boom centre section.

52 Press the 'Flowmeter Calibration' touch button *(shown above left)* and a keypad appears *(not shown)*.

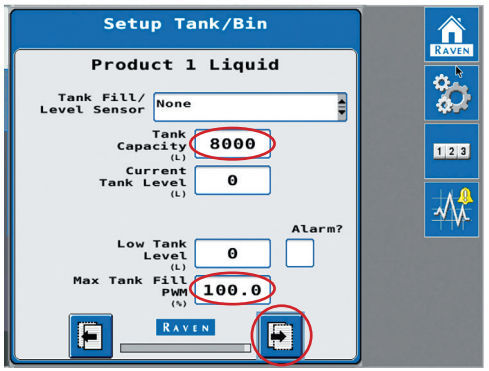
Press the touch buttons to enter the flowmeter calibration number (obtained from the flowmeter tag *[shown above]*), eg '1444', then press the 'Tick' touch button.

The 'Setup Rate Sensor' screen returns with '1444' showing in the 'Flowmeter Calibration' display.

53 Press the 'Flowmeter Pulses/Units' touch button and a menu appears.

Select & press the '10 gal', then '10 gal' appears in the 'Flowmeter Pulses/Units' display.

54 Press the 'Page Forward' touch button and a 'Setup Tank/Bin' screen appears *(shown above right)*.



Enter the 'Tank Capacity' value and Max Tank Fill PWM' value, then press 'Page Forward'.

55 The 'Tank Fill/Level Sensor' should display 'None' *(shown above)*.

56 Press the 'Tank Capacity' touch button and a keypad appears *(not shown)*.

Press the touch buttons to enter the total tank volume in litres eg, '8000', then press the 'Tick' touch button.

The 'Setup Tank/Bin' screen returns with eg, '8000' displayed in 'Tank Capacity' *(shown above)*.

Actual tank volume may be more eg, 8200 & may be used if desired.

57 The 'Low Tank Level' should display '0' and the 'Alarm?' checkbox left blank *(shown above)*.

59 Press the 'Page Forward' touch button and a 'Setup Rates' screen appears *(shown next page)*.

NOTE

Percent Tier Disable

The 'Percent Tier Disable' value is usd to minimise unnecessary tier switching when spraying close to the switch point of a tier. Increasing the value, reduces the sensitivity when switching tiers.

The '10% Percent Tier Disable' value means a spraying Tier will not change down until the spray rate is 10% below the target rate.

NOTE

Valve Response Rate

The Response Rate has a range of 1 to 100 and the setting determines how aggressively the target rate is controlled to. Increasing this value will cause the system to respond more quickly. Decreasing it will cause a slower response. If the flow is slow to reach the target value, consider increasing it.

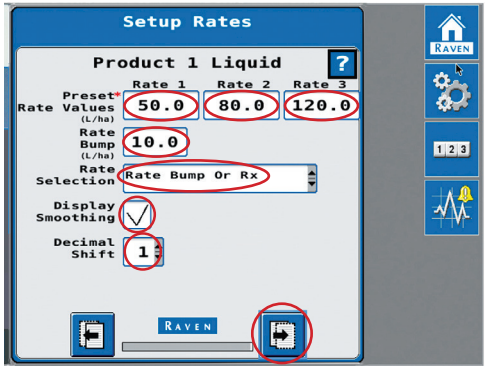
NOTE

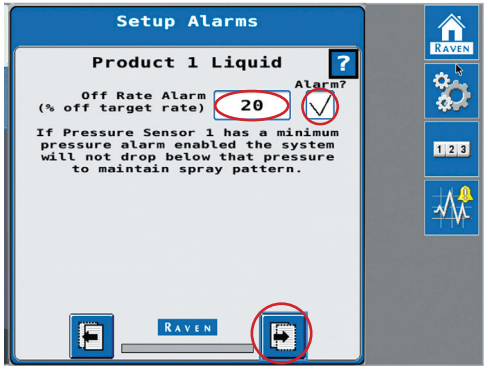
Control Deadband

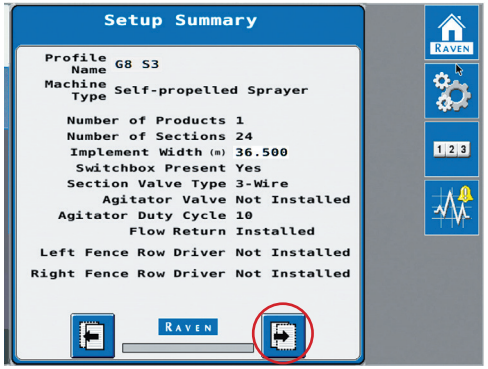
Enter the percent of target rate the control valve will control to. For example, if 2% is entered the rate controller will attempt to adjust the flow rate until the actual rate is with 2% of the target rate.

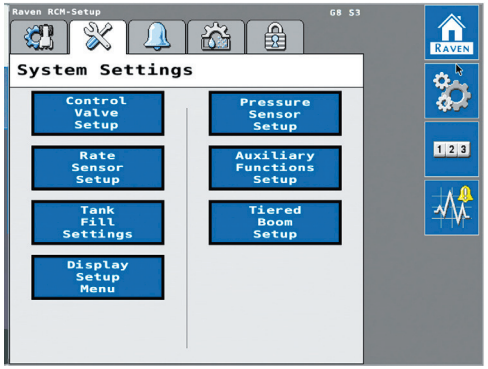
Control Effort

Enter the minimum percentage needed for the control valve to change position.









60 Press the ‘Preset Rate Values - Rate 1’ touch button and a keypad appears *(not shown)*.

Press the touch buttons to enter the rate required in litres, eg. ‘50’ (L/ha), then press the ‘Tick’ touch button.

The ‘Setup Rates’ screen returns with ‘50’ displayed in ‘Rate 1’ *(shown above)*.

61 Repeat for rates required in ‘Rate 2’, eg ‘80’and ‘Rate 3’, eg ‘120’ *(shown above)*.

62 Press the ‘Rate Bump’ touch button and a keypad appears *(not shown)*.

Press the touch buttons to enter the rate value, eg ‘10’, then press the ‘Tick’ touch button.

The ‘Setup Rates’ screen returns with ‘10’ displayed in ‘Rate Bump’ *(shown above)*.

64 Press the ‘Rate Selection’ touch button and a list appears *(not shown)*. Select & press ‘Rate Bump or Rx’.

The ‘Setup Rates’ screen returns with ‘Rate Bump or Rx’ displayed *(shown above)*.

65 Press the ‘Display Smoothing’ checkbox to enable display smoothing. A ‘Tick’ appears when the ‘Display Smoothing’ is enabled *(shown above left)*.
The checkbox is blank if disabled.

64 Press the ‘Decimal Shift’ touch button and a list appears. Select & press ‘1’.

The ‘Setup Rates’ screen returns with ‘1’ in Decimal Shift *(shown above left)*.

65 Press the ‘Page Forward’ touch button and a ‘Setup Alarms’ screen appears *(shown above)*.

66 Press the ‘Off Rate Alarm’ touch button and a keypad appears. Press the touch buttons to enter the rate value, eg ‘20’ (%), then press the ‘Tick’ touch button.

The ‘Setup Rates’ screen returns with ‘20’ displayed in “Off Rate Alarm” *(shown above)*.

67 Press the ‘Alarm?’ checkbox to enable the alarm. A ‘Tick’ appears when the ‘Alarm’ is enabled *(shown above)*.

68 Press the ‘Page Forward’ touch button and a ‘Setup Summary’ screen appears *(shown above right)*.

69 Review the information on the ‘Setup Summary’ screen.

If any change is required, press the ‘Page Rearward’ touch button to the screen(s) required to make the change(s).

This completes the RCM initial setup procedure. After completion of the RCM setup, no further setup in this procedure is necessary unless the boom and its components are physically altered or changed.

70 Press the ‘Page Forward’ touch button and a ‘System Settings’ screen appears *(shown above right)*.

NOTE

Rate Bump

When spraying in Manual Mode, the operator can adjust the Spray Application Rate (using touch buttons on the Controller) by the amount (l/ha) pre-set in the Spray Bump setting.

The ‘Setup Wizard’ has now completed all RCM pre-settings.

If any change is required for application rates or other RCM pre-settings, most changes are made from this screen.

NOTE

Flowmeter Calibration

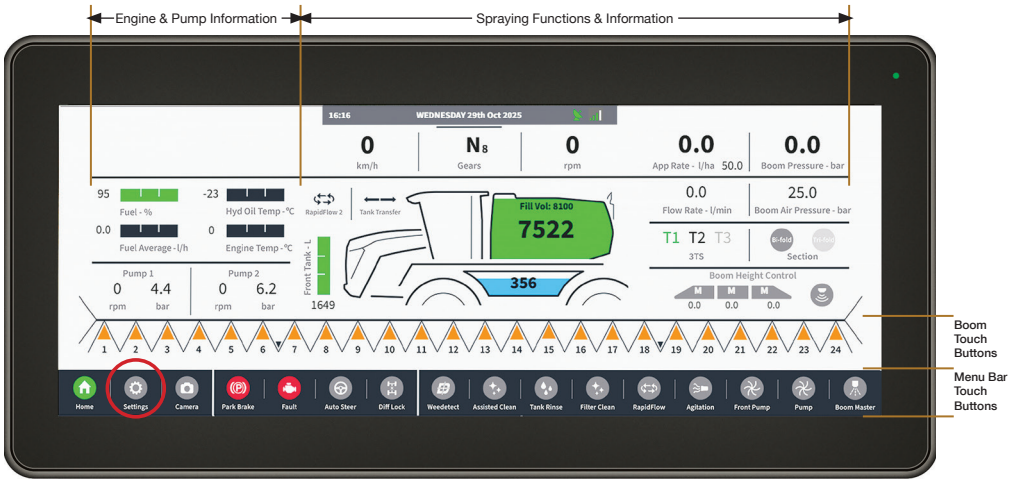
Enter the Flowmeter Calibration. Most flowmeter have an attached tag indicating recommended calibration number. Enter this number as initial flowmeter calibration value.

Flowmeter Pulse/Units

Select the flowmeter units from this drop-down. The Flowmenter Pulses/Units is the number of pulses the flowmeter will generate for a given amount product passed through that flowmeter. For example, a flowmeter calibration of 710 Pulses/10gal (37.85 litres) would indicate that for every 710 pulses from the flowmeter, 10 gal (37.85 litres) of product will pass through the flowmeter.

NOTE

If the number of boom sections and/or section widths are phyically altered at anytime, then the Application Width and Section Width inputs need to be changed accordingly.



The G-Hub Spray Home Screen with Engine, Pump, Spraying information & functions and the 'Settings' touch button circled.

Pre-Set the G-Hub Controller

Goldacres G-Hub Controller is pre-set and tested for spraying applications prior to delivery.

However, it is recommended that all settings and operation be checked and tested for accuracy prior to spraying applications.

Goldacres G-Hub Touch Screen with Armrest Control Console and Joystick Controller.



It is the operator's responsibility to correctly operate all controller and sprayer functions at all times.

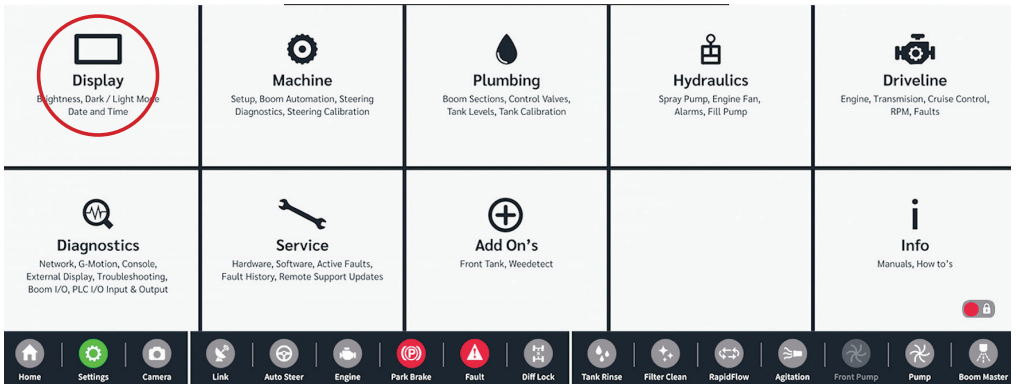
The 'Settings' touch button in the Menu Bar (LHS next to the 'Home' touch button) gives access to 9 Menu touch buttons for settings, diagnostics and service, namely:

1 Display
2 Machine
3 Plumbing
4 Hydraulics
5 Driveline
6 Diagnostics
7 Service
8 Add On's
9 Info.

Pre-setting the G-Hub uses 1 - 5.

NOTE

Press the 'Information (i)' touch button in the bottom LHS of the screen for further information and an information page appears. Press the 'X' touch button to cancel the page and return to the setting screen.



Press the 'Display' touch button screen to open the 'Display' settings screen,

To Pre-Set the G-Hub:

1 Turn the Crop Cruiser Igniton key to Accessories and allow the G-Hub & other displays to activate.

2 Press the 'Enter' touch button of the G-Hub screen & the Home Spray screen appears.

3 Press the 'Settings' touch button on the G-Hub Home screen *(shown above left)*, and the G-Hub 'Menu' screen appears & displays 9 touch buttons *(shown above)*.

4 Press the 'Display' touch button on the 'Settings' screen to open the 'Display' screen *(shown below)*.

1 Display Settings

Display settings can be used to personalise operator preferences.

Date/Time

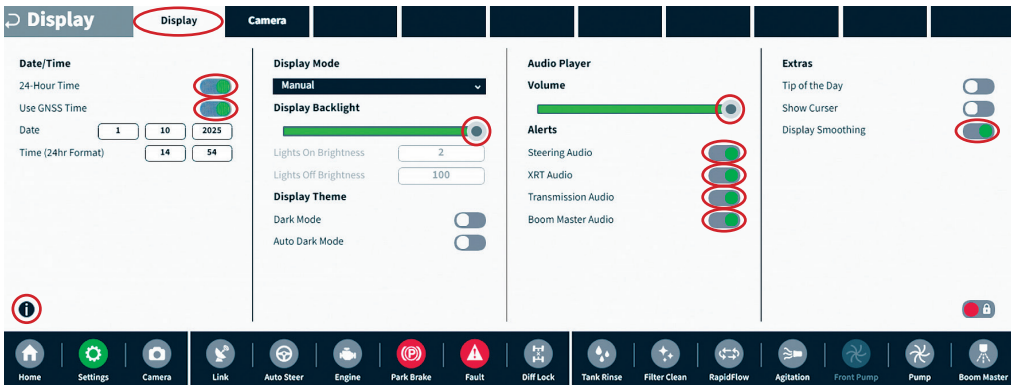
Press the '24 Hour Time' touch button to enable or disable *(enabled shown below)*.

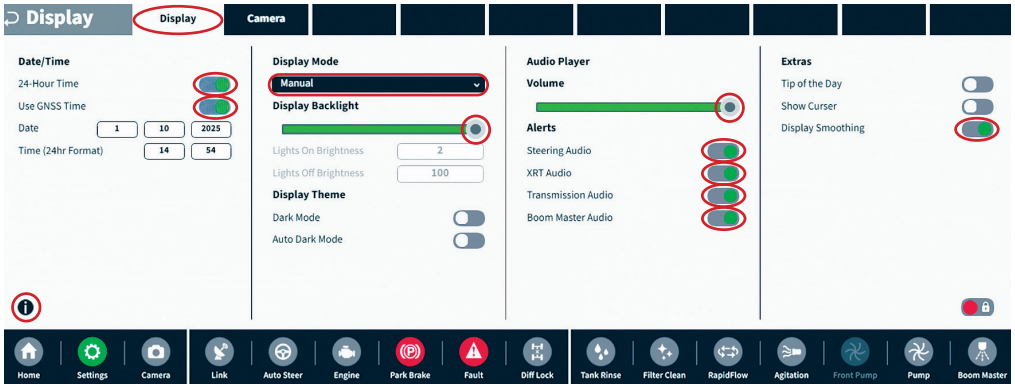
If required, press the Global Navigational Satellite System (GNSS) to enable or disable GNSS Time *(enabled shown below)*.

Date is populated when either 'Time' touch buttons are enabled Green) *(shown below)*.

Time (24 Hour format) is populated when the '24 Hour Time' enabled *(shown below)*.

Press the touch buttons to enable or disable settings as required.





Press touch buttons to enable or disable & make the settings required.

Display Mode

Display Mode provides choice of Manual, Auto Brightness or Adaptive Brightness settings.

Press the 'Display Mode' touch button & a dropdown list appears. Press the required option, eg 'Manual' and Manual appears in the display *(shown above)*.

Display Backlight

In manual mode, use the 'Display Backlight' slider touch button to adjust screen brightness as preferred.

Display Theme

Display Themes include Dark Mode & Auto Dark Mode.

Press the 'Dark Mode' touch button to enable or disable *(disabled shown above)*.

Press the 'Auto Dark Mode' touch button to enable or disable *(disabled shown above)*.

Audio Player

The Audio Player provides sound level control.

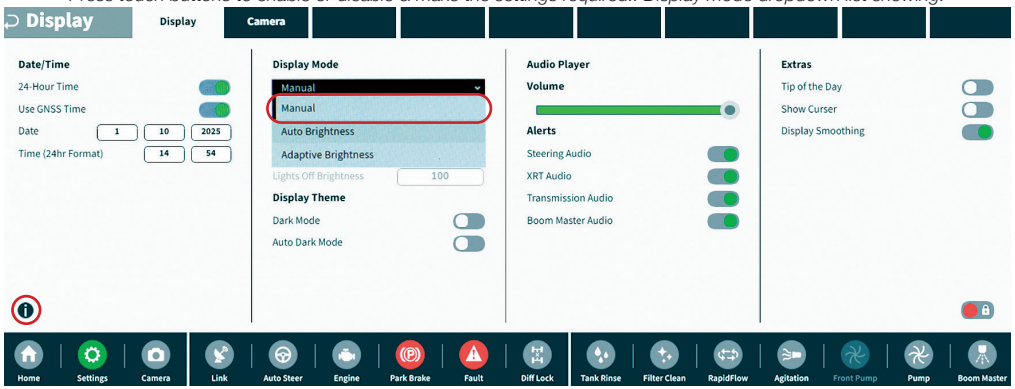
Press the Audio Player 'Volume' slider touch button to adjust all sound volume as required

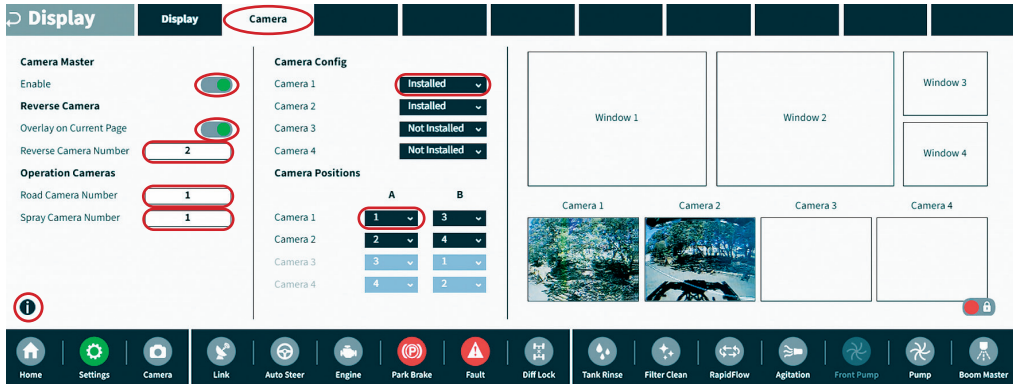
Alerts

The Alert function provides an engage (On) or disengage (Off) sound for the following:

- Steering Audio
- XRT Audio
- Transmissioin Audio
- Boom Master Audio

Press touch buttons to enable or disable & make the settings required.. Display mode dropdown list showing.





Press touch buttons to enable or disable & make the settings required..

Press touch buttons to enable or disable each function as required *(all enabled shown above left)*.

Extras

The Extras function provides:

- Tip of the Day - dynamic start screen message
- Show Cursor - blue & red dot overlay on screen
- Display smoothing - *for home screen sensor values.*

An '**Information**' touch button, located at the bottom LHS of the screen can be used for further information (*shown above left*).

2 Camera Settings

Press the Camera tab touch button *(shown above)* to open the Camera 'Setup' screen.

Camera Master

Camera Master connects/disconnects all cameras.

Press the 'Enable' touch button to enable or disable the function *(enabled shown above)*.

Reverse Camera

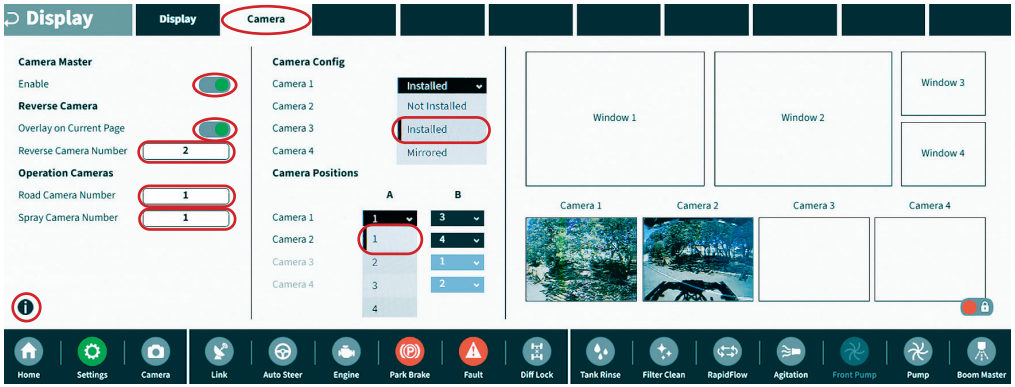
When Enabled, the Reverse Camera function allows the operator to press the 'Return' push button on the Armrest Console to display the camera view live on the G-Hub screen.

Press the 'Overlaying on Current Page' touch button to enable or disable the function *(enabled shown above)*.

Press the 'Reverse Camera Number' touch button *(shown above)* and a numerical keypad appears *(shown below)*.

Press the required numerical touch buttons to enter the value, then press Enter.





Press touch buttons to enable or disable & make the settings required.

Press the numerical touch button to enter the 'Reverse Camera Number, eg '2', then press the 'Enter' touch button *(shown previous page, bottom right)*. The screen returns with '2' displayed in the 'Reverse Camera Number' *(shown above)*.

Operation Cameras

Operation Cameras allocate cameras for Road & Spray operations. Allocate cameras as required.

Press the 'Road Camera Number' touch button and from the dropdown list, select the number, eg '1' and 1 appears in the display *(allocation example shown above)*.

Repeat procedure for 'Spray Camera Number'.

Camera Config

Cameras must be configured for its function, for example, press the 'Camera 1' touch button *(shown previous page top right)* & the options appear for Not Installed, Installed or Mirrored *(shown above)*.

Press the required option, eg 'Installed' and 'Installed' appears in the 'Camera 1' touch button *(shown above)*.

Repeat the setting procedure for each camera.

Camera Positions

Each camera can have 2 display positions.

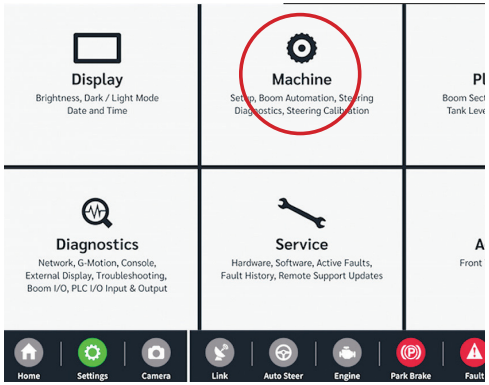
Under 'A', press 'Camera 1' touch button *(shown above)* & a dropdown list appears with choice of '1', '2', '3' & '4' *(shown above)*.

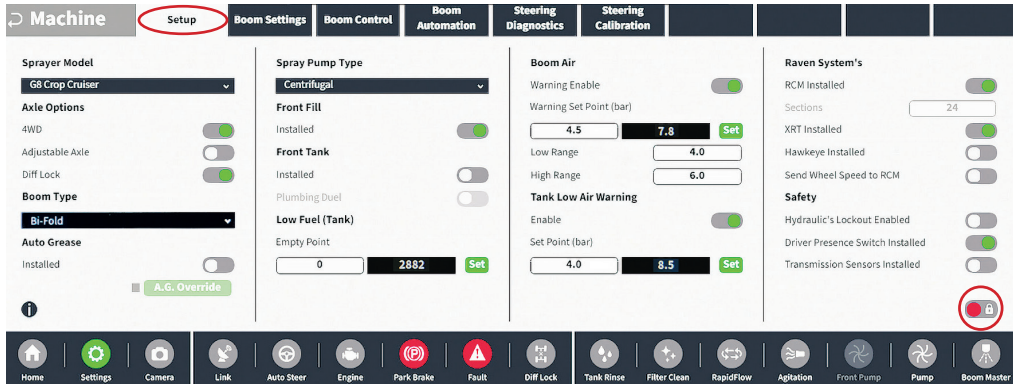
Press the required option, eg '1' and 1 appears in the 'Camera 1' touch button *(shown on previous page top right)*.

Repeat the procedure under 'A' & 'B' for each camera installed.

An '**Information**' touch button, located at the bottom LHS of the screen can be used for further information, if needed (*shown above*).

Press the 'Machine' touch button to open the 'Machine Setup' screen.





Press the G-Hub 'Settings' & 'Machine' touch buttons to display the 'Machine Setup' screen, then press the Security Lock.

3 Machine

Press the 'Settings' touch button on the Home screen and the G-Hub 'Menu' screen displays 9 Menu touch buttons *(shown previously)*.

Press the 'Machine' touch button on the 'Menu' screen *(shown below left)* to open the 'Machine' screen which displays 6 tab menus opening with the 'Setup' screen *(shown above)*.

Pre-setting the G-Hub requires settings in four of the 'Machine Menu' screens:

- Setup
- Boom Settings
- Boom Control
- Boom Automation.

The Machine Setup screen is **locked for protection** from uninformed or accidental alteration and the screen must be unlocked before any setting or alterations can be made.

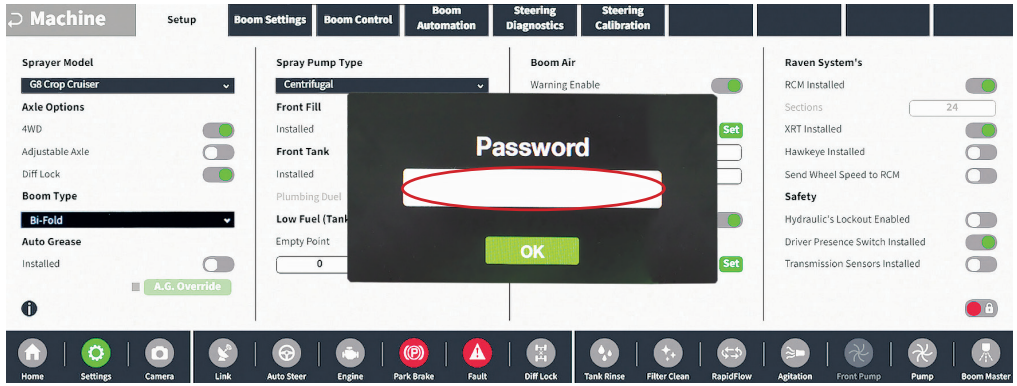
To Unlock the Machine/Setup Screen:

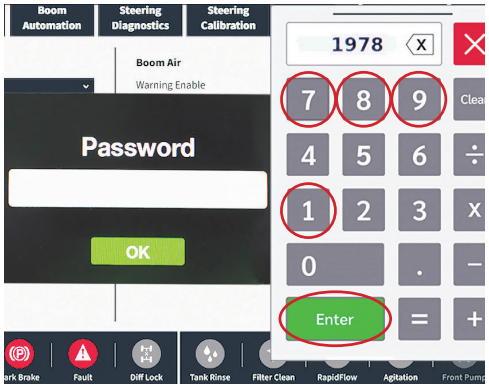
1 Press the 'Security Lock' touch button at the bottom RHS of the screen and a password request appears *(shown below)*.

2 Press the 'Password' touch button *(shown below)* and a numerical keypad appears *(shown next page, top LHS)*.

3 Press the numerical touch buttons to enter the password '1978', then press the 'Enter' touch button.

Press the 'Password' touch button to access to enter the password using a numerical keypad.





Enter the password '1978' with the numerical keypad, then press 'Enter'.

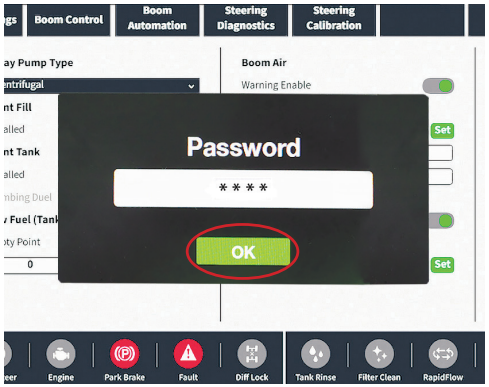
The screen returns to the 'Password' touch button screen with * * * * displayed *(shown above right)*.

4 Press the 'OK' touch button and the screen returns to the Setup screen with the Settings Lock displaying unlocked & Green *(shown above right)*.

NOTE

When a 'Security Lock' touch button is unlocked (Grren) on a Security screen all the remaining Security screens will be unlocked until the G-Hub electrical system recycles, ie. Ignition key turned Off, systems close down, then Ignition key turned On and system reboots.

If preferred, individual Secutity screens can be re-locked by pressing the Green Security unlocked touch button (resets to Red & Locked) before moving to another screen.



Press 'OK' touch button to unlock the screen for making changes.

Sprayer Model

The correct Crop Cruiser model must be selected for the G-hub to operate correctly.

Press 'Sprayer Model' touch button *(shown above right)* & a model option drop down list appears:

- Not Configured
- G4 Crop Cruiser
- G6 Crop Cruiser
- G8 Crop Cruiser *(shown below)*
- G10 Super Crop Cruiser.

Press the required option, eg 'G8 Crop Cruiser' and 'G8 Crop Cruiser' appears in the 'Sprayer Model' touch button *(shown above right)*.

Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

Axle Option

Axle Options include 4WD, Adjustable Axle Diff Lock.

Enable '4WD' only for machines fitted with four wheel drive *(enabled shown above)*.

Enable 'Axle Adjustment' only for machines with adjustable width axles to enable touch button function on the Home screen *(disabled shown above)*.

Enable 'Diff Lock' only for machines fitted with diff lock *(enabled shown above)*.

Touch buttons are 'Green' when enabled & 'Grey' when disabled.

4WD machines use a centre gearbox diff lock.

Boom Type

The correct boom type must be selected for the G-hub to populate & operate correctly.

Press the 'Boom Type' touch button and a Boom Type drop down list appears *(shown above)*:

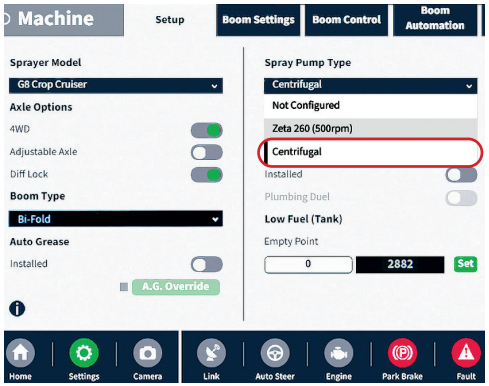
- Null
- Bi-fold
- Tri-fold
- Non Bi-fold

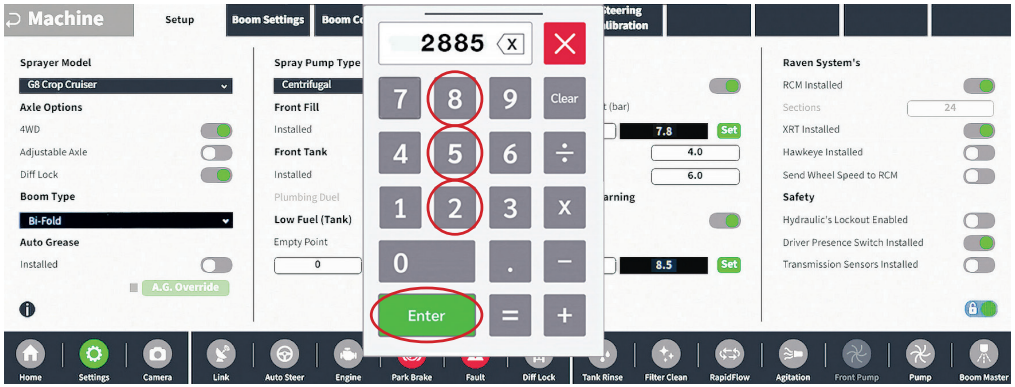
Press the touch button required, for example 'Bifold' and Boom Type displays 'Bifold' *(shown above)*.

Spray Pump Type

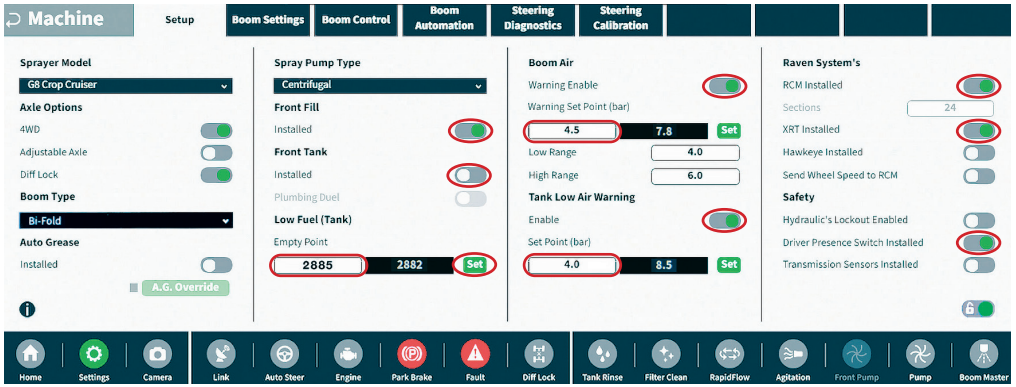
Spray Pump Type configures the spray pump for display & settings.

Press the Spray Pump Type touch button *(shown above)* & a dropdown list appears. Press the required option, eg 'Centrifugal' *(shown below)* & Centrifugal appears in the display *(shown above)*.





Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

Front Fill

Press the 'Front Fill' touch button to enable or disable the Front Fill Screen functions for the G-Hub *(enabled shown above right)*.

Front Tank

If an optional Front Tank is fitted, press the Front Tank touch button to set its installation for G-Hub functions *(disabled shown above right)*.

Low Fuel (Tank)

The Low Fuel touch button sets an empty point for the fuel tank level sensor & alarm. Default empty point is '0'. A value from 0 - 5000mV is required *(shown above right)*.

Press the 'Empty Point' touch button & enter desired value using keypad touch buttons, eg '2885' *(shown above)* and 2885 appears in the display *(shown above right)*.

Alternatively, a low small amount of fuel iplaced in fuel tank can be used to set the low limit by pressing the 'Set' push button when operating.

Boom Air

The 'Warning Enable' touch button enables or disables a pop-up warning Boom Air Warning.

Press the touch button to enable or disable the function *(enabled shown above right)*.

The set values for the warning can be set by pressing the 'Set' push button while operating the sprayer or by manually entering the values using:

- The 'Low Range' touch button which sets a range outside which the Boom Air Warning is triggered.
- The 'High Range' touch button which sets a range outside which the Boom Air Warning is triggered.

If required, press the touch buttons & enter new values using keypad touch buttons, eg 4.5 *(shown above right)*.

Tank Low Air Warning

The 'Enable' touch button enables or disables a pop-up 'Tank Low Air Warning' *(enabled shown above right)*.

Use the 'Set' touch button while operating the sprayer to set a 'Set Point' value for the Tank Low Air Warning OR press the touch button & manually enter the value using keypad touch buttons, eg 4.0 *(shown above)*.

Raven System's

The Raven System's Installed' touch buttons enable of disable communications between the RCM, XRT, Hawkeye and the G-Hub.

Press the 'RCM Installed' touch button to enable or de-disable RCM functions *(enabled shown above)*.

Press the 'XRT Installed' touch button to enable or de-disable XRT functions *(enabled shown above)*.

Press the 'Hawkeye Installed' touch button to enable or de-disable Hawkeye functions *(disabled shown above)*.

Press the 'Send Wheel Speed to RCM' touch button to enable or disable the wheel speed function *(disabled shown above)*.

Safety

The Hydraulic Lockout Enabled function stops all G-Hub hydraulic functions.

Press touch button to enable or de-disable the hydraulic lockout function *(disabled shown above)*.

The Driver Presence Switch Installed function prevents the sprayer from driving without a driver being detected in the seat.

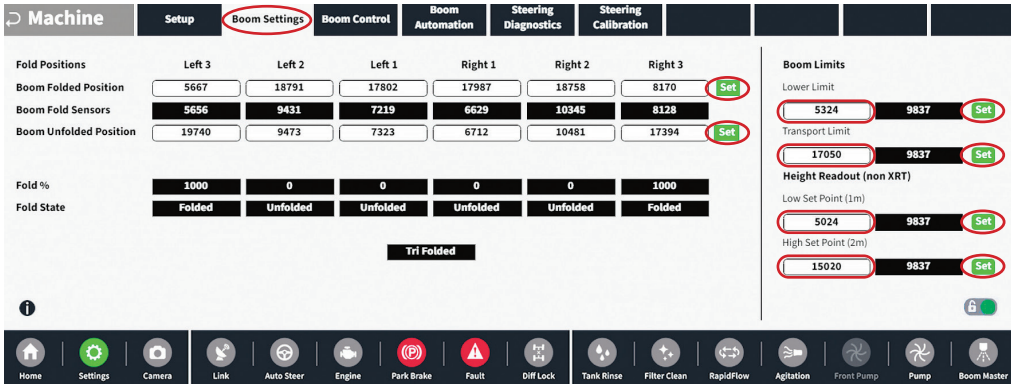
Press the touch button to enable or disable the function *(enabled shown above)*.

The Transmission Sensors Installed function enables G-Hub transmission of oil temperature & level warnings.

Press the touch button to enable or disable the function *(disabled shown above)*.

NOTE

Press the 'Information (i)' touch button in the bottom LHS of the screen for further information and an information page appears. Press the 'X' touch button to cancel the page and return to the setting screen.



Press touch buttons to enable or disable & make the settings required.

4 Boom Settings

Press the 'Boom Settings' tab touch button to open the 'Boom Settings' screen *(shown above)*.

All boom settings have been factory set and tested but if boom damage occurs or sensors adjusted, resetting positions will be required.

Folded Positions

The 'Fold Positions' are set while operating the boom from fully unfolded working position to fully folded transport position.

To Set Positions:

1 Unfold the boom and when fully unfolded in work position, press the 'Boom Unfolded Position' 'Set' touch button & values appear in the left displays *(shown above)*.

2 Fold the boom and when the boom is fully folded, press the 'Boom Folded Position' 'Set' touch button.& values appear in the left displays *(shown above)*.

Boom Limits

The Lower Limit sets the minimum boom operation height.

The Transport Limit sets the lower limit of the boom when fully folded & lowered for transport (not hitting rear mudguards).

To Set Boom Limits:

1 Unfold the boom & when the boom is at the lowest working position (with 50mm lift cylinder stroke remaining), press the 'Lower Limit' 'Set' touch button & the value appears in the display *(shown above)*.

2 Fully fold & lower the boom into the transport rests, then press the 'Transport Limit' Set touch button and the value appears in the display.

Height Readout (non XRT)

The Low Set Point (1m) is measured 1m from ground level to nozzle tip.

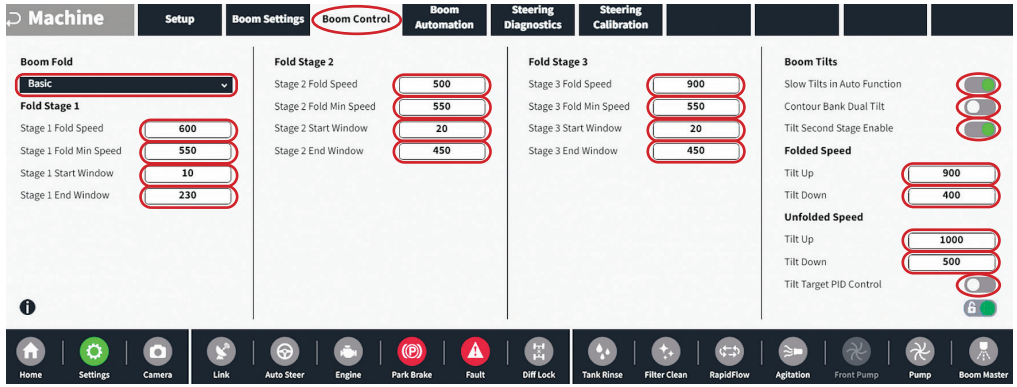
The High Set Point (2m) is measured 1m from ground level to nozzle tip.

To Set Height Readout (Non XRT):

1 Lower the boom to the measured distance of 1m from ground level to nozzle tip, then press the 'Low Set Point (1m)' 'Set' touch button & the value displays left *(shown above)*.

2 Raise the boom to the measured distance of 2m from ground level to nozzle tip, then press the 'Hight Set Point (2m)' 'Set' touch button & the value displays left *(shown above)*.

All boom settings can be manually adjusted if necessary. Press the appropriate touch button & enter the value using keypad touch buttons.



Press touch buttons to enable or disable & make the settings required.

5 Boom Control

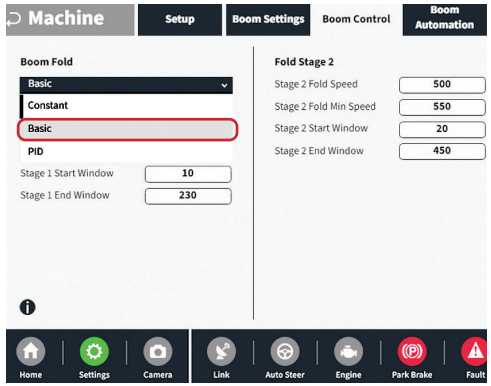
Press the 'Boom Control' tab touch button to open the 'Boom Control' screen *(shown above)*.

Boom Control settings are entered manually. Press the appropriate touch button & enter the value using keypad touch buttons. Values entered set the oil flow rate

Boom Fold

Boom Fold offers 3 boom fold modes:

- Basic - starts minimum fold speed, then moves to maximum fold speed, then back to minimum speed as end nears
- Constant - minimum fold speed throughout all folding & unfolding



- Fold Control PID - uses preset folding profiles & fold speed is never less than minimum fold speed.

Press the 'Boom Fold' touch button & a drop down list appears *(shown below left)*:

Press the touch button applicable, eg 'Basic' & Basic appears in the display *(shown above)*.

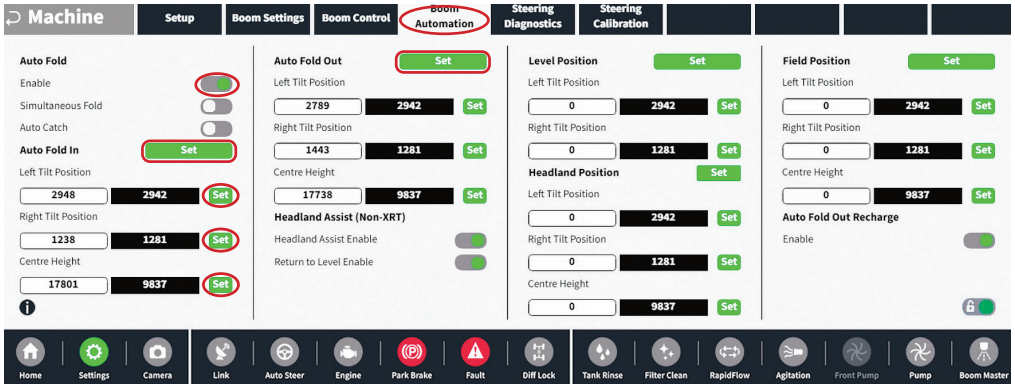
Fold Stage 1, 2 & 3

Fold Stage 1, 2 & 3 provide individual stage configuration - 'Fold Speed' 'Fold Min Speed', 'Start Window' & 'End Window'.

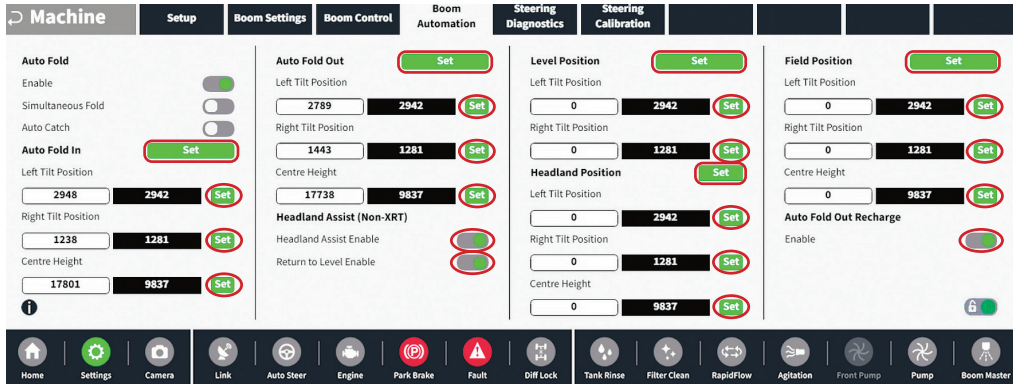
Boom Tilts

Boom Tilts set mode & speed of boom tilts. Press 'Boom Tilts' touch buttons to enable or disable modes:

- Slow Tilts in Auto Function - designed to reach target position more accurately *(enabled shown above)*
- Contour Bank Dual Tilt - Dual tilt up = left up & right down. Dual tilt down = left down & right up *(disabled shown above left)*
- Tilt Second Stage Enable - Dual Tilt speed controlled by second stage Right Tilt Up & Left Tilt Down push buttons *(enabled shown above)*.



Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

Folded Speed

- Tilt Up - drives tilt up functions in boom fold stage 2. If set too low, booms will tilt too low when folding
- Tilt Down - drives tilt down functions in boom fold stage 2. If if set too high, booms will tilt too high when folding.

Unfolded Speed

- Tilt Up - drives tilt up functions in boom fold stage 2. If set too low, booms will tilt too low for when unfolding
- Tilt Down - drives tilt down functions in boom fold stage 2. If if set too high, booms will tilt too high when unfolding.
- Tilt Target PID Control - tilts controlled by target tilt positions & adjusting tilt value. Enable for auto functions *(disabled shown previous page, top right)*.

NOTE

Press the 'Information (i)' touch button in the bottom LHS of the screen for further information and an information page appears. Press the 'X' touch button to cancel the page and return to the setting screen.

6 Boom Automation

Press the 'Boom Automation' tab touch button to open the 'Boom Automation' screen *(shown above)*.

Auto Fold

Press 'Auto Fold' touch buttons to enable or disable as required:

- Auto Fold - automatically targets set Fold In & Fold Out positions *(enabled shown above)*
- Simultaneous Fold - folds all fold stages together - tri-fold booms only
- Auto Catch - automatically opens and closes the boom catch when folding & unfolding - tri-fold booms only.

Position values can also be set or changed by manually enter values using keypad touch buttons or using the individual 'Set' push buttons while operating the sprayer.

Auto Fold In

Place the boom in the fully unfolded & ready to fold-in position, then press the 'Auto Fold In' 'Set' touch button *(shown above)*.

If sensors are adjusted or changed, the 'Auto Fold In' position must be reset.

Position values can be set or changed using keypad touch buttons or individual 'Set' push buttons while operating the sprayer.

Auto Fold Out

The 'Auto Fold Out' sensor values are set when the boom is fully folded-in but raised & clear of the boom rests.

If sensors are adjusted, the 'Auto Fold Out' position must be reset.

Position values can be set or changed using keypad touch buttons or individual 'Set' push buttons while operating the sprayer *(shown above)*.

Headland Assist (Non XRT)

- 'Headland Assist Enable' - enables or disables the Headland Assist (HLA) auto functions *(enabled shown above)*
- 'Return to Level Enable' - enables or disables Goldacres return to level (HLA) auto function. Not to be used with XRT *(enabled shown above)*.

Level Position

Place the boom in the desired 'Left Tilt Position' position, then press the 'Set' touch button to set the sensor values *(shown above)*.

Place the boom in the desired 'Right Tilt Position' position, then press the 'Set' touch button to set the sensor values *(shown above)*.

Enable the position by double pressing the push buttons Boom Up or Boom Down.

Position values can be set or changed using keypad touch buttons or individual 'Set' push buttons while operating the sprayer.

Headland Position

Place the boom in the desired fold position ('Left Tilt Position', 'Right Tilt Position' or 'Centre Height'), then press the 'Set' touch button to set the sensor values.

Enable each positioin by double pressing the Dual Tilt Up switch.

Position values can also be set or changed using keypad touch buttons or individual 'Set' push buttons while operating the sprayer.

Field Position

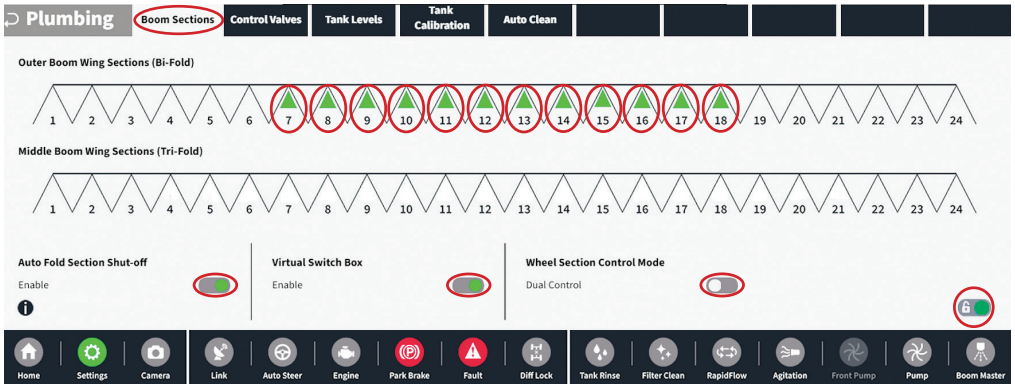
Place the boom in the desired fold position, then press the 'Set' touch button to set the sensor values. Enable the function by double pressing Dual Tilt Down.

Position values can be set or changed using keypad touch buttons or individual 'Set' push buttons while operating the sprayer.

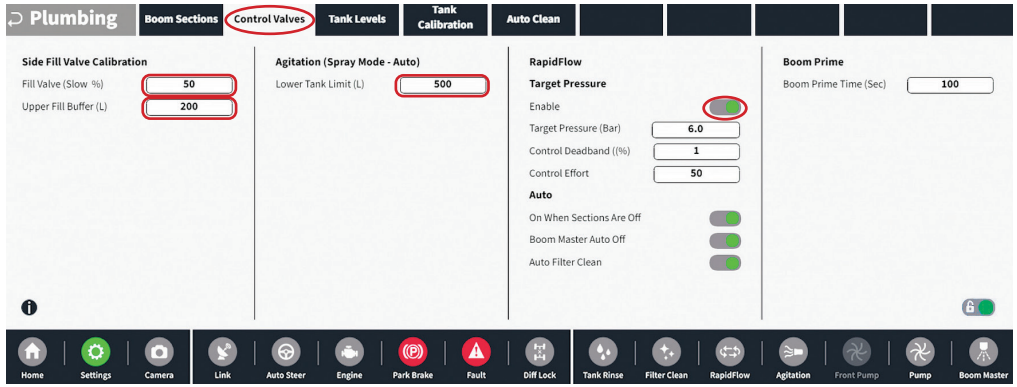
Auto Fold Out Recharge

Press the 'Auto Fold Out Recharge' touch button to enable or de-disable its function *(enabled shown above)*.

Auto Fold Out Recharge sends a signal every 10 minutes to stop the unfolded boom in spray position from creeping forward when the Master switch is active.



Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

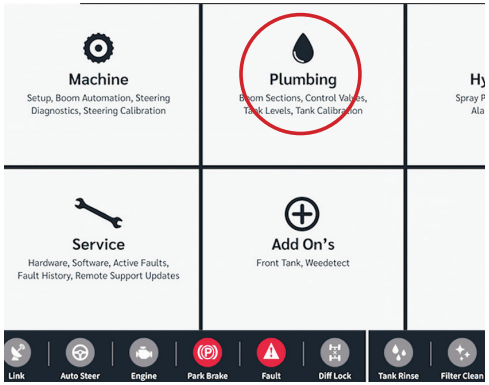
7 Plumbing

Press the 'Settings' touch button on the Home screen and the G-Hub 'Menu' screen displays 9 Menu touch buttons *(shown previously)*.

Press the 'Plumbing' touch button on the 'Menu' screen *(shown below)* to open the Plumbing screen which displays 5 tab screens opening with Boom Sections *(shown above)*.

The Boom Sections Screen provides for setting selected boom sections to be automatically shut off when using Bi-fold and Tri-fold boom functions.

Press the 'Plumbing' touch button to open the 'Machine Setup' screen.



Boom Sections

The Boom Sections screen provides for setting which boom sections automatically shut Off & remain On when using Bi-fold or Tri-fold boom functions.

Outer Wing Sections (Bi-fold)

Press the 'Boom Section' touch buttons (1 - 24) to enable or disable boom sections to automatically remain On & switch Off when using Boom Bi-fold, for example:

- Sections to remain On are Green, eg '7 - 18' *(shown above)*.
- Sections to switch Off are Clear, eg '1 - 6' & '19 - 24' *(shown above)*.

Middle Wing Sections (Tri-fold)

Press the 'Boom Section' touch buttons (1 - 24) to enable or disable boom sections to automatically remain On or switch Off when using Boom Tri-fold - 48m boom only *(not shown)*.

Auto Fold Section Shut-off

Press the 'Auto Fold Section Shut-off' touch button to enable or disable this function.

When enabled, 'Auto Fold Section Shut-off' turns outer boom sections off automatically when the boom is folded *(enabled shown above left)*.

Virtual Switch Box

Press the 'Virtual Switch Box' touch button to enable or disable this function.

When enabled, the Virtual Switch Box allows boom sections to be controlled by the G-hub virtual switch box *(enabled shown above left)*.

If not enabled, the operator may use a virtual switch box on a GPS display, however, this will require an update to RCM for configuration.

Wheel Section Control Mode

Press the 'Wheel Section Control Mode' touch button to enable or disable this function *(disabled shown above left)*.

When enabled, the Wheel Section Control Mode gives dual control with the G-Hub screen & Nozzle On/Off Dial for turning sections Off - rotating anti-clockwise & clockwise.

8 Control Valves

Press the 'Contol Valve' tab touch button on the Pumbing screen and the 'Control Valve' screen displays *(shown above)*.

Side Fill Valve Calibration

Fill Valve (Slow %) Calibration is the back pressure value, eg '50' required to operate rinse nozzles while filling the Product tank.

Increasing the back pressure value slows liquid flow to the Product tank & increases tank filling time.

Press the 'Fill Valve (Slow %)' touch button *(shown above)* to enter the desired value using keypad touch buttons.

Upper Fill Buffer (L) is a level where the Product fill valve starts to reduce fill flow to the Product tank before it reaches target fill volume - usually set about 200 litres.

Press the 'Upper Fill Buffer (L)' touch button *(shown above)* to enter the desired value using keypad touch buttons.

Agitation (Spray Mode - Auto)

The Lower Tank Limit (L) sets a tank level trigger to stop the Product tank agitator operating to minimise tank foaming while operating in Auto mode, eg 500 L.

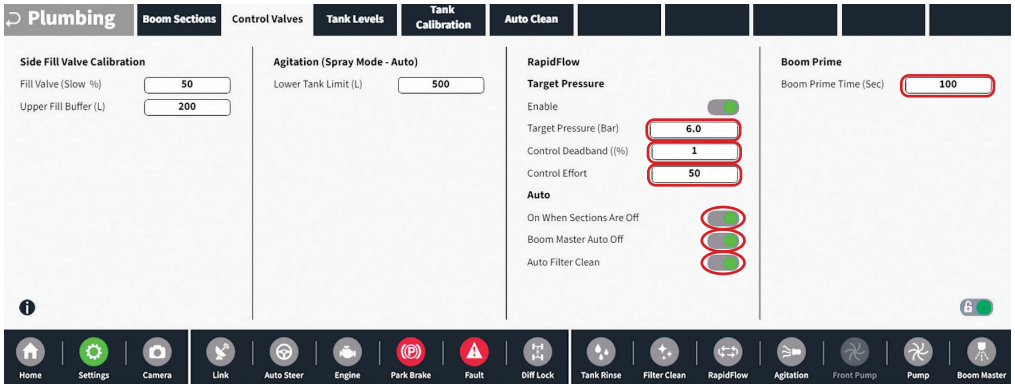
Press the 'Lower Tank Limit (L)' touch button *(shown above)* to enter the desired value using keypad touch buttons.

RapidFlow

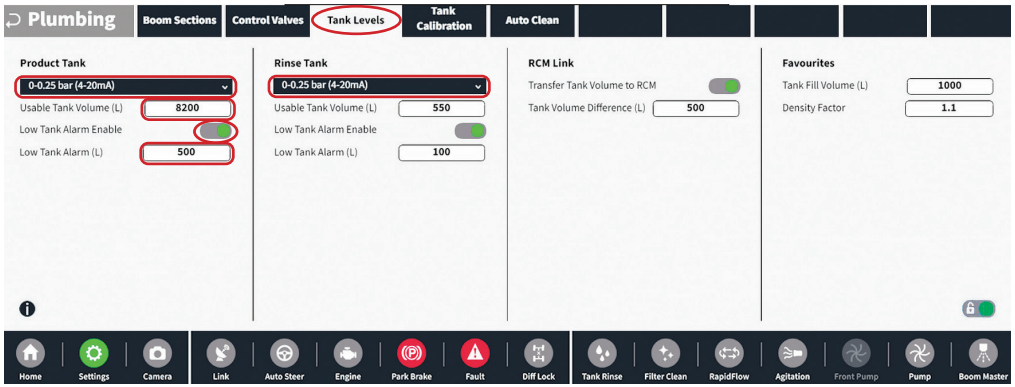
Target Pressure

When enabled, the 'Target Pressure' flow is regulated to achieve Target pressure.

Press the Target Pressure 'Enable' touch button to enable or disable this function *(enabled shown above)*.



Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

Target Pressure (Bar) regulates flow to achieve Target Pressure, eg 6 Bar.

Press the 'Target Pressure (Bar)' touch button to enter the desired value using keypad touch buttons, eg 6 Bar *(shown above)*.

Control Deadband (%), is the % of target pressure valve control to be paused, eg 1%.

Press the 'Control Deadband (%)' touch button to enter the desired value using keypad touch buttons, eg 1% *(shown above)*.

Control Effort, is the minimum value output effort of the controlling valve, eg 50.

Press the 'Control Effort' touch button to enter the desired value using keypad touch buttons, eg 50 *(shown above)*.

Auto

On When Sections Off, when enabled, this function with Boom Master On & all sections Off, automatically starts RapidFlow (boom recirculation), then RapidFlow (boom recirculation) is stopped when sections are turned On.

Press the 'On When Sections Off' touch button to enable or disable this function *(enabled shown above)*.

Boom Master Auto Off automatically turns Off RapidFlow (Boom recirculation) when the Boom Master is On.

Press the 'Boom Master Auto Off' touch button to enable or disable this function *(enabled shown above)*.

Auto Filter Clean switches On & Off with RapidFlow.

Press the 'Auto Filter Clean' touch button to enable or disable this function *(enabled shown above)*.

Boom Prime

Boom Prime Time (sec) is the time in seconds the "boom prime" function runs RapidFlow before turning Off.

Press the 'Boom Prime Time (sec) touch button to enter the desired value using keypad touch buttons, eg 100 Bar *(shown above)*.

9 Tank Levels

Press the 'Tank Levels' tab touch button on the Pumbing screen and the 'Tank Levels' screen displays *(shown above right)*.

Product Tank

Configure the pressure sensor type installed. Sensor type can be found on the sensor.

Press the 'Product Tank' touch button *(shown above right)* & a drop down list appears.

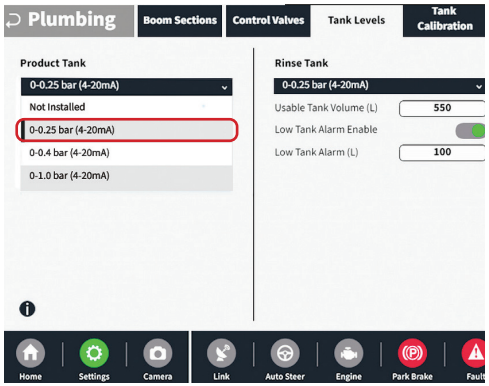
Press the sensor type required, eg '0-0.4 bar (4-20mA)' *(shown below)* & it appears in the Product Tank touch button display *(shown above)*.

Usable Tank Volume Litres is the maximum usable volume of the Product Tank for the external Auto-fill function display.

Always set 'Usable Tank Volume' less than the total tank volume, eg, If tank volume is 8400L, set useable volume at 8200L.

Press the 'Usable Tank Volume (L)' touch button to enter the desired volume using keypad touch buttons, eg 8200 L *(shown above)*.

Select the Pressure Sensor installed for the Product tank.



Low Tank Alarm Enable enables or disables the low level alarm of the Product tank.

Press the 'Low Tank Volume Enable' touch button to enable or disable this function *(enabled shown above)*.

Low Tank Alarm sets the low tank volume for the alarm.

Press the 'Low Tank Alarm (L)' touch button to enter the desired value using keypad touch buttons, eg 500 *(shown above)*.

Rinse Tank

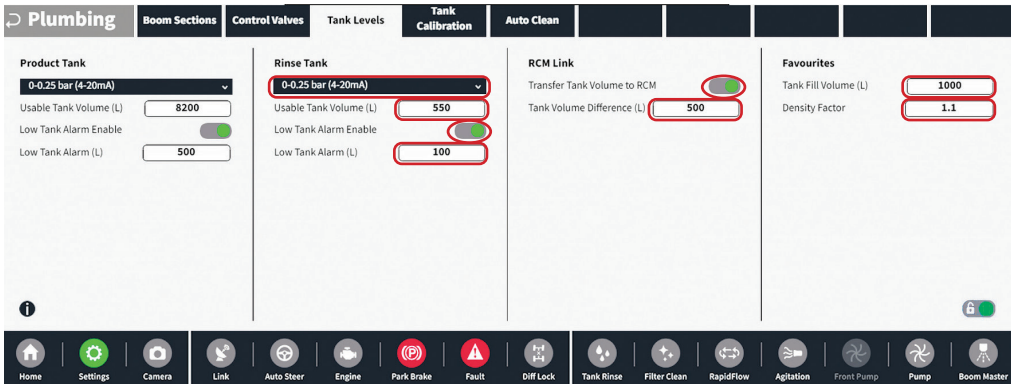
Configure the pressure sensor type installed. Sensor type can be found on the sensor.

Press the 'Rinse Tank' touch button *(shown above)* & a drop down list appears. Press the sensor type required, eg '0-0.25 bar (4-20mA)' & it appears in the Rinse Tank touch button display *(shown next page, botton left & top left)*.

Usable Tank Volume Litres is the maximum usable volume of the Rinse Tank for the external Auto-fill function display.

NOTE

Press the 'Information (i)' touch button in the bottom LHS of the screen for further information and an information page appears. Press the 'X' touch button to cancel the page and return to the setting screen.



Press touch buttons to enable or disable & make the settings required.

Always set Usable Tank Volume less than the total tank volume, eg, If tank volume is 580L, set useable volume at 550L.

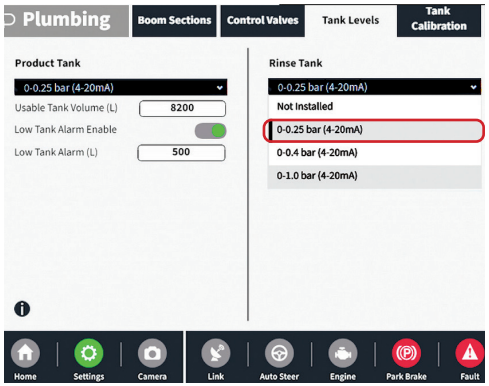
Press the 'Usable Tank Volume (L)' touch button to enter the desired volume using keypad touch buttons, eg 550 L *(shown above)*.

Low Tank Volume Enable enables or disables the low level alarm of the Product tank. Press the 'Low Tank Volume Enable' touch button to enable or disable this function *(enabled shown above)*.

Low Tank Alarm sets the low tank volume for the alarm.

Press the 'Low Tank Alarm (L)' touch button to enter the desired value using keypad touch buttons, eg 100 *(shown above)*.

Select the Pressure Sensor installed for the Rinse tank.



RCM Link

Transfer Tank Vol to RCM is used enable an alarm if the G-Hub & Raven controllers display different volumes.

Press the 'Transfer Tank Vol to RCM' touch button to enable or disable the function *(enabled shown above)*.

Tank Vol Difference (L) when enabled allows the transfer of the Rinse tank G-Hub volume to RCM on completion of filling, eg 500L.

Press the 'Tank Vol Difference (L)' touch button to enter the desired value using keypad touch buttons, eg 500 *(shown above)*.

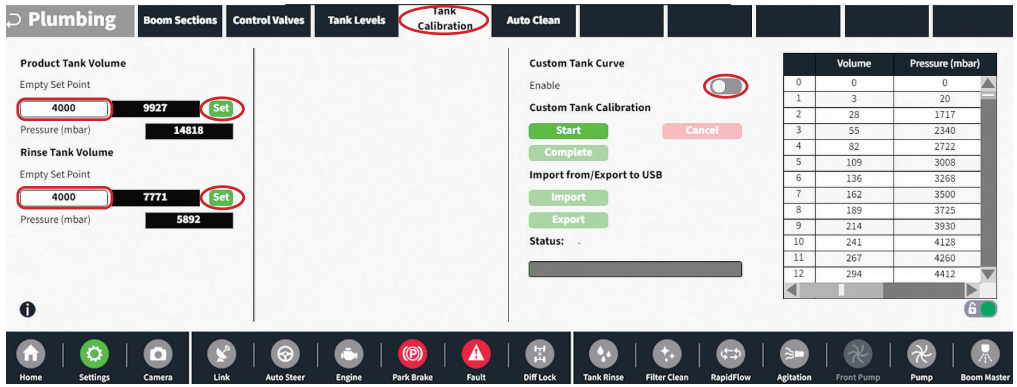
Favourites

Tank Fill Alarm (L) presets a fill volume for the Product tank that can be quickly selected on the fill screen.

Press the 'Tank Fill Alarm (L)' touch button to enter the desired value using keypad touch buttons, eg 1000 *(shown above)*.

Density Factor presets the density factor of liquid for the Product tank that can be quickly selected on the Fill screen.

Press the 'Density Factor' touch button to enter the desired value using keypad touch buttons, eg 1.1 *(shown above)*.



Press touch buttons to enable or disable & make the settings required.

10 Tank Calibration

Press the 'Tank Calibration' tab touch button on the Pumbing screen and the 'Tank Calibration' screen displays *(shown above)*.

Product Tank Volume

Empty Set Point is the Product tank pressure transducer sensor reading when the tank is empty. It displays the current value of the Product tank pressure transducer sensor which will vary depending on volume between 4000 & 20000.

Press the 'Empty Set Point' touch button to enter the desired value using keypad touch buttons, eg 4000 *(shown above)*.

Alternatively, press the 'Set' touch button when the Rinse tank is empty to set the value.

Pressure (mbar) displays the mbar pressure reading.

Rinse Tank Volume

Empty Set Point is the Rinse tank pressure transducer sensor reading when the tank is empty. It dispays the current value of the Rinse tank pressure transducer sensor which will vary depending on volume between 4000 & 20000.

Press the 'Empty Set Point' touch button to enter the desired value using keypad touch buttons, eg 4000 *(shown above)*.

Alternatively, press the 'Set' touch button when the Rinse tank is empty to set the value.

Pressure (mbar) displays mbar pressure reading.

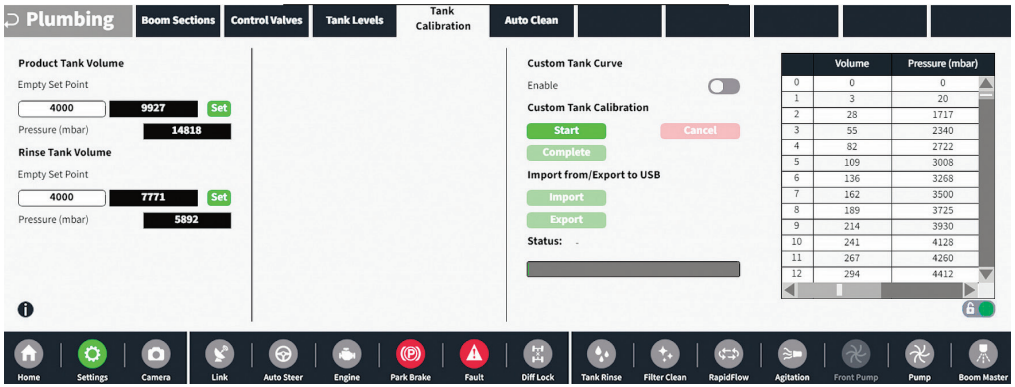
Custom Tank Curve

The 'Enable' touch button switches between the default tank curve & a custom tank curve *(disabled shown above)*.

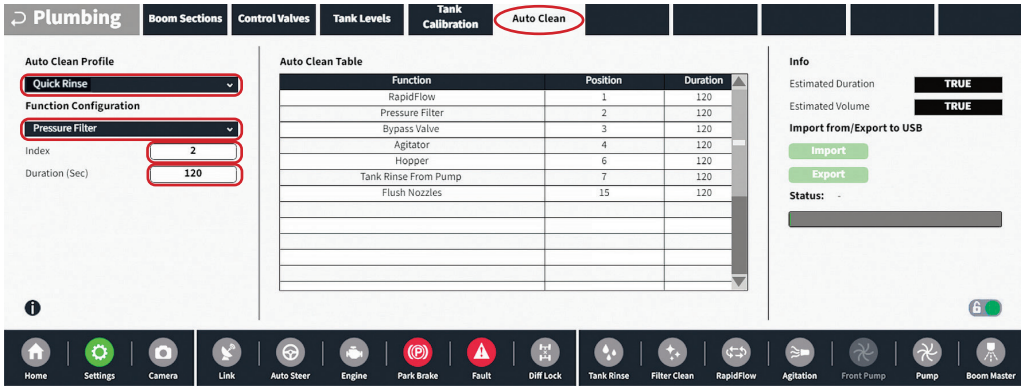
Custom Tank Calibration

The Custom Tank Calibration screen allows an operator to customise the tank calibration and/or import & export data to & from USB.

Refer to Chapter 8 Lubrication & Maintenance 'Custom Tank Calibration' for detailed instructions.



Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

Import from/Export to USB

The Import from/Export to USB is used to back-up system data onto a USB stick and to restore system data from the USB stick.

Import Custom Tank Curve' and 'Custom Tank Calibration' from USB to Ghub if available.

To Import from/Export to USB, the screen must be unlocked.

Status

Status displays state & progress of the import or export.

11 Auto Clean

Press the 'Auto Clean' tab touch button on the Pumbing screen and the 'Auto Clean' screen displays *(shown above right)*.

The Auto Clean screen provides opportunity to customise automated cleaning functions for recommended chemical cleaning & decontamination requirements.

Cleaning assists reduction of residue within the sprayer system, but cannot guarantee complete removal of all chemical residues.

Residual traces may remain in the tank, plumbing, boom lines, or other components.

Users are responsible for ensuring the sprayer is properly cleaned for intended use.

Always follow product label requirements & industry best practice for decontamination.

Auto Clean Profile

The Auto Clean Profile allows the operator to select which cleaning profile to view/edit.

Press the 'Auto Clean Profile' touch button & a dropdown list appears (Quick Rinse, Basic Rinse & Total Rinse *(shown right)*.

Press the required profile, eg 'Quick Rinse' and Quick Rinse appears in the display *(shown above right)*.

Function Configuration

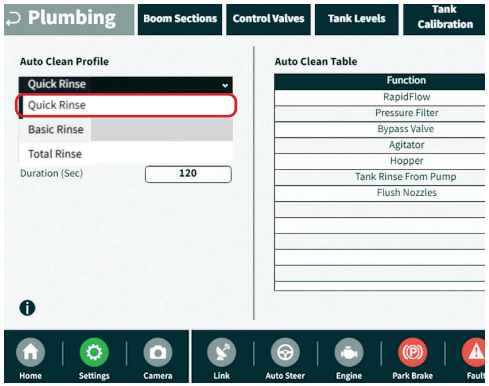
The Function Configuration touch button allows the operator to select & edit cleaning profiles to suit cleaning requirements.

Press the 'Function Configuration' touch button & a dropdown list appears. Press the option to edit *(shown below)*, eg 'Pressure Filter' and Pressure Filter appears in the display *(shown above)*.

Use the 'Index' & 'Duration (sec)' touch buttons to edit the cleaning sequence ('Position' & time ('Duration') for the function selected:

- Changing an index number re-orders the function's cleaning sequence ('Position').

Select the Pressure Sensor installed for the Rinse tank.



- Changing the 'Index' setting to 0 removes the function from the list
- Duration (sec), sets how long the selected function is active before moving to next function *(shown above)*.

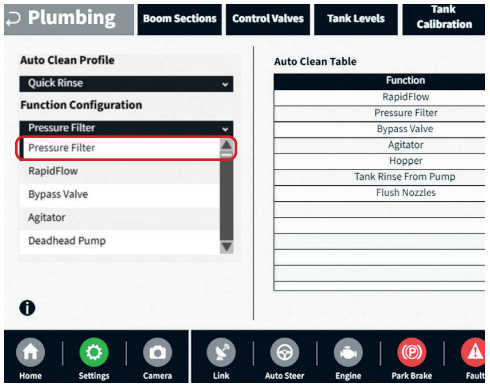
Auto Clean Table

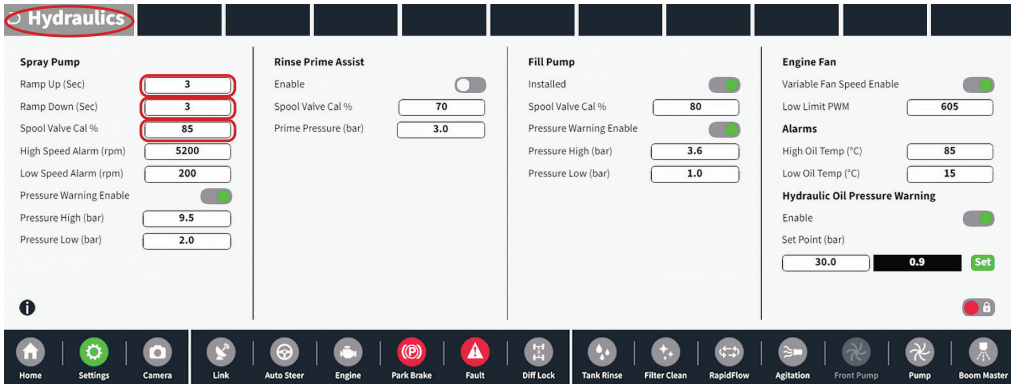
The Auto Cleaning Table displays selected cleaning profile & shows any changes made immediately.

Info

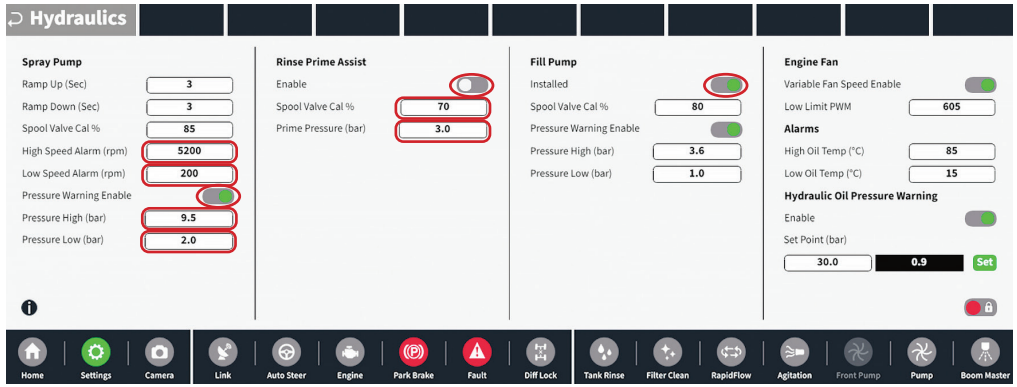
The Info display provides 'Estimated Duration' (time in seconds) & 'Estimated Volume' (litres) required for the cleaning profile.

Select the Pressure Sensor installed for the Rinse tank.





Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

Import from/Export to USB

The Import from/Export to USB is used to back-up system data onto a USB stick and to restore system data from the USB stick.

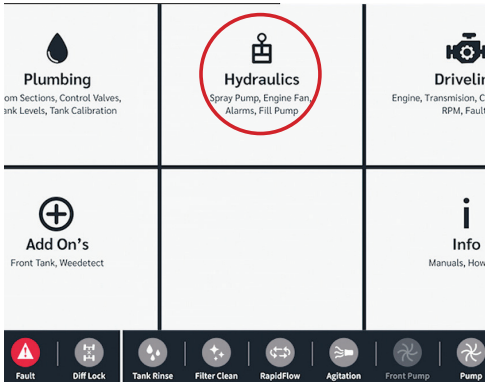
Import Automatic Cleaning Profiles from USB to Ghub if available.

To Import from/Export to USB, the screen must be unlocked.

Status

Status displays state & progress of the import or export.

Press the 'Plumbing' touch button to open the 'Machine Setup' screen.



12 Hydraulics

Press the 'Settings' touch button on the Home screen and the G-Hub 'Menu' screen displays 9 Menu touch buttons *(shown previously)*.

Press the 'Hydraulics' touch button on the 'Menu' screen *(shown below left)* to open the Hydraulics screen *(shown above)*.

Spray Pump

Spray Pump settings control Spray Pump functions:

- Ramp Up (sec) is the time in seconds for the spray pump to reach set speed - value between 1 & 10. Press the touch button & enter desired value using keypad touch buttons, eg 3 *(shown above)*
- **Ramp Down (sec)** is the time in seconds for pump to switch Off - value between 1 & 3. Press the touch button & enter desired value using keypad touch buttons, eg 1 *(shown above)*
- Spool Valve Cal (%) is used to control the speed of the pump - increase value to increase pump speed. Recommended between 10 & 90, eg. 70. Set to 255 for Hawkeye to remove Ramp up time. Press the touch button & enter desired value using keypad touch buttons, eg 85 *(shown above)*
- **High Speed Alarm (rpm)** is used to set the alarm when the pump speed exceeds set rpm, eg 5400 rpm. Press the touch button & enter desired value using keypad touch buttons, eg 5200 *(shown above)*
- **Low Speed Alarm (rpm)** is used to set the alarm when the pump speed falls below set rpm, eg 200 rpm. Press the touch button & enter desired value using keypad touch buttons, eg 200 *(shown above)*
- **Pressure Warning Enable** turns On spray pump pressure warnings. Press the touch button to enable or disable the function *(enabled shown above)*
- **Pressure High (bar)** initiates alarm when pressure exceeds set value, eg 9.5 bar.

  Press the touch button & enter the value using keypad touch buttons, eg 9.5 *(shown above)*.
- **Pressure Low (bar)** initiates alarm when pressure falls below set value, eg 2 bar.

  Press the touch button & enter the value using keypad touch buttons, eg 2 *(shown above)*.

Rinse Prime Assist

When enabled & drawing from the Rinse tank, Rinse Prime Assist runs the spray pump at lower spool cal until pump pressure exceeds prime pressure. Once prime pressure is reached, standard spray pump spool cal value applies.

- **Enable** enables or disables the rinse prime assist function.

  Press the touch button to enable or disable the function *(disabled shown above)*
- **Spool Valve Cal (%)** is the valve percent used while pump pressure is less than prime pressure.

  Press the touch button & enter desired value using keypad touch buttons, eg 70 *(shown above)*
- **Prime Pressure (bar)** Rinse Prime Assist is active while pump pressure is below this value, eg 3 bar.

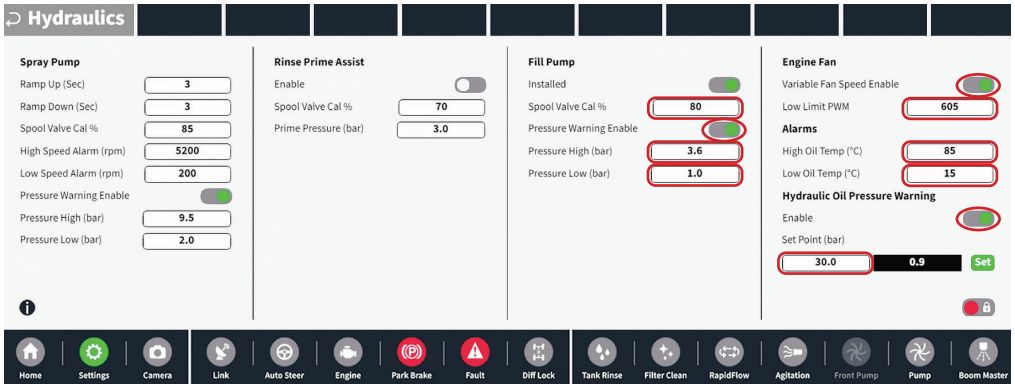
  Press the touch button & enter desired value using keypad touch buttons, eg 3 *(shown above)*

Fill Pump

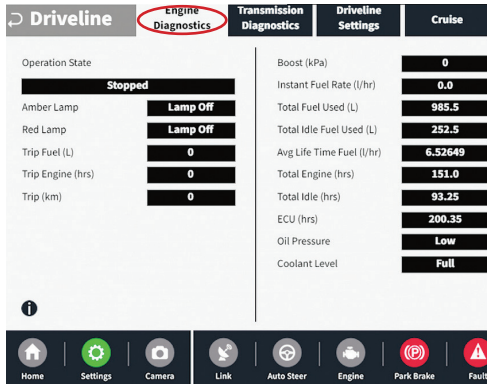
Fill Pump settings control Fill Pump functions:

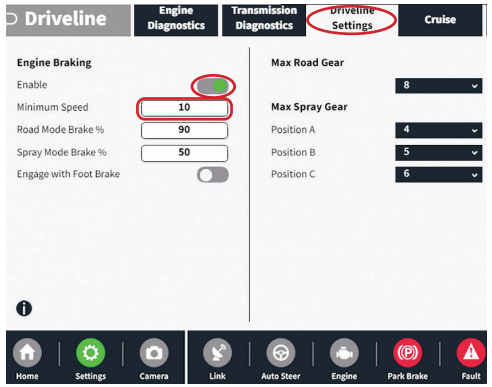
- **Installed** allows the use of a fill pump.

  Press the touch button to install or uninstall the function *(intalled shown above)*



Press touch buttons to enable or disable & make the settings required.





Press touch buttons to enable or disable & make the settings required.

- **Spool Valve Cal (%)** is used to control the speed of the pump - increase value to increase pump speed. Recommended between 10 & 90, eg 80.

  Press the touch button & enter desired value using keypad touch buttons, eg 80 *(shown above)*
- **Pressure Warning Enable** turns On spray pump pressure warnings.

  Press the touch button to enable or disable the function *(enabled shown abovet)*
- **Pressure High (bar)** initiates alarm when pressure exceeds set value, eg 3.6 bar.

  Press the touch button & enter desired value using keypad touch buttons, eg 3.6 *(shown above)*
- **Pressure Low (bar)** initiates alarm when pressure falls below set value, eg 1 bar.

  Press the touch button & enter desired value using keypad touch buttons, eg 1.0 *(shown above).*

Engine Fan

The Engine Fan settings control the fan speed oil cooling function:

- Variable Fan Speed Enable enables or disables the engine fan function which controls cooling fan speed to save fuel & reduce noise. Press the touch button to enable or disable the function *(enabled shown above)*
- **Low Limit PWM** is the lower fan speed for oil cooling. If the setting of the PMW valve is too low, incorrect functioning of cooling may occur at engine idle due to insufficient air flow through the AC condenser - fan boosts to 50% when air conditioner is active. Setting range is 0 (Max) to 1000 (Off) - recommended value is 605.

  Press the touch button & enter desired value using keypad touch buttons, eg 605 *(shown above).*

Alarms

Oil temperature settings for Alarms activation:

- **High Oil Temp (°C)** - recommended setting is 85 degrees. Press the touch button & enter desired value using keypad touch buttons, eg 85 *(shown above).*
- **Low Oil Temp (°C)** - recommended setting is 15 degrees. Press the touch button & enter desired value using keypad touch buttons, eg 15 *(shown above).*

Hydraulic Oil Pressure Warning

- **Enable** enables or disables the pop-up warning function. Press the touch button to enable or disable the function *(enabled shown above)*
- **Set Point (bar)** is sensor value that triggers the pop-up warning, eg 30 bar. Press the touch button & enter desired value using keypad touch buttons, eg 30 *(shown above).*

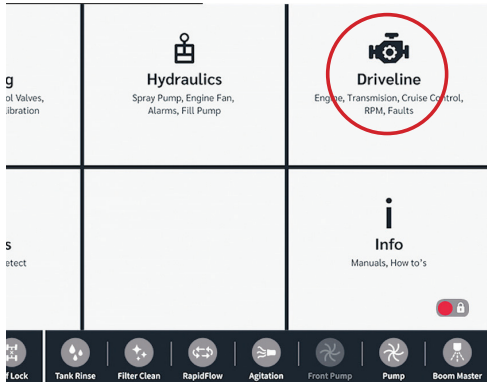
13 Driveline Settings

Press the 'Settings' touch button on the Home screen and the G-Hub 'Menu' screen displays 9 Menu touch buttons *(shown previously)*.

Press the 'Driveline' touch button on the 'Menu' screen *(shown below)* to open the Driveline screen which displays 5 tab screens opening with Engine Diagnostics *(shown above)*. There is no pre-setting for this screen.

Press the 'Driveline Settings' tab touch button on the Driveline screen and the 'Driveline Settings' screen displays *(shown above right)*.

Press the 'Driveline' touch button to open the 'Driveline' screen.



Press the 'Driveline Settings' tab touch button on the Driveline screen and the 'Driveline Settings' screen displays *(shown above)*.

The Driveline Settings screen allows an operator to customise engine and 8 speed automatic gearbox driveline functions for improved energy efficiencies & performance.

Engine Braking

The Engine Braking when enabled sends percentage requests to the engine when the engine throttle percentage is equal to 0. Set value to 0 for no engine brake.

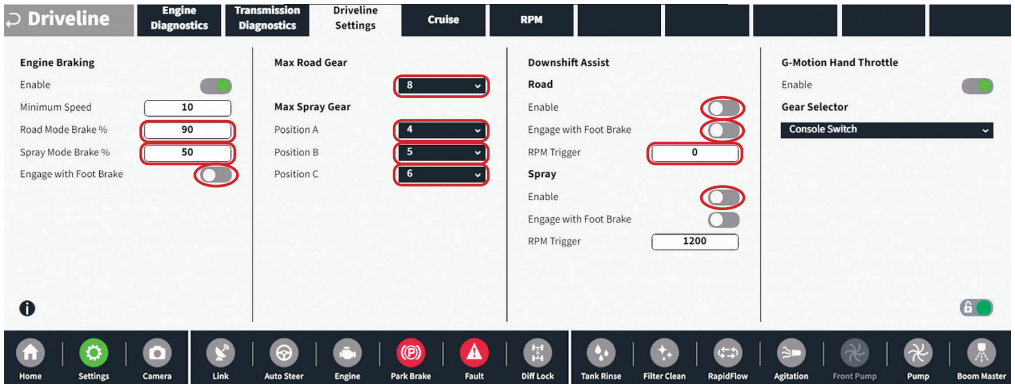
Pre-setting Engine Braking functions include:

- **Enable** touch button enables or disables the engine braking function.

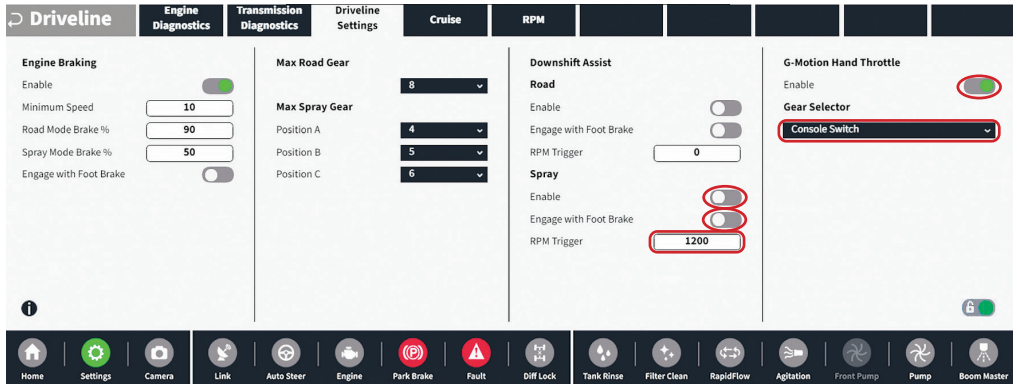
  Press the 'Enable' touch button to enable or disable the function *(enabled shown above)*.

  Engine Braking can be switched On & Off on the cabin Armrest side console
- **Minimum Speed** sets a minimum speed below which no engine brake request is sent.

  Press the touch button & enter a value using keypad touch buttons, eg 10 *(shown above)*
- **Road Mode Brake %** is the brake percent value used in road mode when conditions are met.



Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

Press the touch button & enter a value using keypad touch buttons, eg 90 *(shown above)*

- Spray Mode Brake %is the brake percent value used in spray mode when conditions are met.

  Press the touch button & enter a value using keypad touch buttons, eg 50 *(shown above)*

- Engage with Foot Brake - the engine brake percent value is sent if all conditions are met and foot brake is engaged to assist with braking only.

  Press the touch button to enable or disable the function *(disabled shown above)*.

Max Road Gear

Max Road Gear is maximum gear to be used in road mode.

Press the touch button & enter the value using keypad touch buttons, eg 8 *(shown above)*.

Max Spray Gear

Max Spray Gear assigns a maximum gear to each of the 3 positions on the Maximum Gear Selector in Field, A, B & C.

Press the touch buttons & enter the gear for each position using keypad touch buttons for each - A, B & C, eg 4, 5 & 6 *(shown above)*.

The Max gear is displayed next to the current gear on G-Hub home screen.

Downshift Assist

Downshift Assist (when enabled) sends Shift Down requests whenever throttle percentage equals 0.

If 'Shift Up' is used when aggressive down shift is active, it will cancel aggressive down shift until throttle percentage is greater than 0 or Shift Down is pressed.

Road

- Enable touch button enables or disables the Downshift Assist function in Road mode.

  Press the 'Enable' touch button to enable or disable the function *(disabled shown above)*

- Engage with Foot Brake - Brake Signal needs to be active for aggressive down shift to be active.

  The Brake Signal is activated with Foot Brake & Cruise Cancel push button

- RPM Trigger - Downshift is requested if all conditions are met and engine rpm is less than the RPM Trigger value

Spray

- Enable touch button enables or disables the Downshift Assist function in Spray mode.

  Press the 'Enable' touch button to enable or disable the function *(disabled shown above right)*

- Engage with Foot Brake - Brake Signal needs to be active for aggressive down shift to be active.

  The Brake Signal is activated with Foot Brake & Cruise Cancel push button

  Press the 'Enable' touch button to enable or disable the function *(disabled shown above)*

- RPM Trigger - Downshift is requested if all conditions are met and engine rpm is less than the RPM Trigger value.

  Press the touch button & enter a value using keypad touch buttons, eg 1200 *(shown above)*.

G-Motion Hand Throttle

Enabling G-Motion Hand Throttle allows the Joystick (G-Motion) to work as a hand throttle.

When enabled, switching G-Motion Hand Throttle On & Off is available on the Armrest side console.

- Enable touch button enables or disables the Downshift Assist function *(enabled shown above)*.

Gear Selector

The Gear Selector configures the gear selection method:

- Console Switch - using the console D-N-R switch to engage Drive, Neutral & Reverse.
- G-motion (Joystick) - moving the Joystick:
  - To the left selects Drive.
  - Into Neutral position selects Neutral
  - To the right selects Reverse.

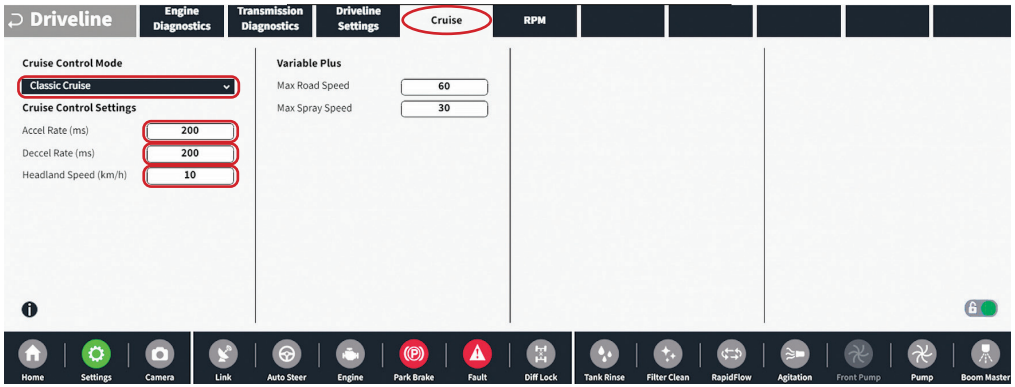
When in Drive & speed is greater than 2km/h, returning the G-motion (Joystick) to the neutral position will not select Neutral until speed is less than 2km/h.

However, a forced Neutral can be achieved by bumping the G-Motion (Joystick) to the right momentarily when speed is greater than 2km/h.

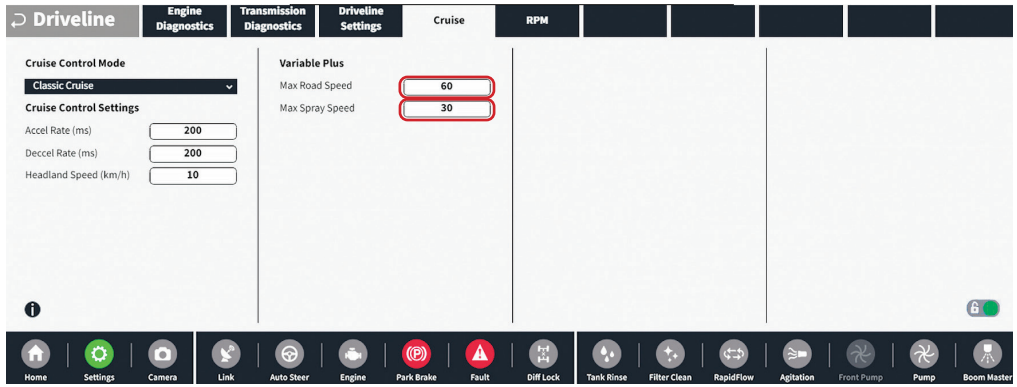
The Park Brake switch must be engaged (On) to change Gear Selector modes.

NOTE

Press the 'Information (i)' touch button in the bottom LHS of the screen for further information and an information page appears. Press the 'X' touch button to cancel the page and return to the setting screen.



Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

14 Cruise

Press the 'Cruise' tab touch button on the Driveline screen and the 'Cruise' screen displays *(shown above)*.

The Cruise screen allows an operator to choose Cruise Control Modes & settings to control best spraying results.

Cruise Control Mode

Press the 'Cruise Control Mode' touch button & a dropdown list appears:

- **Classic** Cruise enables Classic Cruise control mode which targets the set higher speed only
- **Variable** Cruise enables Variable Cruise control mode in which the operator moves the Joystick to control & vary sprayer speed between pre-set upper & lower speed limits.

  Lower Speed is pre-set on this screen in Headland Speed & Upper Speed limit is set using the Joystick Cruise Set push button.

  In Drive gear, moving the Joystick forward increases engine rpm & ground speed while moving the Joystick rearward decreases engine rpm & ground speed.

  In Reverse gear, moving the Joystick rearward increases engine rpm & ground speed while moving the Joystick forward decreases engine rpm & ground speed.
- **Variable Cruise Plus** enables Variable Cruise Plus control mode which operates to Variable Cruise but is diffent in that it automatically engages Cruise control when the speed conditions are met. When slowing below the Cruise speed limit, Cruise pauses automatically and the hand throttle resumes control.

Press the required option, eg 'Classic Cruise' and Classic Cruise appears in the display *(shown above)*.

Cruise Control Settings

- **Accel Rate (ms)** determines acceleration rate used by the Crop Cruiser to reach its higher speed target when changing up gears.

  In **Classic Cruise**, 'Accel Rate' determines how fast Cruise increases speed when the Joystick Cruise Increase push button is held.

  In **Variable Cruise & Variable Cruise Plus**, 'Accel Rate' determines how fast Cruise increases speed when moving the joystick forwards.

  Press the touch button & enter desired value using keypad touch buttons, eg 200 *(shown above)*.
- **Deccel Rate (ms)** determines decceleration rate used by the Crop Cruiser to reach its lower speed target when changing down gears.

  In **Classic Cruise**, 'Deccel Rate' determines how fast Cruise decreases speed when the Joystick Cruise Decrease push button is held.

  In **Variable Cruise & Variable Cruise Plus**, 'Accel Rate' determines how fast Cruise decreases speed when moving the joystick rearwards.

  Press the touch button & enter desired value using keypad touch buttons, eg 200 *(shown above)*.
- **Headland Speed (km/h)** is the lower speed used by Variable Cruise Plus & Variable Cruise control modes.

  Press the touch button & enter desired value using keypad touch buttons, eg 10 *(shown above)*.

Variable Plus

- **Max Road Speed** is upper Cruise limit (km/h) while in road mode.

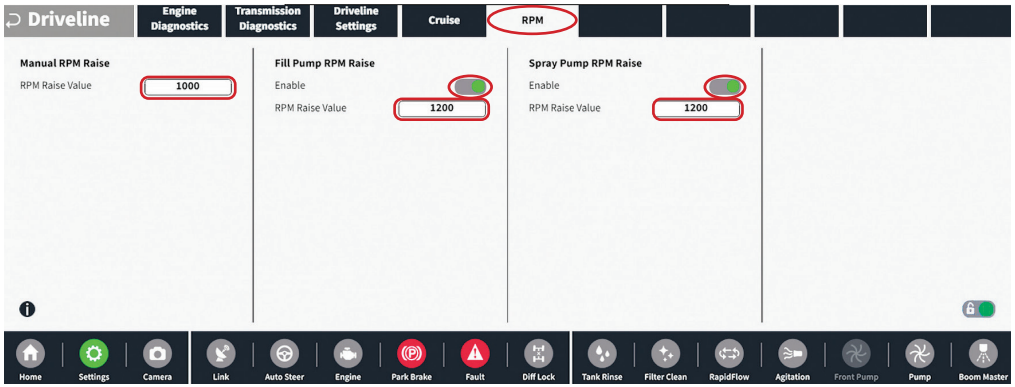
  Press the touch button & enter desired value using keypad touch buttons, eg 60 *(shown above)*.
- **Max Spray Speed** is upper Cruise limit (km/h) while in spray mode.

  Press the touch button & enter desired value using keypad touch buttons, eg 30 *(shown above)*.

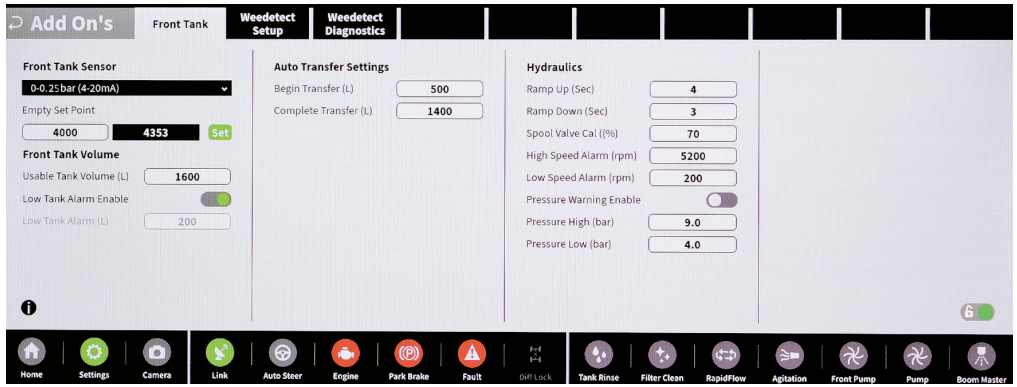
Double tapping the Joystick Cruise Increase push button will set Upper limit to Max Speed value.

Double tapping the Joystick Cruise Decrease push button will set Upper limit to Headland speed.

Single tapping the Joystick Cruise Increase or Decrease push button will increment the Upper limit Up or Down by 1.



Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

15 RPM

Press the 'RPM' tab touch button on the Driveline screen and the 'RPM' screen displays *(shown above)*.

The RPM screen allows an operator to pre-set engine speeds to be used when the Crop Cruiser is stationary to assist with filling and cleaning functions.

Manual RPM Raise

Manual RPM Raise is a pre-set engine speed which is activated by the RPM Raise touch button on the Home screen drop down menu or on the external Fill screen for Crop Cruiser stationary functions such as when warming up the engine, warming up oil systems and other requirements.

- RPM Raise Value is the engine speed commanded when RPM raise is turned on and the Crop Cruiser is stationary.

  Press the touch button & enter desired value using keypad touch buttons, eg 1000 *(shown above)*.

Fill Pump RPM Raise

Fill Pump RPM Raise pre-sets an engine speed which is automatically activated when the Fill pump is started from an external display screen while the Crop Cruiser is stationary.

- Enable - touch button to enable or disable the Manual RPM Raise function *(enabled shown above)*.
- RPM Raise Value is the engine speed commanded when fill pump is activated from the external display and the Crop Cruiser is stationary.

  Press the touch button & enter the desired value using keypad touch buttons, eg 1200 *(shown above)*.

NOTE

Press the 'Information (i)' touch button in the bottom LHS of the screen for further information and an information page appears. Press the 'X' touch button to cancel the page and return to the setting screen.

Spray Pump RPM Raise

Spray Pump RPM Raise sets an engine speed to be automatically activated from the External Display (at the Filling Station with the Crop Cruiser is stationary), when the 'Spray Pump' is activated for filling - usual setting 1200 to 1500 RPM.

- Enable - touch button to enable or disable the Spray Pump RPM Raise function.

  Press the touch button to enable or disable the function *(enabled shown above left)*.

- RPM Raise Value is the engine speed commanded when the spray pump is activated from the external display and the Crop Cruiser is stationary.

  Press the touch button & enter the desired value using keypad touch buttons, eg 1200 *(shown above left)*.

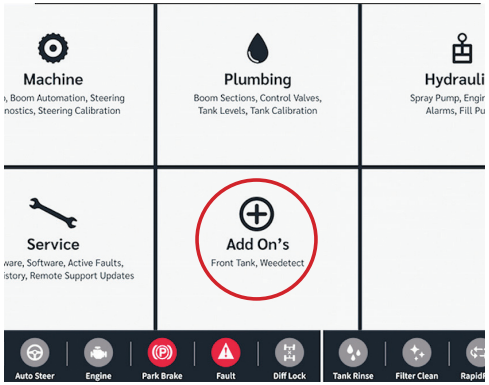
16 Add On's

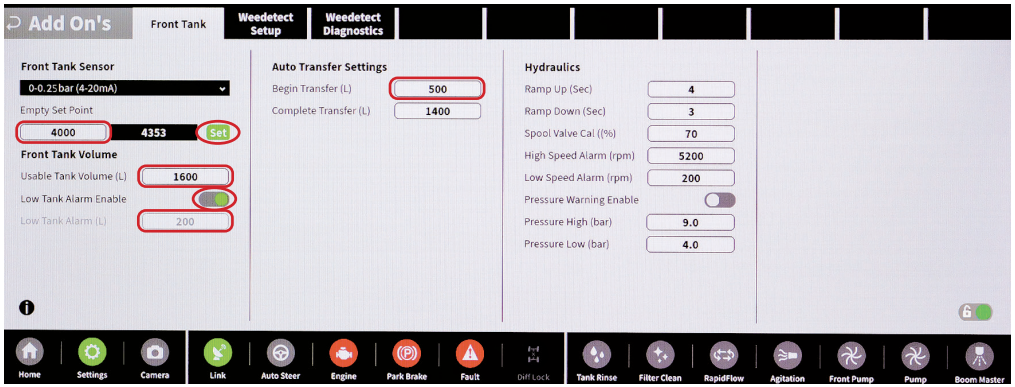
Press the 'Settings' touch button on the Home screen and the G-Hub 'Menu' screen displays 9 Menu touch buttons *(shown previously)*.

Press the 'Add On's' touch button on the 'Menu' screen *(shown below)* to open the Add On's screen which displays 3 tab screens opening with Front Tank *(shown above)*.

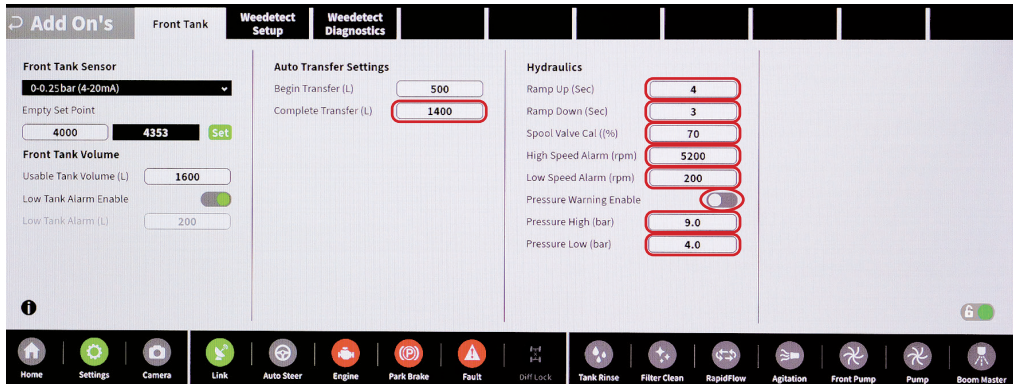
The Front Tank screen provides the necesary pre-seting options for Front Tank functions (if fitted).

Press the 'Add On's' touch button to open the 'Add On's' screen.





Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

Front Tank Sensor

Configure the pressure sensor type installed.

Incorrect configuration will give wrong tank volume readings. Sensor type can be found on the sensor.

- Press the 'Front Tank Sensor' touch button *(shown above)* & a drop down list appears.

  Press the sensor type required, eg '0-0.25 bar (4-20mA)' & 0-0.25 bar (4-20mA appears in the Front Tank Sensor touch button display *(shown above)*.
- **Empty Set Point** is the value of the front tank pressure transducer when the tank is empty - value varies depending on volume, ranging from 4000 to 20000mA. It should read 4000mA when empty.

  Alternatively, set the value of the front tank while operating. With the tank empty, press the 'Set' push button to set the value.

  Press the 'Empty Point' touch button & enter desired value using keypad touch buttons, eg 4000 *(shown above)*.
- **Density Factor** of liquids may change depending on Products being used. Density factor changes will modify front tank volume.

  Ensure the Density Factor is correctly entered when product filling the sprayer. Refer to External Fill screen instructions in Chapter 6 Operation - Ready to Spray.

Front Tank Volume

- **Usable Tank Volume (L)** sets maximum usable volume of the front tank.

  Press the 'Usable Tank Volume (L)' touch button & enter desired value using the keypad touch buttons, eg 1600 *(shown above)*.
- **Low Tank Alarm Enable** - enables & disables the Low Tank Alarm alarm.

  Press the 'Low Tank Alarm Enable' touch button to enable or disable the function *(enabled shown above)*.
- **Low tank alarm (L)** provides a warning when the front tank level is below the volume set in the low tank level alarm volume - changes may affect tank colour used on the G-Hub main display.

  Press the 'Low Tank Alarm (L)' touch button & enter desired value using the keypad touch buttons, eg 200 *(shown above)*.

Auto Transfer Settings

Auto Transfer Settings control the function of liquid transfer from main tank to front tank.

- **Begin Transfer (L)** is a pre-set value to automatically start (while in Auto Transfer Rear to Front mode) transferring liquid from the main tank to the front tank.

  Press the 'Begin Transfer (L)' touch button & enter desired value using the keypad touch buttons, eg 500 *(shown above)*.
- **Complete Transfer (L)** is a pre-set value to stop auto transferring liquid as front tank volume goes above the pre-set value.

  Press the 'Complete Transfer (L)' touch button & enter desired value using the keypad touch buttons, eg 1400 *(shown above)*.

Hydraulics

Hydraulics control pump performance - providing various settings for speed, pressure & alarms.

- Ramp Up (sec) is the time in seconds for the spray pump to reach set speed - value between 1 & 10.

  Press the touch button & enter desired value using keypad touch buttons, eg 4 *(shown above)*
- **Ramp Down (sec)** is the time in seconds for pump to switch Off - value between 1 & 3. Press the touch button & enter desired value using keypad touch buttons, eg 3 *(shown above)*
- Spool Valve Cal (%) is used to control the speed of the pump - increase value to increase pump speed. Recommended between 10 & 90.

  Press the touch button & enter desired value using keypad touch buttons, eg 70 *(shown above)*.
- **High Speed Alarm (rpm)** is used to set the alarm when the pump speed exceeds set rpm, eg 5400 rpm.

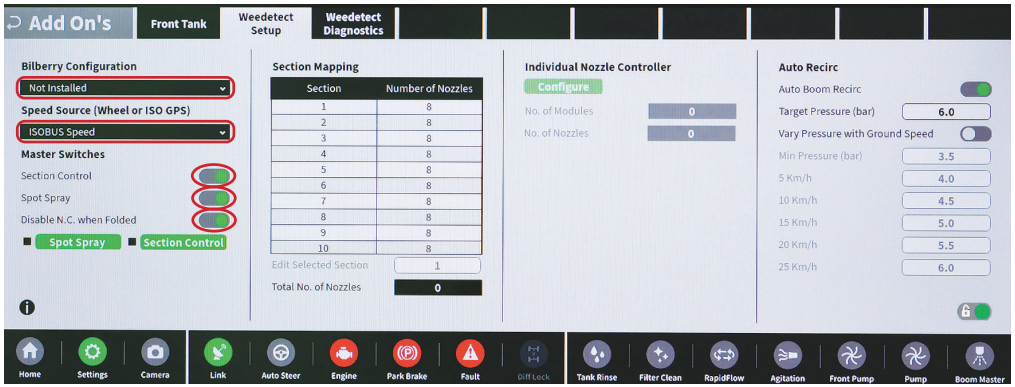
  Press the touch button & enter desired value using keypad touch buttons, eg 5200 *(shown above)*.
- **Low Speed Alarm (rpm)** is used to set the alarm when the pump speed falls below set rpm, eg 200 rpm.

  Press the touch button & enter desired value using keypad touch buttons, eg 200 *(shown above)*.
- **Pressure Warning Enable** turns On spray pump pressure warnings.

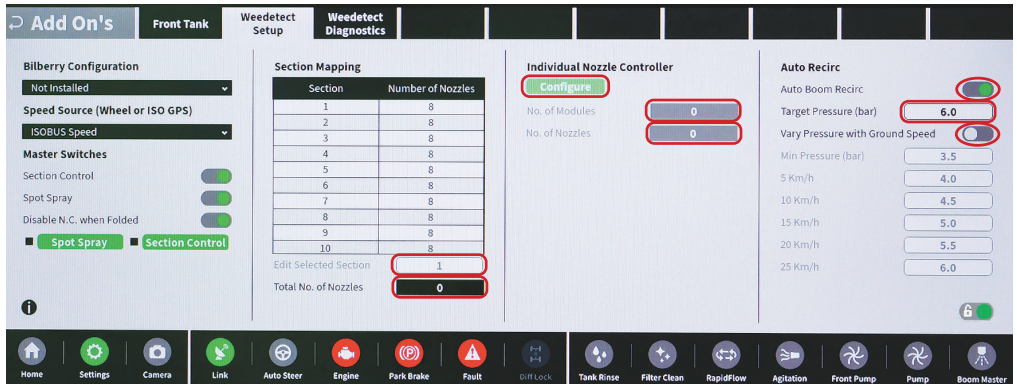
  Press the touch button to enable or disable the function *(enabled shown above)*.
- **Pressure High (bar)** initiates alarm when pressure exceeds set value, eg 10 bar.

  Press the touch button & enter the value using keypad touch buttons, eg 9 *(shown above)*.
- **Pressure Low (bar)** initiates alarm when pressure falls below set value, eg 4 bar.

  Press the touch button & enter the value using keypad touch buttons, eg 4 *(shown above)*.



Press touch buttons to enable or disable & make the settings required.



Press touch buttons to enable or disable & make the settings required.

17 Weedetect Setup

Press the 'Weedetect Setup' tab touch button on the Add On's screen and the 'Weedetect Setup' screen displays *(shown above)*.

The Weedetect Setup screen allows an operator to pre-set the Weedetect functions.

Bilberry Configuration

Bilberry Configuration select whether the weedetect system installed and if installed, whether control is by section or individual nozzle.

Press the 'Bilberry Configuration' touch button & a dropdown list appears. Press the required option, eg 'Uninstalled' and Uninstalled appears in the display *(shown above)*.

Speed Source (Wheel or ISO GPS)

The 'Speed Source (Wheel or ISO GPS)' touch button provides speed source selection from Engine spped or GPS speed transmitted on the ISOBUS.

Press the 'Speed Source (Wheel or ISO GPS)' touch button & a dropdown list appears. Press the required option, eg 'ISOBUS Speed' and ISOBUS Speed appears in the display *(shown above)*.

Master Switches

Master Switch selections determine the method of Weedetect application.

- **Section Control** enables & disables the section control. When enabled, Section Control only utilises 'On' (green) sections of the RCM section control.

  Press the 'Section Control' touch button to enable or disable the function *(enabled shown above)*.

- **Spot Spray** enables & disables the Spot Spray control. When enabled, sprays where requested from the Weedetect system.

  Press the 'Spot Spray' touch button to enable or disable the function *(enabled shown above)*.

Using both Section & Spot Spray methods leads to spot spraying in only unsprayed sections.

- **Disable N.C. when Folded** enables & disables both Spot Spray & Section Control. When the boom is folded, Section & Spot Spray cannot spray.

  Press the 'Disable D.C.' touch button to enable or disable the function *(enabled shown above)*.

Section Mapping

Section Mapping lists Section Numbers and Number of Nozzles in each section.

Sum of all nozzles in the Section Mapping table must not exceed 200.

- **Edit Selected Section** provides selection of individual sections in the Section Mapping Table.

  Press the 'Edit Selected Section' touch button & enter desired Section number using keypad touch buttons, eg 1 *(shown above)*, then edit the 'Total No. of Nozzles' in the section.

- **Total No. of Nozzles** provides ability to edit the number of nozzles in each section.

  Press the 'Total No. of Nozzles' touch button & enter desired number of nozzles using keypad touch buttons, eg 0 *(shown above)*,

Repeat the procedure of section selection and editing the number of nozzles in the Section until completed.

Individual Nozzle Controller

The Individual Nozzle Controller configures the 'No of Modules' & 'No of Nozzles'.

The 'Configure' touch button sets the number of modules to number of available modules.

Available outputs are assigned a nozzle index from left to right.

Ensure after configuring the number of modules & number of nozzles matches the current setup.

Auto Recirc

- The '**Auto Boom Recirc**' touch button enables & disables Auto Boom Recirc.

  Auto Boom Recirc when enabled, adjusts the front pump spool cal to maintain the pre-set target boom pressure.

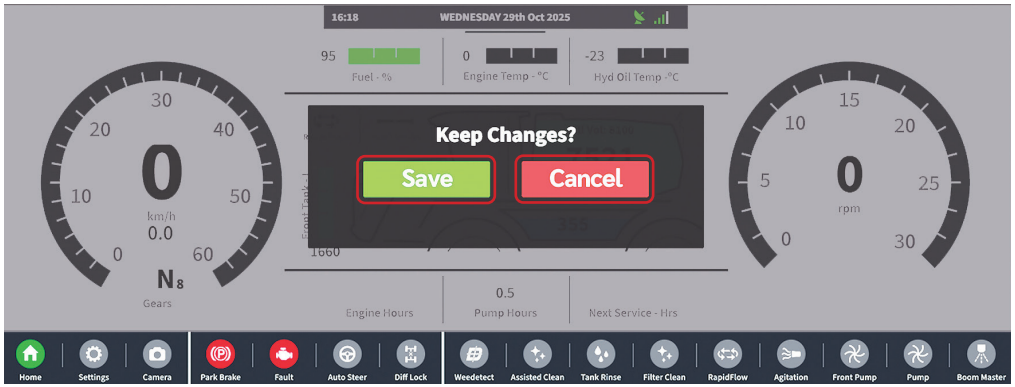
  Press the 'Section Control' touch button to enable or disable the function *(enabled shown above)*.

- **Target Pressure (bar)** is the target boom line pressure which the pump controller attempts to maintain.

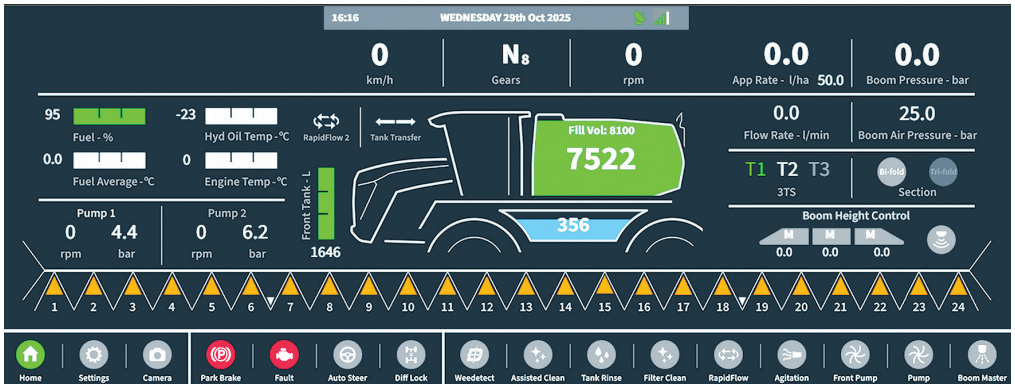
  Press the 'Target Pressure (bar)' touch button & enter desired pressure using keypad touch buttons, eg 6 *(shown above)*,

- Vary Pressure with Ground Speed enable or disables targeting different boom pressures at different speeds *(disabled shown above)*.

  When enabled, press the appropriate touch buttons to enter pressures required using keypad touch buttons.



Press touch buttons to SAVE or CANCEL settings as required. Daylight screen shown above.



Nightlight Spray screen shown above.

Saving Settings

After completing G-Hub pre-setting or making other setting changes and returning to the main screen, a '**Keep Changes?**' panel will appear on the main screen *(shown above [daylight scrfeen] & below [nightlight screen)*.

The '**Keep Changes?**' panel provides two options:

- SAVE touch button
- CANCEL touch button.

Press the SAVE touch button to save settings *(shown above [daylight screen] & below [nightlight screen)*

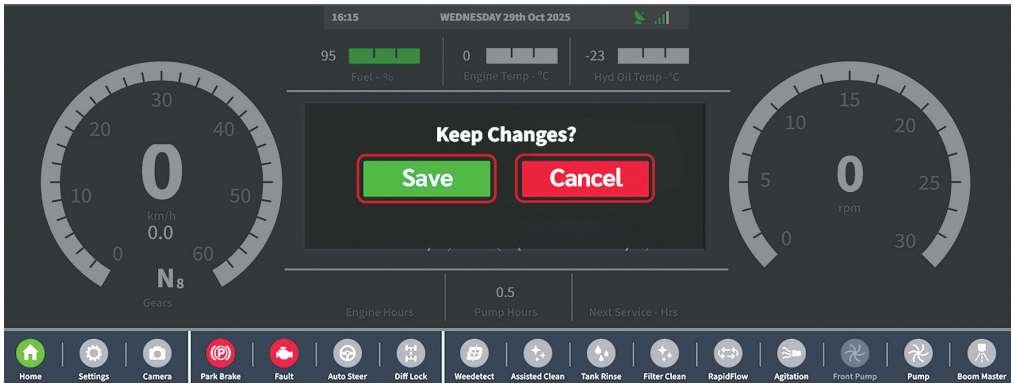
OR

Press the CANCEL touch button to cancel the settings *(shown above [daylight screen] & below [nightlight screen)*.

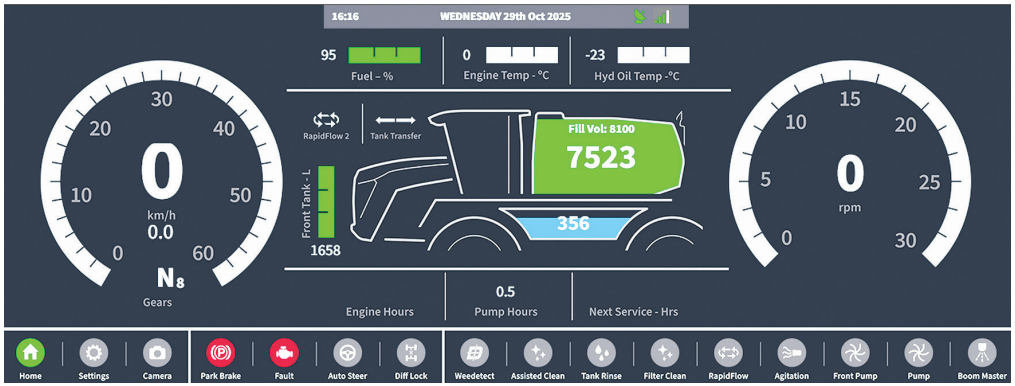
The screen returns to G-Hub Main screen after the 'SAVE or CANCEL' touch button is pressed.

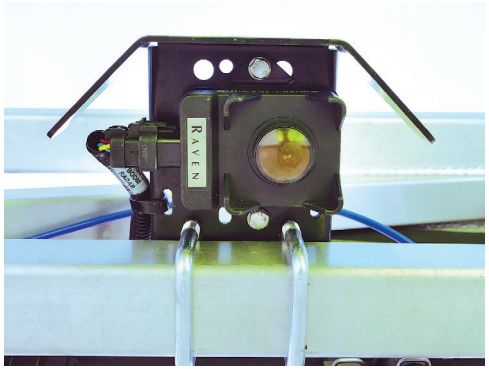
If the 'SAVE' touch button is not pressed, any current changes or entered value or values will be lost and previous settings will remain.

Press touch buttons to SAVE or CANCEL settings as required. Nightlight screen shown below.



Nightlight Road screen shown below.





Optional AutoBoom XRT boom height sensor.

Pre-Set AutoBoom XRT (Option)

If fitted, the AutoBoom XRT controller is pre-set and tested for spraying applications prior to delivery.

However, it is recommended that all settings and operation be checked and tested for accuracy prior to spraying applications.



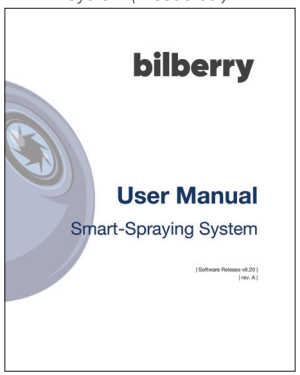
Optional AutoBoom XRT Controller Home Screen.

For instructions on the configuring & operating the AutoBoom XRT controller, refer to:

- Raven XRT Calibration & Operation Manual *(not shown)*
- Goldacres Guide: 'Raven XRT, boom levelling, G8 Series 3, suit 36, 42m & 48 boom *(not shown)*.

It is the operator's responsibility to correctly operate all controller and sprayer functions at all times.

Front Cover of the Bilblerry User Manual - smart Spraying System (Weedetect).





Optional Weedetect Home Screen.

Pre-Set Bilberry - Goldacres Weedetect (Option)

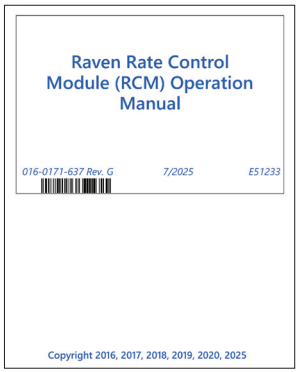
If fitted, the Weedetect system is pre-set and tested for spraying applications prior to delivery *(Weedetect home screen shown above)*.

However, it is recommended that all settings and operation be checked and tested for accuracy prior to spraying applications.

For instructions on the configuring & operating the Bilberry (Weedetect) system, refer to:

- Bilberry User Manual - Smart Spraying System *(shown left)*
- Instructions in this manual (G6 - G8 Crop Cruiser Series 3).

It is the operator's responsibility to correctly operate all controller and sprayer functions at all times.



Front Cover of the Raven AutoBoom XRT Calibration & Operation Manual.

Raven RCM Operation Manual

If fitted, the Raven RCM is pre-set and tested for spraying applications prior to delivery.

However, it is recommended that all settings and operation be checked and tested for accuracy prior to spraying applications.

It is the operator's responsibility to correctly operate all controller and sprayer functions at all times.

For instructions on the configuring & operating the Bilberry (Weedetect) system, refer to:

- Raven Rate Control Module (RCM) Operation Manual *(shown above)*
- Raven AutoBoom XRT Calibration & Operation
- Instructions in this manual.



The 1500 litre 3PL Front Tank fitted to a G8 Series 3 Crop Cruiser.

3PL Front Tank Option

The 3 Point Linkage Front Tank Option equips a Crop Cruiser with a further 1500 litres of liquid for spraying purposes.

The Front Tank is fitted with a 640 l/min hydraulically driven centrifugal pump, spraylines and the hydraulic & electrical fittings required.

The new G8 Series 3 Crop Cruiser's chassis, axles and wheels are especially designed to carry the extra weight & kinetic forces.

The 3 point linkage Front Tank is fitted standard with four retractable stands for operating safety and stationary storage.

Connecting the 3PL Front Tank

Connecting the Front Tank should be done on a hard flat, level surface for easy and safe installation.

Connecting the 3PL Front Tank to a Crop Cruiser requires 2 people, one to operate the Crop Cruiser and the other to guide the operator because clear line of sight to the linkage connectioin points is not available to the operator.

The Front Tank should be completely empty prior to connection or disconnecting to protect the machine and front tank from damage

NOTE

Connecting the 3PL Front Tank to a Crop Cruiser requires 2 people, one to operate the Crop Cruiser and the other to guide the operator because clear line of sight to linkage connection points is not available to the operator.

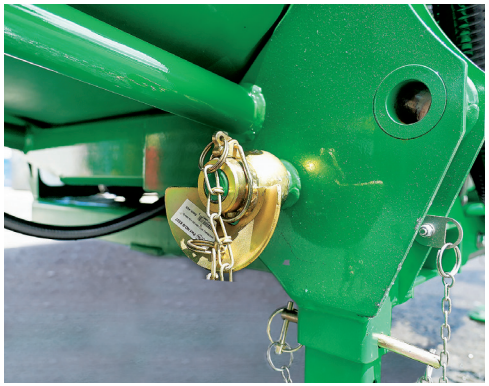


Minimum leg stand heights for connecting the linkage points.

Follow procedures below to connect the Crop Cruiser & 3PL Front Tank:

- Prepare the linkage pins & stands.
- Connect Crop Cruiser & 3PL Front Tank
- Connect electrical fittings
- Connect plumbing connectors
- Connect hydraulic fittings.

Fit a CAT 3 Quick Hitch ball onto each lower linkage pin, then lock it in position with the lynch pin.





Fit the top linkage pin into the 2nd holes (above the bottom holes) and lock it in place with the lynch pin.

Prepare the Linkage Pins & Stands

To prepare the linkage pins for connecting the Crop Cruiser & 3PL Front Tank:

1 Front Tank leg stands must be level & adjusted to one of 3 extension hole positions to allow sufficient height for the Crop Cruiser's 3PL Quick Hitch to move under the linkage connectors.

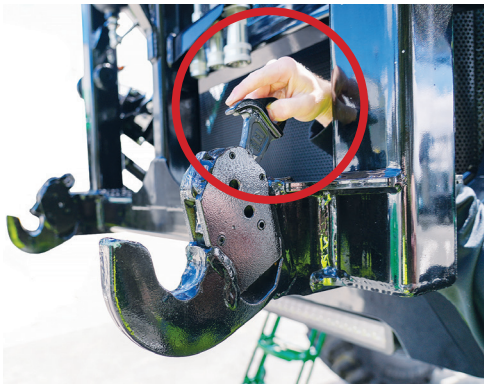
   If necessary, lift the 1500L Front Tank 3PL Front Tank off the ground using the fork tine pockets to alter the leg stand heights.

   Remove the lynch & holding pins of each leg stand and adjust each leg stand an appropriate height to connect the 3PL Quick Hitch (minimum 3rd hole).

   Refit the holding & lynch pin to fix each leg stand in place *(shown above left)*.

2 Fit the top linkage pin into the 2nd holes (above the bottom holes) and lock it in place with the lynch pin *(shown above)*.

3 Fit the CAT 3 Quick Hitch balls onto the lower linkage pins, then fit the lynch pins to lock them into position *(shown left)*.



Pull & lock out both Quick Hitch CAT 3 lower linkage arm latches.

Connect Crop Cruiser & 3PL Front Tank

1 Pull & lock out both Quick Hitch CAT 3 lower linkage arm latches *(shown above).*

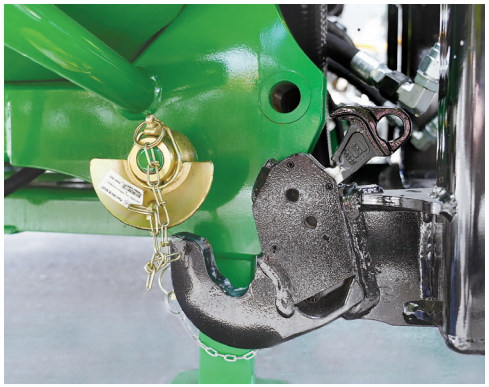
2 Lower Quick Hitch on the Crop Cruiser *(shown below)* & align the Crop Cruiser to connect into the rear of the Front Tank.

Lowering the Crop Cruiser linkage can be done using the external G-Hub front screen or the armrest controls in the cabin.

A second person is required to assist the with aligning the Crop Cruiser & Front Tank 3PL Quick hitch points.

Crop Cruiser linkage arms & Quick Hitch lowered for connecting to the 3PL Front Tank.





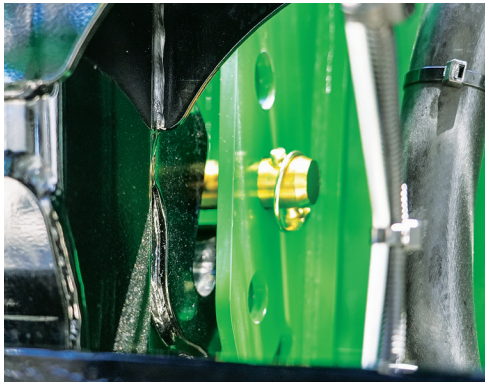
Carefully move the Crop Cruiser forwards while aligning the Quick Hitch arms under the Category CAT 3 linkage balls.

3 Carefully move the Crop Cruiser forwards while aligning the Quick Hitch arms under the Category CAT 3 linkage balls on the Front Tank.

4 Check the top linkage point is correctly positioned *(shown below)*.

5 When all linkage points are properly positioned, slowly raise the linkage arms ensuring all connection points engage correctly & lift the leg stands slightly off the ground.

Check that the top linkage point is correctly positioned (shown below).





Slowly raise the linkage arms to connect linkage points, then release the Quick Hitch latches to fix linkage points in place.

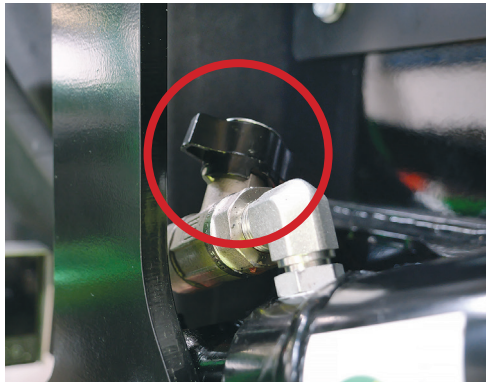
7 Release the Quick Hitch latches to lock all linkage connection points in place *(shown above).*

8 Raise the 3PL Front Tank to maximum height in order to fully retract each leg stand.

Raising the Crop Cruiser linkage can be done using the external G-Hub front screen or the armrest controls in the cabin.

Never go under raised linkage arms or the Front Tank without first closing both lift cylinder valves *(shown below).*

Never go under raised linkage arms or front tank without first closing both lift cylinder valves (RHS valve shown closed).





Fully raise each of the 4 leg stands on the Front Tank ready for operating.

9 Remove each lynch pin & holding pin & fully raise each leg stand. Refit the holding & lynch pins to fix each one in place *(shown above)*.

Connect Electrical Fittings

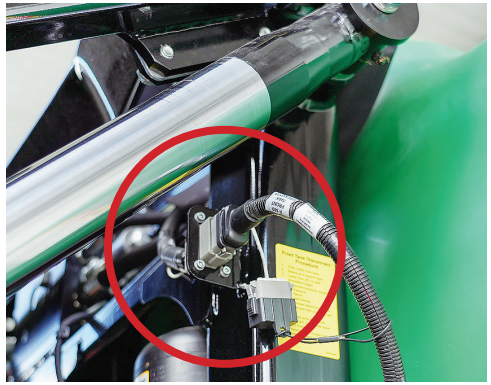
A bulk head with a 12 pin Deutsch (DT) style connector is located on the upper RHS of the Quick Hitch frame.

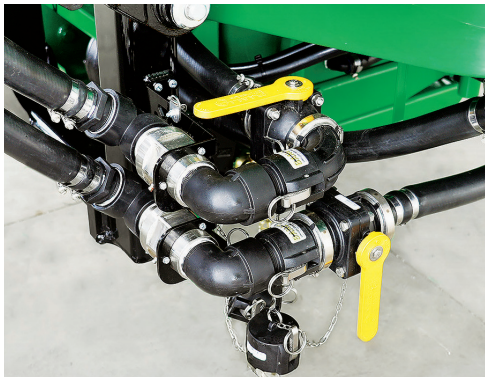
To connect the electrical lead:

1 Remove dust caps from the connectors.

2 Fit the DT connectors (one directional) & connect the dust caps to keep them clean *(shown below)*.

Fit the DT connectors & connect the dust caps to keep them clean.





Connect Return & Pressure lines into respective camlock fittings & lock them in place, then connect the caps & plugs.

Connect Plumbing Lines

The 3PL Front Tank incorporates two x 2" plumbing lines with isolation valves and camlock fittings. The upper hose is the Return (IN) line and the lower hose is the Pressure (OUT) line.

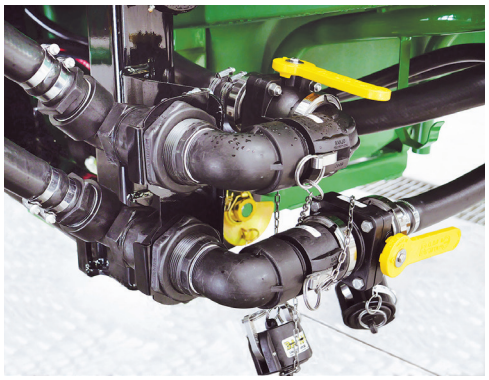
To connect the plumbing lines:

1 Check isolation valves are Closed and remove the Camlock caps & plugs from the Return & Pressure lines on both Crop Cruiser & Front Tank.

2 Connect the top Return line of the Front Tank into the top camlock fitting on the Quick Hitch frame & lock them in place *(shown above)*.

3 Connect the lower Pressure line of the Front Tank into the lower camlock fitting on the Quick Hitch frame & lock them in place *(shown above)*.

4 Connect the Camlock caps & plugs to keep them clean *(shown above)*.

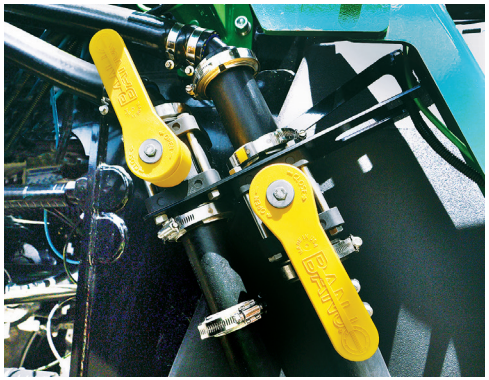


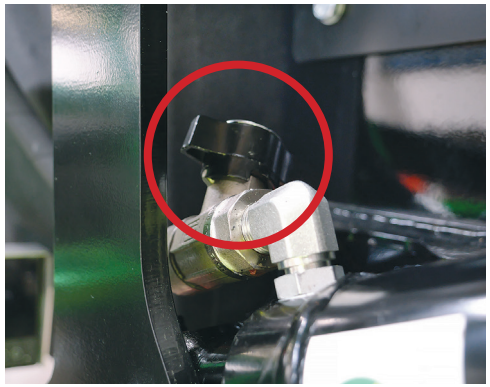
Open the Front Tank Return line & Pressure line isolation valves.

5 Open the Front Tank Return line & Pressure line isolation valves located at the cam lock fittings *(shown above)*.

6 Open the Crop Cruiser Return line & Pressure line isolation valves located near the front suspension chassis mounting (under the RHS ladder/platform, if fitted) *(shown below)*.

Open the Crop Cruiser Return line & Pressure line isolation valves.





Never go under raised linkage arms or front tank without first closing both lift cylinder valves (RHS valve shown closed).

Connect Hydraulic Fittings.

The 3PL Front Tank centrifugal pump is driven with an hydraulic motor.

To connect the hydraulic hose fittings:

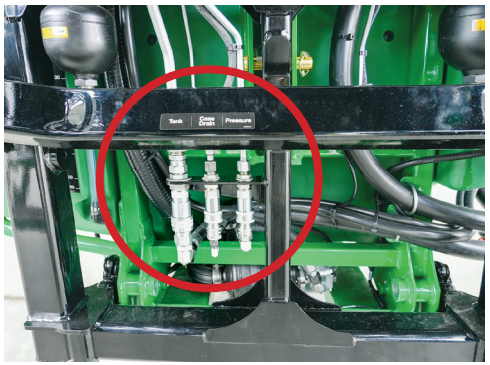
1 Raise or lower the 3PL Front Tank to a height which provides easy access for connecting the Front Tank hose fittings at the rear of tank to the fittings on the Quick Hitch.

Raising or Lowering the Crop Cruiser linkage can be done using the external G-Hub front screen or the armrest controls in the cabin.

2 Close both linkage lift cylinder valves *(shown above)* before going under the raised linkage arms &/or Front Tank to connect the hydraulic fittings.

⚠ CAUTION

Before working on a mounted 3PL Front Tank, always ensure the Park brake is engaged to prevent uncontrolled machine movement or a second person moving the Crop Cruiser unexpectedly. Failure to follow these instructions may cause injury and/or damage to machinery.



Connect 3 hydraulic hoses at the rear of the front tank.

3 Apply the Crop Cruiser Park brake and stop the engine.

4 Release pressure from the pressure line connection point on the Quik Hitch - use a pressure release tool if required.

5 Connect each hose to its corresponding connection point *(shown above)*.

Hoses are labeled for ease of identification.

- TANK
- CASE DRAIN
- PRESSURE.

6 Connect the hydraulic hose fitting covers & plugs to keep them clean.

7 3PL Front Tank connection is now complete.

Before re-starting the Crop Cruiser, open both lift cylinder valves *(shown next page top RHS)* to unlock the 3PL lift functions.

⚠ DANGER

Before working underneath the linkage arms or Front Tank, close the valves on both hydraulic lifting cylinders to prevent uncontrolled movement of the front tank and quick hitch linkage mechanism. Failure to follow these instructions may result in injury or death.



Raise the 3PL Front Tank to maximum height in order to lower each of the leg stands..

Disconnecting the Front Tank

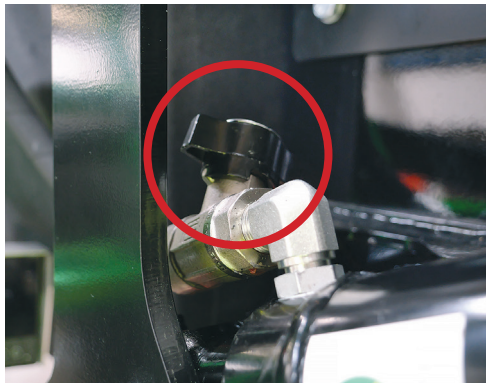
1 Ensure the Front tank is properly cleaned and the Crop Cruiser is parked on a level surface suitable for safely disconnecting the Front Tank.

2 Raise the 3PL Front Tank to maximum height in order to lower each leg stand.

Raising the Crop Cruiser linkage can be done using the external G-Hub front screen or the armrest controls in the cabin.

Never go under raised linkage arms or the Front Tank without first closing both lift cylinder valves.

Never go under raised linkage arms or front tank without first closing both lift cylinder valves (RHS valve shown).





Lower the leg stands for disconnecting Front Tank - lower stand to required mimimum height for adequate clearance.

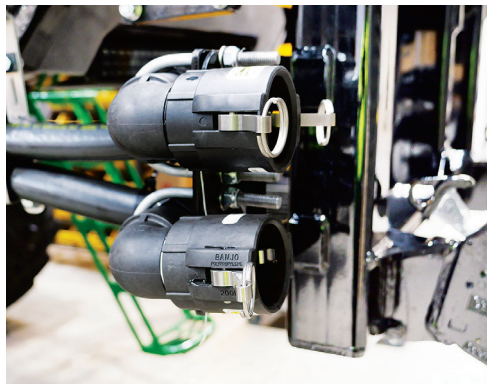
3 Remove each lynch & holding pin & lower each leg stand to the minimum height for adequate clearance of the Quick Hitch arms. Refit the holding & lynch pins to fix each one in place *(shown above)*.

4 Close the Front Tank Return line & Pressure line isolation valves located at the cam lock fittings *(shown below)*.

5 Close the Crop Cruiser Return line & Pressure line isolation valves located near the front suspension chassis mounting (under the RHS ladder/platform, if fitted) *(not shown)*.

Close the Front Tank Return line & Pressure line isolation valves located at the cam lock fittings.





Disconnect the 2" plumbing hoses.

6 Disconnect the Front Tank 2" plumbing hoses on the RHS of the Quick Hitch *(shown above)*.

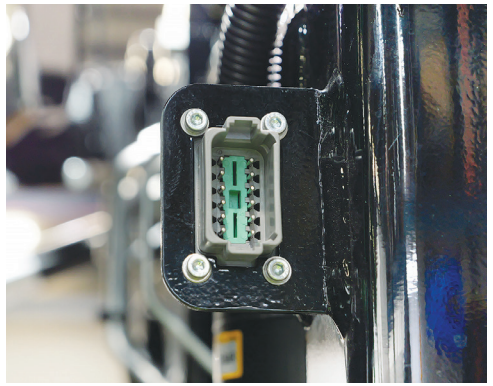
Refit the Camlock plugs & caps.

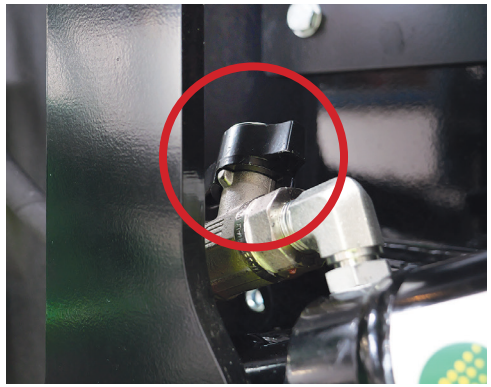
7 Disconnect the electrical harness from the connector on the RHS of the Quick Hitch.

8 Disconnect the 3 Front Tank hydraulic hoses from the Quick Hitch connectors.

Reft the hydraulic hose fitting covers & plugs.

Remove the electrical harness DT connector & refit the dust caps to each connector.





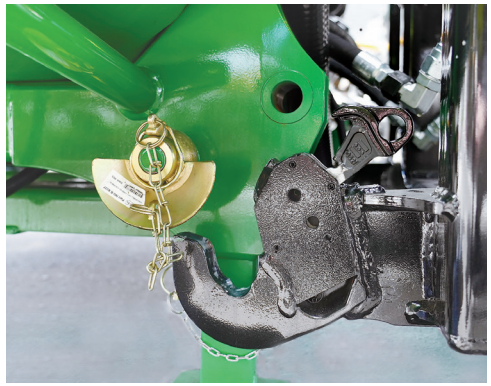
Open both lift cylinder valves (RHS valve shown Open) before lowering the Front Tank onto its leg stands.

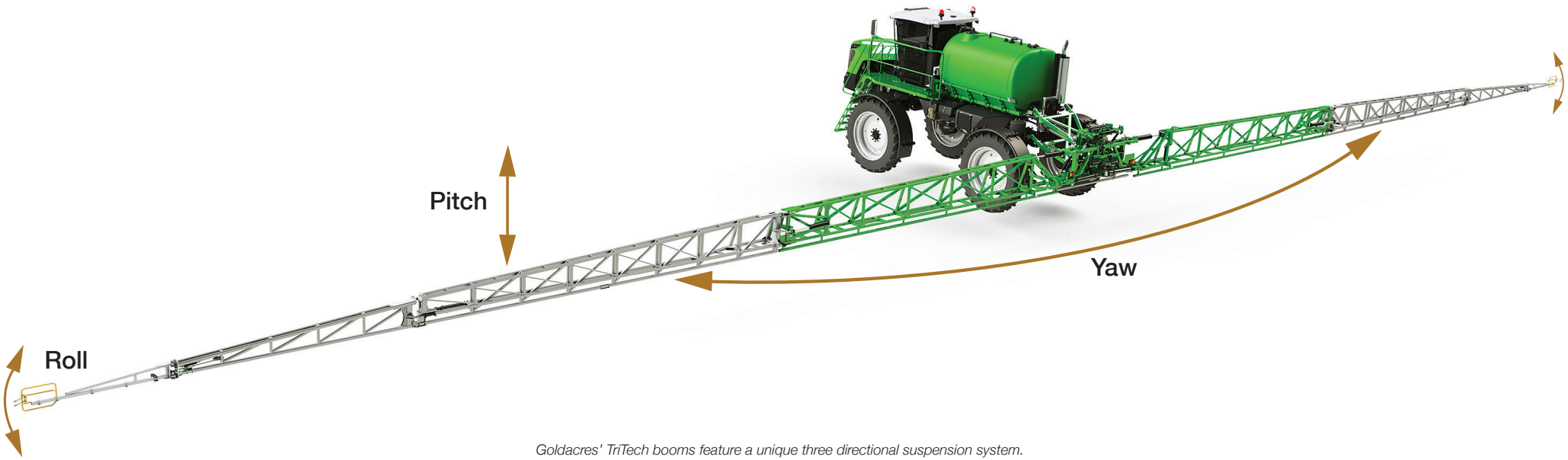
9 Open both lift cylinder valves *(shown below)*, then lower the Front Tank onto its leg stands.

10 Pull & lock out the Quick Hitch latches, then lower the Quick Hitch arms below the linkage balls and carefully reverse the Crop Cruiser.

11 When the Qich Hitch is clear of the Front Tank, release the Quick Hitch latches.

Pull out & lock the Quick Hitch latches, then lower the linkage below the balls & carefully reverse the Crop Cruiser.





Goldacres' TriTech booms feature a unique three directional suspension system.

Check Boom Settings

The G8 Crop Cruiser Series 3 can be fitted with 36, 42 & 48 metre boom widths.

Each boom features hydraulic lift, fold and individual wing tilt controlled from the cabin, as well as pitch, roll and yaw suspension for superior boom ride & efficient, targeted spray application.

Wing tips are fitted with spring loaded breakaway ends to prevent damage when striking objects.

Prior to deliver each boom is pre-set and tested for spraying application.

However, it is recommended that the boom settings checked and tested for the accuracy prior to spraying application.

It is the operator's responsibility to correctly operate all sprayer functions at all times.

Boom Centre Section

The TriTech boom centre section comprises two components - a Paralift rear and a boom centre section held together by delta links. The delta links allow the boom to provide roll and yaw suspension.

Roll suspension is when the boom pitches up and down at the tips. Yaw suspension is when the boom moves fore and aft at the tips.

If the boom did not feature yaw suspension there would be excessive stresses exerted on the boom and centre section when cornering or corrections of line are made.

The yaw suspension allows the chassis of the machine to move left and right without any movement being transferred to the boom.

The Paralift rear can move with the machine while the boom centre section can remain static or level as it rotates around the delta links connecting it to the Paralift rear.

Goldacres unique TriTech boom suspension system provides three directional suspension:

- **Pitch Suspension**

  Vertical boom movement & forces encountered over rough ground conditions are dampended using hydraulic cylinders connected to a nitrogen filled accumulator.

- **Roll Suspension**

  Constant boom height over sloping and uneven ground is maintained with the use of shock absorbers

- **Yaw Suspension**

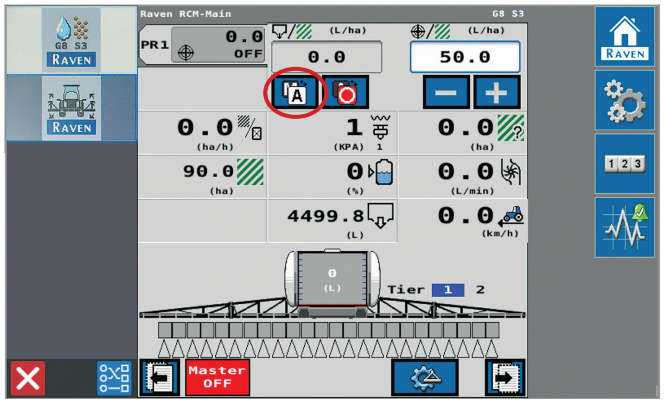
  Any erratic whipping movement (fore & aft) of the boom is mimimised using hydraulic cylinders connected to nitrogen filled accumulators. Whipping of a boom can create undue stress on the boom frame and uneven spray application.

Refer to Chapter 7 'Boom Settings' for further information & any necessary boom adjustments.

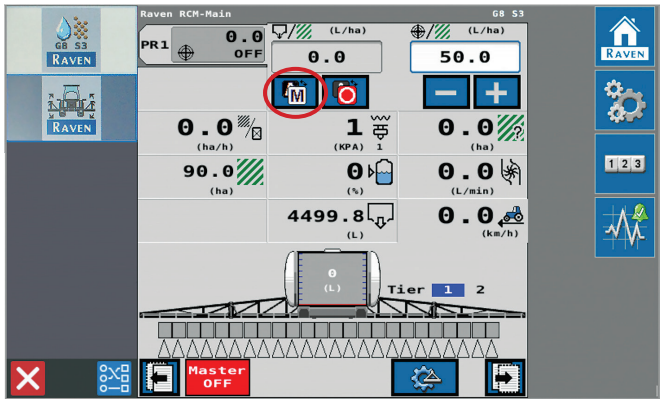
5 - **Calibration** – Set & Check Application Rates **107**

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5 Set & Check Application Rates – **Calibration**



The Raven Control Module (RCM) home screen showing 'Automatic' mode.



The Raven Control Module (RCM) home screen showing 'Manual' mode.



Application rates & droplet size for a situation can be sourced from chemical & nozzle manufacturers and the local agronomist.

Sprayer Calibration

Sprayer Calibration is the process of determining the amount of spray solution to be applied to a given area and ensuring the target or application rate is being applied according to its product label.

The application rate of a sprayer operating manually remains constant as long as ground speed, spray pressure, number of nozzles and nozzle orifices remain unchanged. If there is any change in these factors, the application rate will change.

The automatic spray controller, however, maintains a constant application rate while allowing for some variation in ground speed and boom width.

To achieve a constant application rate, the spraying system must be correctly maintained and calibrated

Calibration Procedure

Five steps are required to complete calibration:

1 Application Rate Required - Calculating & clearly understanding the volume of liquid (chemical & water) required for the specific application over a given area.

2 Nozzle Output Required - Calculating the output required for the application.

3 Nozzle Selection - Selecting and fitting the appropriate nozzles.

4 Controller Set-Up - Checking controller set-up values and entering values for the nozzles & spray rates required.

5 Test Actual Sprayer Output - Test the actual output to ensure the accuracy of the nozzle application rate before spraying.

1 Application Rate Required

The application rate is entirely dependent on the chemical manufacturer's application specifications and conditions of the target at the time of application.

Refer to the manufacturer's information and/or consult with the local agronomist for the best application rates and droplet size for your situation.

NOTE

Nozzle spray patterns & outputs must be checked regularly to ensure correct & uniform application rates because nozzles wear with use.

NOTE

Uneven volumes from individual nozzles will result in variations in the application rate across the width of the boom. Spray efficiency will be reduced. Crop damage may result.

If you have any further questions, Goldacres recommends that you contact your nozzle supplier or your Goldacres dealer for additional information.

NOTE

All nozzles have a pressure and flow rate range to acheive the best results. Ensure you have selected the nozzle which best suit the application to avoid any problems.



Calculate the required nozzle output.

2 Calculate Required Nozzle Output

Once an application rate is chosen, the required nozzle output can be calculated using the following factors:

- Application rate required (eg, 80 l/ha)
- Speed of travel (eg, 12km/hr)
- Swath width (eg, 36m) and
- Number of nozzles on the boom (eg, 72).

Nozzle output can be calculated using the following formulae:

- **Nozzle Flow Rate (l/min) =** Speed (km/hr) x Swath Width (m) x Application Rate (l/ha) ÷ 600 ÷ Number of nozzles

  eg, ([12 x 36 x 80] ÷ 600) ÷ 72 = 0.8 l/min for each nozzle.

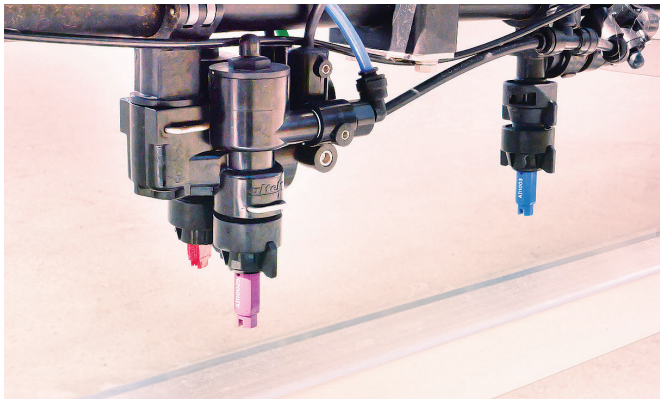
  An alternative formula is:

- **Nozzle Flow Rate (l/min) =** Speed (km) x Nozzle Spacing (cm) x Application Rate (l/ha) ÷ 60,000

  eg, (12 x 50 x 80) ÷ 60,000 = 0.8 l/min.

NOTE

Nozzles manufacturers' downloadable Apps may be useful in helping to calculate required nozzle rates, as well as displaying suitable nozzles for various applications.



Select & fit the appropriate nozzles for the application.

3 Nozzle Selection

Use a manufacturer's Nozzle Chart (refer to Nozzle Charts on pages 104 - 107) and/or a manufacturer's App to find & select the most appropriate nozzles for the application according to:

- Application rate (eg, 80 l/ha)
- Speed of travel (eg, 12km/hr)
- Pressure setting (eg, 300kPa [3 bar])
- Boom configuration & nozzle control system fitted to the Crop Cruiser - single line, 3TS option, 3TS Pro option or Hawkeye option.

NOTE

Nozzles must be selected & fitted for the appropriate application.
Nozzle orifices are subject to wear and must be checked regularly.
Use the Jug Test to check accuracy of application whenever nozzles are changed or wear.

	bar	DROP SIZE	LERAP RATINGS	CAPACITY ONE NOZZLE IN L/MIN	l/ha 50 cm 5 km/h	6 km/h	7 km/h	8 km/h	10 km/h	12 km/h	16 km/h
AIXR110015 (100)	1.0	XC	–	0.34	81.6	68.0	58.3	51.0	40.8	34.0	25.5
	2.0	C	–	0.48	115	96.0	82.3	72.0	57.6	48.0	36.0
	3.0	C	–	0.59	142	118	101	88.5	70.8	59.0	44.3
	4.0	M	–	0.68	163	136	117	102	81.6	68.0	51.0
	5.0	M	–	0.76	182	152	130	114	91.2	76.0	57.0
	6.0	M	–	0.83	199	166	142	125	99.6	83.0	62.3
AIXR11002 (50)	1.0	XC	–	0.46	110	92.0	78.9	69.0	55.2	46.0	34.5
	2.0	VC	–	0.65	156	130	111	97.5	78.0	65.0	48.8
	3.0	C	–	0.79	190	158	135	119	94.8	79.0	59.3
	4.0	M	–	0.91	218	182	156	137	109	91.0	68.3
	5.0	M	–	1.02	245	204	175	153	122	102	76.5
	6.0	M	–	1.12	269	224	192	168	134	112	84.0
AIXR110025 (50)	1.0	XC	**	0.57	137	114	97.7	85.5	68.4	57.0	42.8
	2.0	VC	**	0.81	194	162	139	122	97.2	81.0	60.8
	3.0	VC	**	0.99	238	198	170	149	119	99.0	74.3
	4.0	C	**	1.14	274	228	195	171	137	114	85.5
	5.0	C	**	1.28	307	256	219	192	154	128	96.0
	6.0	M	–	1.40	336	280	240	210	168	140	105

The Teejet AXIR11002 nozzle @ 3 Bar gives 0.79l/min and an output of 0.91l/min @ 4 Bar.

Single Line Boom

Find one nozzle which is nearest to the application requirements.

Check the speed variation available maintaining the same application rate & droplet size.

It is recommended to select a nozzle on mid-range pressure as this allows the spray controller to adjust pressure up or down with some but limited speed variation.

Using the appropriate nozzle chart, look down the nozzle capacity column (l/min) and select a nozzle to suit the output (eg, 0.8 l/min), droplet size and travel speed.

Refer to pages 104 - 107 for commonly used Teejet and Lechler broadacre nozzle charts.

Example: Nozzle Selection for a Single line Boom

Using the AIXR Teejet Application Chart (see page 104):

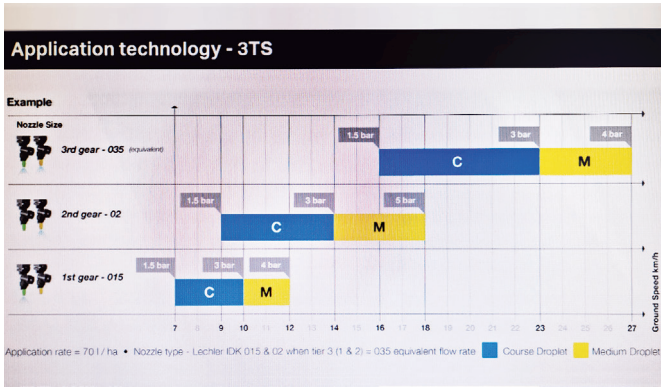
Look down the nozzle capacity column (l/min) and select a nozzle to suit an output of 0.8 l/min (shown above).

The AXIR11002 nozzle @ 3 Bar gives 0.79l/min and an output of 0.91l/min @ 4 Bar.

This nozzle should allow the controller to apply 80 litres per ha with a speed range of approximately 12 to 15kmh and with pressure range of 3 to 5 Bar.

Fit the selected nozzle to the boom.

5 Set & Check Application Rates – **Calibration**



An illustration of the speed range & output (70l/ha) available of two nozzles fitted with the 3TS Option.

	bar	DROP SIZE	LERAP RATINGS	CAPACITY ONE NOZZLE IN L/MIN	l/ha 50 cm 5 km/h	6 km/h	7 km/h	8 km/h	10 km/h	12 km/h	16 km/h
	1.0	XC	–	0.34	81.6	68.0	58.3	51.0	40.8	34.0	25.5
AIXR110015 (100)	2.0	C	–	0.48	115	96.0	82.3	72.0	57.6	48.0	36.0
	3.0	C	–	0.59	142	118	101	88.5	70.8	59.0	44.3
	4.0	M	–	0.68	163	136	117	102	81.6	68.0	51.0
	5.0	M	–	0.76	182	152	130	114	91.2	76.0	57.0
	6.0	M	–	0.83	199	166	142	125	99.6	83.0	62.3
	1.0	XC	–	0.46	110	92.0	78.9	69.0	55.2	46.0	34.5
AIXR11002 (50)	2.0	VC	–	0.65	156	130	111	97.5	78.0	65.0	48.8
	3.0	C	–	0.79	190	158	135	119	94.8	79.0	59.3
	4.0	M	–	0.91	218	182	156	137	109	91.0	68.3
	5.0	M	–	1.02	245	204	175	153	122	102	76.5
	6.0	M	–	1.12	269	224	192	168	134	112	84.0
	1.0	XC	**	0.57	137	114	97.7	85.5	68.4	57.0	42.8
AIXR110025 (50)	2.0	VC	**	0.81	194	162	139	122	97.2	81.0	60.8
	3.0	VC	**	0.99	238	198	170	149	119	99.0	74.3
	4.0	C	**	1.14	274	228	195	171	137	114	85.5
	5.0	C	**	1.28	307	256	219	192	154	128	96.0
	6.0	M	–	1.40	336	280	240	210	168	140	105

The 1st AXIR110015 nozzle @ 2 Bar gives 0.48l/min & an output of 0.68l/min @ 4 Bar & 2nd AXIR11002 nozzle @ 3 Bar gives 0.79l/min & an output of 1.02l/min @ 5 Bar.

3TS Option

Find two nozzles which are nearest to the application requirements..

Check the speed variation available maintaining the same application rate & droplet size.

It is recommended to select two nozzles which allow the spray controller to adjust pressure & switch nozzles On & Off with required speed variations while maintaining consistent droplet size and application rate.

Using the appropriate nozzle chart, look down the nozzle capacity column (l/min) and select a nozzle to suit the output (eg, 0.8 l/min), droplet size and travel speed.

Refer to the commonly used Teejet and Lechler broadacre nozzle charts at the end of this chapter. For more information, go to:

www.teejet.com

www.lechler.com

Example: Nozzle Selection for the 3TS Option

Using the AIXR Teejet Application Chart:

Look down the nozzle capacity column (l/min) and select two nozzles to suit an output of 0.8 l/min (shown above).

The AXIR110015 nozzle @ 2 Bar gives 0.48l/min which is 82.3 l/ha at 7 kmh and an output of 0.68l/min @ 4 Bar which is 81.6 l/ha at 10 kmh.

The AXIR11002 nozzle @ 2 Bar gives 0.65l/min which is 78.0 l/ha at 10 kmh and an output of 1.02l/min @ 5 Bar which is 76.5 l/ha at 16 kmh.

These nozzles should allow the controller to apply 80 litres per ha with a speed range of 7 to 16 kmh and a pressure range of 2 to 5 Bar switching between the 1st & 2nd Tiers.

By adding these two outputs together to use the 3rd Tier @ 3-4 Bar to give 1.38 -1.59 l/min would provide 80 l/ha application rate at increased speeds of 20 to 22kmh.

Fit the selected nozzles to the boom.

3TS Pro Option

Find three nozzles nearest to the requirements.

Check the required speed variations are available maintaining the same application rate & droplet size.

It is recommended to select three nozzles which allow the spray controller to adjust pressure & switch nozzles On & Off with the required speed variations while maintaining consistent droplet size and application rate.

Using the appropriate nozzle chart, look down the nozzle capacity column (l/min) and select a nozzle to suit the output (eg, 0.8 l/min), droplet size and travel speed.

Refer to the most commonly used Teejet and Lechler broadacre nozzle charts at the end of this chapter.

NOTE

Download the free copy of 'A user's guide to spray nozzles' from the TeeJet website. Also Lechler nozzle selection catalogue and Users guides to spray nozzles are available from your Goldacres dealer, or as a free download from the TeeJet web site: www.teejet.com or Lechler web site: www.lechler.de

NOTE

When selecting nozzle outputs, higher pressures & wider spray angles generally give finer droplet sizes than lower pressures & narrower spray angles.

NOTE

Calculation is required to ensure spraying pressures do not exceed operating parameters.

	bar	DROP SIZE	LERAP RATINGS	CAPACITY ONE NOZZLE IN L/MIN	l/ha 50 cm 5 km/h	6 km/h	7 km/h	8 km/h	10 km/h	12 km/h	16 km/h
	1.0	XC	–	0.34	81.6	68.0	58.3	51.0	40.8	34.0	25.5
AIXR110015 (100)	2.0	C	–	0.48	115	96.0	82.3	72.0	57.6	48.0	36.0
	3.0	C	–	0.59	142	118	101	88.5	70.8	59.0	44.3
	4.0	M	–	0.68	163	136	117	102	81.6	68.0	51.0
	5.0	M	–	0.76	182	152	130	114	91.2	76.0	57.0
	6.0	M	–	0.83	199	166	142	125	99.6	83.0	62.3
	1.0	XC	–	0.46	110	92.0	78.9	69.0	55.2	46.0	34.5
AIXR11002 (50)	2.0	VC	–	0.65	156	130	111	97.5	78.0	65.0	48.8
	3.0	C	–	0.79	190	158	135	119	94.8	79.0	59.3
	4.0	M	–	0.91	218	182	156	137	109	91.0	68.3
	5.0	M	–	1.02	245	204	175	153	122	102	76.5
	6.0	M	–	1.12	269	224	192	168	134	112	84.0
	1.0	XC	**	0.57	137	114	97.7	85.5	68.4	57.0	42.8
AIXR110025 (50)	2.0	VC	**	0.81	194	162	139	122	97.2	81.0	60.8
	3.0	VC	**	0.99	238	198	170	149	119	99.0	74.3
	4.0	C	**	1.14	274	228	195	171	137	114	85.5
	5.0	C	**	1.28	307	256	219	192	154	128	96.0
	6.0	M	–	1.40	336	280	240	210	168	140	105

The 3TS Pro option requires three nozzles to be selected giving the operator a greater range of application rates and travel speeds.

Example: Nozzle Selection for the 3TS Pro Option

Using the AIXR Teejet Application Chart:

Look down the nozzle capacity column (l/min) and select two nozzles to suit an output of 0.8 l/min (shown above).

The AXIR110015 nozzle @ 2 Bar gives 0.48l/min which is 82.3 l/ha at 7 kmh and an output of 0.68l/min @ 4 Bar which is 81.6 l/ha at 10 kmh.

The AXIR11002 nozzle @ 2 Bar gives 0.65l/min which is 78.0 l/ha at 10 kmh and an output of 1.02l/min @ 5 Bar which is 76.5 l/ha at 16 kmh.

The AXIR110025 nozzle @ 2 Bar gives 0.81l/min which is 81.0 l/ha at 12 kmh and an output of 1.28l/min @ 5 Bar which is 76.8 l/ha at 20 kmh.

These nozzles should allow the controller to apply 80 litres per ha at speeds ranging from 7 up to 40 kmh.

Fit the selected nozzle to the boom.

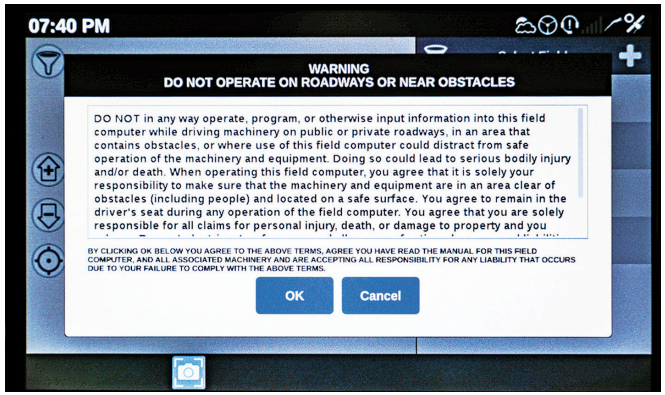
NOTE

There are often very serious limitation to possible maximum spray speeds.

Maximum spray speeds are limited by safety factors, chemicals used, maximum boom output in l/min, type of target, field conditions, terrrain and weather conditions.

Hawkeye Option (Nozzle Control System)

The Hawkeye Pulse Width Modulated (PWM) technology is an available option. If fitted refer to the manufacturer's manual.



Opening Warning screen of the optional Raven CR7.

4 Controller Set-Up

New application rate values must be entered into Automatic Control Module (RCM) according to the boom's nozzle configuration.

The Crop Cruiser may be fitted with one of four nozzle control option technologies:

a) Single line boom
b) 3TS option
c) 3TS Pro option
d) Hawkeye option (nozzle control system).

a) Enter Values for the Single Line Boom

After nozzle selection, a single line boom configuration requires the application rates to be entered into the controller according to the nozzle selected.

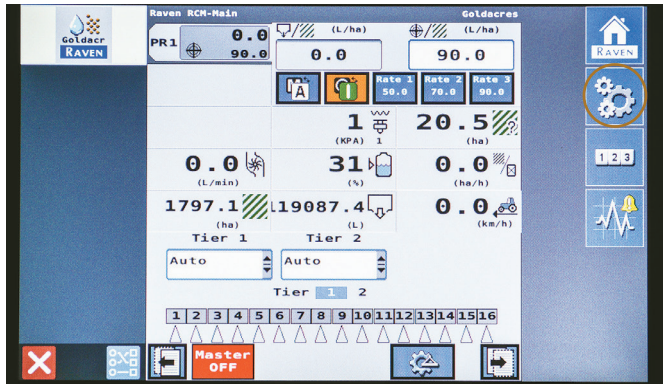
To Enter New Values:

1 Start the engine.

2 "WARNING DO NOT OPERATE ON ROADWAYS OR NEAR OBSTACLES" appears on the optional Raven CR7 screen or ISO bus screen.

Press the OK button and the home screen appears.

5 Set & Check Application Rates – **Calibration**



Press the 'Set-Up' touch button on the Raven home screen.

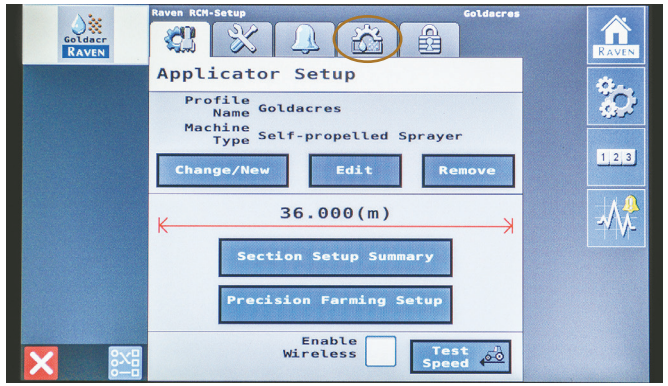
3 Press the 'Set-Up' touch button on the home screen, and the 'Applicator Setup' screen appears.

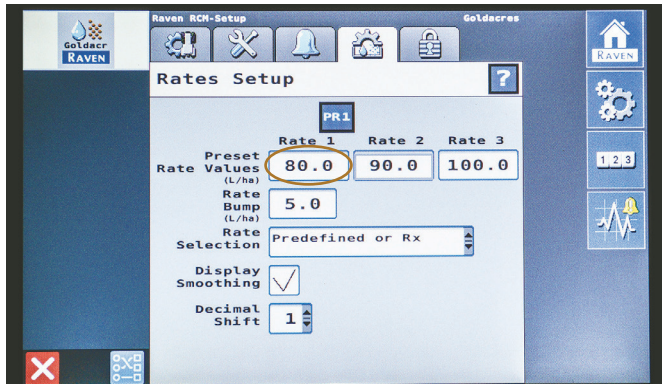
4 Press the 'Rates Setup' touch button and the 'Rates Set-up' screen appears.

NOTE

The spraying system has the caability to enter up to 3 pre-set application rates.

Press the 'Rates Setup' touch button.





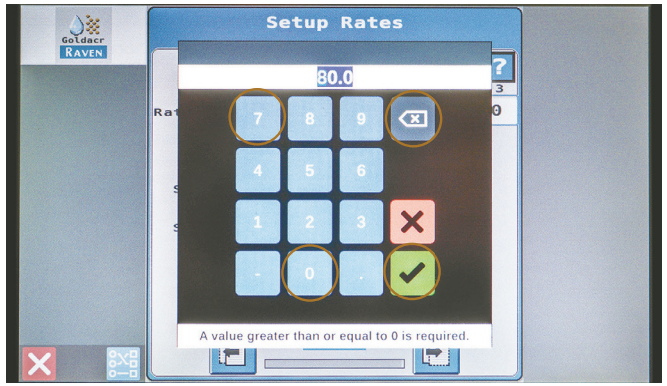
Press the 'Preset Rate Value Rate 1' touch button.

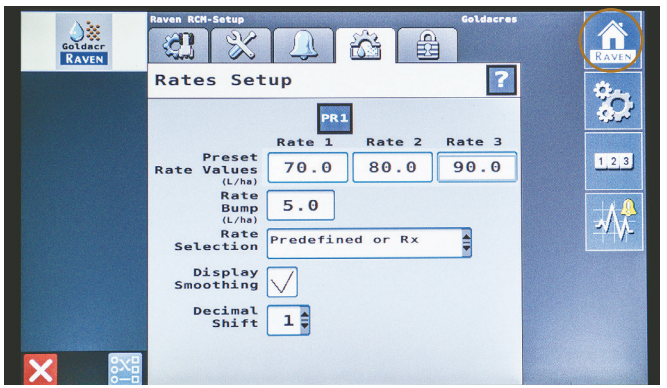
5 Press the 'Preset Value Rate 1' touch button and a numerical keypad appears.

6 Press the 'X' touch button to clear the existing number and press the touch buttons to enter the Application Rate, eg, 70, then press the 'Tick' touch button.

The screen returns to the Rates Setup screen with '70' displayed in the Preset Value Rate 1 value.

Press the appropriate touch buttons to enter the spray application rate required for Rate 1 (eg, 70 l/ha), then press the 'Tick' touch button.





The screen returns to the Rates Setup screen with the new rates displayed. Press the home screen touch button to return to the home screen.

7 Repeat steps 5 & 6 to enter preset rate values for Rate 2 (eg, 80 l/ha) and Rate 3 (eg, 90 l/ha).

The screen returns to the Rates Setup screen with all rates (eg, 70, 80, & 90) displayed.

8 Press the 'Rate Bump' touch button and a numerical keypad appears.

6 Press the touch buttons to enter the desired 'Rate Bump' value (l/ha), eg, 5, then press the 'Tick' touch button.

The screen returns to the Rates Setup screen with eg, '5' shown in the Rate Bump display.

8 Press the home touch button to return to the home screen.

This completes the controller entries for the single line boom calibration.

NOTE

Rate Bump

When spraying in Manual Mode, the operator can adjust the Spray Application Rate (using touch buttons on the Controller) by the amount (l/ha) pre-set in the Spray Bump setting.

b) Enter Values for the 3TS Option

After nozzle selection, the 3TS configuration requires new values to be entered into the controller according to the nozzles selected, namely.

- Spray application rates
- Maximum flow rate (for each tier/nozzle fitted [2 tiers]).

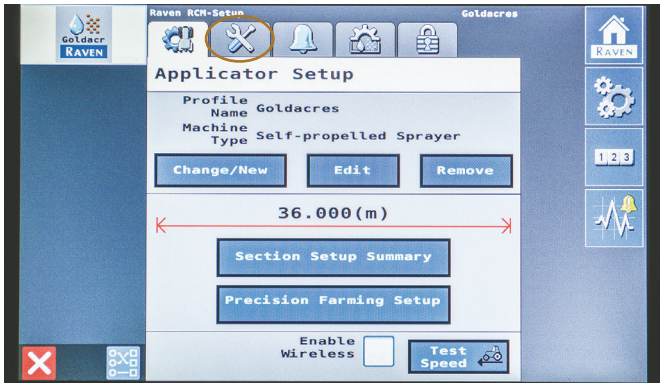
To Enter New Application Rates:

Follow the steps 1 - 8 previously given under 'Enter Values for the Single Line Boom'.

NOTE

Tier Max Flow Rates

The Tier Max Flow Rates is the maximum boom flow rate that a tier will reach before switching On the next tier.



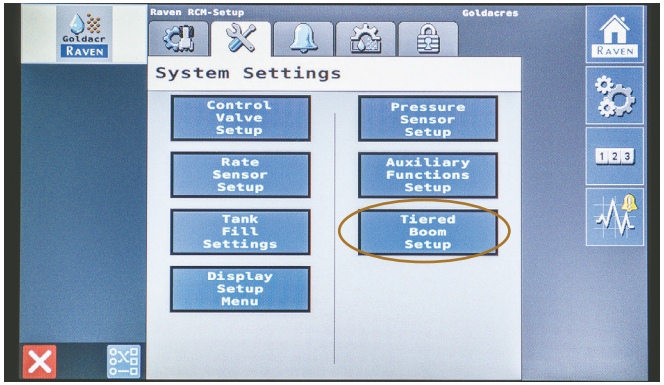
Press the 'Systems Settings' touch button.

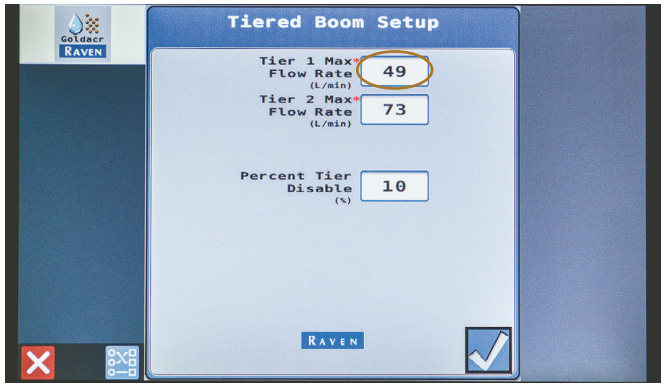
To Enter Maximum Flow Rates:

1 Press the 'Systems Settings' touch button and the 'Systems Settings' screen appears.

2 Press the 'Tiered Boom Setup' touch button and the 'Tiered Boom Set-up' screen appears.

Press the 'Tiered Boom Setup' touch button.





Press the 'Tier 1 Max Flow Rate' touch button.

3 Press the 'Tier 1 Max Flow Rate' touch button and a numerical keypad appears.

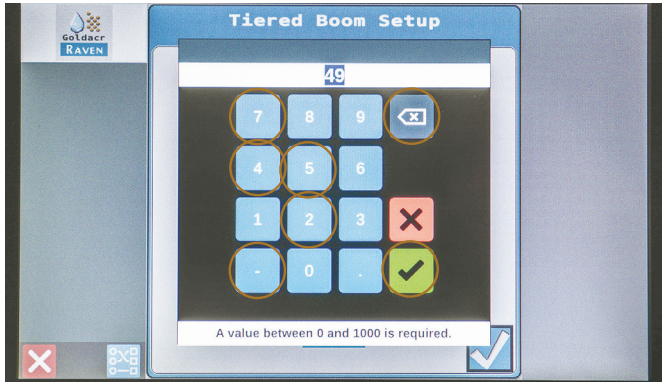
4 Calculate Max Flow Rate of the 1st Tier nozzles fitted to the boom, eg, AXIR110015 nozzle @ 5 Bar 0.761 l/min.

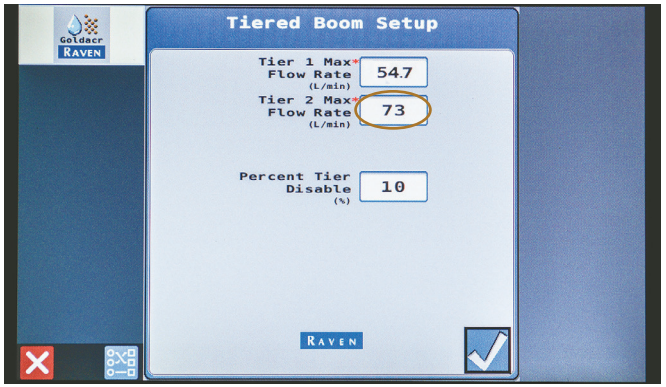
Multiply 0.76 x 72 (number of nozzles) = 54.7 l/min.

5 Press the 'X' touch button to clear the existing number and press the touch buttons to enter the Max Flow Rate, eg, 54.7, then press the 'Tick' touch button.

The screen returns to the Tiered Boom Setup screen with '54.7' in the Tier 1 Max Flow Rate value.

Press the appropriate touch buttons to enter the Max Flow Rate for Tier 1 (eg, 54.7 l/min), then press the 'Tick' touch button.





Press the 'Tier 2 Max Flow Rate' touch button.

6 Press the 'Tier 2 Max Flow Rate' touch button and a numerical keypad appears.

7 Calculate Max Flow Rate of the 2nd Tier nozzles fitted to the boom, eg, AXIR11002 nozzle @ 5 Bar 1.02 l/min.

Multiply 1.02 x 72 (number of nozzles) = 73.5 l/min.

8 Press the 'X' touch button to clear the existing number and press the touch buttons to enter the Max Flow Rate, eg, 73.5, then press the 'Tick' touch button.

The screen returns to the Tiered Boom Setup screen with '73.5' in the Tier 2 Max Flow Rate value.

9 Press the 'Tick' touch button and the screen returns to the System Setting screen.

This completes the controller entries for the 3TS Option boom calibration.

NOTE

Percent Tier Disable

The 'Percent Tier Disable' value is usd to minimise unnecessary tier switching when spraying close to the switch point of a tier. Increasing the value, reduces the sensitivity when switching tiers.

The '10% Percent Tier Disable' value means a spraying Tier will not change down until the spray rate is 10% below the target rate.

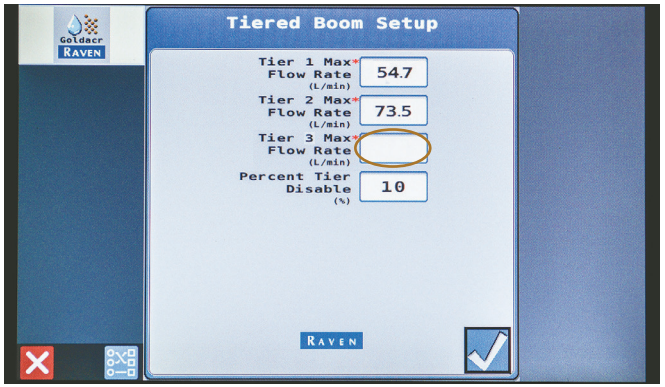
c) Enter Values for 3TS Pro Option

After nozzle selection, the 3TS Pro configuration requires new values to be entered into the controller according to the nozzles selected, namely:

- Spray application rates
- Maximum flow rate (for each tier/nozzle fitted [3 tiers]).

To Enter New Application Rates:

Follow the steps 1 - 8 previously given under 'Enter Values for the Single Line Boom'.



Press the 'Tier 3 Max Flow Rate' touch button.

To Enter New Maximum Flow Rates:

1 Follow the steps 1 - 8 previously given for the 3TS Option entering the appropriate values, then

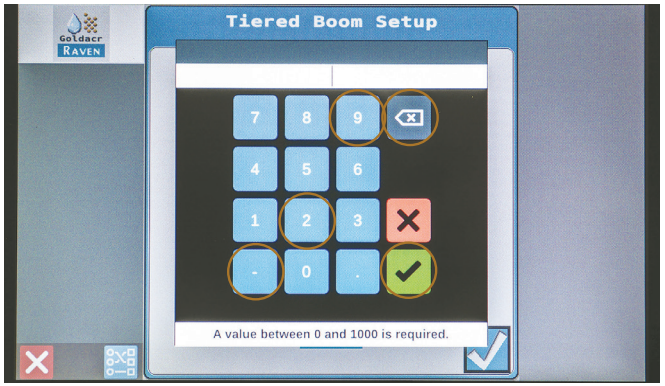
2 Press the 'Tier 3 Max Flow Rate' touch button and a numerical keypad appears.

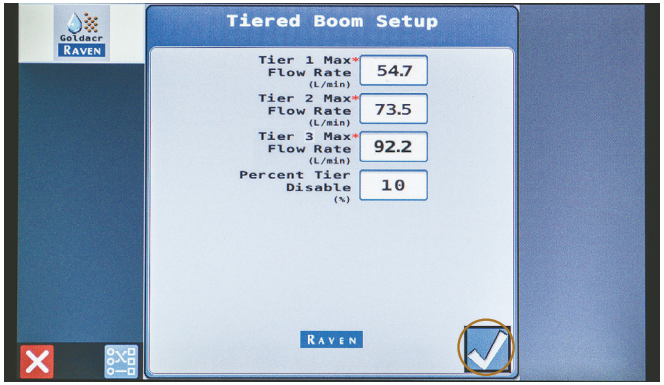
3 Calculate Max Flow Rate of the 3rd Tier nozzles fitted to the boom, eg, AXIR110025 nozzle @ 5 Bar 1.28 l/min.

Multiply 1.28 x 72 (number of nozzles) = 92.2 l/min.

4 Press the 'X' touch button to clear the existing number and press the touch buttons to enter the Max Flow Rate, eg, '92.2', then press the 'Tick' touch button.

Press the appropriate touch buttons to enter the Max Flow Rate for Tier 3 (eg, 92.2 l/min), then press the 'Tick' touch button.



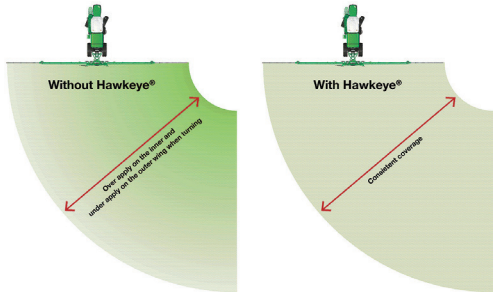


Press the 'Tick' touch button.

The screen returns to the Tiered Boom Setup screen with '92.2' displayed in the Tier 3 Max Flow Rate value.

5 Press the 'Tick' touch button and the screen returns to the System Setting screen.

This completes the controller entries for the 3TS Pro Option boom calibration.



Nozzle by nozzle turn compensation with the Hawkeye option.

d) Hawkeye Option (Nozzle Control System)

The Hawkeye Pulse Width Modulated (PWM) technology is an available option.

Hawkeye 2.0 is offered on 36m and 48m booms with nozzle spacing at 250mm & 500mm providing:

- Nozzle by nozzle turn compensation with each nozzle featuring its own microprocessor & perform diagnostic functions.
- Up to 16 virtual sections & individual nozzle control.

For instructions on configuring & operating the Hawkeye, refer to the Raven Hawkeye Operation Manual supplied.



Unfold the boom in a suitable area & set the height of the boom to allow easy access to nozzles - Crop Cruiser G8 Series 6 with 48m boom.

5 Test Actual Sprayer Output

Testing the Actual Sprayer Output to ensure the accuracy of the application rate before spraying is essential.

This part of calibration uses the 'Jug Test' to check spray nozzles deliver the correct amount of liquid, according to the nozzle manufacturer's rate chart.

Jug Test

Items required for the 'Jug Test' are:

- Calibrated measuring jug (5 litre) which measures in no less than 10 ml increments
- Timing device that counts in seconds
- Device or pen & paper for recording nozzle outputs
- Pressure gauge mounted on a nozzle tip to verify pressure being delivered at the nozzle.

Goldacres part number GA5077983 (suitable gauge mount) is available for attaching a gauge to nozzle body bayonet fittings (gauge not included).

⚠CAUTION

Do not proceed with nozzle testing with mixed chemicals, pesticides or an uncleaned liquid system. Ensure the liquid system is completely decontaminated and use only clean water for testing.

Contamination or use of any chemicals or pesticides when testing is extremely hazardous to human health.

5 Set & Check Application Rates – **Calibration**



Press the 'A' touch button to change the Raven Rate Controller from Automatic to Manual mode.

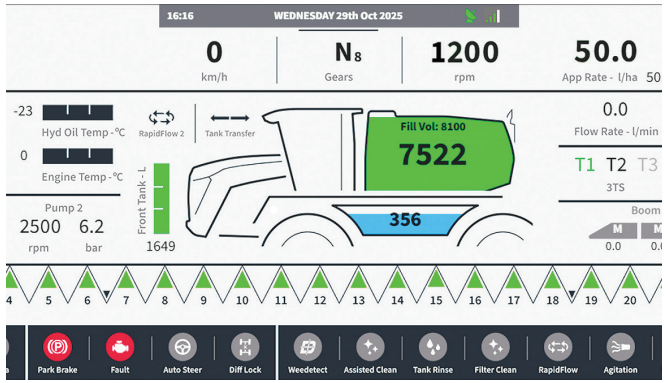
To Do the "Jug Test"

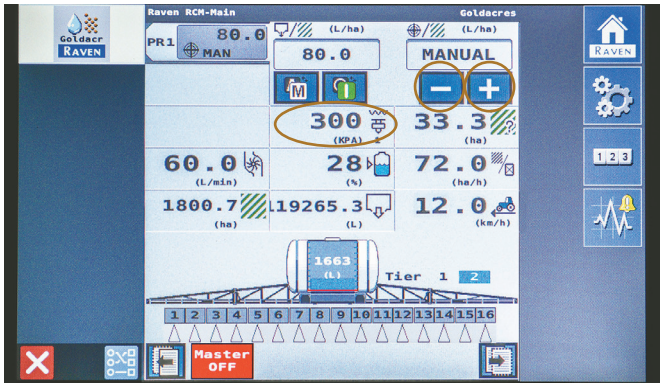
1 Start the Crop Cruiser engine and unfold the boom in a suitable area & set the height of the boom to allow easy access to nozzles.

2 Press the 'A' touch button (Automatic/Manual) on the Raven Rate Controller shift to Manual mode. The touch button changes to 'M' and MANUAL appears in the '(L/ha) display'.

3 Press the touch buttons to start the 'Product Pump' on the G-Hub screen, then press the 'Boom Master On' touch button to start the nozzles spraying.

Press the touch buttons on the G-Hub screen to start the nozzle spraying.





Press the '-/+' (Minus/Plus) touch buttons to adjust the spray pressure '(kPa)' and bring the operating pressure up to 300kPa.

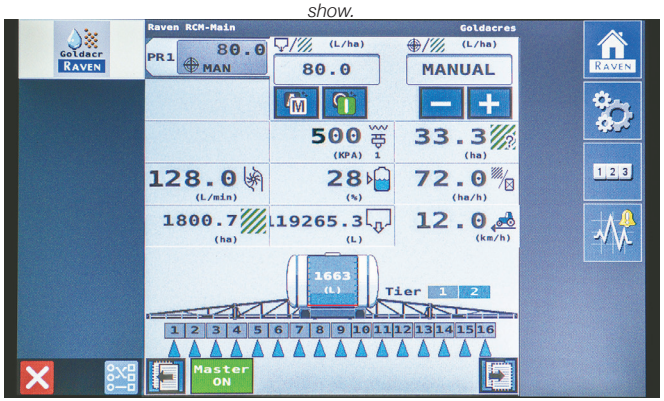
4 Press the '-/+' (Minus/Plus) touch buttons to adjust the spray pressure '(kPa) display' to the mid range operating pressure of a chosen nozzle output, eg, AXIR110015 nozzle @ 3 Bar (300kPa). Press the touch button(s) until 300 kPa is displayed.

5 Check the Raven Controller screen is showing 300 kPa. Adjust if needed, using the '-/+' touch buttons.

6 Check the Tier display on the screen (near boom illustration) to ensure all Tiers are spraying for the Jug test:

- Single line boom - all nozzles operating for the Jug test
- 3TS option - all nozzles operating for the Jug test
- 3TS Pro option - all nozzles operating for the Jug test.

Check the Raven Controller screen to ensure all Tiers are spraying. If not, use the '-/+' touch buttons to increase pressure by increments of 100 kPa until all Tiers show.





Before measuring nozzle outputs, check for both air & liquid plumbing leaks, kinked or obstructed hoses and good nozzle spray patterns.

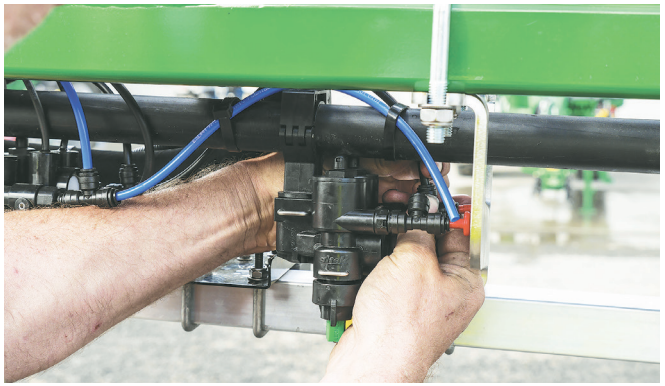
Adjust pressure upwards to 400 or 500 kPa using the '-/+' touch buttons until all tiers are spraying (relative to the boom used).

Pressure increments of 100 kPa must be used to be able to check the nozzle chart pressures & outputs.

7 Before measuring the nozzle outputs, check for both air & liquid plumbing leaks, kinked or obstructed hoses and uniform nozzle spray patterns.

If necessary, stop the machine & repair or replace any leaks or hoses which disrupt or reduce the normal air or liquid flows and fix non-uniform nozzle spray patterns.

If necessary, stop the machine & repair or replace any leaks or hoses that might restrict the normal flow of the liquid and correct any non-uniform spray patterns.





Place the measuring jug under one nozzle to collect nozzle output for exactly 1 minute, then remove it.

8 Place the measuring jug under one nozzle to collect the nozzle volume output for exactly 1 minute, then remove it.

9 Measure and record the nozzle output, nozzle size (Tier) and section location.

10 Repeat steps 8 & 9 for each nozzle in each of the 16 boom sections.

11 Compare the volume collected from each nozzle to the stated volume in the nozzle manufacturer's rate chart at the operating pressure used.

Any variation must be less than 10% (plus or minus).

Discard and replace all nozzles that deviate more than 10% from the specified output, for example:

- AXIR110015 chart @ 5 Bar (500kPa) = 0.76 l/min plus 10% is 0.84 l/min, less 10% 0.68 l/min
- AXIR11002 chart @ 5 Bar (500kPa) = 1.02 l/min plus 10% is 1.12 l/min, less 10% 0.92 l/min.

TeeJet advise nozzles with a flow greater than +10% of their stated volume are 'worn out' and should be replaced.

NOTE

Do not use a worn nozzle to set the pressure setting and nozzle rates. If the boom is not fitted with new nozzles, fit one new nozzle and use it to set the flow rate and pressure setting. This sets the standard flow rate, pressure setting and spray pattern with which to test the performance of other nozzles.

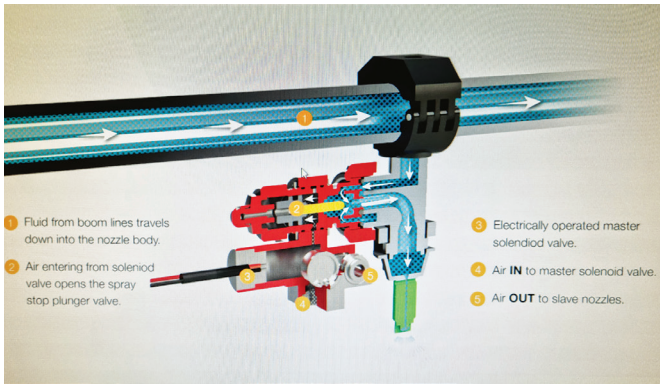


Illustration of the RapidFlow and RapidFire nozzle technologies.

12 Test and check any replacement nozzles by collecting and measuring the output of each replacement.

13 Record each replacement and its output.

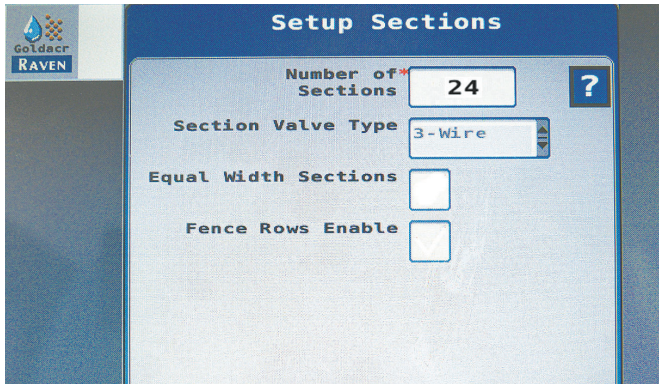
14 For each nozzle type tested, add the measured outputs together, then divide the total by the number of test nozzles to obtain the average nozzle output per minute.

eg, Using the 3TS two tier system:

- AXIR110015 Nozzle - Total spray output 15.4 litres ÷ 20 nozzles tested = 0.77 l/min per nozzle.
- AXIR11002 Nozzle - Total spray output 22 litres ÷ 20 nozzles tested = 1.1 l/min per nozzle.

NOTE

While doing the 'Jug Test' visually check the nozzle spray patterns and spray angles for accuracy and, if necessary, replace any faulty nozzles.



Check boom width & section set-up values in the RCM.

Other Calibration Items

Other items critical to accurate calibration & application include:

1 Boom Width
2 Vehicle Speed
3 Flow Meter
4 Regulator Valve.

1 Boom Width

The Boom Width values are entered into the RCM controller during the initial set-up of the machine. Check controller settings have not been changed.

Refer to Chapter 4 'Setting Up', 'Pre-Set the Raven Control Module (RCM)' for instructions.

NOTE

In the event of any nozzles not delivering the required volume, investigate futher, including but not be limited to;

- Cleaning the nozzles using a method recommended by the nozzle supplier
- Cleaning nozzle filters
- Replacing the nozzles.



A dealer fitted John Deere Starfire GPS Receiver.

2 Vehicle Speed

The Crop Cruiser ground speed reading displayed on the G-Hub screen is sourced from the transmission speed sensor.

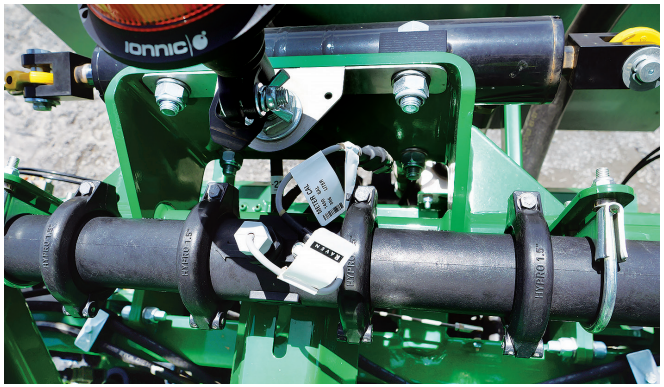
The Raven Rate Controller (RCM) speed reading is sourced via the ISO controller from the installed GPS system.

Any discrepancies or inaccuracies with Crop Cruiser speed displayed on the ISO Bus UT must be addressed via the GPS system.

If speed problems occur, contact your GPS supplier.

NOTE

The flow meter & regulator valve used by the controller are critical components of the spraying system and must be checked & calibrated on a regular basis to ensure accurate application.



The Flow Meter, located on top of the boom centre section, should regularly inspected & cleaned.

3 Flow Meter

The Flow Meter (used by the controller to monitor flow rates) is critical to the accuracy of application rates.

The Flow Meter should be regularly inspected and cleaned of debris.

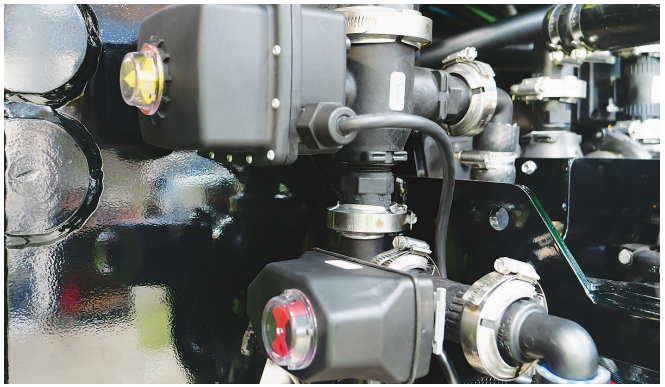
The ISO Bus UT has a built-in feature to conduct a flow meter calibration test.

For information on the test procedure, refer to the Raven Rate Control Module Operation Manual (RCM) supplied with the Crop Cruiser.

See Chapter 8 ‘Lubrication & Maintenance’, for ‘Flow Meter’ service information.

NOTE

Each flow meter has a unique calibration number printed on a tag attached to the flow meter.



The Regulator Valve, should be checked regularly & calibrated.

4 Regulator Valve

The Regulator Valve or Flow Control Valve (used by the Controller to adjust & control pressure & flow rates) is critical to the accuracy of spraying rates and should be checked & calibrated on a regular basis.

NOTE

Nozzle spray patterns & outputs - must be checked regularly to ensure correct & uniform application rates (nozzles wear with use).

Record All Data For Future Reference

Record the set-up and calibration data on a work sheet similar to the one shown at the end of this chapter (‘Calibration/ Application Work Sheet’) for future reference and information.

Photocopy the blank work sheet for operational use as required.

Set & Check Application Rates – **Calibration**

AIXR Teejet Application Chart

DROPLET SIZE CATEGORIES: XF EXTREMELY FINE · VF VERY FINE · F FINE · M MEDIUM · C COARSE · VC VERY COARSE · XC EXTREMELY COARSE · UC ULTRA COARSE

	bar	DROP SIZE	LERAP RATINGS	CAPACITY ONE NOZZLE IN L/MIN	l/ha 50 cm 5 km/h	6 km/h	7 km/h	8 km/h	10 km/h	12 km/h	16 km/h	18 km/h	20 km/h	CAP PART NUMBER
AIXR110015 (100)	1.0	XC	–	0.34	81.6	68.0	58.3	51.0	40.8	34.0	25.5	22.7	20.4	114441A-*CELR
	2.0	C	–	0.48	115	96.0	82.3	72.0	57.6	48.0	36.0	32.0	28.8	
	3.0	C	–	0.59	142	118	101	88.5	70.8	59.0	44.3	39.3	35.4	
	4.0	M	–	0.68	163	136	117	102	81.6	68.0	51.0	45.3	40.8	
	5.0	M	–	0.76	182	152	130	114	91.2	76.0	57.0	50.7	45.6	
	6.0	M	–	0.83	199	166	142	125	99.6	83.0	62.3	55.3	49.8	
AIXR11002 (50)	1.0	XC	–	0.46	110	92.0	78.9	69.0	55.2	46.0	34.5	30.7	27.6	
	2.0	VC	–	0.65	156	130	111	97.5	78.0	65.0	48.8	43.3	39.0	
	3.0	C	–	0.79	190	158	135	119	94.8	79.0	59.3	52.7	47.4	
	4.0	M	–	0.91	218	182	156	137	109	91.0	68.3	60.7	54.6	
	5.0	M	–	1.02	245	204	175	153	122	102	76.5	68.0	61.2	
	6.0	M	–	1.12	269	224	192	168	134	112	84.0	74.7	67.2	
AIXR110025 (50)	1.0	XC	**	0.57	137	114	97.7	85.5	68.4	57.0	42.8	38.0	34.2	
	2.0	VC	**	0.81	194	162	139	122	97.2	81.0	60.8	54.0	48.6	
	3.0	VC	**	0.99	238	198	170	149	119	99.0	74.3	66.0	59.4	
	4.0	C	**	1.14	274	228	195	171	137	114	85.5	76.0	68.4	
	5.0	C	**	1.28	307	256	219	192	154	128	96.0	85.3	76.8	
	6.0	M	–	1.40	336	280	240	210	168	140	105	93.3	84.0	
AIXR11003 (50)	1.0	XC	**	0.68	163	136	117	102	81.6	68.0	51.0	45.3	40.8	
	2.0	VC	**	0.96	230	192	165	144	115	96.0	72.0	64.0	57.6	
	3.0	VC	**	1.18	283	236	202	177	142	118	88.5	78.7	70.8	
	4.0	C	**	1.36	326	272	233	204	163	136	102	90.7	81.6	
	5.0	C	**	1.52	365	304	261	228	182	152	114	101	91.2	
	6.0	M	–	1.67	401	334	286	251	200	167	125	111	100	
AIXR11004 (50)	1.0	UC	***	0.91	218	182	156	137	109	91.0	68.3	60.7	54.6	
	2.0	XC	**	1.29	310	258	221	194	155	129	96.8	86.0	77.4	
	3.0	VC	**	1.58	379	316	271	237	190	158	119	105	94.8	
	4.0	VC	**	1.82	437	364	312	273	218	182	137	121	109	
	5.0	C	**	2.04	490	408	350	306	245	204	153	136	122	
	6.0	C	–	2.23	535	446	382	335	268	223	167	149	134	
AIXR11005 (50)	1.0	UC	***	1.14	274	228	195	171	137	114	85.5	76.0	68.4	
	2.0	XC	***	1.61	386	322	276	242	193	161	121	107	96.6	
	3.0	VC	**	1.97	473	394	338	296	236	197	148	131	118	
	4.0	VC	**	2.27	545	454	389	341	272	227	170	151	136	
	5.0	C	**	2.54	610	508	435	381	305	254	191	169	152	
	6.0	C	–	2.79	670	558	478	419	335	279	209	186	167	
AIXR11006 (50)	1.0	UC	***	1.37	329	274	235	206	164	137	103	91.3	82.2	
	2.0	XC	***	1.94	466	388	333	291	233	194	146	129	116	
	3.0	VC	***	2.37	569	474	406	356	284	237	178	158	142	
	4.0	VC	**	2.74	658	548	470	411	329	274	206	183	164	
	5.0	C	**	3.06	734	612	525	459	367	306	230	204	184	
	6.0	C	–	3.35	804	670	574	503	402	335	251	223	201	
AIXR11008 (50)	1.0	UC	–	1.82	437	364	312	273	218	182	137	121	109	114443A-*CELR
	2.0	XC	–	2.58	619	516	442	387	310	258	194	172	155	
	3.0	VC	–	3.16	758	632	542	474	379	316	237	211	190	
	4.0	VC	–	3.65	876	730	626	548	438	365	274	243	219	
	5.0	VC	–	4.08	979	816	699	612	490	408	306	272	245	
	6.0	C	–	4.47	1073	894	766	671	536	447	335	298	268	
AIXR11010	1.0	UC	–	2.28	547	456	391	342	274	228	171	152	137	
	2.0	UC	–	3.23	775	646	554	485	388	323	242	215	194	
	3.0	XC	–	3.95	948	790	677	593	474	395	296	263	237	
	4.0	VC	–	4.56	1094	912	782	684	547	456	342	304	274	
	5.0	VC	–	5.10	1224	1020	874	765	612	510	383	340	306	
	6.0	VC	–	5.59	1342	1118	958	839	671	559	419	373	335	



AIXR TEEJET® AIR INDUCTION XR FLAT SPRAY TIPS

MOST VERSATILE AIR INDUCTION TIP

The AIXR TeeJet Flat Spray Tip offers excellent drift resistance without compromising spray coverage. AIXR spray tips are suitable for a wide variety of systemic herbicides and applications where drift control is critical.

Features & Benefits

- The unique UHMWPE material provides significantly longer wear life and better acid resistance, making the AIXR ideal for highly acidic applications, such as applying defoliation products
- Air-induction design enhances coverage of larger droplets through air inclusion
- A perfect balance of drift control and coverage – precisely sized, large, air-filled drops stay on target and cover the entire plant

USE WITH:
HERBICIDES
SYSTEMIC FUNGICIDES
SYSTEMIC INSECTICIDES

PRESSURE:
1.5-6 BAR

VP
MATERIALS:
VISIFLO ACETAL

SPRAY ANGLE:
110°

NOTE

The nozzle charts shown in this manual are for instruction purposes only. Always jug test the accuracy of your nozzles. Also check with the nozzle manufacturer to ensure you are using the correct charts as updates may occur at any time.

TTJ60 Teejet Application Chart

DROPLET SIZE CATEGORIES: XF EXTREMELY FINE | VF VERY FINE | F FINE | M MEDIUM | C COARSE | VC VERY COARSE | XC EXTREMELY COARSE | UC ULTRA COARSE

	bar	DROP SIZE	LERAP RATINGS	CAPACITY ONE NOZZLE IN L/MIN	l/ha 50 cm 5 km/h	6 km/h	7 km/h	8 km/h	10 km/h	12 km/h	16 km/h	18 km/h	20 km/h	CAP PART NUMBER
TTJ60- 11002 (100)	1.5	C	–	0.56	134	112	96.0	84.0	67.2	56.0	42.0	37.3	33.6	11441A-*-CELR
	2.0	C	–	0.65	156	130	111	97.5	78.0	65.0	48.8	43.3	39.0	
	3.0	M	–	0.79	190	158	135	119	94.8	79.0	59.3	52.7	47.4	
	4.0	M	–	0.91	218	182	156	137	109	91.0	68.3	60.7	54.6	
	5.0	M	–	1.02	245	204	175	153	122	102	76.5	68.0	61.2	
	6.0	M	–	1.12	269	224	192	168	134	112	84.0	74.7	67.2	
TTJ60-110025 (100)	1.5	VC	**	0.70	168	140	120	105	84.0	70.0	52.5	46.7	42.0	
	2.0	C	**	0.81	194	162	139	122	97.2	81.0	60.8	54.0	48.6	
	3.0	C	--	0.99	238	198	170	149	119	99.0	74.3	66.0	59.4	
	4.0	M	--	1.14	274	228	195	171	137	114	85.5	76.0	68.4	
	5.0	M	--	1.28	307	256	219	192	154	128	96.0	85.3	76.8	
	6.0	M	--	1.40	336	280	240	210	168	140	105	93.3	84.0	
TTJ60-11003 (100)	1.5	VC	**	0.83	199	166	142	125	99.6	83.0	62.3	55.3	49.8	
	2.0	C	**	0.96	230	192	165	144	115	96.0	72.0	64.0	57.6	
	3.0	C	--	1.18	283	236	202	177	142	118	88.5	78.7	70.8	
	4.0	M	--	1.36	326	272	233	204	163	136	102	90.7	81.6	
	5.0	M	--	1.52	365	304	261	228	182	152	114	101	91.2	
	6.0	M	--	1.67	401	334	286	251	200	167	125	111	100	
TTJ60-11004 (50)	1.5	VC	**	1.12	269	224	192	168	134	112	84.0	74.7	67.2	
	2.0	C	**	1.29	310	258	221	194	155	129	96.8	86.0	77.4	
	3.0	C	--	1.58	379	316	271	237	190	158	119	105	94.8	
	4.0	M	--	1.82	437	364	312	273	218	182	137	121	109	
	5.0	M	--	2.04	490	408	350	306	245	204	153	136	122	
	6.0	M	--	2.23	535	446	382	335	268	223	167	149	134	
TTJ60-11005 (50)	1.5	VC	**	1.39	334	278	238	209	167	139	104	92.7	83.4	
	2.0	C	**	1.61	386	322	276	242	193	161	121	107	96.6	
	3.0	C	**	1.97	473	394	338	296	236	197	148	131	118	
	4.0	M	--	2.27	545	454	389	341	272	227	170	151	136	
	5.0	M	--	2.54	610	508	435	381	305	254	191	169	152	
	6.0	M	--	2.79	670	558	478	419	335	279	209	186	167	
TTJ60-11006 (50)	1.5	VC	–	1.68	403	336	288	252	202	168	126	112	101	
	2.0	VC	–	1.94	466	388	333	291	233	194	146	129	116	
	3.0	C	–	2.37	569	474	406	356	284	237	178	158	142	
	4.0	C	–	2.74	658	548	470	411	329	274	206	183	164	
	5.0	M	–	3.06	734	612	525	459	367	306	230	204	184	
	6.0	M	–	3.35	804	670	574	503	402	335	251	223	201	
TTJ60-11008 (50)	1.5	VC	–	2.23	535	446	382	335	268	223	167	149	134	
	2.0	VC	–	2.58	619	516	442	387	310	258	194	172	155	
	3.0	C	–	3.16	758	632	542	474	379	316	237	211	190	
	4.0	C	–	3.65	876	730	626	548	438	365	274	243	219	
	5.0	C	–	4.08	979	816	699	612	490	408	306	272	245	
	6.0	M	–	4.47	1073	894	766	671	536	447	335	298	268	
TTJ60-11010 (50)	1.5	XC	–	2.79	670	558	478	419	335	279	209	186	167	
	2.0	VC	–	3.23	775	646	554	485	388	323	242	215	194	
	3.0	VC	–	3.95	948	790	677	593	474	395	296	263	237	
	4.0	C	–	4.56	1094	912	782	684	547	456	342	304	274	
	5.0	C	–	5.10	1224	1020	874	765	612	510	383	340	306	
	6.0	C	–	5.59	1342	1118	958	839	671	559	419	373	335	



NOTE

The nozzle charts shown in this manual are for instruction purposes only. Always jug test the accuracy of your nozzles. Also check with the nozzle manufacturer to ensure you are using the correct charts as updates may occur at any time.

5 Set & Check Application Rates – **Calibration**

Calibration/Application Work Sheet

Measured Boom Section Widths & No of Nozzles:

Boom section 1: Width (m)..... No. Nozzles: .....

Boom section 2: Width (m)..... No. Nozzles: .....

Boom section 3: Width (m)..... No. Nozzles: .....

Boom section 4: Width (m)..... No. Nozzles: .....

Boom section 5: Width (m)..... No. Nozzles: .....

Boom section 6: Width (m)..... No. Nozzles: .....

Boom section 7: Width (m)..... No. Nozzles: .....

Boom section 8: Width (m)..... No. Nozzles: .....

Boom section 9: Width (m)..... No. Nozzles: .....

Boom section 10: Width (m)..... No. Nozzles: .....

Boom section 11: Width (m)..... No. Nozzles: .....

Boom section 12: Width (m)..... No. Nozzles: .....

Boom section 13: Width (m)..... No. Nozzles: .....

Boom section 14: Width (m)..... No. Nozzles: .....

Boom section 15: Width (m)..... No. Nozzles: .....

Boom section 16: Width (m)..... No. Nozzles: .....

Boom section 17: Width (m)..... No. Nozzles: .....

Boom section 18: Width (m)..... No. Nozzles: .....

Boom section 19: Width (m)..... No. Nozzles: .....

Boom section 20: Width (m)..... No. Nozzles: .....

Boom section 21: Width (m)..... No. Nozzles: .....

Boom section 22: Width (m)..... No. Nozzles: .....

Boom section 23: Width (m)..... No. Nozzles: .....

Boom section 24: Width (m)..... No. Nozzles: .....

Nozzle Type & Size:

- Chemical: .....
- Nozzle Type: .....
- Pressure Setting: .....
- Travel speed (km/hr): .....
- Total number of nozzles to be used: .....

Nozzle Flow Rate (l/min) =

Speed (km/hr) x Swath Width (m) x Application Rate (l/ha) ÷ 600 ÷ Number of nozzles

..... x ..... x ..... ÷ 600 ÷ .....

= ..... l/min for each nozzle

Boom Nozzles Fitted:

Set-Up Option: Single Line / 3TS / 3TS Pro / Hawkeye

Nozzle Type: .....

Nozzle Sizes: .....

Nozzle Colours: .....

Nozzle Accuracy & Nozzle Output (Jug Test):

Thoroughly check nozzles & test actual output of each nozzle:

- Pressure Setting: .....
- Individual Nozzle Outputs: .....

  .....

  .....

  .....

  .....

  .....

  .....

  .....
- Sum of Nozzle Outputs: .....

Calculated Application Rate:

The automatic Spray Controller calculates & shows the rate of application.

Application Rate (l/ha) =

Spray Output (l/min) x 600 ÷ Speed (km/hr) x Swath Width (m)

[..... x 600] ÷ [..... x .....]

= .....l/ha

Add Correct Amount of Chemical:

- Chemical: .....
- Water Quantity: .....
- Chemical Added: .....

Boom Application Height: .....

Application Data:

Date: .....

Farm location: .....

Field Name/No: .....

Crop sprayed: .....

Spray Volume litres/ha: .....

Nozzle Pressure: .....

Tested Output (l/min): .....

Applied Litres per Hectare: .....

Notes:

.....

.....

.....

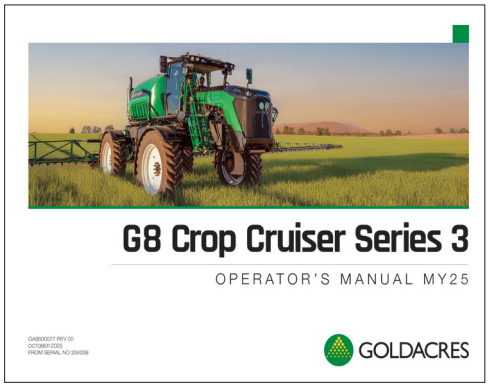
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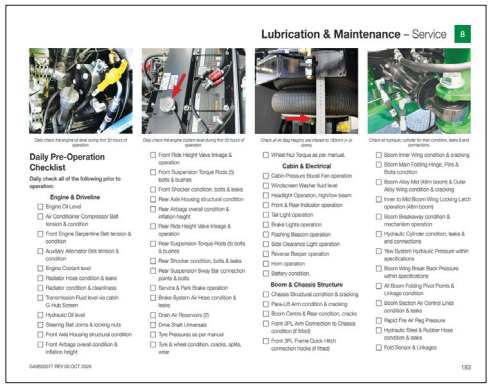
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6 - **Operation** – Ready to Spray **123**

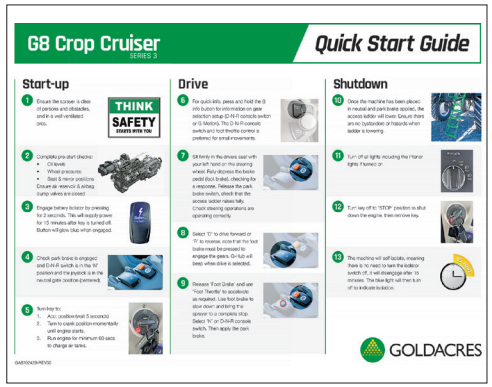
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G8 Series 3 Crop Cruiser Operator's Manual.



Be sure to check all items listed in the 'Daily Pre-Operation Check list'



Use the in-cabin 'Quick Start Guide' to learn the safe Start-up, Drive & Shutdown procedures of the Crop Cruiser.



First engage the Battery Isolator Switch (located below the ignition key) to connect power to the Crop Cruiser systems.

Pre-Operation Check

Before operating the Crop Cruiser, ensure to check all items listed in the 'Daily Pre-Operation Checklist' instructions shown in Chapter 8, Lubrication & Maintenance'. If the machine is new, ensure 'First 8 Hours of Operation' instructions are followed.

Before Starting the Crop Cruiser:

- Read the G8 Series 3 Crop Cruiser Operator's Manual thoroughly, before attempting to use this machine
- Always wear appropriate protective clothing.
- Check all items listed in the 'Daily Pre-Operation Checklist' instructions shown in Chapter 8, Lubrication & Maintenance'
- Complete Lubrication schedules outlined in Chapter 8, Lubrication & Maintenance'
- Complete Maintenance schedules outlined in Chapter 8, Lubrication & Maintenance'
- Inspect the machine to ensure there is no damage or wear which could lead to injury, further damage or reduced performance
- Check to ensure frost and/or vermin have not damaged the machine
- Check all spraying control functions (refer to the instructions in this manual)
- Refer instructions provided in other operator manuals supplied
- Read & follow instructions of chemical manufacturers & chemical labels
- Ensure there is a sufficient clean water in the hand wash tank for personal hygiene and chemical safety
- Organise communication with someone to come to your aid, if required.

Always follow the routine checkists & maintenance schedules & proecedures provided in chapter 8, 'Lubrication & Maintenance'.

Starting the Crop Cruiser

Refer to Goldacres in-cabin 'Quick Start Guide' to learn the safe Start-up, Drive & Shutdown procedures of the Crop Cruiser.

Before starting the Crop Cruiser, the Battery Isolator Switch must be engaged to provide power to the machine systems.

To start the engine, the transmission must be in Neutral & Park Brake engaged. Insert the ignition key and turn clockwise (the ignition key is located on the rear right console).

After starting the Crop Cruiser, allow hydraulic oil to warm up before operating hydraulic functions.

Before Starting in Cold Conditions

If the Crop Cruiser in a cold environment, always check components to ensure they have not been damaged and there is no ice in the system before starting to spray.

If the water has frozen in the pump and/or in the lines, wait until it has completely thawed before use.

NOTE

A high quality multi-purpose grease is essential for the machine to operate with maximum effectiveness and life-expectancy.

It is important to keep the lubricant and lubricant applicator clean. Wipe all dirt from the fittings before use.

NOTE

Be sure to adequately clean and flush all chemical handling equipment.

All spray equipment should be cleaned at the start and end of each spray season including all filters and nozzles.

NOTE

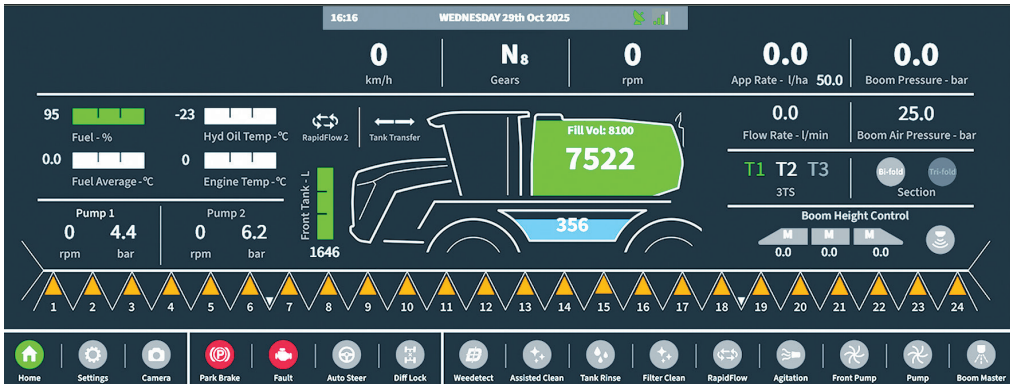
The operator must wear the operator safety belt at all times when seated in the cabin or when the machine is in motion.

NOTE

Test the pump with clean water. Switch on the pump at the lowest revolutions possible & gradually increase revolutions until the pump reaches its operating speed.



Ensure the Crop Cruiser meets your state vehicle height & width restrictions before driving on roads.



G-Hub nightlight Spray screen.



Check items closely during the first 8 hours of operation as instructed in Chapter 8 'Lubrication & Maintenance'.

Machine Transit Safety

Crop Cruiser height is approximately 4.2m high & aerials on the roof, make it higher.

Check the regulations in your state for maximum vehicle height & width restrictions. Bigger booms may require an escort in some areas.

When driving the machine on roads it may be necessary to remove aerials to meet the required height restrictions.

Aerials on the roof may also need to be removed to meet clearance requirements for over head power lines - on the road & in some paddocks.

Overhead Power Lines

Check areas to be sprayed for any overhead power lines.

If there are power lines in the area, contact the relevant energy provider for information on safe use of machinery near live power lines.

⚠DANGER

Check the area to be sprayed for over head power lines. Any contact of the machine & power lines can result in serious injury or death. If power lines are in the spray area, exercise extreme caution when tilting, raising/lowering & folding booms & especially when using automatic fold.

Night Spraying

When conducting spraying operations at night:

- Lighting around the machine needs to be sufficient for all labels and warnings on the machine to be clearly visible to the operator.
- Lighting of the area to be sprayed needs to be sufficient for obstacles in the path of the machine to be clearly visible to the operator.

⚠WARNING

If spraying is to be done at night, ensure that adequate lighting is available around the machine and the area to be sprayed.

During First 8 Hours Of Operation

Refer to chapter 8, 'Lubrication & Maintenance' for the items to be checked closely during the first 8 hours of operation of the Crop Cruiser (from new).

NOTE

Some options like a 48m boom and/or large tyres may put a machine over-width.
Check the road regulations for your State.

⚠DANGER

Do NOT walk on the machine platform when near power lines.

NOTE

Check nozzle patterns for irregularities. If there are irregularities, clean the nozzles and refit. If the problem persists they could be worn so remove and replace.



First engage the Battery Isolator Switch (located below the ignition key) to connect power to the Crop Cruiser systems.



Turn the Ignition key to On/Accessories



Turn the Ignition key to crank & start the engine.



Before driving, it is recommended to press the 'Quick Info' push button to instantly view current settings.

Quick Start Guide

It is the responsibility of the operator to familiarise themselves with and understand the information in this manual to ensure competent and safe operation.

Follow the Quick Start instructions to start the engine, drive and shut-down the Crop Cruiser.

Starting-Up

1 Perform a pre-operation check of the Crop Cruiser.

2 Engage the Battery Isolator Switch (located below the ignition key in the cabin).

To engage the power, press the top the Battery Isolator Switch. When engaged (On), the switch illuminates *(shown above)*.

NOTE

Before starting the engine:

- All fluid levels must be checked.
- Ensure the battery isolator switch is engaged - to provide power to the sprayer systems.
- Ensure the transmission in neutral. Otherwise the engine will not start.

3 Turn the Ignition key to On/Accessories (lightning symbol) *[shown above]*.

4 Check Park Brake rocker switch is ON.

To Engage (Switch On) the Park Brake, Slide the orange lock (toward the seat) & press the far end of rocker switch Downward (On position) *[shown below]*. The switch symbol illuminates when the Park Brake is engaged (On).

5 Turn & hold the Ignition Key momentarily in crank position until engine starts *(shown above right).*

To Engage the Park Brake - slide the orange lock toward the seat & press the rocker switch down (On position).



Driving

After engine start, it is recommended to run the engine for least 30 seconds to allow the compressor to build the required system air pressure.

Before Driving

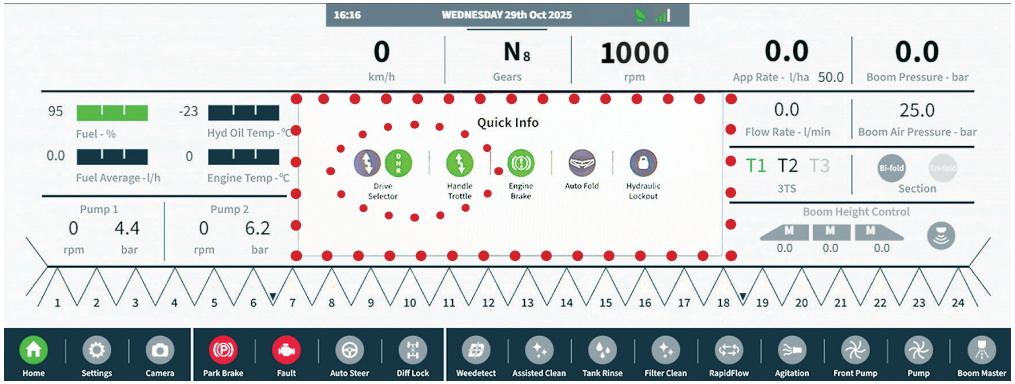
1 First, press the 'Quick Info' push button (on the Armrest Console *[shown above right]*) to instantly view on the Home screen *(shown below)* current status of:
- Drive Selector
- Hand Throttle
- Engine Brake
- Auto fold
- Hydraulic Lockout.

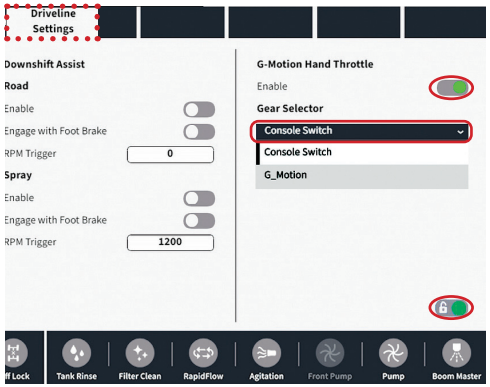
2 Check to see if current 'Drive Selector' status conforms with your driving needs - Green symbol is Active (Grey Inactive).

If not, press the "Settings' touch button on the lower LHS of the Home screen, then press Driveline, then press Driveline Settings *(shown next page, top left)*.

3 Unlock the screen Securety Lock *(shown above)*. Refer to Chapter 4 for further information, if required.

The Home screen 'Quick Info' panel (dotted outline below) gives instant access to the status of 'Drive Selector' (D-N-R = Active), 'Hand Throttle' (Active), 'Engine Brake' (Active), 'Auto Fold' (Not Active) & 'Hydraulic Lockout' (Not Active).





Driveline Settings screen with 'G-Motion Hand Throttle' Enabled & 'Console Switch selection in 'Gear Selector'.

4 Press the 'Gear Selector' touch button to select preferred gear selection mode:

- Console Switch (D-N-R) or
- G_Motion (Joystick).

To use the Console Switch (D-N-R) Switch, the Gear Selector' must be set to 'Console Switch' *(shown above)*.

To use the Joystick (G-Motion) for gear selection, the Gear Selector' must be set to 'G-Motion'.

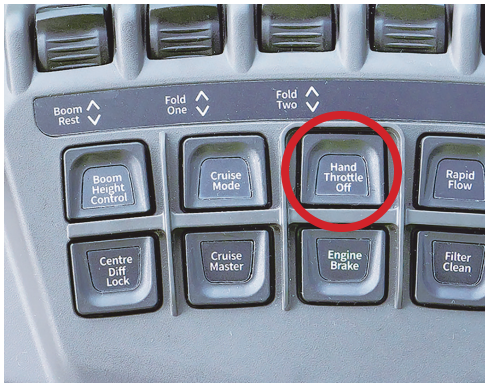
5 To use the Joystick as a Hand Throttle, the 'G-Motion Hand Throttle' option must be Enabled (Green) *(shown above)*.

NOTE

If Drive (D) or Reverse (R) are pressed while the Park Brake is still On, a gear cannot be engaged by the transmission and an audible alarm will sound.

NOTE

The Park Brake must be engaged to change the Gear Selector mode.



Boom Rest, Boom Fold/Unfold Fold rocker switches used for folding & unfolding the boom (36m shown).

The 'G-Motion Hand Throttle' mode can be Enabled & Disabled (On & Off) by pressing the 'Hand Throttle Off' push button on the Armrest console *(shown above)*.

NOTE

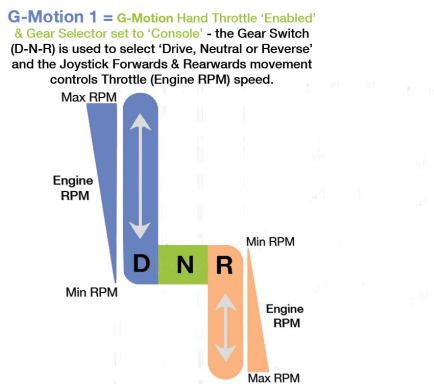
An alarm sounds & a warning illuminates on the G-Hub screen, if the transmission is moved into a gear other than Neutral when Park Brake is engaged.

NOTE

The G-Hub system will log any faults that occur. Go to Chapter 9 'Trouble Shooting' for more information.

⚠CAUTION

The operator & any passenger must be seated in the cabin and wearing the seat safety belt at all times when the machine is in motion.



G-Motion 1 illustration: Console switch controls D-N-R & Joystick controls Throttle (Engine) RPM speed (white arrows).

To Start Driving with D-N-R Switch

After checking Console D-N-R switch is active (G-Motion 1), start driving as follows:

1 Check the Foot Brake for response, then hold down the Foot Brake & disengage the Park Brake - press down the near end of rocker switch to Off position (*shown below*).

The switch illumination goes off when the Park Brake is disengaged (Off).

2 When the Park Brake is disengaged (Off), the LHS cabin entrance ladder automatically raises to operatiing position.

To disengage the Park Brake - press the near end of the rocker switch downward (Off position).





Press Down the 'D' end of the 'D-N-R' rocker switch to drive forward OR the 'R' end to Reverse.

Always check to ensure noone is near the LHS ladder before it is raised or lowered.

Ensure the RHS ladder is manually raised before entering the cabin to drive.

ALWAYS DOUBLE CHECK both ladders are raised before engaging gears & driving.

3 Press down:

- The 'D' end of the D-N-R rocker switch to engage Forward drive *(shown above)*
- The 'R' end of the D-N-R rocker switch to engage Reverse *(shown above)*. When engaged, the 'D' & 'R' symbols illuminate.

4 Use the steering wheel, foot accelerator, Joystick hand throttle & foot brake to drive safely.

Moving the hand throttle forwards and backwards increases & decreases engine speed accordingly.

⚠CAUTION

ALWAYS DOUBLE CHECK both ladders are raised before engaging gears and driving.

Failure to raise ladders before driving can result in damage to the ladder(s) and the sprayer.



The Auto/Manual Gear Selection push button is used to shift between Auto & Manual mode.

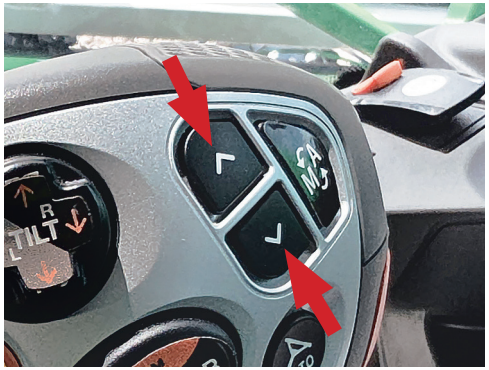
5 When the foot brake is used, it pauses G-Motion. Simply bring the Joystick back neutral and move it forwards to re-engage G-Motion (or move it rearwards to engage reverse).

6 To shift from 'Auto' to 'Manual' press the Auto/Manual Gear Selection push button *(shown above)* for 1 second.

To shift from 'Manual' to 'Auto', press the Auto/Manual Gear Selection push butto - short press only.

7 When in 'Auto' shift mode, gear shift down can be pressed to shift down 1 gear which will hold for 8 seconds only. After 8 seconds 'Auto' gear shift will resume.

Gear Change Up/Down push buttons.





To disengage the Park Brake - press the near end of the rocker switch downward (Off position).

To Start Driving in G-Motion (Joystick)

After Checking G-Motion (Joystick) mode is active (G-Motion 2), start driving as follows:

1 Check the Foot Brake for response, then hold down the Foot Brake & disengage the Park Brake - press down the near end of rocker switch to Off position (*shown above*).

The switch illumination goes off when the Park Brake is disengaged (Off).

2 When the Park Brake is disengaged (Off), the LHS cabin entrance ladder automatically raises to operatiing position.

Always check to ensure noone is near the LHS ladder before it is raised or lowered.

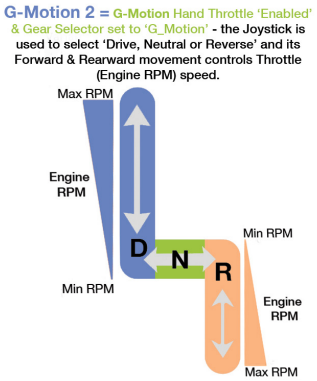
Ensure the RHS ladder is manually raised before entering the cabin to drive.

ALWAYS DOUBLE CHECK both ladders are raised before engaging gears & driving.

⚠CAUTION

ALWAYS DOUBLE CHECK both ladders are raised before engaging gears and driving.

Failure to raise ladders before driving can result in damage to the ladder(s) and the sprayer.



G-Motion 2 illustration: Joystick movement selects D-N-R and controls Throttle (Engine RPM) speed (white arrows).

3 Move the Joystick:

- Left to select 'Forward' gear & use the accelerator pedal to drive forward.

  Once moving, the joystick can be released into neutral gate as 'forward' gear will be latched.

  Once the Crop Cruiser has decelerated to below 2Km/h, the transmission shifts to neutral

- 'Right' to select 'Reverse' & use the accelerator pedal to drive in reverse.

  Once vehicle has decelerated to below 2Km/h, the transmission shifts into neutral.

4 Use the steering wheel, foot accelerator, Joystick hand throttle & foot brake to drive safely.

Moving the hand throttle forwards and backwards increases & decreases engine speed accordingly.

5 When the foot brake is used, it pauses G-Motion. Simply bring the Joystick back neutral and move it forwards to re-engage G-Motion (or move it rearwards to engage reverse).

6 'To shift from 'Auto' to 'Manual' & 'Gear shift down' apply - see previous instructions '6' & '7' on this page.



To Engage the Park Brake - slide the orange lock toward the seat & press the rocker switch down (On position).

Stopping/Shutting-Down

To Stop & Shut-Down the Crop Cruiser:

1 Decelerate and bring the Crop Cruiser to a complete stop.

2 According to Gear Selector mode:

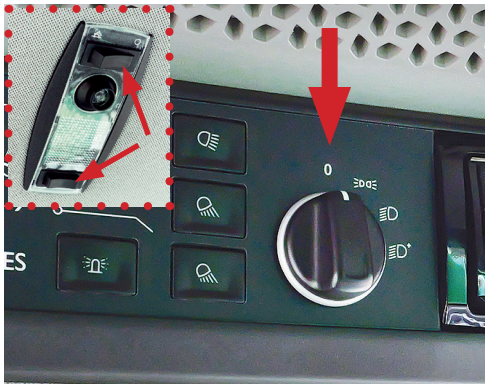
- In Console D-N-R switch mode, bring the Joystick back to 'Neutral' position, then press the 'D-N-R' rocker switch to 'N' position (Neutral) - the 'N' symbol illuminates when in neutral.

- In G-Motion (Joystick) mode, apply the foot brake to slow the machine down and Neutral is engaged when speed falls below 5km/hr.

  OR

  If an operator desires Neutral to be engaged before speed lowers to 5km/hr, bring the Joystick back to 'Neutral', then push (bump) the G-Motion (Joystick) right into the Neutral gate to engage Neutral.

3 Engage the Park Brake *(shown above)*.



Rotate the Main Light switch to Off and switch Off cabin ceiling lights.

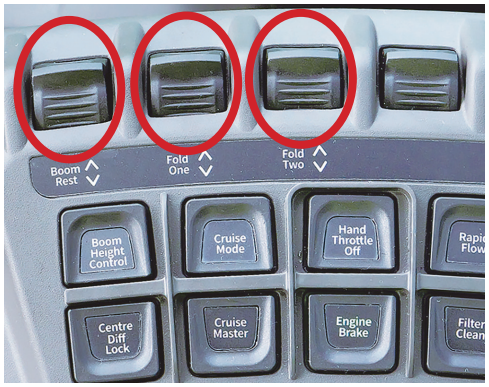
4 Rotate the Main Lights switch to Off & switch Off the cabin ceiling lights *(shown above)*.

5 Turn the ignition key Off (Stop position).

The Battery Isolator switch automatically disengages battery power 15 minutes after the ignition key is turned to Off or removed - the switch is not illuminated when battery power is disengaged *(shown below)*.

Battery Isolator automatically disengages battery power 15 minutes after ignition key is turned Off or removed.





'Boom Rest', 'Fold One', 'Fold Two' rocker switches used for unfolding/folding 36m & 42m Bi-fold booms.

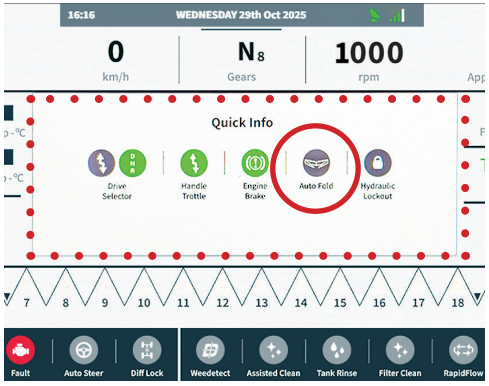
Boom Unfolding/Folding

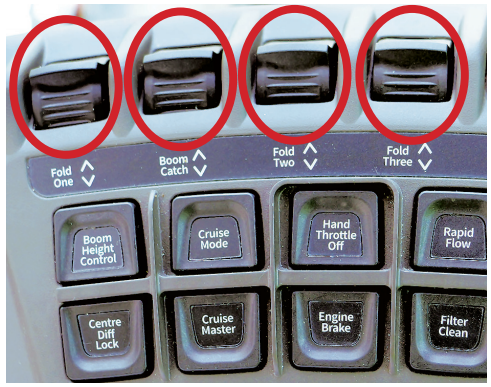
Boom Unfolding & Folding is acheived either manually or automatically depending on G-Hub settings.

Before Unfolding or Folding the boom, it's recommended to press the 'Quick Info' push button (on the Armrest Console described earlier in this chapter) to instantly check the 'Auto Fold' boom setting status.

The 'Quick Info' panel *(shown below)* reveals 'Auto Fold' is Inactive (Grey) = Manual boom unfolding & folding.

The Home screen 'Quick Info' panel (dotted outline below) shows 'Auto Fold' (Not Active).





'Fold One', 'Boom Catch', 'Fold Two' & 'Fold Three' rocker switches used for unfolding/folding a 48m Tri-fold boom.

Manually Unfolding a Boom

Manual Boom Unfolding for a 36m or 42m Bi-fold boom uses 'Boom Rest' 'Fold One' & 'Fold Two' rocker switches on the Armrest console *(shown above left)* and Joystick 'Boom Lift' & 'Dual Tilt Up' push buttons *(shown below far right)*.

Manual Boom Unfolding for a 48m Tri-fold boom uses 'Boom Catch' 'Fold One', 'Fold Two' 'Fold Three' rocker switches on the Armrest console *(shown above)* & Joystick Dual Tilt Up' & 'Boom Lift' push buttons *(shown below far right)*.

⚠CAUTION

Booms must be unfolded or folded continuously without stopping & starting during a sequence.

Stopping & starting boom unfolding or folding during a sequence may result in boom damage.

⚠CAUTION

Booms must not be folded or unfolded while the sprayer is moving.

While a boom is moving from fully closed to fully open (& vice versa), greater stresses are placed on many boom components. If the sprayer moves while folding or unfolding the boom, any bumps or uneven travel may result in severe damage to the boom.



Press & hold outwards the 'Boom Rest' switch to move boom rests to their outer position.

To Manually Unfold 36 & 42m Bi-fold Booms:

1 Before unfolding a boom, always check the area aroung the boom is clear of objects and people.

When clear, press & hold outwards the "Boom Rest' switch *(shown above)* to move the boom rest to their outer position, then release the switch.

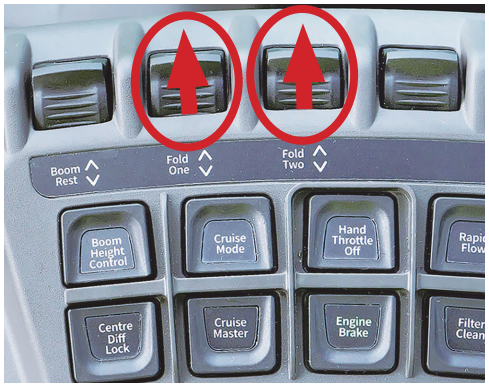
2 Press the Joystick 'Boom Lift' button to fully raise the boom to height.

If required, press the Joystick 'Dual Tilt Up' rocker switch to engage the tilt cylinders and lift the boom ends off the boom rests (approx 5 degree tilt up), then release the switch.

Alternatively, the Joystick 'Tilt L/R' push button can be used to fully raise the boom.

LHS & RHS Boom Catches (36m & 42m) automatically unlock when unfolding the boom (36m LHS shown).





'Press & hold outwards the 'Fold One', then 'Fold Two' switch used for boom to fully unfold the boom.

3 Press & hold outwards the 'Fold One' rocker switch *(shown above)* to fully fold-out the boom inner wing sections until aligned with the boom centre section, then release the switch.

4 Press & hold outwards the 'Fold Two' rocker switch *(shown above)* to fully fold-out the outer boom sections, then release the switch.

5 Press the Joystick 'Boom Lower' push button *(shown below)* to lower the boom to its desired working height, then release the switch. This completes manual boom unfolding of a Bi-fold boom.

Use the Joystick 'Boom Lower' rocker switch to lower the boom to desired working height. 'Boom Lift' may also be used.





Use the Joystick 'Dual Tilt Up' switch to tilt the boom up & 'Boom Lower' to lower the boom to desired working height. The 'Boom Lift' switch may be used to raise the boom.

To Manually Unfold 48m Tri-fold Boom:

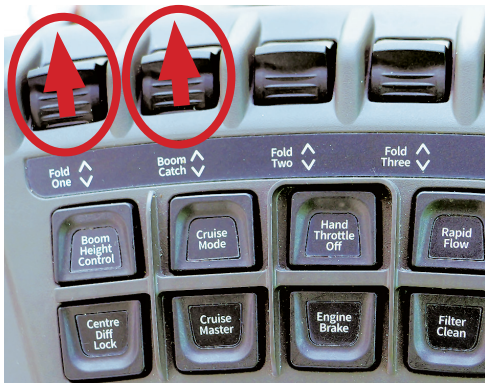
1 Before unfolding a boom, always check the area aroung the boom is clear of objects and people.

When clear, press the Joystick 'Boom Lift' button to fully raise the boom height.

If required, press the Joystick 'Dual Tilt Up' rocker switch *(shown above)* to engage the tilt cylinders and lift the boom ends off the boom rests (approx 5 degree tilt up), then release the switch.

Locked 'Boom Catch' of a 48m boom tri-fold boom.





'Press & hold outwards 'Boom Catch', then 'Fold One' switches to unfold inner boom sections on a 48m Tri-fold

2 Press & hold outwards the "Boom Catch' switch *(shown above)* to fully unlock the boom catches *(photo of boom catch locked shown below left)*, then release the switch.

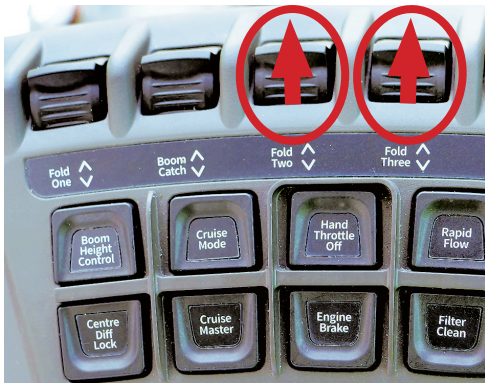
3 Press & hold outwards the 'Fold One' rocker switch *(shown above)* to fully fold-out boom inner wing sections until aligned with the boom centre section, then release the switch.

NOTE

Tri-fold 48m booms encorporate an extra wing section and a 3rd boom rocker ('Fold Three') switch for folding & unfolding.

⚠CAUTION

Boom sequences must be unfolded continuously without stopping and starting during a sequence. Stopping & starting boom unfolding during a sequence may result in damage to the boom.



'Press & hold outwards 'Fold Two', then 'Fold Three' switches to unfold middle & outer boom sections on a 48m Tri-fold

4 Press & hold outwards the 'Fold Two' rocker switch *(shown above)* to fully fold-out middle boom sections, then release the switch.

5 Press & hold outwards the 'Fold Three' rocker switch *(shown above)* to fully fold-out the end boom sections, then release the switch.

6 Press the Joystick 'Boom Lower' push button *(shown top left)* to lower the boom to its desired working height, then release the switch.

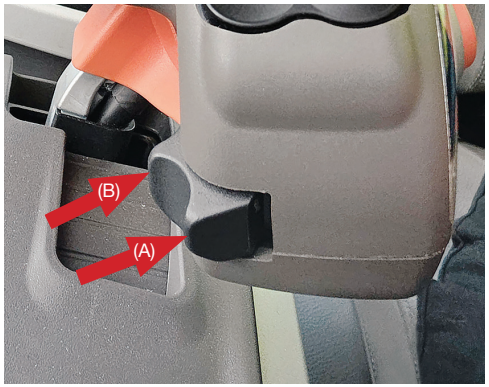
This completes manual boom unfolding of a Tri-fold boom.

⚠CAUTION

Do not release the Boom 'Fold Three' switches until the outer wing sections are fully folded-out or boom stress may occur.



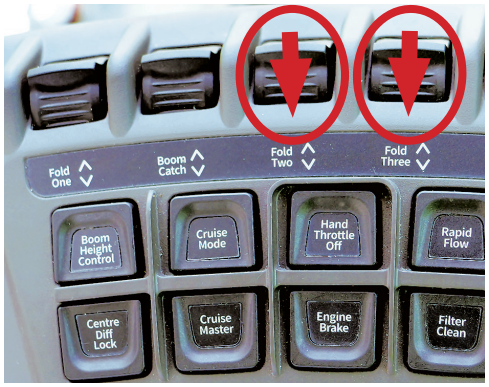
Press & hold the Joystick 'Boom Lift switch to raise the open boom to full mast height, then release the switch.



Use the Joystick 'Dual' Tilt rocker switch to simultaneously tilt boom wings Up (A) or Down (B).



Press & hold outwards the 'Boom Rest' switch to lock boom locks and lower the boom onto the boom rests.



'Press & hold outwards 'Fold Three', then 'Fold Two' switches to fold-in outer & middle boom sections, eg 48m Tri-fold boom.

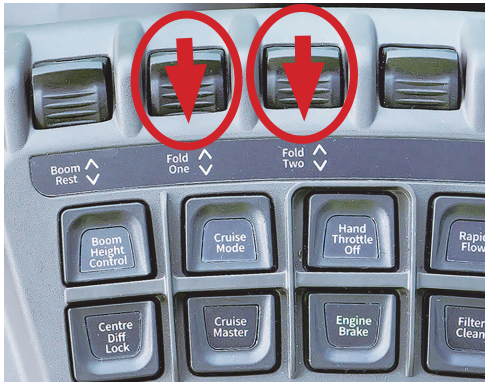
To Manually Fold 36m & 42m Bi-fold Booms:

1 Before folding a boom, always check the area around the boom is clear of objects and people.

When clear, press the Joystick 'Boom Lift' push button *(shown above)* to raise the open boom to full height, then release the switch.

2 Press the Joystick 'Dual Tilt Up' rocker switch *(shown above)* or use the Joystick 'Tilt Up L & R' switches to tilt-up each boom end about 3° to 5°.

'Press & hold outwards the 'Fold Two' switch to fold-in outer wings, then release. Similarily, use the 'Fold One' switch to fully fold inner wings to the boom rests.



3 Press & hold inwards the 'Fold Two' rocker switch *(shown below)* to fully fold-in the outer boom sections, then release the switch.

4 Press & hold inwards the 'Fold One' rocker switch *(shown below)* to fold-in the inner boom wing sections until aligned above the boom rests, then release the switch.

5 If the boom ends are not above the boom rests, press the Joystick 'Dual Tilt Up' rocker switch *(shown above)* or use the Joystick 'Tilt Up L & R' switches to raise boom ends above (to clear) the boom rests, then release the switch.

LHS Boom Rest locked for transport.



After adjusting boom tilt, press & hold inwards the 'Fold One' switch to bring the inner wings in over the boom rests.

6 Carefully use the Joystick 'Boom Lower' switches to ensure the boom is sitting firmly the boom rests.

Carefully use the 'Fold One' inwards switch to firmly close-up inner wings against the vertical stops of the boom rests.

This completes manual boom folding of a Bi-fold boom.

7 If Road travel is required, press & hold inwards the "Boom Rest' push button to bring the wings into legal travel width.

The boom rest outer position allows more room to access the cabin

⚠CAUTION

Booms must not be folded or unfolded while the sprayer is moving.

While a boom is moving from fully closed to fully open (& vice versa), greater stresses are placed on many boom components. If the sprayer moves while folding or unfolding the boom, any bumps or uneven travel may result in severe damage to the boom.

To Manually Fold 48m Tri-fold Boom:

1 Before folding a boom, always check the area around the boom is clear of objects and people.

When clear, press the Joystick 'Boom Lift' push button to raise the open boom to full height, then release the switch.

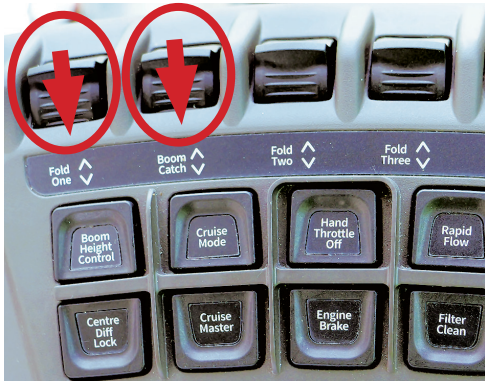
2 Press & hold inwards the 'Fold Three' rocker switch *(shown above)* to fold-in the outer boom sections to the middle boom sections, then release the switch.

3 Press & hold inwards the 'Fold Two' rocker switch *(shown above)* to fold-in the middle boom wing sections to the inner boom sections, then release the switch.

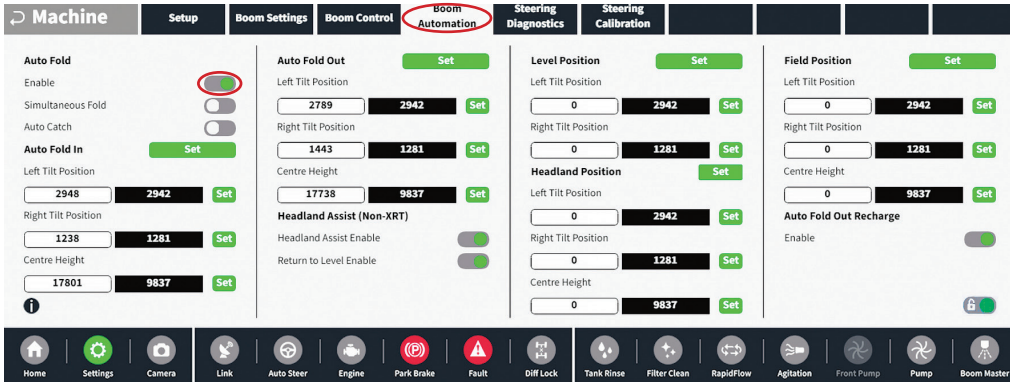
4 Press & hold inwards the 'Fold One' rocker switch *(shown above right)* to fold-in the inner boom wing sections until the wings are aligned above the boom rests, then release the switch.

⚠CAUTION

Do not release the Boom 'Fold Three' switches until the outer wing sections are fully folded-in or boom stress may occur.



'Press & hold inwards 'Fold One', then 'Boom Catch' switches to fold inner sections & lock the catch, eg 48m Tri-fold boom.



Press the 'Auto Fold' touch button to enable the Auto Boom Unfoding/Folding function. Green = Enabled (On).



Press & hold outwards the 'Fold One' switch until the boom fully unfolds automatically, eg 36m or 42m Bi-fold booms.

5 If the boom ends are not above the boom rests, press the Joystick 'Tilt Up L & R' switches to raise boom ends above (to clear) boom rests, then release the switch.

Press & hold inwards the 'Fold One' switch to bring the inner wings in over the boom rests.

6 Press & hold inwards the "Boom Catch' switch *(shown above)* to lock down the LHS & RHS boom catches.

7 Carefully use the Joystick 'Boom Lower' switches to ensure the boom is sitting firmly the boom rests.

Carefully use the 'Fold One' inwards switch to firm up inner wings against the vertical stops of the boom rests.

This completes manual boom folding of a Tri-fold boom.

⚠CAUTION

Booms must be unfolded or folded continuously without stopping & starting during a sequence.

Stopping & starting boom unfolding or folding during a sequence may result in boom damage.

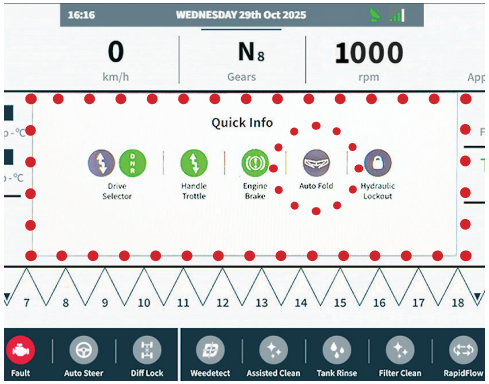
Auto Boom Unfolding/Folding

Auto Boom Unfolding/Folding on a 36m or 42m Bi-fold boom uses the 'Fold One' rocker switch on the Armrest console.

Auto Boom Unfolding/Folding on a 48m Tri-fold boom uses the 'Fold One' rocker switch on the Armrest console *(shown above right)*.

Before Unfolding or Folding the boom, it's recommended to press the 'Quick Info' push button (on the Armrest Console described earlier in this chapter) to instantly check the 'Auto Fold' boom setting status.

The Home screen 'Quick Info' panel (dotted outline below) shows 'Auto Fold' (Not Active).



To fold a boom automatically, the Auto Fold symbol on the 'Quick Info' screen must be Green.

If not, press the 'Settings' touch button on the home screen and go to the 'Boom Automation' settings screen *(shown above)*.

Press the 'Auto Fold' Enable touch button to 'Enabled' which is Green when Enabled (On).

To use 'Auto Fold', the boom must be 'Auto Fold' calibrated. Refer to Chapter 7 Boom Settings for calibration instructions.

The Boom 'Auto Fold' is factory pre-set and tested for spraying applications at Goldacres prior to delivery.

However, any boom fold sensor damage or hydraulic hose failure will require Auto Fold settings to be recalibrated.

It is recommended all settings and operation be checked and tested for accuracy prior to spraying applications.

It is the operator's responsibility to correctly operate all controller and sprayer functions at all times.

Before unfolding a boom, always check the area aroung the boom is clear of objects & people.

To Automatically Unfold 36m & 42m Bi-Fold Booms:

1 With the boom fully folded, press & hold outwards the "Boom Rest' push button *(shown above)* to move the boom rests to outer position, then release the switch.

2 Press & hold outwards the 'Fold One' rocker switch *(shown above)*. The Boom will lift fully out of the boom rests, then, stage 1 and stage 2 booms sections will unfold fully.

Do not release the 'Fold One' rocker switch until the boom is fully unfolded. The boom automatically unfolds according to its calibrated (pre-set) values.

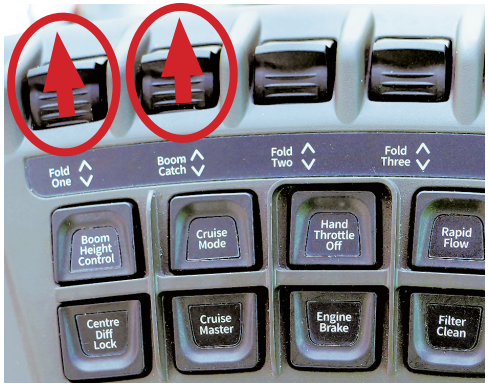
3 Lower boom to desired height manually using joystick 'Boom Lower' button to position the boom as required or engage XRT (if fitted).

This completes automatic unfolding for 36m or 42m Bi-fold booms.

⚠CAUTION

Booms must not be folded or unfolded while the sprayer is moving.

While a boom is moving from fully closed to fully open (& vice versa), greater stresses are placed on many boom components. If the sprayer moves while folding or unfolding the boom, any bumps or uneven travel may result in severe damage to the boom.



Press & hold outwards the 'Fold One' switch until the boom fully unfolds automatically, eg 48m Tri-fold boom.

To Automatically Unfold 48m Tri-Fold Boom:

1 If set to manual, press & hold the Boom Catch push button *(shown above)* to release before unfolding. (If set to automatic 'Fold One' push button releases the catch).

2 With the boom fully folded, press & hold outwards the 'Fold One' rocker switch *(shown above)*. The Boom will lift fully out of the boom rests, then, stage 1 and stage 2 boom sections will unfold fully. Stage 3 will fold out with stage 1 & 2 if set to 'simultaneous fold'. If not then stage 3 will fold out after stage 1 & 2.

   Do not release the 'Fold One' rocker switch until the boom is fully unfolded. The boom automatically unfolds according to its calibrated (pre-set) values.

3 Lower boom to desired height manually using joystick 'Boom Lower' button to position the boom as required or engage XRT (if fitted).

   This completes automatic unfolding for the 48m Tri-fold boom.

NOTE

If XRT is fitted, the XRT is automatically disabled when the boom is folded,



Press & hold inwards the 'Fold One' switch until the boom fully folds automatically, eg 36m or 42m Bi-fold booms.

To Automatically Fold 36m & 42m Bi-Fold Booms:

1 With the boom fully unfolded, press & hold inwards the 'Fold One' rocker switch *(shown above)*. The boom will lift to full height, then the boom wing tilts will level to pre-calibrated positions & boom sections stage 1 & stage 2 will fold fully In. The boom will lower into boom rest and stop at its pre-calibrated position

   Do not release the 'Fold One' rocker switch until the boom is fully folded,

   With Auto Fold, the boom automatically folds according to its calibrated (pre-set) values.

2 When the boom automatically lowers into the boom rests, release the switch.

   This completes automatic boom folding for 36m & 42m Bi-fold booms.

⚠CAUTION

Booms must be unfolded or folded continuously without stopping & starting during its automatic sequence.
Stopping & starting boom unfolding or folding during its sequence may result in boom damage.



Press & hold inwards the 'Fold One' switch until the boom fully folds automatically, eg 48m Tri-fold boom.

To Automatically Fold 48m Tri-Fold Boom:

1 Before unfolding a boom, always check the area aroung the boom is clear of objects & people.

   With the boom fully unfolded, press & hold inwards the 'Fold One' rocker switch *(shown above)*. The boom will lift to full height, then the boom wing tilts will level to pre-calibrated positions and boom wing tilts will level to pre-calibrated positions & booms stage 3 will fold In on its own (If boom is set to 'Simultaneous Fold' mode, stage 3 will fold with stages 1 & 2 automatically) & boom stage 1 & 2 will fold fully In. The boom will lower onto boom rest and stop at pre-calibrated position.

   The boom catch must be closed manually, if set to manual, press 'Boom Catch' *(shown above)* to close the catch (If set to automatic it closes after auto fold).

   Do not release the 'Fold One' rocker switch until the boom is fully folded and resting in the boom rests.

2 When the boom automatically lowers into the boom rests, release the switch.

   This completes automatic boom folding for the 48m Tri-fold boom.

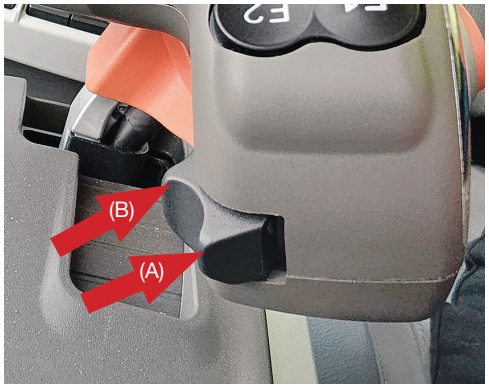


Cabin Joystick.

Joystick Boom Controls

Boom push buttons & a rocker switch on the cabin Joystick provide the following boom functions:

- Dual Tilt (rocker switch) - left & right boom wings tilt simultaneously
- Individual Boom Tilts - L Up/Down & R Up/Down
- Boom Lift/Lower
- Fence Nozzle L/R
- Boom Master On/Off.



Use the Joystick 'Dual Tilt' rocker switch to simultaneously tilt boom wings Up (A) or Down (B).

Dual Tilting Both Wings

The 'Dual Tilt' rocker switch (on the front RH corner of the Joystick *(shown above)* is used to raise or lower the tilt of both LHS & RHS boom wings simultaneously - during spraying operations & when manually unfolding & folding the boom.

To Dual Tilt-Up Both Boom Wings:

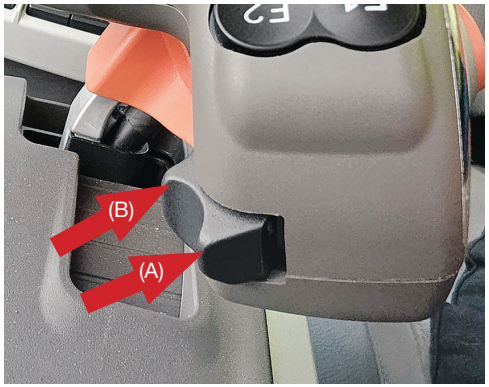
1 Press & hold the front end of the 'Dual Tilt Up/Down' rocker switch *(arrow (A) shown above)* to raise the tilt of both boom wings simultaneously.

2 Release the rocker switch to hold the wings in the desired raised position.

To Dual Tilt-Down Both Boom Wings:

1 Press & hold the rear end of the 'Dual Tilt Up/Down' rocker switch *(arrow (B) shown above)* to lower the tilt of both boom wings simultaneously.

2 Release the rocker switch to hold the wings in the desired raised position.



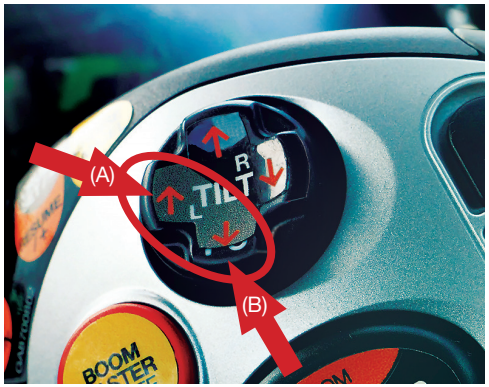
Use the Joystick 'Dual Tilt' rocker switch 2nd stage function to simultaneously tilt boom wings for contour banks.

Dual Tilt 2nd Stage Function

The Dual Tilt rocker switch has a 2nd function for contour bank applications:

- Press & hold the rocker switch front end (*(arrow (A) shown above)* to raise the LHS boom wing while simultaneously lowering the RHS boom wing.
- Press & hold the rocker switch rear end *(arrow (B) shown above)* to raise the RHS boom wing while simultaneously lowering the LHS boom wing.

This 2nd function tilt is enabled or disabled in the G-Hub settings. Refer to instruction in Chapter 4 Setting Up - under '5 Boom Control'.



Press & hold the 'Tilt L Up' edge (A) of the push button to tilt up the LHS boom wing & 'Tilt L Down' edge (B) of the push button to tilt down the LHS boom wing.

Individual Wing Tilting

The 'Tilt - L Up/Down' & 'Tilt R Up/Down' push button *(shown above)* is used to individually raise or lower the tilt of LHS & RHS boom wings individually - to more closely follow ground contours.

Boom wings pivot on the boom centre section and when the left or right boom wings are raised or lowered - the outer end of the wing moves furthest.

To Tilt Up the LHS Boom Wing:

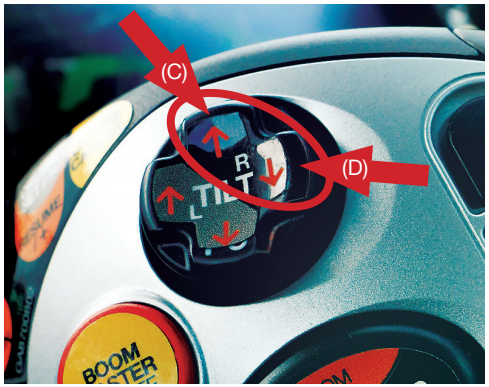
1 Press & hold the 'Tilt L Up' edge of the push button *(arrow (A) shown above)* to raise the tilt of LHS boom wing.

2 Release the push button when desired tilt is achieved.

To Tilt Down the LHS Boom Wing:

1 Press & hold the 'Tilt L Arrow Down' edge of the push button *(arrow (B) shown above))* to lower the tilt of LHS boom wing.

2 Release the push button when desired tilt is achieved.



Press & hold the 'Tilt R Up' edge (C) of the push button to tilt up the RHS boom wing & 'Tilt R Down' edge (D) of the push button to tilt down the RHS boom wing.

To Tilt Up the RHS Boom Wing:

1 Press & hold the 'Tilt R Up' edge of the push button *(arrow (C) shown above)* to raise the tilt of RHS boom wing.

2 Release the push button when desired tilt is achieved.

To Tilt Down the RHS Boom Wing:

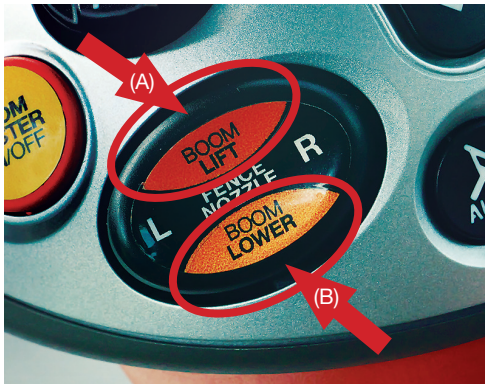
1 Press & hold the 'Tilt R Arrow Down' edge of the push button *(arrow (D) shown above)* to lower the tilt of RHS boom wing.

2 Release the push button when desired tilt is achieved.

Individual Tilt 2nd Stage Function

Individual Tilt push switches provide a 2nd Stage function for contour following:

- Press & hold the 'Tilt R Up' edge of the push button *(arrow (C) shown above)* to the 2nd click to simultaneously raise the to lower tilt of both LHS & RHS boom wings.
- Press & hold the 'Tilt L Down' edge of the push button *(arrow (D) shown above)* to the 2nd click to simultaneously lower tilt of both LHS & RHS boom wings.



Press & hold the 'Boom Lift' edge of the push button to raise the boom. Press & hold the 'Boom Lower' edge to lower the boom.

Boom Lift/Lower

The 'Boom Lift'/'Boom Lower' push button is used to raise or lower the height of the boom.

To Raise the Boom:

1 Press & hold the 'Boom Lift' edge of the push button *(arrow (A) shown above)* to raise the boom to a desired level.

2 Release the push button to hold the desired boom level.

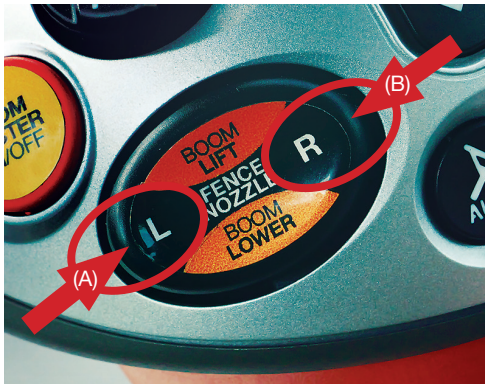
To Lower the Boom:

1 Press & hold the 'Boom Lower' edge of the push button *(arrow (B) shown above)* to Lower the boom to a desired level.

2 Release the push button to hold the desired boom level.

NOTE

The pump must be running for nozzles to spray.
Refer to the instructions on engaging & disengaging the pump.



Use the 'Fenceline L/R' push button to switch Fenceline nozzles On & Off as required.

Fenceline Nozzles

The Fence Nozzle L/R push button is used to individually switch On or Off the LHS & RHS Fenceline Nozzles.

To Switch On/Off the LHS Fence Nozzle:

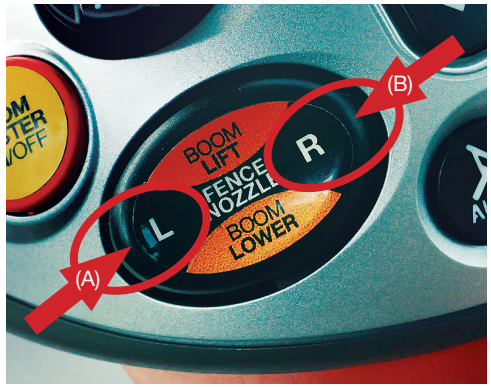
1 Press the 'Fence Nozzle L' end push button *(arrow (A) shown above)* to Start spraying from the LHS fenceline nozzle.

When spraying, a Green LED light on the LHS boom tip illuminates & the G-Hub main screen fenceline emblem illuminates Green.

2 Press the 'Fence Nozzle L' end push button to Stop spraying from the LHS fenceline nozzle.

NOTE

Boom Section 1 must be On and spraying for the left hand Fenceline nozzle to operate.



Use the 'Fenceline L/R' push button to switch Fenceline nozzles On & Off as required.

To Switch On/Off the RHS Fence Nozzle:

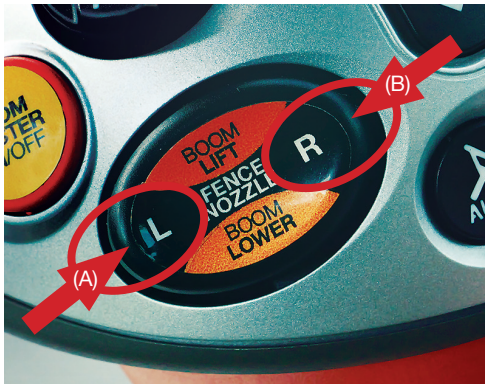
1 Press the 'Fence Nozzle R' end push button *(arrow (B) shown above)* to Start spraying from the RHS fenceline nozzle.

When spraying, a Green LED light on the LHS boom tip illuminates & the G-Hub main screen fenceline emblem illuminates Green.

2 Press the 'Fence Nozzle R' end push button to Stop spraying from the RHS fenceline nozzle.

NOTE

Boom Section 24 must be On and spraying for the right hand Fenceline nozzle to operate.



Use the 'Fenceline L/R' push button to switch Fenceline nozzles On & Off as required.

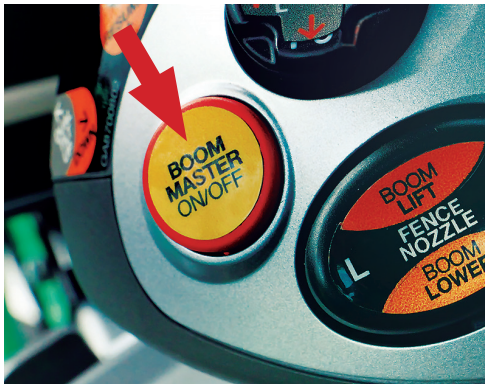
Fenceline Nozzle L/R 2nd Stage Function

The Fence Nozzle L/R push buttons provide a 2nd Stage function (overriding standard requirement for the end section to spray) which can be used for testing cleaning &/or spraying with fenceline nozzles only:

- Press & hold the 'Fence Nozzle L' end of the push button *(arrow (A) shown above)* to the 2nd click to spray from the LHS fenceline nozzle only
- Press & hold the 'Fence Nozzle R' end of the push button *(arrow (B) shown above)* to the 2nd click to spray from the RHS fenceline nozzle only.

Hold the 2nd stage Fence Nozzle L/R push buttons for One second to lock them On.

Press the Boom Master On/Off push button to stop them spraying.



Use the 'Boom Master On/Off' push button to switch boom spraying On & Off as required.

Boom Master On/Off

The Boom Master On/Off push button switches boom spraying On or Off.

To Switch Boom Spraying On/Off:

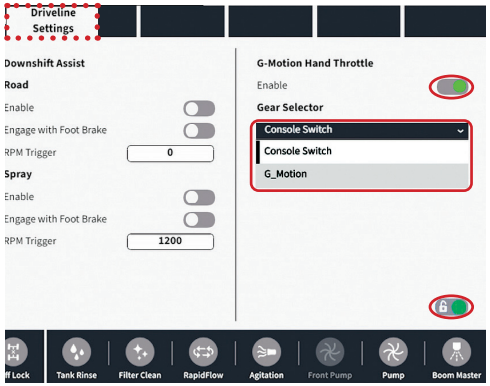
1 Press to 'Boom Master On/Off' push button to Start boom spraying.

2 Press to 'Boom Master On/Off' push button to Stop boom spraying.

Boom Master 2nd Stage Function Overide Function

The Boom Master push button provide a 2nd Stage function for overiding GPS section control:

- Press & hold the Boom Master push button (for 2 sec) for 15 seconds of boom section spraying overide
- Press & hold both 'Function' & 'Boom Master' push buttons (for 2 sec) for continuous boom section spraying overide, until pressed again.



The 'Driveline Settings' screen allows the 'G-Motion Hand Throttle' to be Enabled or Disabled'. Enabled is default setting.

Joystick as Hand Throttle

In addition to the Foot throttle engine speed control, the Crop Cruiser enables the Joystick to be used as a Hand Throttle.

The Joystick (hand throttle) is active by default settings as it complements the Foot throttle.

The Joystick (hand throttle) can be used when in Neutral, Forward or Reverse (similar to the Foot throttle) and in conjunction with the Foot throttle.

With the Foot throttle used in conjunction with the Joystick (hand throttle active) - which ever has the highest setting controls Engine RPM.

To Use the Joystick (Hand Throttle):

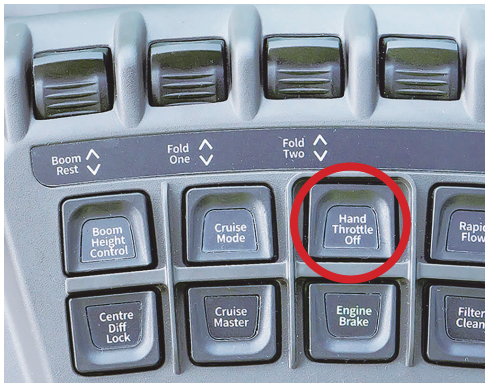
1 With Crop Cruiser engine running, check:
- 'G-Motion Hand Throttle' is enabled &
- 'Gear Selector' status - displayed on

the Home screen (using 'Quick Info').

2 Release the Park brake while pressing the foot brake.

3 If using the console D-N-R switch, first select the direction of travel with the D-N-R switch - otherwise proceed to step 4.

4 Pull the Joystick (hand throttle) back towards the operator into 'Neutral Gate' position to arm (activate) the Hand Throttle.



'Hand Throttle Off' push button cancels the Joystick Hand Throttle.

4 Push the Joystick (hand throttle) Forward to increase engine RPM & release the foot brake.

The default maximum engine RPM when the hand throttle is fully forward is 2500 RPM.

When in Reverse, pull the Joystick rearward to increase engine speed.

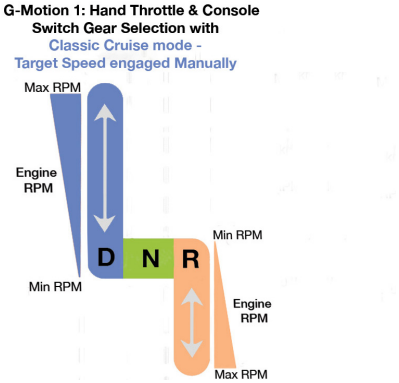
5 To reduce engine speed, bring the Hand Throttle back towards the 'Neutral Gate' position.

6 Pressing the Joystick 'Cruise Cancel' push button will pause the hand throttle.

To Cancel the Hand Throttle

Use any of the following:

- Bring the Joystick (hand throttle) back into the Neutral Gate
- Press the foot brake
- Use the foot throttle for a continuous 30 second period.
- Press the Armrest console 'Hand Throttle Off' push button *(shown above)*.
- Press the 'G-Motion Hand Throttle' 'Enable' push button *(Enabled shown above left)* to change the G-Hub setting to Grey (disabled) in the 'Driveline Settings' screen.



G-Motion 1: Console Switch (D-N-R) controls gear selection & Joystick controls Engine RPM with Classic Cruise mode.

Cruise Control

The Goldacres Joystick & G-Hub control system provides three Cruise Control modes:

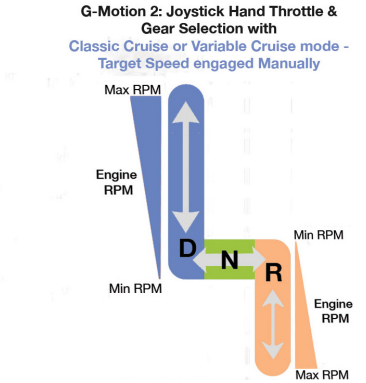
1) Classic Cruise
2) Variable Cruise
3) Variable Cruise Plus.

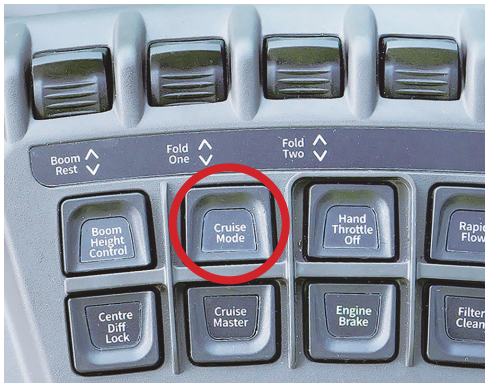
Cruise Control modes are settings in the G-Hub 'Driveline' 'Cruise Settings' screen *(shown top LHS).* Refer to Chapter 4 Setting Up.

The G-Motion Hand Throttle' 'Enable' push button must be 'Enabled' (Green) in the 'Driveline Settings' screen.

Only one 'Cruise Control' mode can be selected & used at any given time.

G-Motion 2: G_Motion Joystick controls gear selection & Engine RPM with Classic or Variable Cruise mode.





The Armrest console 'Cruise Mode' push button used to select a cruise control mode.

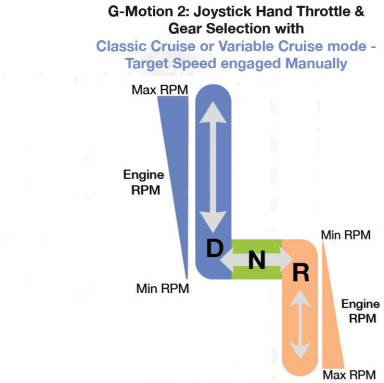
The operator can change the Cruise Mode by pressing the Armrest console 'Cruise Mode' push button *(shown below)* - which cycles to the next cruise mode setting with each press.

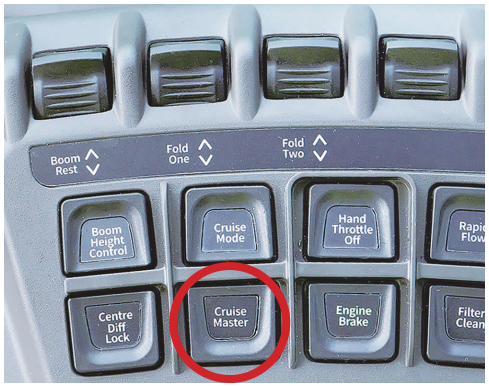
The default Cruise setting at each Start-Up will be the last setting used prior to Shut-Down.

When enabled, the Joystick is used as a Hand Throttle in all Cruise modes.

When either Variable or Variable Plus Cruise mode is active, the Joystick is used as a slider to set cruise mode Target speed.

G-Motion 2: G_Motion Joystick controls gear selection & Engine RPM with Variable Plus Cruise mode.





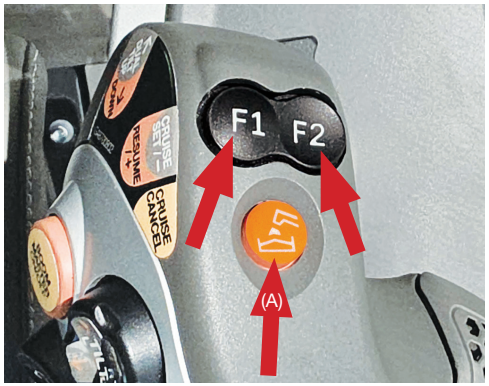
The Cruise Master push button engages & disengages cruise control.

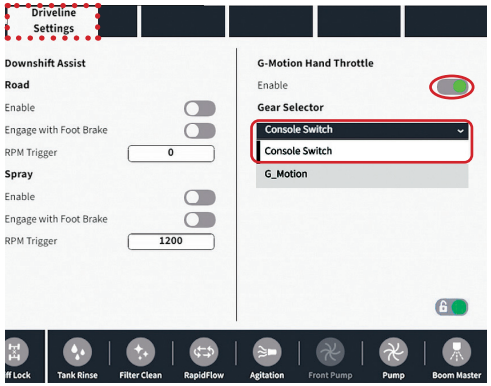
The Armrest console 'Cruise Master' push button *(shown above)* is used to engage & disable the Cruise Control as required.

Joystick push buttons used with G-Hub Cruise Control modes are:

- Joystick Cruise Set/Decrease *(shown below)*
- Joystick Cruise Resume/Increase *(shown below)*
- Joystick Cruise Cancel *(shown below)*.

Use the Joystick 'Cruise Set/-' (F2) & 'Cruise Resume/+' (F1) push buttons to Set/Decrease & Resume/Increase Cruise target speeds. Use Cruise Cancel (arrow A) to cancel Cruise.





The Classic Cruise instruction the follows uses 'G-Motion Hand Throttle' Enabled & 'Gear Selector' set to 'Console Switch'.

1 Classic Cruise

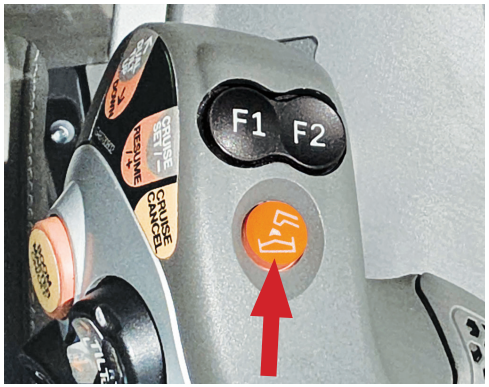
Classic Cruise control uses a set Target speed and in the instruction that follows, the transmission is engaged using the D-N-R Drive switch on the Armrest console.

The 'G-Motion' 'Gear Selector' option may also be used with Classic Cruise.

The operator sets the target speed and the Crop Cruiser will accelerate toward & maintain the target speed while in cruise mode.

In Classic Cruise, the operator uses the Joystick:

- To Accelerate by moving the Joystick forward or by using the foot throttle
- 'Cruise Set/-' push button (to Set/ Engage cruise control & Decrease target speed)
- 'Cruise Resume/+' push button (to Resume cruise control & Increase target speed)
- 'Cruise Cancel' push button (to cancel cruise control)
- To Decelerate (cancel cruise control) move the Joystick toward Neutral Gate.



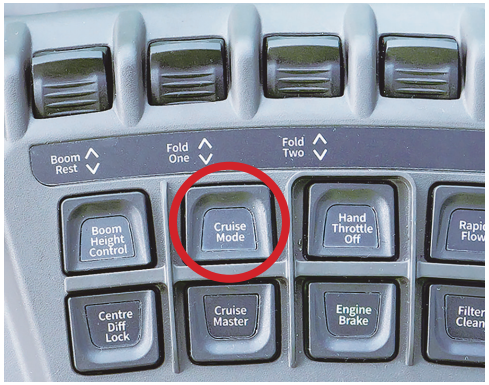
Press the 'Cruise Cancel' push button to cancel cruise mode.

Cruise control is cancelled by:

- Pressing the Joystick 'Cruise Cancel' push button *(shown above)*,
- Pressing the Armrest console 'Cruise Master' push button *(shown top LHS)* or
- Using the foot brake *(shown below)*.

Applying the Foot Brake cancels Cruise Control.





Press the Armrest console 'Cruise Mode' push button to select Classic Cruise'.

Driving in Classic Cruise Mode

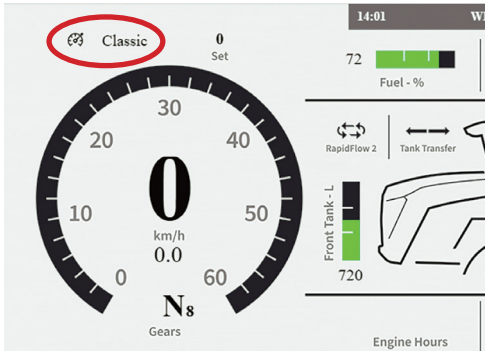
To drive the Crop Cruiser using 'Classic Cruise' mode & Console (D-N-R) Switch:

1 First press the 'Quick Info' push button on the Armrest Console to instantly review machine settings on the Home screen.

2 If necessary, press the Armrest console 'Cruise Mode' push button *(shown above)* to select 'Classic Cruise'.

The selected the cruise mode shows in the top LHS of the G-Hub main screen *(shown below)*.

'Classic Cruise' mode shows on the G-Hub Home screen.





To disengage the Park Brake - press the near end of the rocker switch downward (Off position).

3 Depress the Foot Brake pedal.

4 Release the Park brake *(shown above)*.

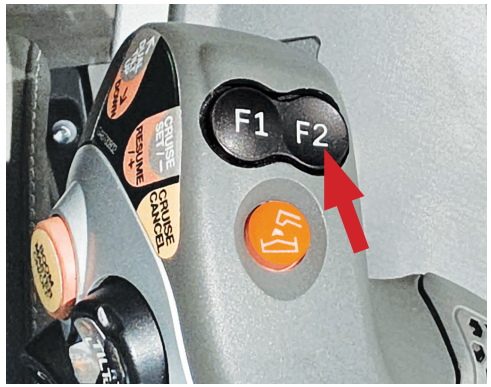
5 Used the D-N-R switch to drive Forward or Reverse *(shown below)*.

6 In forward Drive, move the Joystick (hand throttle) or foot throttle to increase engine speed & drive forward.

As the Crop Cruiser speed increases, the transmission will automatically shift up gears.

Press Down the 'D' end of the 'D-N-R' rocker switch to drive forward (as set in this example).





Press the Joystick 'Cruise Set/-' (F2) push button to engage & set the Classic Cruise target speed.

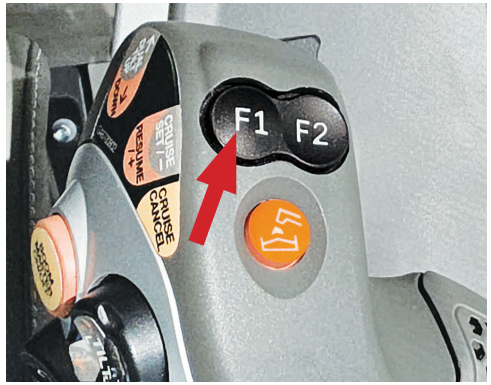
7 Use the Joystick 'Cruise Set' push button *(shown above)* to engage Classic Cruise & set the cruise mode target speed.

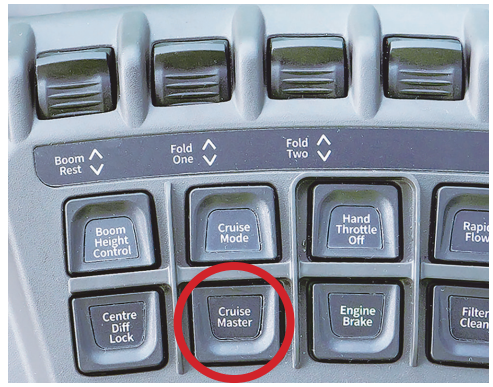
If the operator's hand is removed from the Joystick (hand throttle), the Crop Cruiser will hold its position as Classic Cruise functions maintain its speed (within operating pre-sets).

8 Press the 'Cruise Set/-' push button to Decrease target speed *(shown above)*.

9 Press the 'Cruise Resume/+' push button *(shown below)* to Increase target speed.

Press the Joystick Cruise Resume/+' (F1) push button to increase cruise mode target speed.





The Cruise Master push button engages & disengages cruise control.

10 The Brake pedal can be depressed at any time to reduce speed or decelerate the Crop Cruiser.

Use of the Brake pedal will cancel the Classic Cruise mode. When cruise mode is cancelled the Joystick Throttle & or foot throttle resume control of engine speed.

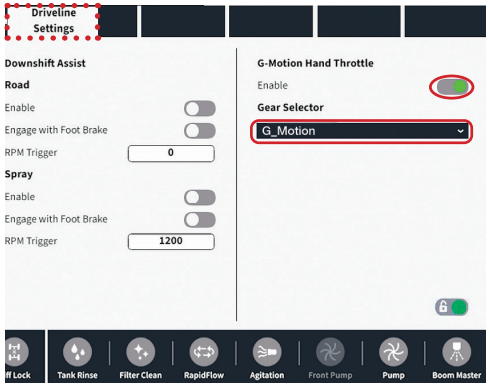
11 If required, use the Joystick 'Cruise Resume' push button *(shown below left)* or the Armrest control 'Cruise Master' push button *(shown above)* to re-engage cruise control.

12 To stop the Crop Cruiser, cancel the cruise mode with the Brake pedal, then pull the Joystick (hand throttle) back toward the Neutral.

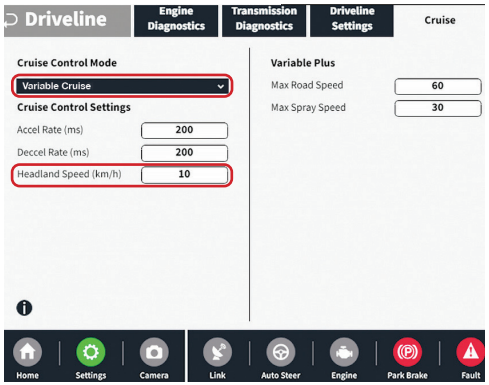
Engine braking when enabled affectively assists braking as the Joystick (hand throttle) reduces engine RPM.

12 Depress the Brake pedal until stopped, then press the D-N-R drive switch back to Neutral to disengage drive gears.

13 Engage the Park Brake *(shown right)*.



The Variable Cruise instructions following use 'G-Motion Hand Throttle' Enabled & 'Gear Selector' set to 'G_Motion'.



'Variable Cruise' mode & set Low speed in the G-Hub settings screen. Settings show on the Home screen (see below).

2 Variable Cruise

Variable Cruise control uses a set target speed which is engaged and set by the operator using Joystick and/or Armrest console push buttons.

Low speed is pre-set in the 'Headland Speed (km/hr)' touch button in the G-Hub 'Cruise' settings screen.

The Variable cruise instructions following use 'G-Motion Hand Throttle' setting 'Enabled' & 'Gear Selector' setting 'G_Motion' *(shown above).*

Engage the Park Brake by sliding the orange lock toward the seat, then press the rocker switch down.



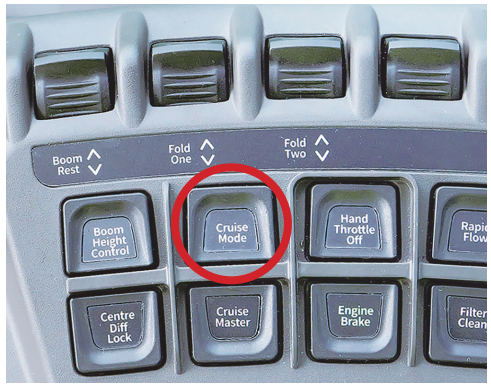
The operator must set cruise control and its target speed, then the Crop Cruiser will accelerate toward & maintain the target speed while in cruise mode.

For Variable Cruise (using G-Motion), the operator uses the Joystick:

- To Select Forward (move joystick left out of the Neutral gate = forward gears
- To Accelerate (move the Joystick forwards) or use the foot throttle
- 'Cruise Set/-' push button (to Set/ Engage cruise control & Decrease target speed)
- 'Cruise Resume/+' push button (to Resume cruise control & Increase target speed)
- 'Cruise Cancel' push button (to cancel cruise control)
- To Decelerate (cancel cruise control) move the Joystick toward Neutral Gate.

Cruise control is cancelled by:

- Pressing the Joystick 'Cruise Cancel' push button,
- Pressing the Armrest console 'Cruise Master' push button or
- Using the foot brake.



Press the Armrest console 'Cruise Mode' push button to select 'Variable Cruise'.

Driving in Variable Cruise Mode

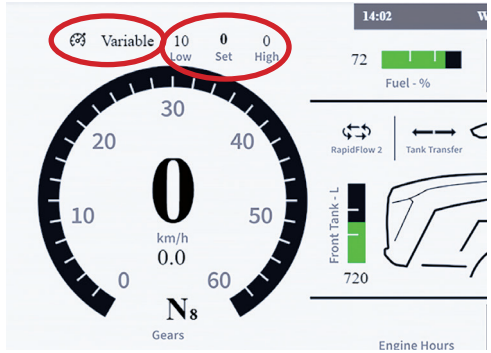
To drive the Crop Cruiser using using G-Motion & 'Variable Cruise' mode:

1 First press the 'Quick Info' push button on the Armrest Console to instantly review machine settings on the Home screen.

2 If required, press the Armrest console 'Cruise Mode' push button *(shown above)* to select 'Variable Cruise'.

The selected the cruise mode shows in the top LHS of the G-Hub main screen *(shown below)*.

'Variable Cruise' mode & set target speeds settings display on the G-Hub Home screen.





To disengage the Park Brake - press the near end of the rocker switch downward (Off position).

3 Ensure the Low speed is pre-set using the 'Headland Speed (km/Hr)' touch button *(shown top LHS)* in the G-Hub settings screen and displays in the Home screen *(shown below left)*.

4 Depress the Foot Brake pedal.

5 Release the Park brake *(shown above)*.

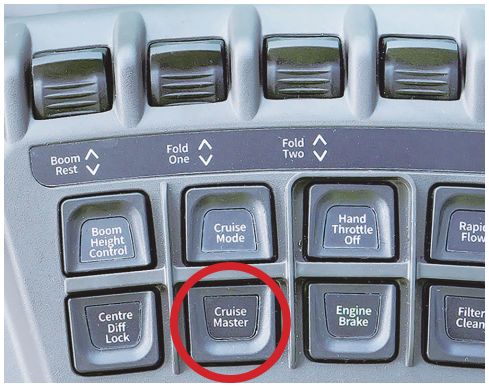
6 Move the Joystick left into Forward gear, then use the Joystick (hand throttle) or foot throttle to increase engine speed driving forward.

As the Crop Cruiser speed increases, the transmission automatically shifts up gears.

7 Use the Joystick 'Cruise Set' push button to engage Variable Cruise & set the cruise mode target speed or the Armrest console 'Cruise Master' push button.

When Cruise Control is engaged, the Joystick becomes a Cruise Speed Slider to alter the target speed by moving the Joystick forwards or backwards.

If the operator's hand is removed from the Joystick (Cruise Speed Slider), the Crop Cruiser holds its position as Variable Cruise functions maintains speed (within operating pre-sets).



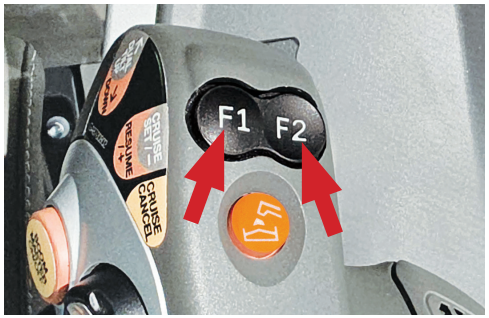
The Cruise Master push button engages & disengages cruise control.

8 Cruise control Target speed is adjusted using the:

- Joystick (Cruise Speed Slider) - move the Joystick forwards or backwards to change/set cruise Target speed.

  Moving the Joystick (Cruise Speed Slider) forward increases set Target speed and conversely, backwards decreases set target speed.
- To reduce speed to 'Headland' speed, pull joystick back close to 'Neutral' to achieve pre-set 'Headland' speed
- 'Cruise Resume/+' push button (F1) to Increase target speed
- 'Cruise Set/-' push button (F2) to Decrease target speed.

Cruise Resume/Increase push button (F2) and Cruise Set/ Decrease push button (F1).





Engage the Park Brake by sliding the orange lock toward the seat, then press the rocker switch down.

9 Cruise control is cancelled by using the:

- Joystick 'Cruise Cancel' push button,
- Armrest console 'Cruise Master' push button *(shown above)* or
- Foot brake.

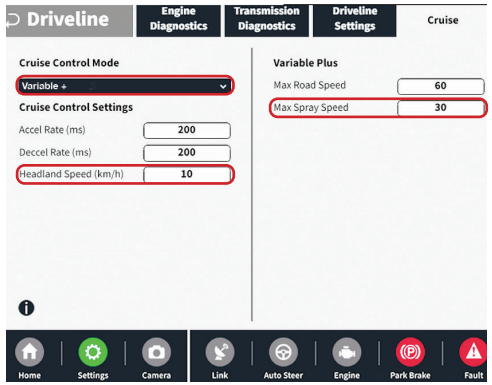
When cruise control is cancelled, speed control returns to the Joystick (hand throttle) & foot thottle

10 To stop the Crop Cruiser, cancel the cruise mode with the Brake pedal, Joystick 'Cruise Cancel' push button or Armrest console 'Cruise Master' push button, then bring the Joystick (hand throttle) back toward the Neutral.

Engine braking when enabled affectively assists braking as the Joystick (hand throttle) reduces engine RPM.

11 Depress the Brake pedal until stopped and move the Joystick into Neutral gate to disengage drive.

12 Engage the Park Brake *(shown above)*.



'Variable Plus' cruise mode & set Low speed in the G-Hub settings screen. Settings show on the Home screen (see below).

3 Variable Cruise Plus

Variable Cruise Plus has the same functional controls as 'Variable Cruise' mode.

Variable Cruise Plus automatically engages Cruise control when speed conditions are met, then the Crop Cruiser will accelerate toward & maintain the Target speed while in cruise mode.

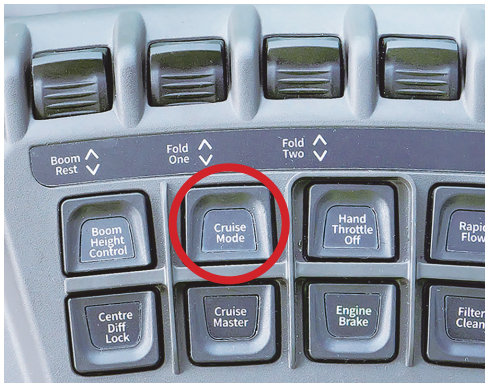
When Cruise Control is engaged, the Joystick becomes a Cruise Speed Slider to alter the target speed - by moving the Joystick forwards or backwards.

When slowing down below the set Cruise Low speed limit, cruise control is automatically paused and the Joystick (hand throttle) &/or foot throttle resume control.

Driving in Variable Cruise Plus Mode

To drive the Crop Cruiser using 'Variable Cruise Plus' mode:

1 First press the 'Quick Info' push button on the Armrest Console to instantly review machine settings on the Home screen.



Press the Armrest console 'Cruise Mode' push button to select 'Variable Plus' cruise mode.

2 If required, press the Armrest console 'Cruise Mode' push button *(shown above)* to select 'Variable Cruise Plus'.

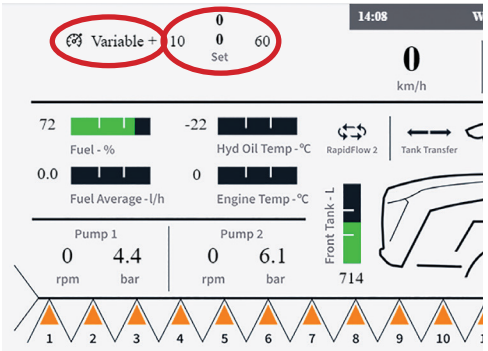
The selected the cruise mode shows in the top LHS of the G-Hub main screen *(shown below)*.

3 Ensure the Lower speed 'Headland Speed (Km/hr)' & Max Spray Speed are pre-set.

4 Depress the Foot Brake pedal.

5 Release the Park brake *(shown above right)*.

'Variable Plus' cruise mode & & set target speed settings display on the G-Hub Home screen.





To disengage the Park Brake - press the near end of the rocker switch downward (Off position).

6 Move the Joystick left into Forward gear, then use the Joystick (hand throttle) or foot throttle to increase engine speed driving forward.

As the Crop Cruiser speed increases, the transmission automatically shifts up gears.

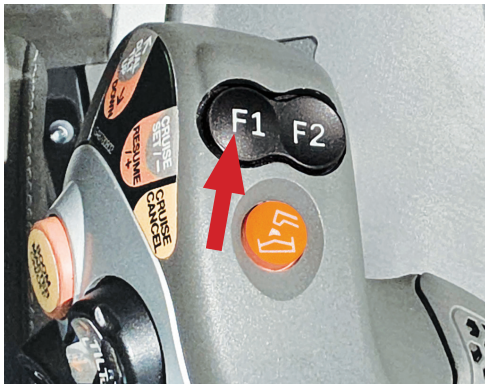
7 Variable Cruise Plus Cruise automatically engages cruise control within its operating pre-sets.

When Cruise Control is engaged, the Joystick becomes a Cruise Speed Slider to alter the target speed by moving the Joystick forwards or backwards.

If the operator's hand is removed from the Joystick (Cruise Speed Slider), the Crop Cruiser holds its position as Variable Cruise functions maintains speed (within operating pre-sets).

NOTE

Setting a value in the ' Max Spray Speed' of the G-Hub Driveline, Cruise setting screen is not necessary as the 'Joystick Speed Slider' give infinite variable control of the cruise Target speed.



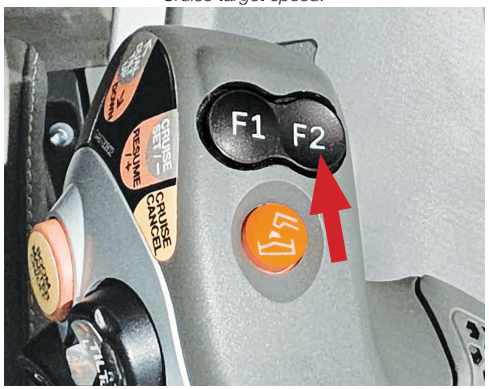
Press the Joystick Cruise Resume/+' push button to increase Cruise target speed.

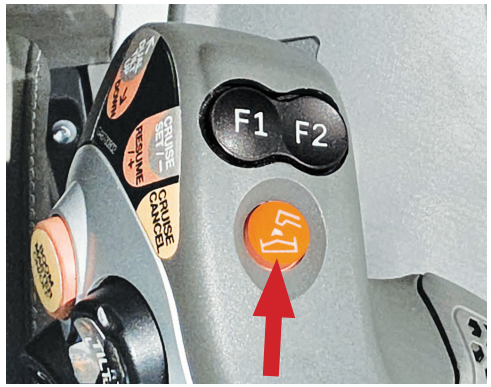
8 Cruise control Target speed is adjusted using the:

- Joystick (Cruise Speed Slider) - move the Joystick forwards or backwards to change/set cruise Target speed.

  Moving the Joystick (Cruise Speed Slider) forward increases set Target speed and conversely, backwards decreases set Target speed.
- 'Cruise Resume/+' push button (F1) to Increase target speed *(shown above)*
- 'Cruise Set/-' push button (F2) to Decrease target speed *(shown below)*

Press the Joystick 'Cruise Set/-' push button to decrease Cruise target speed.





Press the 'Cruise Cancel' push button to cancel cruise mode.

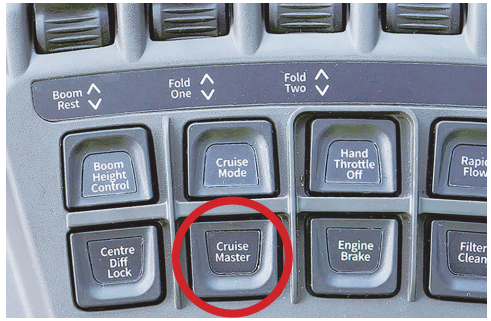
- To change speed from 'Max Spray Speed' to "headland Speed', double press 'Cruise Set/-' push button
- To change speed from 'headland Speed' to 'Max Spray Speed' double press 'Cruise Resume/+' push button

9 Cruise control is cancelled by using the:

- Joystick 'Cruise Cancel' push button *(shown above)*,
- Armrest console 'Cruise Master' push button *(shown above)* or
- Foot brake.

  When cruise control is cancelled, speed control returns to the Joystick (hand throttle) & foot thottle

The Cruise Master push button engages & disengages cruise control.





Engage the Park Brake by sliding the orange lock toward the seat, then press the rocker switch down.

10 To stop the Crop Cruiser, cancel the cruise mode with the Brake pedal, Joystick 'Cruise Cancel' push button or Armrest console 'Cruise Master' push button, then move the Joystick (hand throttle) back toward the Neutral.

Engine braking when enabled affectively assists braking as the Joystick (hand throttle) reduces engine RPM.

11 Depress the Brake pedal until stopped and move the Joystick into Neutral gate to disengage drive.

12 Engage the Park Brake *(shown above)*.



External G-Hub Controller located in the storage box of the Quick Filling Station.

Filling the Sprayer

The Crop Cruiser is fitted with 3 or 4 tanks:

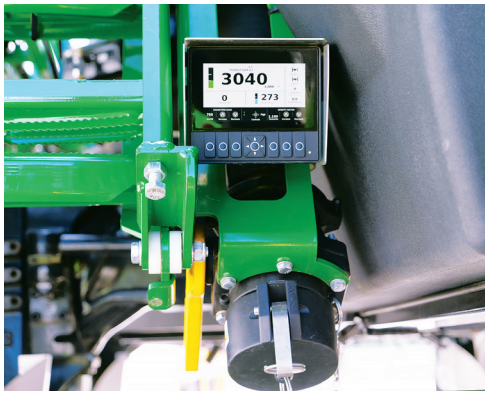
- Product tank (8000 litre)
- Rinse tank (550 litre)
- Hand Wash tank (30 litre)
- 3PL Front Tank (1500 litre) - optional

When filling, it is recommended the Crop Cruiser is safely parked, preferably on a flat level surface with the Park brake engaged and engine running.

All filling & cleaning functions of the Crop Cruiser are controlled and monitored on the External G-Hub Controllers. One is located on the Front RHS of the Crop Cruiser (3PL Front Tank &/or Front Fill Option) & the other in the Side Fill Station toolbox on the LHS of the Crop Cruiser.

Only one G-Hub Controller, either in the cabin or Quick Filling Station Controller or Front Filling Controllers can be actively accessed at any given time. When one screen is active, the other two are automatically shut Off.

Press any push button on a G-Hub Controller to switch from inactive to active.



External G-Hub Controller mounted above the 3' fill coupling on the inside of the RHS Ladder.

External G-Hub Controls

The External G-Hub Controllers are used to control the spray pump, transfer pump, fill pump, agitator, rinse nozzles and induction hopper functions independently of the cabin G-Hub Controller.

Front Fill G-Hub Controller

The Front Fill External G-Hub Controller comprises a 4.3" full colour screen with a push button panel *(shown above & right)*.

It is mounted with an adjustable RAM bracket for personalised positioning above the 3" Fill coupling on the inside of RHS access ladder.

Side Fill G-Hub Controller

The Side Fill External G-Hub Controller comprises a 4.3" full colour screen with push button panel *(shown above left & next page)*.

The Controller sits with a Push Button Control positioned on the RHS of the screen *(shown next page)* which is used to switch liquid flows On & Off for all filling and cleaning functions.

The Controller Screen & Push Button Panel are mounted on an adjustable RAM bracket for personalised positioning inside the storage box of the Quick Fill Station.



External 'Front Fill' G-Hub Controller 1st Functions Screen [default opening screen] - showing layout, functions & control touch buttons.

The External Controllers allow the operator to enter desired tank volume, change product density and connect fill hoses, before starting filling. The G-Hub Controller automatically stops filling when fill volume is met.

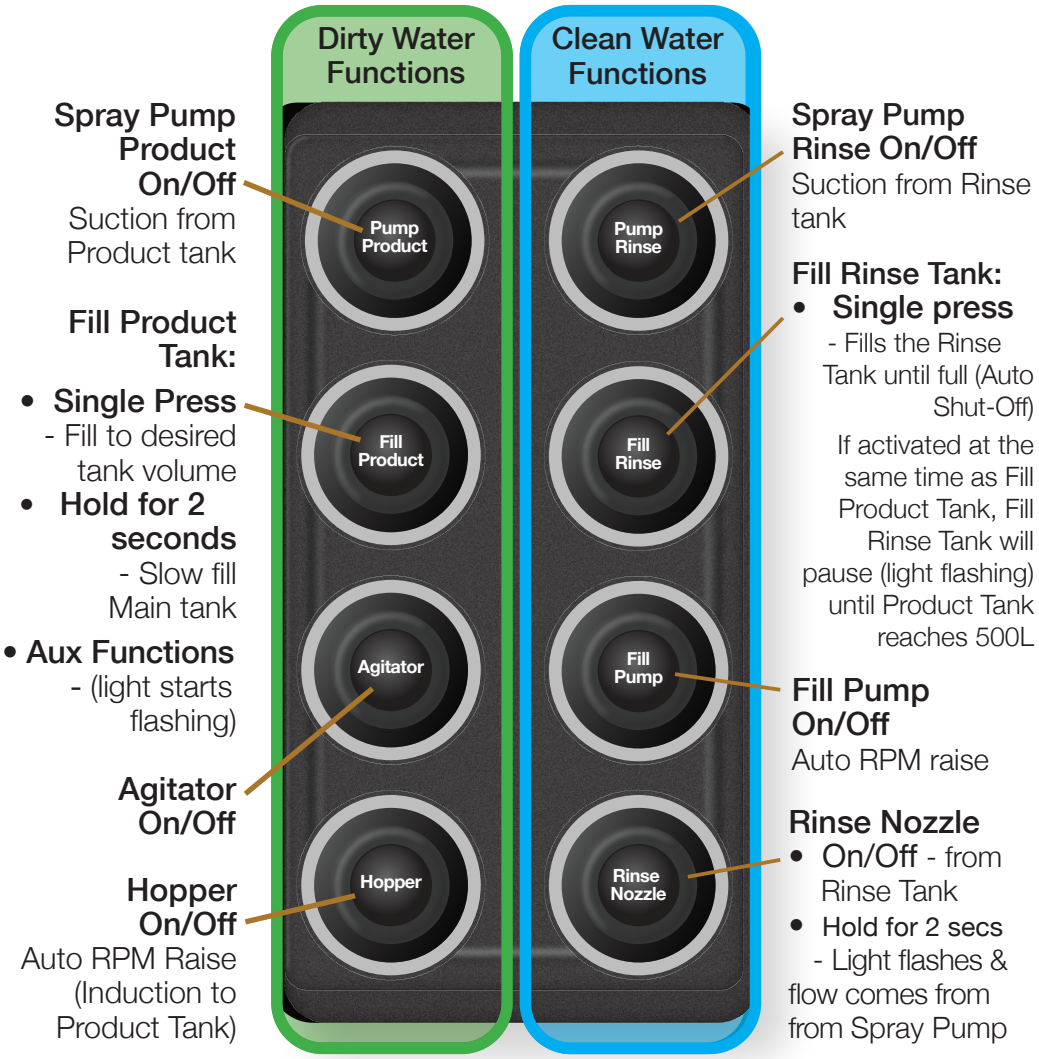
The functional procedures for operating the Front Fill & the Side Filling Station Contols are provided on the pages that follow.



External 'Side Fill' G-Hub Controller 1st Functions Screen [default opening screen] - showing layout, functions & control touch buttons.

Each External Controller provides 'Filling' & 'Cleaning' functions including customisable cleaning function lists for full decontamination control of all cleaning functions.

The functional procedures for the filling and cleaning functions are provided on the pages that follow.



External 'Side Fill' Station 'Push Button Panel' - illustrating push button layout & their illumination Green (for Dirty Water) & Blue (for Clean Water) when engaged.

NOTE

The push button switches of the Push button Panel (shown above) illuminate green or blue when engaged. Blue light indicates Clean water engagement (clean fill, pump, rinse tank, rinsing circuits & fresh water tank) while Green indicates Dirty water (product tank, pump, agitation, dirty fill, chemical mixing/uploading & spraying circuits .



The Side Fill Station Controller comprising the G-Hub Controller and Push Button Panel. Red arrows show the location of the LED indicator lights.

Side Quick Fill Station Controller

The Side Quick Fill Station Controller comprises the Side Fill Station G-Hub Controller and a Push Button Panel. Refer to the previous page for deatils of the Push Button Panel functions.

The Side Quick Fill Station G-Hub Controller has:

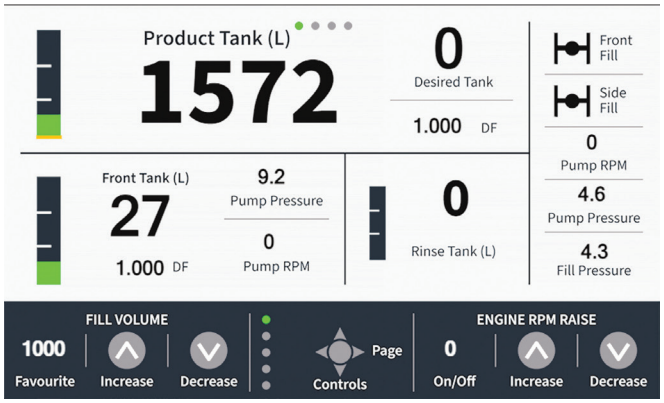
- An LED indicator Light at the top right corner which displays Green when Connected & OK or Red = Not connected
- Vertical LED lights located in the bottom centre of the screen - each light indicating another function [Control] screen) and
- Horizontal LED lights located in the top centre of the screen - each light indicating another page (screen) of functions.

LED indicator lights display ‘Green’ for each screen is displayed & ‘Grey’ when not displayed.

Use the vertical & horizontal push buttons to change the function (Control) &/or Page screen as required.

The above features are common to all Functions (Control) screens and Page screens.

Details of screen Functions (Controls) & Pages of the Side Fill Station G-Hub Controller are provide on the pages that follow.



Default 1st Control screen of the side Quick Fill Station Controller.

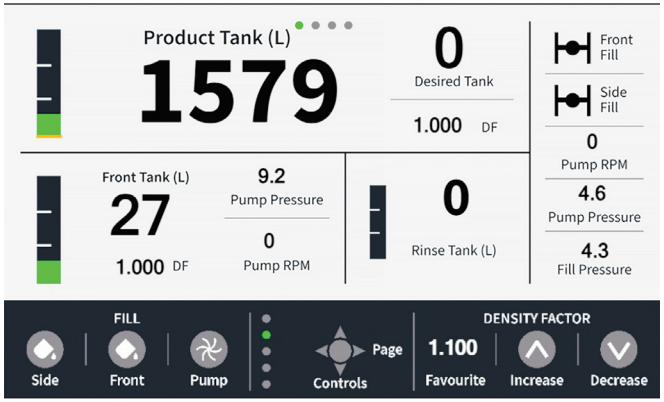
The 1st Control screen *(shown above)* provides push button controls for:

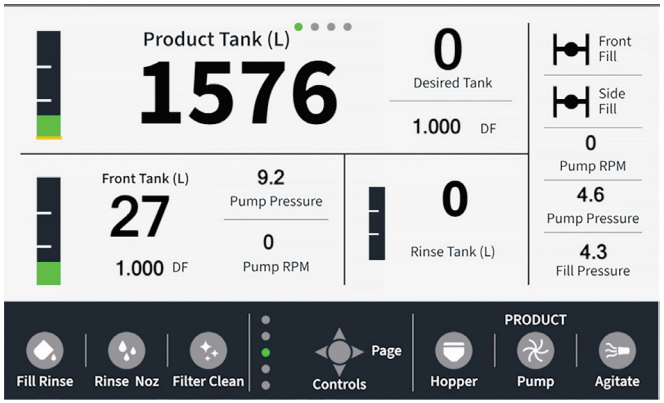
- ‘Fill Volume’ - Favourite, Increase, Decrease
- ‘Controls’ & ‘Page’ screen selection
- ‘Engine RPM Raise’ - On/Off, Increase, Decrease.

The 2nd Control screen *(shown above)* provides push button controls for:

- ‘Fill’ - Side, Front, Pump
- ‘Controls’ & ‘Page’ screen selection
- ‘Density Factor’ - Favourite, Increase, Decrease.

2nd Control screen of the side Quick Fill Station Controller.





3rd Control screen of the side Quick Fill Station Controller.

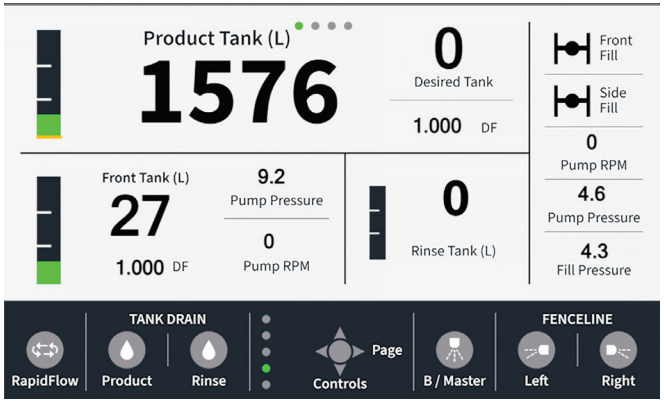
The 3rd Control screen *(shown above)* provides push button controls for:

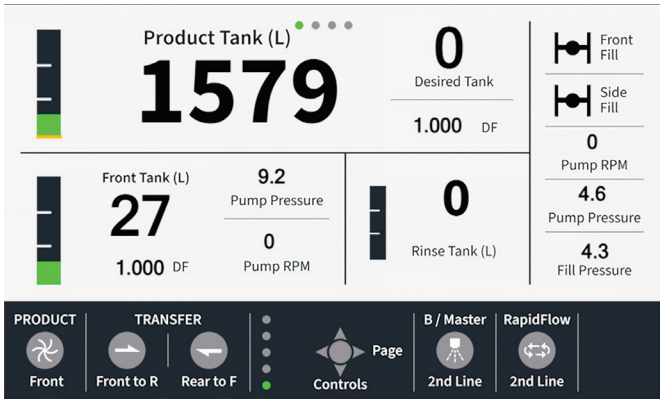
- ‘Fill Rinse’, ‘Rinse Nozzles’ & ‘Filter Clean’
- ‘Controls’ & ‘Page’ screen selection
- ‘Product’ - Hopper, Pump, Agitate.

The 4th Control screen *(shown above)* provides push button controls for:

- ‘RapidFlow’
- ‘Tank Drain’ - Product & Rinse
- ‘Controls’ & ‘Page’ screen selection
- ‘Boom Master’
- ‘Fenceline’ - Left & Right.

4th Control screen of the side Quick Fill Station Controller..

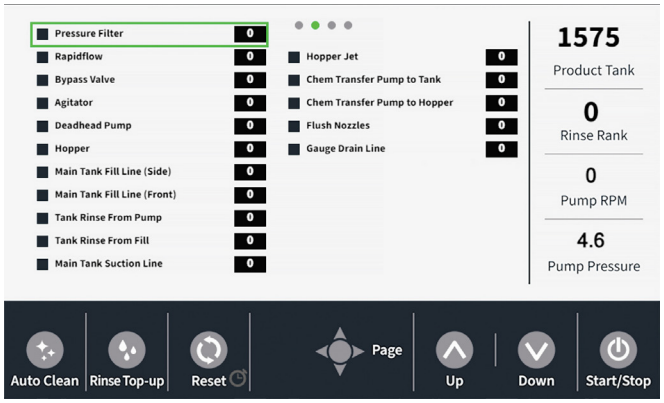




5th Control screen of the side Quick Fill Station Controller..

The 5th Control screen *(shown above)* provides push button controls for:

- 'Product' - Front
- 'Transfer' - Front to Rear & Rear to Front
- 'Controls' & 'Page' screen selection
- 'Boom Master' - 2nd Line
- 'RapidFlow' - 2nd Line.



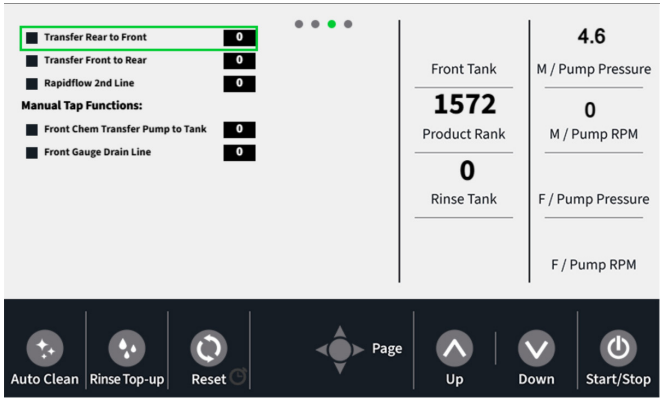
2nd Page screen of the side Quick Fill Station Controller..

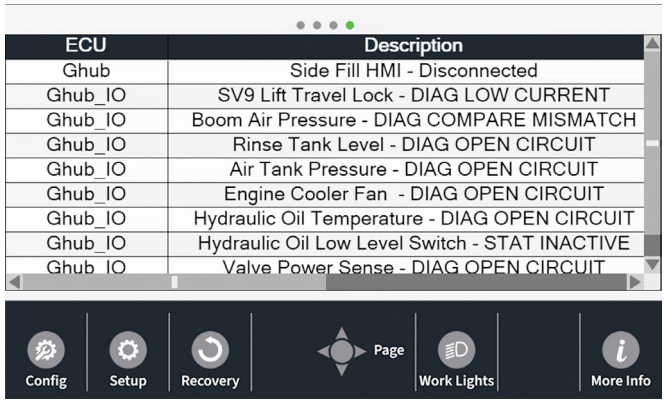
The 2nd Page screen *(shown above)* provides a list of touch button cleaning functions and push button controls for:

- 'Auto Clean'
- 'Rinse Top-up'
- 'Reset'
- 'Page' screen selection
- 'Up'/'Down'
- 'Start/Stop'.

The 3rd Page screen *(shown below)* continues with the list of touch button cleaning functions and push button controls.

3rd Page screen of the side Quick Fill Station Controller..





4th Page screen of the side Quick Fill Station Controller..

The 4th Page screen *(shown above)* displays ECU Faults with Descriptions and provides push button controls for:

- 'Configuration'
- 'Setup'
- 'Recovery'
- 'Page' screen selection
- 'Workl Lights'
- 'More Information'.



The 'Front Fill' G-Hub Controller. Red arrows show the location of the LED indicator lights.

Front Fill G-Hub Controller

The Front Fill G-Hub Controller has:

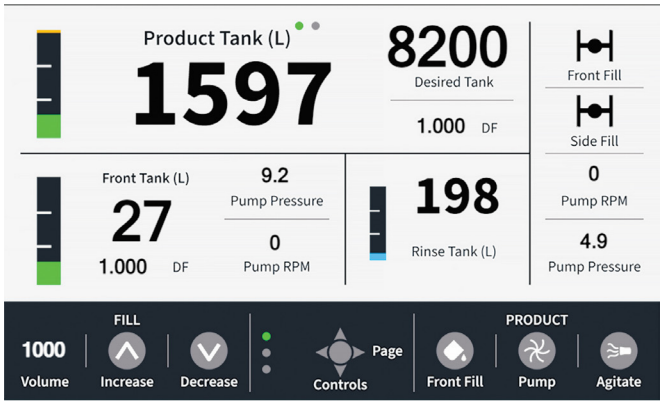
- An LED indicator Light at the top right corner which displays Green when Connected & OK or Red = Not connected
- Vertical LED lights located in the bottom centre of the screen - each light indicating another function [Control] screen) and
- Horizontal LED lights located in the top centre of the screen - each light indicating another page (screen) of functions.

LED indicator lights display 'Green' for each screen is displayed & 'Grey' when not displayed.

Use the vertical & horizontal push buttons to change the function (Control) &/or Page screen as required.

The above features are common to all Functions (Control) screens and Page screens.

Details of screen Functions (Controls) & Pages of the Side Fill Station G-Hub Controller are provided in pages that follow.



1st Function (Controls) screen [default opening screen] of the Front Fill Controller.

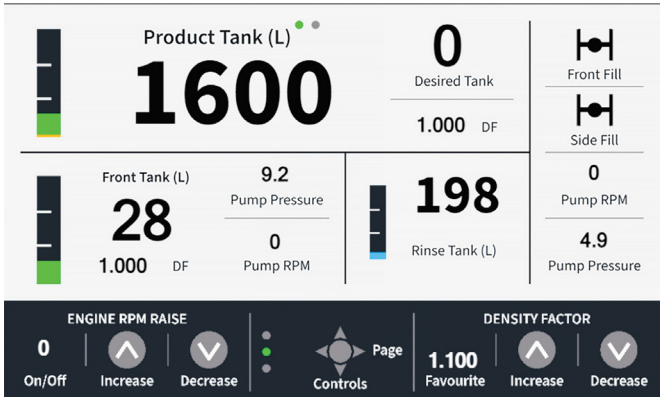
The 1st Control screen *(shown above)* provides push button controls for:

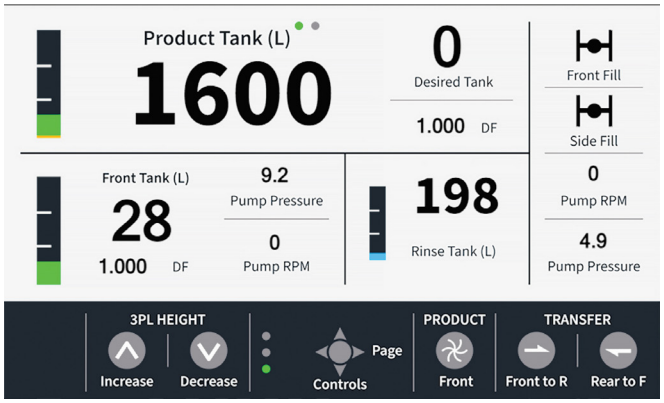
- 'Fill Volume' - Favourite, Increase, Decrease
- 'Controls' & 'Page' screen selection
- 'Product' - Front Fill, Pump, Agitate.

The 2nd Control screen *(shown above)* provides push button controls for:

- 'Engine RPM Raise' - On/Off, Increase, Decrease.
- 'Controls' & 'Page' screen selection
- 'Density Factor' - Favourite, Increase, Decrease.

2nd Function (Controls) screen of the Front Fill Controller.





3rd Function (Controls) screen of the Front Fill Controller.

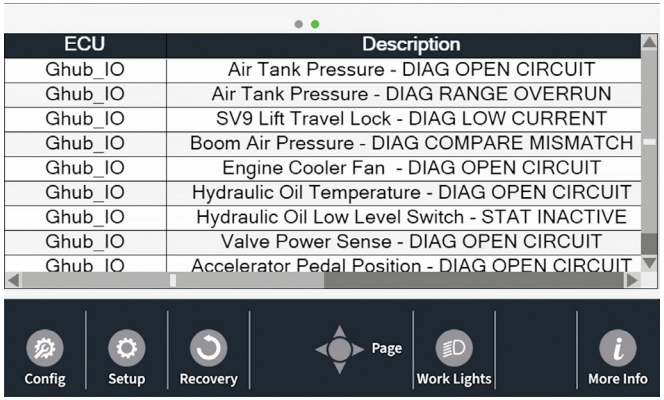
The 3rd Control screen *(shown above)* provides push button controls for:

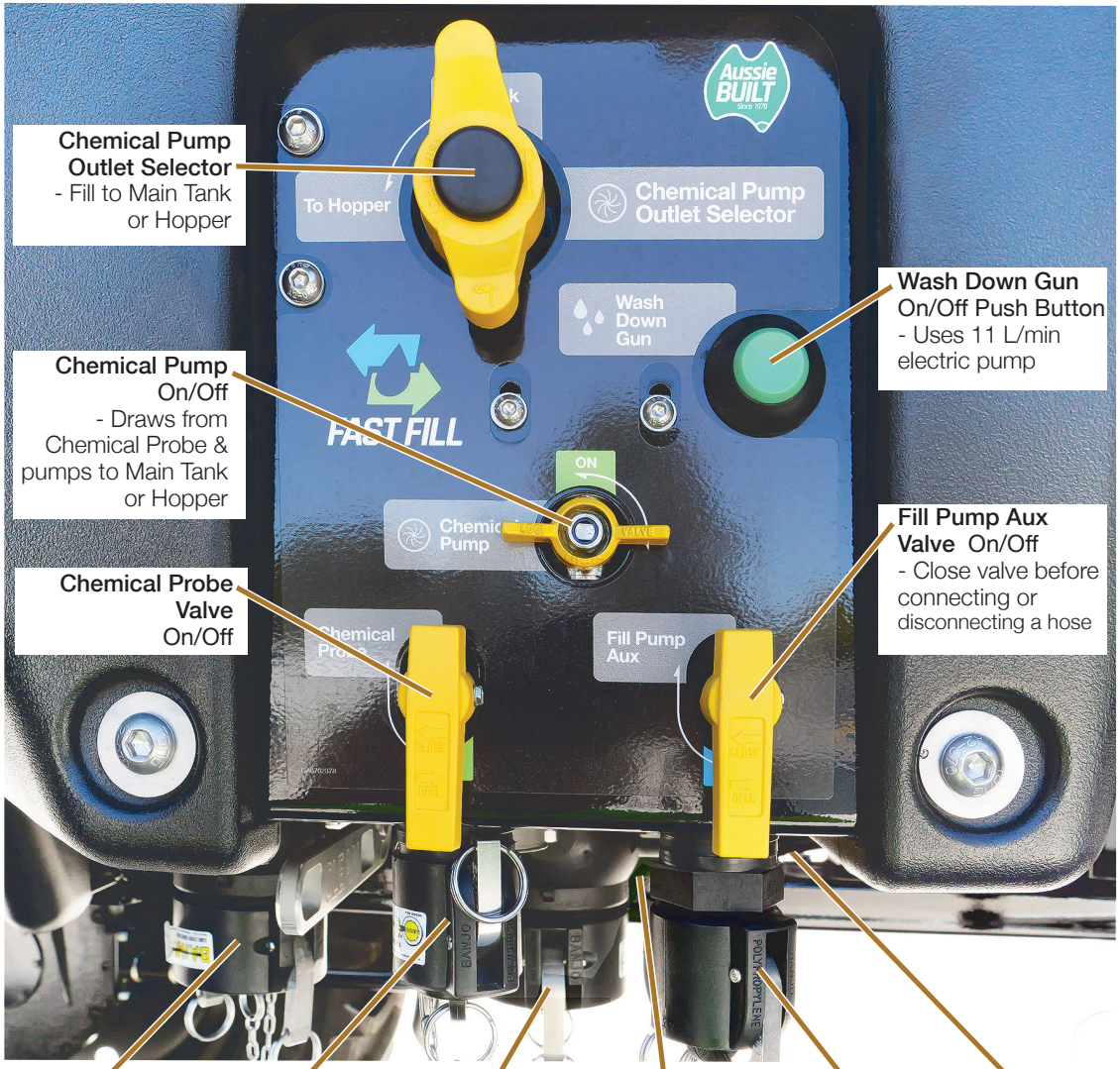
- '3PL Height' - Increase, Decrease
- 'Controls' & 'Page' screen selection
- 'Product' - Front
- 'Transfer' - Front to Rear & Rear to Front.

The 2nd Page screen *(shown below)* displays ECU Faults with Descriptions and provides push button controls for:

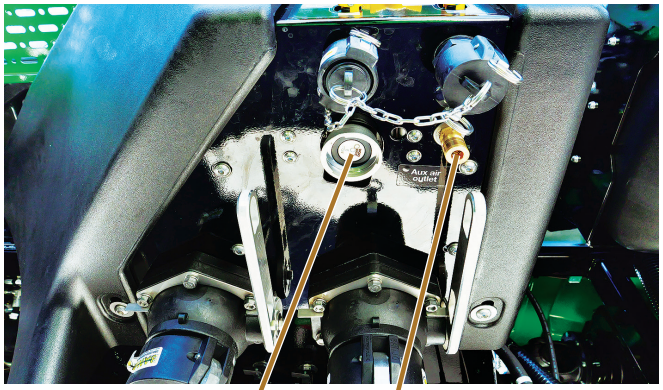
- 'Configuration'
- 'Setup'
- 'Recovery'
- 'Page' screen selection
- 'Workl Lights'
- 'More Information'.

2nd Page screen of the Front Fill Controller.





Side Fill Station Pod showing hose connectors, switches & valves.



*The **Micromatic Rinse Coupling** & **Aux Air Outlet** locations underneath the External Filling panel.*

Side Fill Station

The Side Fill Station Pod *(shown left)* comprises hose connectors, valves and switches used for filling & cleaning functions.

If pumping water from structures other than storage tanks, the use of an appropriate sized floating filter equipped with a check valve is recommended.

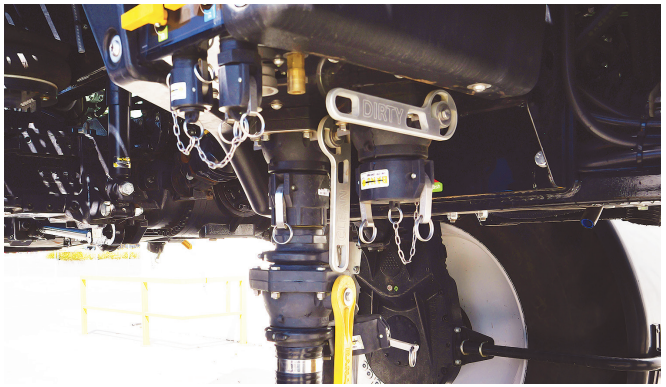
The suction line diameter should match the suction port diameter of 3" to maximise pump performance.

All filling functions require the Crop Cruiser to be safely parked in an appropriate area with the engine running.

NOTE

It is recommended to calculate the correct quantity of liquid required, and when filling, allow sufficient quantity for adding and mixing chemicals.

If necessary top up the tank to required quantity after adding chemicals is completed.



Connect a 3" fill hose to the 'Clean Fill' inlet & Open the 'Clean Fill' ball valves.



Press the 'Fill Product' push button, then 'Fill Pump' push button to start filling the Product Tank.



Close the 'Clean Fill' ball valves, disconnect the 3" fill hose and refit the Camlock cap.

To Fill the Product Tank - Clean water source

1 Connect a 3" suction hose (not supplied) to the 3" 'Clean Fill' camlock coupling *(shown above)* with the other end of the hose connected to a clean water source.

2 Open the 'Clean Fill' ball valves by moving the handle down *(shown above)*.

3 Open the Filling Station storage cabinet to access the G-hub External Controller.

4 The Fill screen is the default opening screen *(shown above).*

5 Set the desired Fill Volume on the External G-Hub Controller by pressing the 'Tank Increase' or 'Tank Decrease' push buttons as required *(shown above)*.

The desired fill volume can be entered on the G-Hub Controller before leaving cabin.

Fill volume will always default to the usable tank volume set in the G-Hub Controller.

6 With the Crop Cruiser engine running at low idle, press the 'Fill Product' push button to On *(shown above)*. The 'Fill Product' push button illuminates Green when On (White when Off).

7 Press the 'Fill Pump' push button to On to start filling the Product Tank *(shown above)*. The 'Fill Pump' push button illuminates Blue when On (White when Off).

The Crop Cruiser engine RPM will automatically raise if enabled in the G-Hub Controller settings.

The Fill speed can be reduced if required by holding the 'Fill Product' push button for 2 seconds if more time is required.

8 The Fill Pump automatically switches Off when the target product volume is reached.

The filling process can be stopped at any time by pressing 'Fill Pump' Off. The 'Fill Product' push button illuminates Blue when On (White when Off)

9 When filling is complete, close the 'Clean Fill' ball valves (Crop Cruiser & suction hose), disconnect the suction hose from the camlock coupling and refit the camlock cap *(shown above)*.

NOTE

All filling, adding chemicals and rinsing functions require the Crop Cruiser's engine to be running and the Park Brake applied.

NOTE

If filling the Rinse Tank at the same time as the Product Tank, the 'Fill Rinse Tank' push button will flash to indicate pausing until the Product Tank reaches 500 litre level. Rinse Tank filling will then resume as indicated by a solid colour of the push button. Individual tank filling rate is reduced when filling both tanks at the same time.

⚠CAUTION

It is important to not close the 'Clean Fill' valve while the pump is running. Running the pump with a closed suction inlet may damage the pump.



Connect a 3" fill hose to the 'Dirty Fill' inlet & Open the 'Dirty Fill' ball valves.



Press the 'Fill Product' push button, then 'Fill Pump' push button to start filling the Product Tank.



Close the 'Clean Fill' ball valves, disconnect the 3" fill hose and refit the Camlock cap.

To Fill the Product Tank - Dirty water source

1 Connect a 3" fill hose (not supplied) from a suitable pumping system to the 'Dirty Fill' camlock coupling *(shown above)* of the Filling Station.

2 Follow all relevant safety & set-up pumping guidelines for the system being used.

3 Open the 'Dirty Fill' ball valves by moving the handle down *(shown above)*.

4 Open the Filling Station storage cabinet to access the G-hub External Controller.

5 The Fill screen is the default opening screen *(shown above)*.

6 Set the desired Fill Volume on the External G-Hub Controller by pressing the 'Tank Increase' or 'Tank Decrease' push buttons as required *(shown above)*.

The desired fill volume can be entered on the G-Hub Controller before leaving cabin.

7 Press the 'Fill Product' push button to On *(shown above)*. The 'Fill Pump' push button illuminates Green when On (White when Off).

8 Press the 'Fill Pump' push button to On *(shown above)* to start filling the Product Tank. The 'Fill Pump' push button illuminates Blue when On (White when Off).

Fill progress can be monitored on the Controller screen.

When the tank is filled to the desired level, the 3" Fill Control Valve will close - stopping flow to the tank and automatically turning off the 'Fill Product' & 'Fill Pump' push buttons.

9 Close the 'Dirty Fill' ball valves (Crop Cruiser & supply hose, disconnect the supply hose from the camlock coupling and refit the camlock cap *(shown above)*.

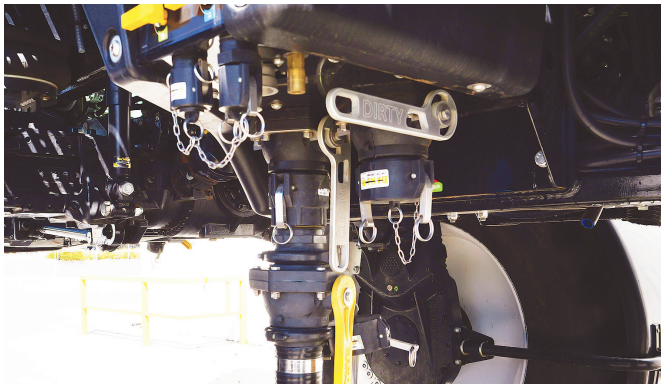
⚠CAUTION

It is important to not close the 'Clean Fill' valve while the pump is running. Running the pump with a closed suction inlet may damage the pump.

NOTE

Before disconnecting the suction hose from the Clean Fill Inlet, it should be noted the Drum Rinse & Hopper Rinse nozzles both require the use of suction hose for the supply clean water when rinsing.

If hopper rinsing will be required, keep the suction hose connected to the clean water source until completion of the rinsing functions.



Connect a 3" fill hose to the 'Clean Fill' inlet & Open the 'Clean Fill' ball valves.

To Fill the Rinse Tank - Clean water source only

1 Connect a 3" suction hose (not supplied) to the 'Clean Fill' camlock coupling *(shown above)* with the other end connected to a clean water source

2 Open the 'Clean Fill' ball valves by moving the handles down *(shown above)*.

3 Open the Filling Station storage cabinet to access the G-hub External Controller.



Press the 'Fill Product' push button, then 'Fill Pump' push button to start filling the Product Tank.

4 The Fill screen is the default opening screen *(shown above)*.

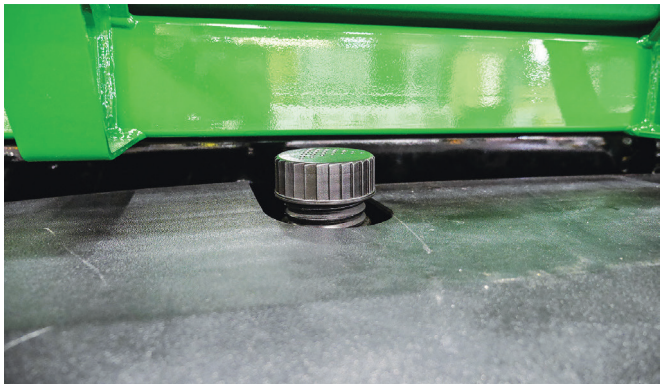
5 With the engine running at low idle, press the 'Fill Rinse' push button On, then 'Fill Pump' On to start filling the tank *(shown above)*. The 'Fill Product' push button illuminates Blue when On (White when Off)

The RPM will automatically raise if enabled in the G-Hub Controller settings.

6 The Fill Pump automatically switches Off when the Rinse Tank is full.

Filling can be stopped at any time by pressing the 'Fill Pump' push button Off. The 'Fill Product' push button illuminates Blue when On (White when Off)

7 When the Rinse tank is filled, close the 'Clean Fill' ball valves and disconnect the suction hose from the camlock coupling.



The top filling lid of the Hand Wash Tank located above the storage cabinet.

To Fill the Hand Wash Tank

1 Connect a fresh water hose to a fresh water source.

2 Open the lid on top of the fresh water tank located above the storage cabinet *(shown above)*.

An alternative method of filling the tank is to connect a clean water hose to the Hand Wash Tank camlock outlet fitting *(shown below)*.

3 Use the hose to fill the tank with fresh water.

4 Remove the hose and close the fresh water tank lid, or alternatively, close the valve and remove the hose.

Fresh water tap for personal washing & safety, located at the base of the Quick Filling Station Storage Cabinet.

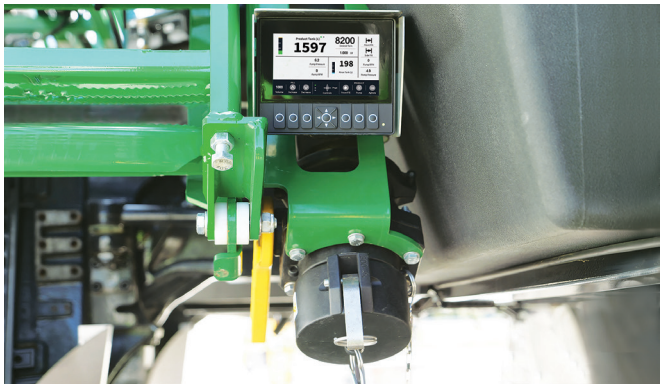


⚠CAUTION

It is important to not close the 'Clean Fill' valve while the pump is running. Running the pump with a closed suction inlet may damage the pump.

NOTE

Always ensure the tank has sufficient water in it for rinsing purposes. The Rinse Tank capacity is approximately 550 litres.



Front Fill Station option located on the front right hand side of the Crop Cruiser.

Front Fill Station

The Front Fill Station option *(shown above)* comprises a 3” hose connector & an external Front Fill G-Hub Controller fitted to the front right hand side of the Crop Cruiser.

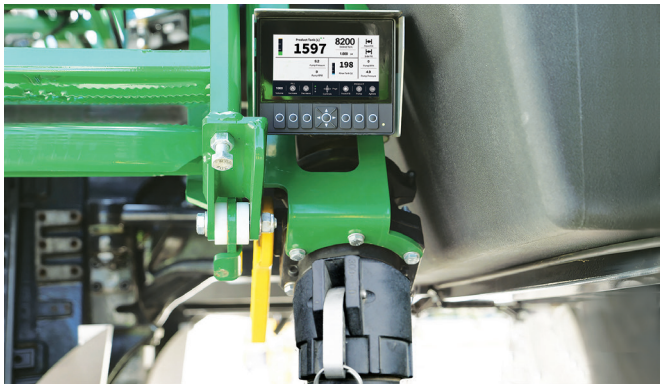
The Main tank of the Crop Cruiser can be filled using this inlet but only with an external pump.

If the 3PL Front Tank option is fitted, the G-Hub Controller is only used for 3PL Front Tank functions - it no longer used for filling the main tank.

If pumping water from structures other than storage tanks, the use of an appropriate sized floating filter equipped with a check valve is recommended.

The suction line diameter should match the 3” suction port diameter to maximise pump performance.

All filling functions require the Crop Cruiser to be safely parked in an appropriate area with the engine running.



Front Fill Station option located on the front right hand side of the Crop Cruiser.

To Fill the Product Tank - Clean water source

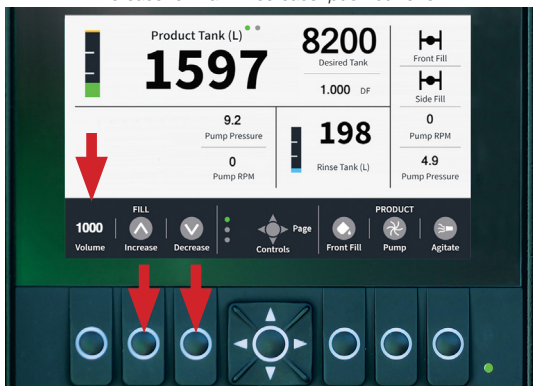
1 Remove the camlock cap and connect a 3” suction hose (not supplied) to the 3” ‘Fill Inlet’ coupling *(shown above)* with the other end of the hose connected to a clean water source.

2 Open the ‘Fill’ valve by moving the Fill valve handle forward.

3 The Fill screen is the default opening screen *(shown below).*

4 Set the desired Fill Volume on the Front G-Hub Controller by pressing the ‘Tank Increase’ or ‘Tank Decrease’ push buttons as required *(shown below)*.

Set the desired Fill Volume on the Front G-Hub Controller by pressing the ‘Tank Increase’ or ‘Tank Decrease’ push buttons.





With Crop Cruiser engine running, press the ‘Front Fill’ push button to open ‘Front Fill’. Press ‘Pump’ & ‘Agitation’ push buttons for Product tank agitation.

The desired Fill volume can be entered on the G-Hub Controller before leaving cabin.

Fill volume will always default to the usable tank volume set in the G-Hub Controller.

5 With the Crop Cruiser engine running at low idle, press the PRODUCT ‘Front Fill’ push button to open the ‘Front Fill’ function *(shown above).* The Front Fill emblem illuminates Green when On (Grey when Off).

6 Start filling the Product Tank with the external pump.

7 When the Fill volume is reached, the external controller provides an audible sound, then stop the external pump.

8 Press the PRODUCT ‘Pump’ & ‘Agitation’ push buttons *(shown above)* for Product agitation in the main tank. The Pump & Agitation emblems illuminates Green when On (Grey when Off).



The 3PL Front Tank option comprises a 1500L tank with a 3" hose connector & external Front G-Hub Controller.

3PL Front Tank

The 3PL Front Tank option *(shown above)* comprises a 1500L tank with a 3" hose connector (located under the front of the 3PL Front Tank} & an external Front G-Hub Controller (located on the front right hand side of the Crop Cruiser).

The 3PL Front Tank is filled using the 3" hose connector but only with an external pump.

If the 3PL Front Tank option is fitted, the G-Hub Controller is only used for 3PL Front Tank functions - it no longer used for filling the main tank.

If pumping water from structures other than storage tanks, the use of an appropriate sized floating filter equipped with a check valve is recommended.

The suction line diameter should match the 3" suction port diameter to maximise pump performance.

All filling functions require the Crop Cruiser to be safely parked in an appropriate area with the engine running.



Remove the camlock cap & connect a 3" suction hose (not supplied) to the 3" 'Fill/Drain' (inlet/outlet) coupling.

To Fill 3PL Linkage Front Tank - Clean water source

1 Remove the camlock cap (located under the front of the 3PL Front Tank) *(shown above)* and connect a 3" suction hose (not supplied) to the 3" 'Fill/Drain' (inlet/outlet) coupling *(shown below)* with the other end of the hose connected to a clean water source.

2 Open the 'Fill' valve by moving the Fill/Drain valve handle forward.

3 The 3PL Front Tank screen is the 3rd screen *(shown above right)* of the external Front G-Hub Controller. Press the lower arrow push button to display the 3rd control screen *(shown above right).*

Connect a 3" suction hose (not supplied) to the 3" 'Fill/Drain' I(nlet/oulet) coupling with the other end of the hose connected to a clean water source.





Set the desired Fill Volume on the Front G-Hub Controller by pressing the 'Tank Increase' or 'Tank Decrease' push buttons.

4 Press the 3PL HEIGHT Increase/Decrease push buttons to raise or lower the 3PL Front Tank to a suitable working height for filling the tank *(shown above)*.

5 Start the external pump and fill the tank with the desired about of clean water - the tank litre reading is displayed on the Front G-Hub Controller screen.

6 On completion, stop the pump, close 'Fill/Drain' valve, remove the fill hose & refit the camlock cap.

To Fill the 3PL Hand Wash Tank

1 Connect a fresh water hose to a fresh water source.

2 Open the top lid of the Hand Wash tank & fill the tank with clean water *(shown below)*.

3 When full, stop flow, remove hose & close the lid.

Open the top lid of the Hand Wash tank & fill the tank.





The external G-Hub Controller located in the storage cabinet of the Side Filling Station.

Adding Chemicals to the Product Tank

Chemicals are be added to the Product Tank (Main tank) using the:

- Chemical Induction Hopper (granular & liquid)
- Chemical Probe (liquid only).

Before adding chemical to the Product tank, at least 500 litres of clean water must be in the Product Tank - required to ensure the Product Pump operates to create the venturi effect required for transfer fluid from the Chemical Induction Hopper to the Product Tank and to ensure adequate agitation when chemical is added.

All functions for adding chemicals require the Crop Cruiser to be safely parked in an appropriate area with the engine running.

NOTE

Wear the necessary protective clothing and use the required safety equipment to avoid exposure to chemicals.



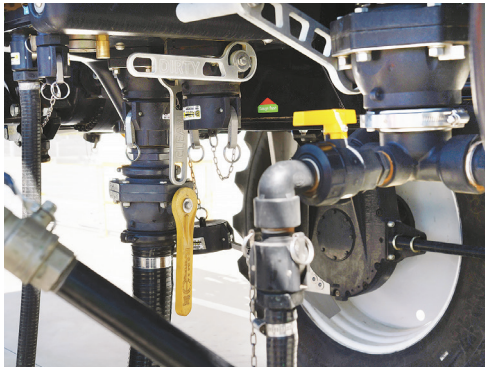
Chemical Induction Hopper in raised position.

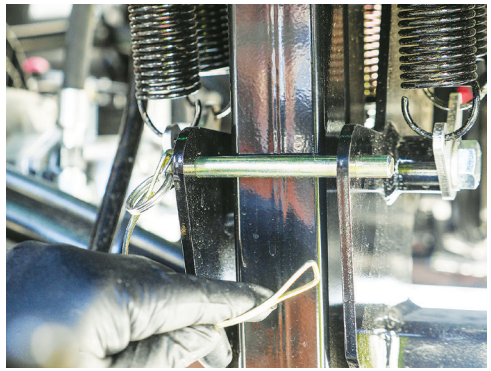
Chemical Induction Hopper

The Chemical Induction Hopper *(shown above)* provides mixing, measuring and induction functions for adding required chemicals to the Product Tank.

The Hopper's Bottom Drain Valve *(shown below)* can be used as an entry point for liquid chemical induction directly to the Main Tank.

The Hopper's Bottom Drain Valve can be used for chemical induction directly to the Main Tank.





Remove the hopper safety pin & locking pin.

To Lower the Chemical Induction Hopper

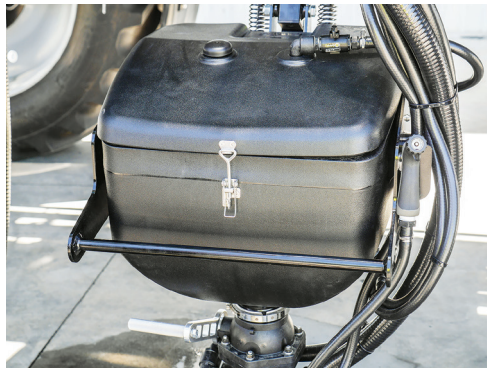
1 Remove the safety pin, then the locking pin from the hopper lift arms bracket *(shown above)*.

2 Support the weight of the hopper, then pull the latch lever beside the hopper to unlock the latch holding the hopper in position *(shown below)*.

3 Pull down the hopper slowly to its work position.

Pull the hopper down into its working position.





With hopper in working position, check hoses are not restricted or kinked & undo the latch to open the hopper lid.

4 Check the hoses connecting to the hopper are not restricted or kinked *(shown above)*.



Undo the latch & open the Hopper lid.



Press the 'Pump Product' & 'Hopper' push buttons On



Push-down to Open the foot operated ball valve at the bottom of the hopper to transfer product to Main tank.



Lift-up to Close the foot operated ball valve at the bottom of the hopper.

To Add, Mix & Transfer Chemical with the Chemical Induction Hopper

1 Undo the latch & open the Hopper lid *(shown above)*.

2 Press the 'Pump Product' push button On to engage suction from Product tank *(shown below)*.

The pump should operate at the speed necessary to generate at least 80 psi (with hopper On) delivery pressure (displayed on the External G-Hub Controller screen).

3 Press the 'Agitate' push button On to start main tank agitation *(shown below)*.

4 Press the 'Product Pump' push button On to engage the Product Pump *(shown above)* - this will automatically raise engine RPM.

4 Add the required chemical (liquid, granules or powder) into the hopper, then close the lid & lock the latch.

5 Open the Mixing Jet valve on the right hand side of the hopper to start mixing *(shown below)*.

6 Once chemical is mixed, push down the foot operated 3" ball valve at the base of the Hopper *(shown above)* to open the valve & start transferring product to the main tank.

7 On completion of transfer:

- Close the Mixing Jet valve on the right hand side of the hopper *(shown below)*
- Lift up the foot lever to close the foot operated ball valve at the bottom of the hopper *(shown above)*.

8 On completion, rinse all chemicals from the Induction Hopper (refer to instructions in this Chapter 'Hopper Rinse Functions').

Press the 'Product Pump' & 'Agitate' push buttons On to engage suction from Product tank & start tank agitation.



Open the Mixing Jet valve on the RHS of the Hopper.



On completion of mixing, close the Mixing Jet valve.



NOTE

The higher the Product Pump delivery pressure, the greater the venturi suction and the quicker the hopper will transfer the chemical.

The delivery pressure should not exceed 120 PSI as set by the pressure relief valve setting.



Close the Bottom Drain valve & remove the camlock coupling plug.

To Transfer Chemical to the Product Tank using the Bottom Drain Valve

The Bottom Drain Valve can be used for liquid Chemical Induction.

1 Ensure the foot operated ball valve at the bottom of the hopper is closed (foot lever lifted-up) *(shown above)*.

2 Close the Bottom Ball Valve & remove the camlock coupling *(shown above)*.

3 Connect the chemical source hose to the Bottom Ball Valve camlock coupling.

NOTE

When transfering contents of the hopper to the Product Tank, avoid letting the hopper run empty or suck air because it may cause foaming in the Product Tank.



Press the 'Pump Product' push button 'On' to engage suction from the main tank

4 Press the 'Pump Product' push button On to engage suction from Product tank.

The pump should operate at the speed necessary to generate at least 5.5 Bar (80 psi) delivery pressure (with hopper On) delivery pressure (displayed on the External G-Hub Controller screen).

5 Press the 'Hopper' push button On *(shown below)* to engage the Product Pump & Hopper valve. This push button automatically raises engine RPM.

Press the 'Product Pump' push button 'On' to engage suction from Product tank.





Open the Bottom Ball Valve to transfer chemical to the main tank.

6 Open the Bottom Ball Valve to transfer chemical to the main tank *(shown above)*.

7 On completion of chemical transfer, close the Bottom Ball Valve

8 Disconnect the chemical source hose from the chemical source and rinse with clean water by opening & closing the Bottom Ball Valve as required.

9 Disconnect the hose from the Bottom Ball Valve camlock coupling and refit the camlock coupling plug.

Disconnect the chemical source hose & refit the camlock coupling plug.





Open the filling station storage cabinet door to access the G-Hub External Controller.

Chemical Probe Inlet

The Chemical Probe Inlet can be used to add chemical to the Chemical Induction Hopper or directly to the Product Tank.

To Add Liquid Chemical to the Chemical Induction Hopper

The Induction Hopper can be used with a:

a) Chemical Probe, or

b) Micromatic Coupling.

A) To Add Liquid Chemical to the Hopper Using the Chemical Probe

1 Open the Filling Station storage cabinet door to access the G-hub External Controller.

NOTE

Ensure chemicals added are consistent with the density factor used when filling the Crop Cruiser.

Water weighs 1.0 kg per litre) and conversion factors must be used when spraying liquids heavier than water.



Connect a hose for chemical probe filling to the Chemical Probe Inlet.

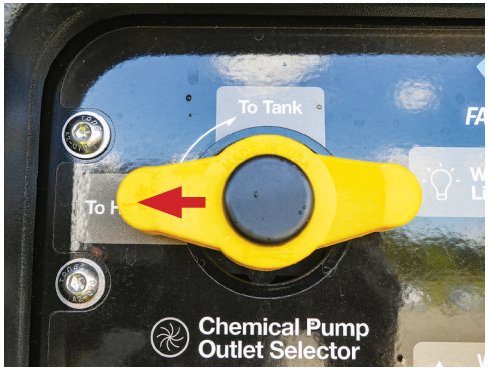
2 Connect a Chemical Probe hose to the 1” Chemical Probe Inlet *(shown above).*

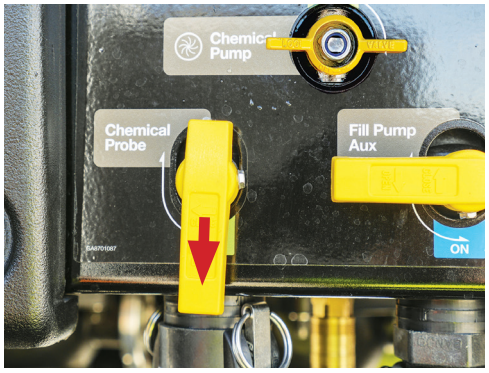
3 Rotate the Chemical Pump Output Selector to ‘Hopper’ position *(shown below)*.

4 The air operated Chemical Pump requires the Crop Cruiser’s engine to be running and the pneumatic system to be pressurised before use.

Activate engine ‘RPM Raise’ to maximise pump performance.

Rotate the Chemical Pump Output to Hopper position.





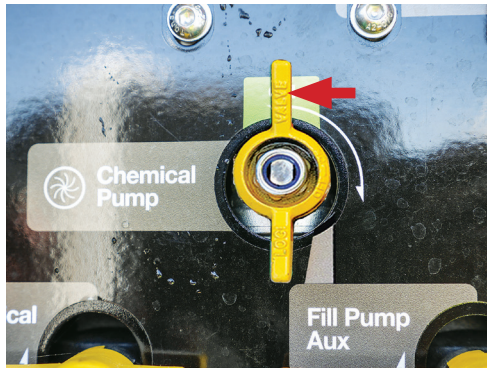
Rotate the Chemical Probe valve to Open position.

5 Rotate the Chemical Probe valve to Open position *(shown above).*

6 Place the Chemical Probe into the chemical & Open the Probe Valve *(shown below)* for transferring chemical to the Hopper.

Place the Chemical Probe into the chemical & open the Probe Valve for transfer of chemical to the Hopper.





Rotate the Chemical Pump valve to ON position.

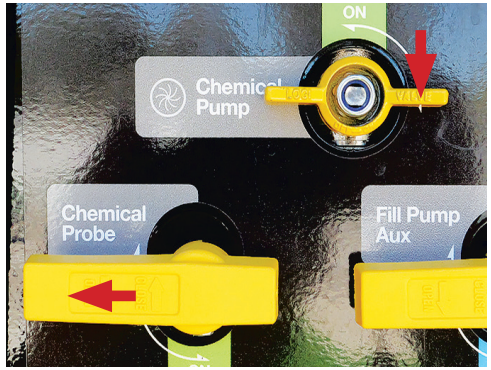
7 Rotate the ‘Chemical Pump’ valve to begin transferring chemical to the Hopper *(shown above).*

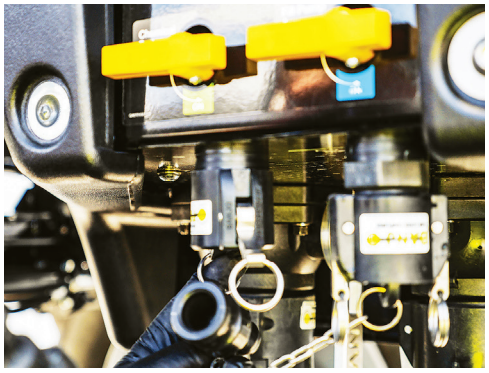
After the chemical has been transfered to the hopper, pull the Probe out the drum to allow the pump to suck air & purge all chemical mixture out.

8 To rinse the Chemical Probe & hose, place the Probe into a container of clean water to suck clean water through the probe & hose.

After rinsing, rotate the Chemical Pump valve to stop the pump, then close the Chemical Probe Valve *(shown below)*.

Rotate the Chemical Pump valve to stop the pump, then close the Chemical Probe





Disconnect the Chemical Probe hose from the Chemical Probe Inlet & refit the camlock cap.

9 Disconnect the Chemical Probe hose from the 1” Chemical Probe Inlet & replace the camlock cap *(shown above)*.

10 Transfer the chemical mix from the hopper to the main tank (refer to previous transfer instructions in this chapter.

11 On completion, rinse all chemicals from the Induction Hopper (refer to instructions in this Chapter ‘Hopper Rinse Functions’).

NOTE

Ensure chemicals added are consistent with the density factor used when filling the Crop Cruiser.

Water weighs 1.0 kg per litre) and conversion factors must be used when spraying liquids heavier than water.



Connect the Micromatic filling hose to the Chemical Probe Inlet.

B) To Add Liquid Chemical to the Hopper Using the Micromatic Coupling

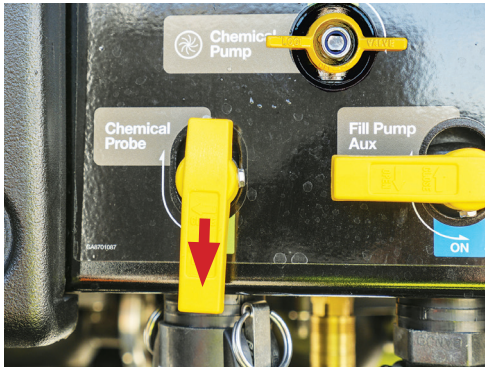
1 Connect a Micromatic hose to the 1" Chemical Probe Inlet *(shown above)* & open the Chemical Probe valve *(shown below)*.

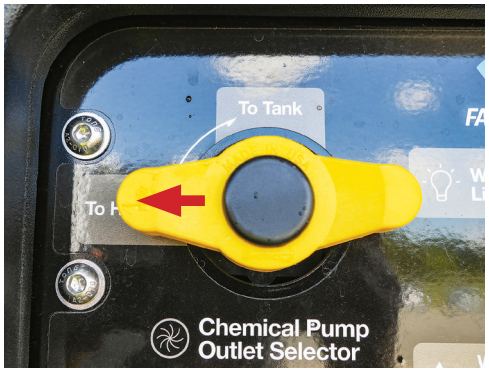
2 Connect the other end of hose to the chemical source using the Micromatic coupling.

3 The air operated Chemical Pump requires the Crop Cruiser's engine to be running and the pneumatic system to be pressurised before use.

Activate engine 'RPM Raise' to maximise pump performance.

Rotate the Chemical Probe valve to Open position.





Rotate the Chemical Pump Output to Hopper position.

4 Rotate the Chemical Pump Output Selector to 'Hopper' position *(shown above)*.

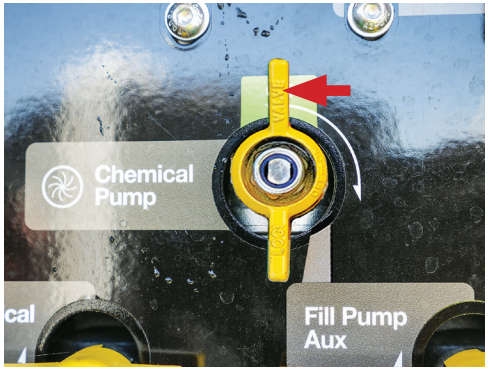
5 Rotate the Chemical Pump valve to On position *(shown below).*

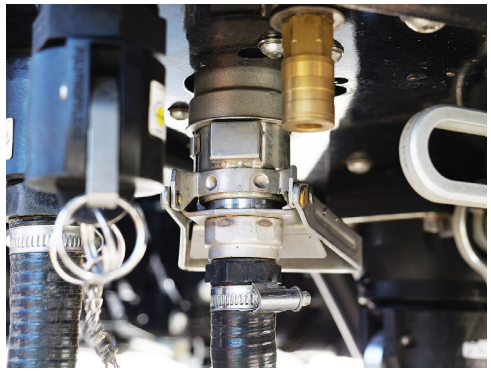
Chemical will begin transferring to the Chemical Induction Hopper.

6 After chemical has transfered to the hopper, the Micromatic coupler can be partially disconnected to allow air to suck and clear fluids from the hoses & pump.

Rotate the 'Chemical Pump' valve to Off position on completion of chemical transfer.

Rotate the Chemical Pump valve to ON position.





Connect the chemical source Micromatic hose end to the Micromatic Rinse Coupling under the Fill Station Pod.

To rinse the Micromatic Hose & Fittings:

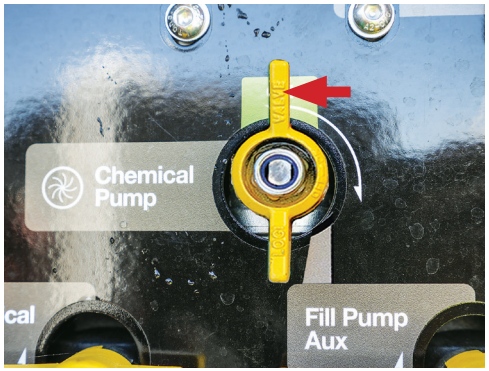
1 Disconnect the Micromatic hose end from the chemical source, then connect it to the Micromatic Rinse Coupling under the Fill Station Pod *(shown above).*

2 Ensure the Rinse Coupling Valve (located at the rear of the Fill Station Pod) is Open *(shown below)*.

3 Rotate the Chemical Pump Output Selector to 'Hopper' or Product Tank position for the rinse transfer.

Ensure the Rinse Coupling Valve (located at the rear of the Fill Station Pod) is Open.





Rotate the Chemical Pump valve to ON position.

4 Rotate the Chemical Probe valve to On position *(shown above).*

Rinse will transfer to the Chemical Induction Hopper or Product Tank.

4 Disconnect the micromatic coupling from the Micromatic rinse socket & allow air to suck.

5 Rotate the 'Chemical Pump' valve & Chemical Probe valve to Off position.

7 Close the Rinse Coupling Valve.

8 Disconnect the hose from the 1" Chemical Probe Inlet & refit the camlock cap.

9 Refer to instructions in this chapter "To Add & Mix Chemical in the Chemical Induction Hopper" & "To Transfer Chemical from the Hopper to the Product Tank" to complete hopper procedures.

NOTE

Micromatic Hose Rinse

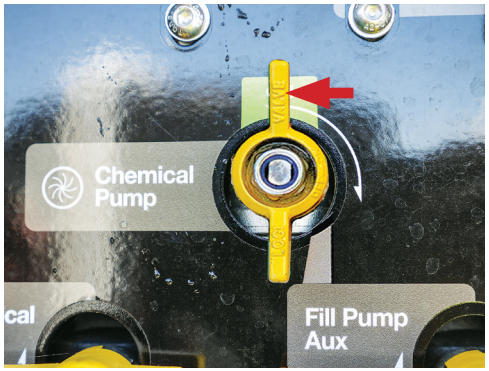
The Micromatic Hose Rinse function can only be used while filling the Product & Rinse tanks with clean water and the 'Fill Product' push button is On.



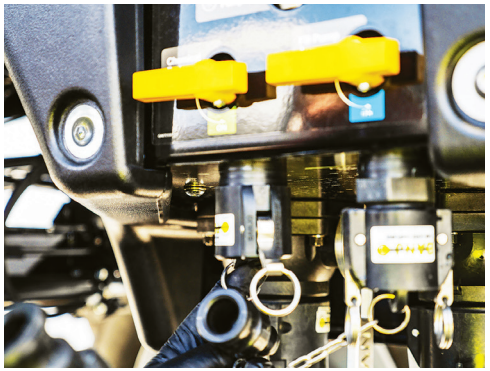
Connect the Chemical Probe hose to the Chemical Probe Inlet.



Rotate the Chemical Pump Output to Tank position.



Rotate the Chemical Pump valve to ON position.



Disconnect the Chemical Probe hose & refit the camlock cap.

To Add Liquid Chemical Directly to the Main Tank Using the Chemical Probe Inlet

The Chemical Probe Inlet can be used to add liquid chemical directly to the Product tank using the:

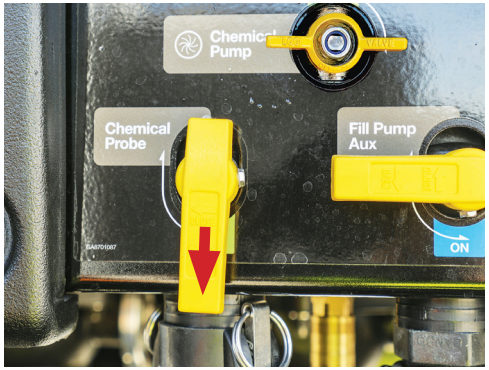
a) Chemical Probe or

b) Micromatic fitting.

a) To Add Liquid Chemical to the Main Tank Using the Chemical Probe

1 Connect a Chemical Probe hose to the 1" Chemical Probe Inlet *(shown above)* & open the Chemical Probe valve *(shown below)*.

Rotate the Chemical Probe valve to Open position.



2 Rotate the 'Chemical Pump Output Selector' to 'Tank' position *(shown above)*.

3 Place the Chemical Probe into the chemical & Open the Probe Valve *(shown below)* for transferring chemical to the Hopper.

Place the Chemical Probe into the chemical & open the Probe Valve for transfer of chemical to the main tank.



4 The air operated Chemical Pump requires the Crop Cruiser's engine to be running & the pneumatic system pressurised before use.

Rotate the Chemical Pump valve to On position *(shown above)*.

Chemical will begin transferring to the Product tank.

5 After the chemical has transfered to the Product tank, lift the Probe out of the chemical to suck air & purge chemical from the hoses and pump.

6 To rinse the Chemical Probe & hose, place the Chemical Probe into a container of clean water, then Open the Chemical Probe valve to suck clean water through the Chemical Probe, hoses & pump.

7 On completion of rinsing:

- Close the Chemical Probe Valve,
- Rotate the Chemical Pump valve to Off position
- Disconnect the Chemical Probe hose from the 1" Chemical Probe Inlet & replace the camlock cap *(shown above)*.

NOTE

Ensure the Rinse tank has a sufficient quantity of fresh water before using the rinse functions.

⚠CAUTION

Do not let the 'Chemical Pump' run with a closed suction inlet as it may damage the pump.



Connect the Chemical Probe hose to the Chemical Probe Inlet.

b) To Add Liquid Chemical Directly to the Main Tank Using the Micromatic Fitting

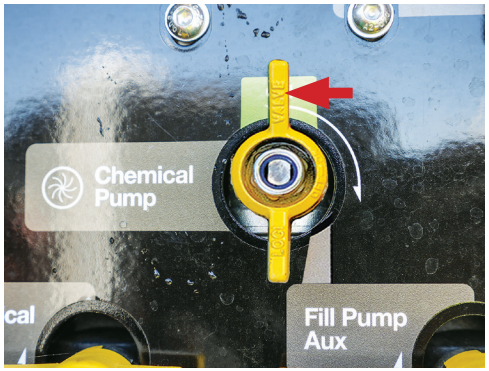
1 Connect a micromatic hose to the 1" Chemical Probe Inlet *(shown above)* & open the Chemical Probe valve.

2 Connect the other end of hose to a chemical source using the Micromatic coupling.

3 Rotate the 'Chemical Pump Output Selector' to 'Tank' position.

Rotate the Chemical Pump Output to Tank position.





Rotate the Chemical Pump valve to ON position.

4 The air operated Chemical Pump requires the Crop Cruiser's engine to be running & the pneumatic system pressurised before use.

Rotate the Chemical Pump valve to On position *(shown above)*.

Chemical will begin transferring to the Product tank.

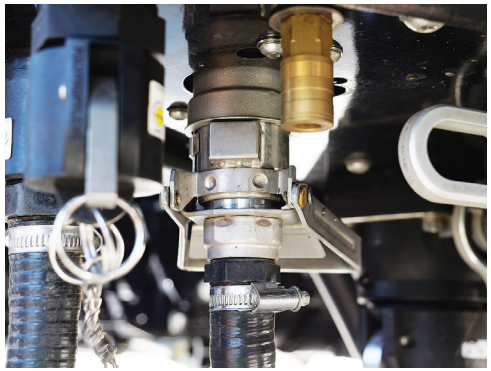
5 After chemical has transfered to the main tank, the Micromatic coupler can be partially disconnected to allow air to suck and clear fluids from the hoses & pump.

6 Rotate the 'Chemical Pump' valve to Off position on completion of chemical transfer.

NOTE

Ensure chemicals added are consistent with the density factor used when filling the Crop Cruiser.

Water weighs 1.0 kg per litre) and conversion factors must be used when spraying liquids heavier than water.



Connect the chemical source Micromatic hose end to the Micromatic Rinse Coupling under the Fill Station Pod.

To rinse the Micromatic Hose & Fittings:

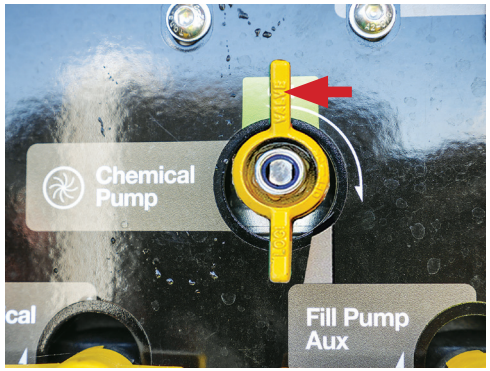
1 Disconnect the Micromatic hose end from the chemical source, then connect it to the Micromatic Rinse Coupling under the Fill Station Pod *(shown above)*.

2 Ensure the Rinse Coupling Valve (located at the rear of the Fill Station Pod) is Open *(shown below)*.

3 Rotate the Chemical Pump Output Selector to 'Hopper' or Product Tank position for the rinse transfer.

Ensure the Rinse Coupling Valve (located at the rear of the Fill Station Pod) is Open.





Rotate the Chemical Pump valve to ON position.

4 Rotate the Chemical Probe valve to On position *(shown above).*

Rinse will transfer to the Chemical Induction Hopper or Product Tank.

4 Disconnect the micromatic coupling from the Micromatic rinse socket & allow air to suck.

5 Rotate the 'Chemical Pump' valve & Chemical Probe valve to Off position.

7 Close the Rinse Coupling Valve.

8 Disconnect the hose from the 1" Chemical Probe Inlet & refit the camlock cap.

9 Refer to instructions in this chapter "To Add & Mix Chemical in the Chemical Induction Hopper" & "To Transfer Chemical from the Hopper to the Product Tank" to complete hopper procedures..

NOTE

Micromatic Hose Rinse

The Micromatic Hose Rinse function can only be used while filling the Product & Rinse tanks with clean water and the 'Fill Product' push button is On.



The Hopper Rinse Nozzle located under the hopper lid.

Hopper Rinse Functions

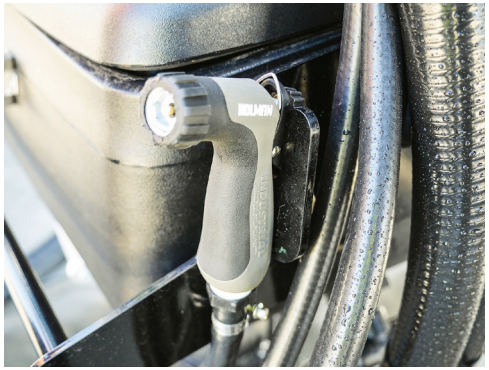
The Chemical Induction Hopper provides several rinsing functions:

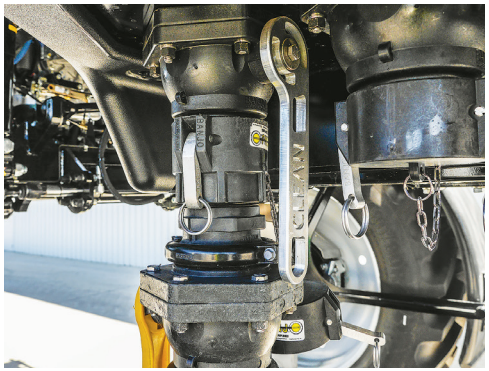
a) Drum Rinse Nozzle
b) Hopper Rinse Nozzle
a) Wash Down Gun

After rinsing, the Chemical Induction Hopper can be emptied by:

- Transferring contents to the Product Tank (see previous instruction) or
- Emptying the Hopper via the Bottom Drain valve.

The Wash Down Handgun on the outside of the hopper.





Connect a 3" fill hose to the 'Clean Fill' inlet & Open the 'Clean Fill' ball valves.

a) To Use the Drum Rinse Nozzle

Connect a 3" suction hose (not supplied) to the 'Clean Fill' camlock coupling with the other end connected to a clean water source *(shown above)*.

2 Open the 'Clean Fill' ball valves by moving the handles down (Crop Cruiser & Suction hose) *(shown above)*.

3 Check the 'Hopper Rinse' valve on the top of the hopper is Closed *(shown below)*.

Check the 'Hopper Rinse' valve on the top of the hopper is Closed.





Open the hopper lid to access the Drum Rinse Nozzle.

4 Open the Hopper lid to access the Drum Rinse Nozzle *(shown above)*.

5 Press the 'Fill Pump' push button On *(shown below)*.

If filling the Main Product tank at the same time and more pressure is required at the drum rinse, press & hold the Fill Product push button for 2 seconds.

6 Place the opening of the chemical drum over & onto the Drum Rinse Nozzle inside the hopper.

7 Press the drum down on the Drum Rinse Nozzle to engage the rinsing function.

Press the 'Fill Pump' push button On



8 When the drum rinsing is complete, lift & remove the drum from the Drum Rinse Nozzle.

9 Press the 'Fill Pump' push button Off.

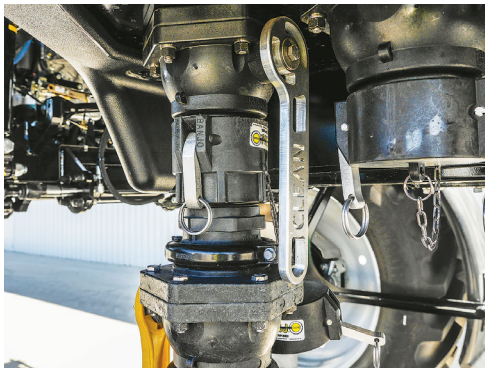
10 Empty the Hopper rinse by:

- Emptying the Hopper to the Product Tank or
- Draining the Hopper via the Bottom Drain valve.

NOTE

Ensure chemicals added are consistent with the density factor used when filling the Crop Cruiser.

Water weighs 1.0 kg per litre) and conversion factors must be used when spraying liquids heavier than water.



Connect a 3" fill hose to the 'Clean Fill' inlet & Open the 'Clean Fill' ball valves.



Press the 'Fill Pump' & 'Rinse Nozzle' push buttons On.



Close the Rinse Valve on top of the hopper lid.



Lift & remove the Wash Down Handgun from its holder on the side of the hopper.

b) To Rinse the Chemical Induction Hopper

1 Connect a 3" suction hose (not supplied) to the 'Clean Fill' camlock coupling with the other end connected to a clean water source *(shown above)*.

2 Open the 'Clean Fill' ball valve by moving the handle down *(shown above)*.

3 Close & lock down the Hopper lid *(shown below)*.

4 Press the 'Fill Pump' & 'Rinse Nozzle' push buttons On *(shown above)*.

5 Open the Rinse Valve on the top of the hopper *(shown below)* to start hopper rinsing.

6 Once the Hopper tank is clean, press the 'Fill Pump' & Rinse Nozzle' push buttons Off.

7 Empty the rinse liquid from the hopper by:

- Transferring contents of the Hopper to the Product Tank or
- Emptying the Hopper via the Bottom Drain valve.

8 Close the Rinse Valve on the top of the hopper *(shown above)*.

9 When all rinse functions are completed, close the 'Clean Fill' ball valves (both Crop Cruiser inlet valve & Suction hose valve) and disconnect the suction hose from the camlock coupling.

Close & lock down the hopper lid.



Open the Rinse Valve on top of the hopper lid.



c) To Use the Wash Down Gun

The Wash Down Gun is provided to assist rinsing & cleaning of the hopper and other items.

Clean water is supplied to the gun by a 12V electric pump which draws water from the rinse tank.

To use the Wash Down Gun:

1 Lift & remove the Wash Down Gun from its holder on the side of the hopper *(shown above)*.

2 Check the hose is not kinked or pinched.

NOTE

Ensure the Rinse tank has a sufficient quantity of fresh water before using the wash down gun.

6 Ready to Spray – **Operation**



Press the 'Wash Down Gun' push button switch On.

3 Press the 'Wash Down Gun' push button switch On (located on the Filling Station Pod to start the pump *(shown above)*.

4 Point the Wash Down Gun towards the hopper or others areas to be rinsed/ cleaned, then squeeze the gun trigger to spray & wash *(shown below)*.

5 Release the gun trigger to stop spraying.



Press the 'Wash Down Gun' push button switch Off.

6 On completion, press 'Wash Down Gun' push button switch Off to stop the pump *(shown above)*.

7 Return the gun to its holder on the side of the hopper.



Lift-up to Close the foot operated ball valve at the bottom of the hopper.

To Empty the Hopper via the Bottom Drain Valve:

1 Lift up the lever to Close the foot operated ball valve at the bottom of the hopper *(shown above)*.

2 Remove the camlock coupling plug & Open the Bottom Drain valve *(shown below)*.

This will drain the Hopper tank & hoses.



On completion of emptying the hopper, Close the Bottom Drain valve.

3 On completion Close the Bottom Hopper Drain valve *(shown above)*.

4 Refit the camlock coupling plug *(shown below)*.

Adjust the spray nozzle as required - pointing the Gun & squeezing the trigger to spray.



⚠CAUTION

Wash the spray gun with clean water, not cleaning agents
Be mindful of where cleaning agents is deposited as it may contain chemical residue.

Remove the camlock coupling plug & Open the Bottom Drain valve.



Refit the camlock coupling plug.





Lift & push the hopper up into its transport position.

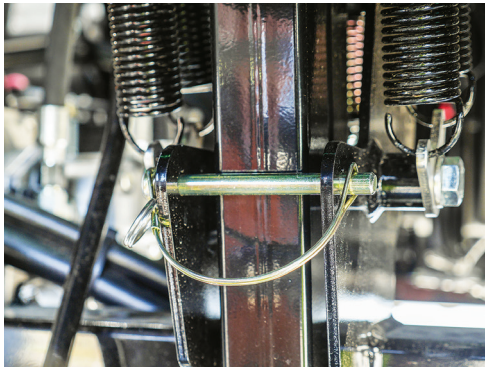
To Raise the Chemical Induction Hopper into Transport Position

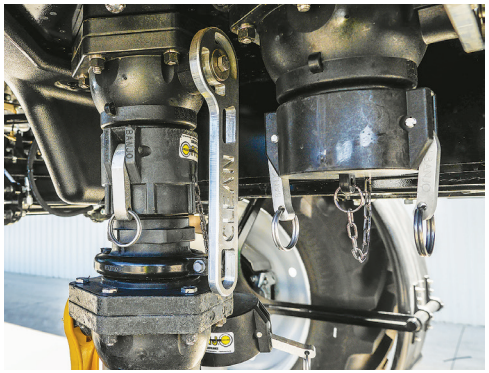
1 Check the hopper lid is closed and latched *(shown above)*.

2 Lift and push the hopper up until it latches into its transport position *(shown above)*.

3 Refit the locking pin to lock-in the hopper lifting arms and refit the safety clip *(shown below)*.

Refit the locking pin & safety clip.





Connect a 3" fill hose to the 'Clean Fill' inlet & Open the 'Clean Fill' ball valves.

Fill Pump Auxiliary Valve

The Fill Pump Auxiliary Valve, located on the Quick Filling Station, provides a clean water outlet to facilitate auxiliary cleaning functions. The facility utilises the clean fill inlet and fill pump & requires a pressure hose for your cleaning operations.

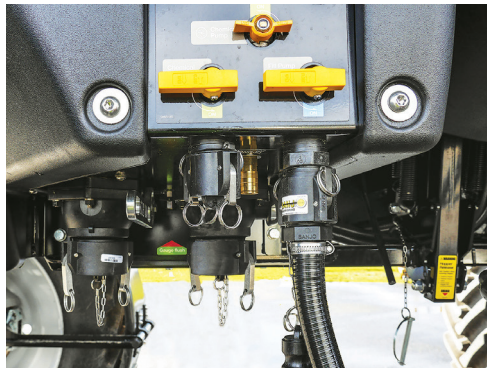
To Use the Fill Pump Aux Valve:

1 Connect a 3" suction hose (not supplied) to the 3" 'Clean Fill' camlock coupling *(shown above)* and connect the other end of the hose connected to a clean water source.

2 Open the 'Clean Fill' ball valves (both Crop Cruiser inlet valve & Suction hose valve) by moving the handles down *(shown above)*.

NOTE

After adding chemical to the Product Tank, ensure both Pump Product and Agitator push buttons are On to keep the chemical evenly mixed in the tank ready for spraying.



Connect a pressure hose to the 'Fill Pump Aux Valve' 1' camlock fitting.

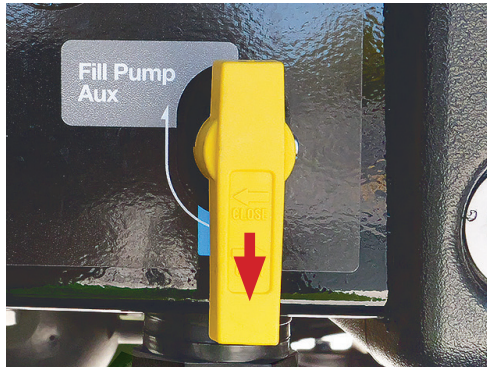
3 Connect a pressure hose to the 'Fill Pump Aux Valve' 1" camlock fitting *(shown above)* [hose not supplied].

4 Rotate the 'Fill Pump Aux' valve to On position *(shown below)*.

⚠CAUTION

Ensure the 'Fill Pump Aux' valve is closed before connecting or disconnecting the pressure hose.

Rotate the 'Fill Pump Aux' valve to On position.





Press the 'Fill Pump' push button On to start pumping clean water.

5 With the Crop Cruiser engine running at low idle, press the 'Fill Pump' push button to On *(shown above)* to start pumping clean water.

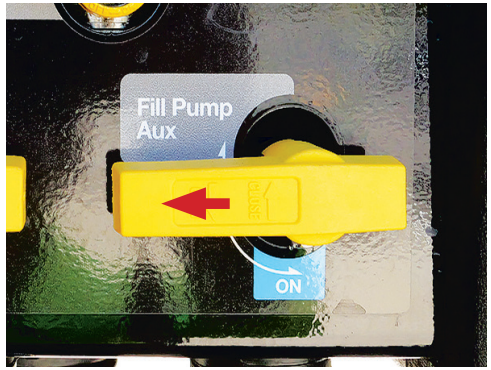
6 Proceed to use the pressure hose for your auxiliary cleaning operations.

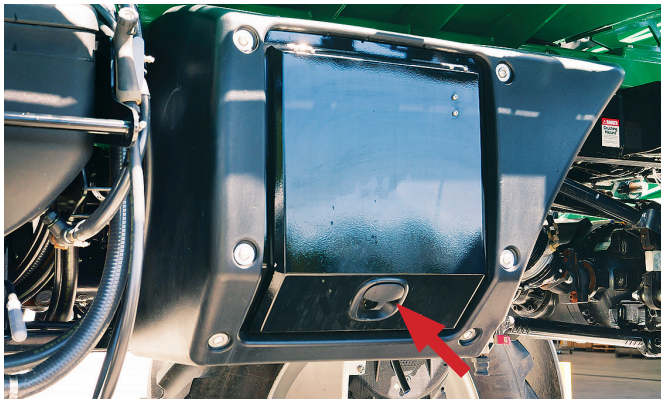
7 When cleaning is complete, press the 'Fill Pump' push button to Stop pumping.

8 Close the 'Fill Pump Aux' valve *(shown below),* disconnect the pressure hose & replace camlock plug caps & plugs.

9 Close the 'Clean Fill' ball valves (Crop Cruiser & suction hose), then disconnect the suction hoses & refit camlock caps.

Rotate the 'Fill Pump Aux' valve to Off position.





Close & lock shut the storage box of the Side Filling Station.

On completion of filling and rinsing functions:

- Ensure all fill and pressure hoses are disconnected/ packed away.
- Close & lock the storage box of the Side Filling Station *(shown above)*.
- On returning to the cabin, deactivate the External Controller.

NOTE

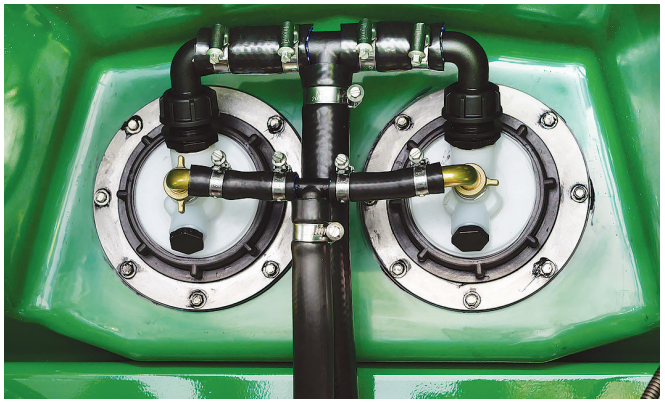
The information provided is a guide only.

It is the full responsibility of the operator to correctly set-up & calibrate the sprayer and to assess the field conditions in all spraying applications.

Each Crop Cruiser is fitted

NOTE

After adding chemical to the Product Tank, ensure both Pump Product and Agitator push buttons are On to keep the chemical evenly mixed in the tank ready for spraying.



Agitators fitted at the rear of the Product (main) tank.

Product Tank Agitation

Product agitation can be controlled manually or automatically through the G-Hub system.

For example, the agitator can be set for the centre high pressure jet to automatically switch off below certain tank level to reduce chances of foaming with less water.

Check the agitators for efficiency because agitator nozzles can block. Refer Chapter 8 'Lubrication & Maintenance' for details.

To Agitate Product:

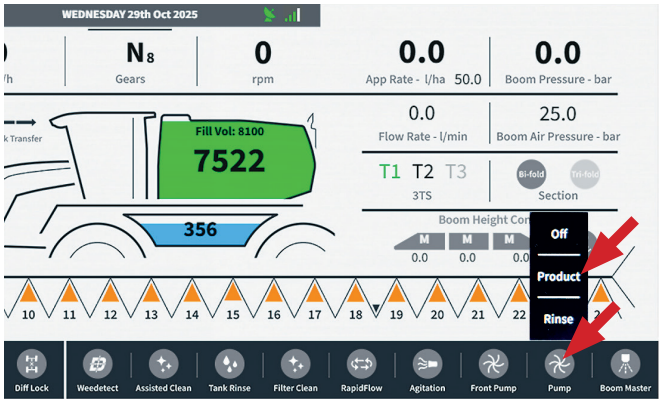
1 Ensure there is a minimum volume of 500 litres of fresh water to the Product Tank for agitation. See instructions - 'Filling the Sprayer'

2 Add chemicals required. See instructions - 'Adding Chemicals to the Product Tank'.

⚠CAUTION

Always ensure the sprayer is properly calibrated & tested before beginning to spray (refer to chapter 5, 'Calibration - Checking your Application Rates').

Failure to properly calibrate and test chemical mixtures & nozzles may result in undesirable and/or damaging outcomes.



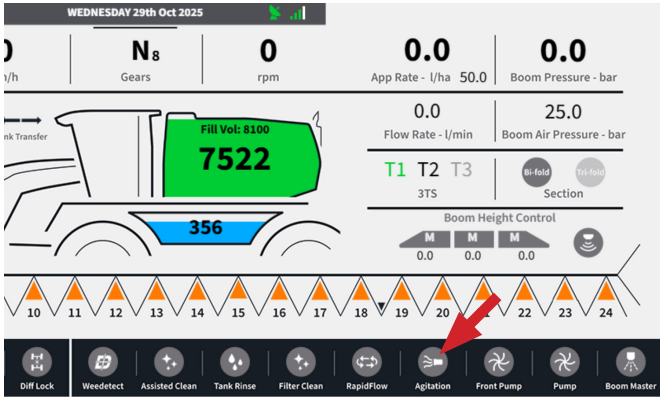
Press the 'Pump' touch button, then 'Product' touch to start the Product Pump. The 'Pump' touch button illuminates Green when On [Grey when Off].

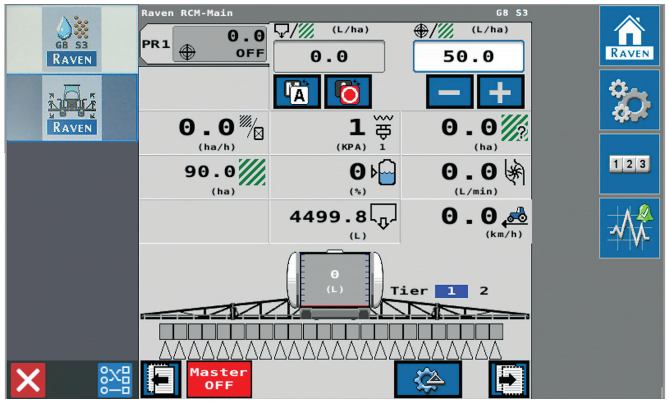
3 Press the 'Pump' touch button, then the 'Product' from the list to start the Product pump *(shown above)*. The Pump touch button illuminates Green when On (Grey when Off).

4 Press the 'Agitation' touch button to start the tank agitation *(shown below)*. The Agitation touch button illuminates Green when On (Grey when Off).

5 Add additional water if required for the spray application.

Press the 'Agitation' touch button to start product tank agitation. The 'Agitation' touch button illuminates Green when On [Grey when Off].





Home screen of the Spray Rate Controller & Control Module (RCM).

Spray Application

After completion of filling & adding chemical, the Crop Cruiser is ready to start spray application.

While traveling from filling to the field, both Product Pump & Agitator must be On to ensure chemicals are mixed adequately for spray application.

To Commence Spray Application:

1 Enter the field and unfold the boom (refer to 'Boom Folding/ Unfolding' in this chapter for instructions).

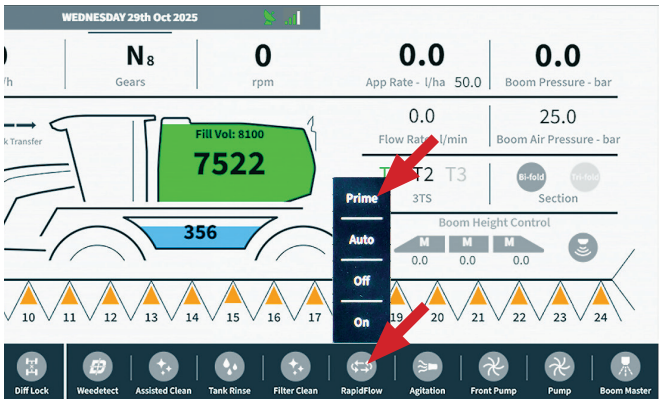
2 Set the boom to the desired height above the application target using the boom height controls fitted to the Crop Cruiser.

3 Check required application rates are entered into the Raven Control Module (RCM) [or other Controller if fitted].

4 Ensure GPS control is activated to automatically locate the Crop Cruiser and cycle boom sections On & Off as required to avoid overlapping of sprayed areas.

⚠ DANGER

Always check for power lines while folding and unfolding the boom, as getting too close or any contact with power lines can be fatal.



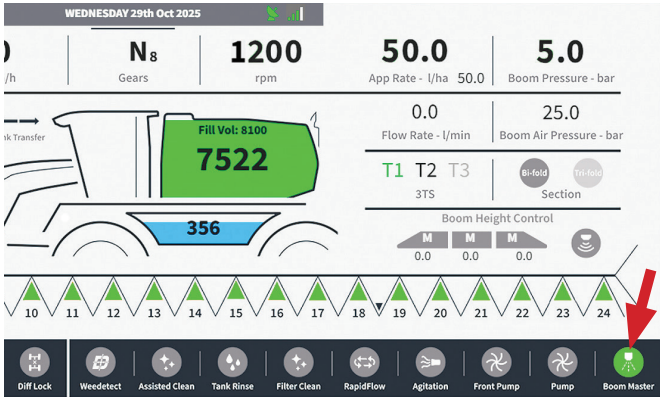
Press the 'RapidFlow' On touch button. The 'RapidFlow' touch button illuminates Green when On [Grey when Off].

5 Press the RapidFlow touch button, then 'Prime' from the list to start priming boom lines *(shown above)*. The RapidFlow touch button illuminates Green when On (Grey when Off).

6 When priming is complete (nozzle screen indicators show Amber when primed & waiting), commence traveling on the required spraying path and press the 'Master Switch' touch button on the G-Hub screen or push button on the Joystick to commence spraying (G-Hub screen Boom Master & nozzle touch buttons illuminate Green when On).

The Raven Control Module (RCM) (or other controller, if fitted) now controls the spraying application rate according to the preset values entered.

Press the G-Hub screen 'Master Switch' touch button On to start spray application. 'Master Switch' & 'Nozzle' screen touch buttons' illuminate Green when spraying.





Fingertip controls on the G-Hub touch Screen, Armrest Console, Joystick & Cruise Control modes for achieving best spray application outcomes.

7 Use the fingertip controls of the G-Hub touch Screen and Armrest Console, Joystick & Cruise Control push buttons to achieve best spray application outcomes.

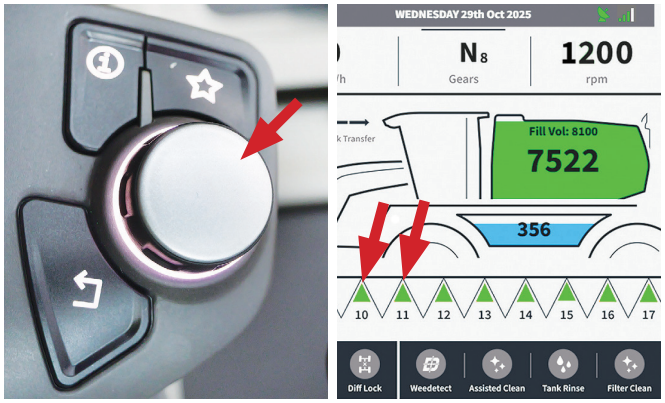
For more information on using the fingertip controls - refer to instructions in this chapter.

8 The Maximum Gear Selector (on LHS front of the armrest) *(shown below)* can be used to set maximum gear speed if spray application conditions are causing the automatic transmission to move up & down gears too often.

A, B & C gear speeds are pre-set in G-Hub Settings (refer to Chapter 4 Setting Up, 'Driveline Settings' for the gear settings & speed information).

Maximum Gear Selector [on front LHS of the armrest] set on C.





Use the Nozzle On/Off Dial or G-Hub screen touch buttons (1 to 24) to switch boom nozzle sections On or Off as required.

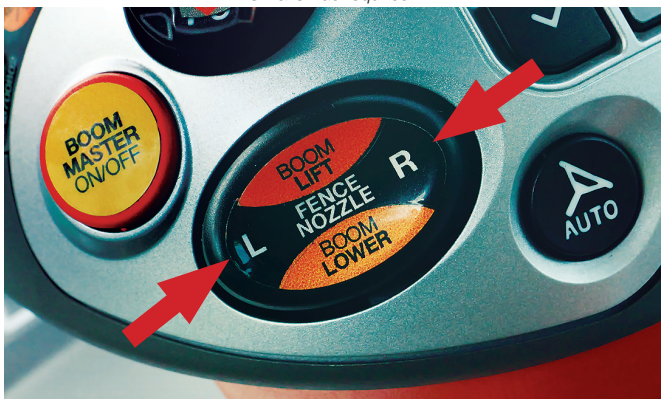
8 The Nozzle On/Off Dial *(shown above)* can be used to switch boom nozzle sections On or Off (refer to chapter 3 Cabin - '5 Nozzle On/Off Dial' for further information).

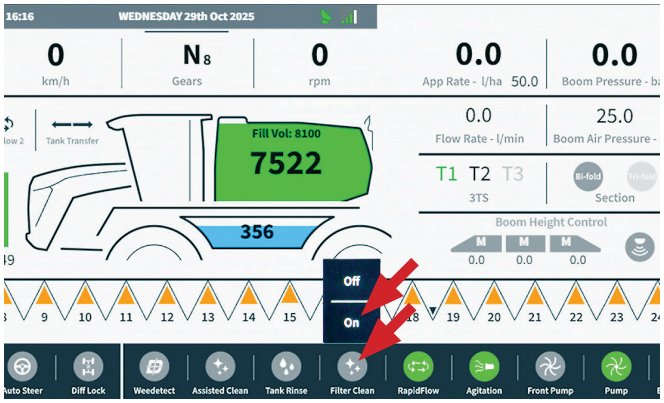
The G-Hub screen touch buttons (1 to 24) can be also used to manually switch boom sections On & Off *(shown above)*.

9 Fenceline nozzles can be switched On & Off as required by using the Joystick 'Fenceline Nozzle' push button *(shown below)*. Outer boom end nozzle sections (1 & 24) must be On for fenceline nozzles to function. Press the:

- 'L' 'Fence Nozzle' push button to switch the left boom Fenceline nozzle On & Off.
- 'R' 'Fence Nozzle' push button to switch the right boom Fenceline nozzle On & Off.

Use the 'Fenceline L/R' push button to switch the left & right Fenceline nozzles On & Off as required.





Press the 'Filter Clean' touch button, then the 'On' touch button to start the pressure 'Filter Clean'.

Fenceline nozzle G-Hub screen indicators illuminate Green when On [Grey when Off]. Boom tip LED's illuminate Red when a fenceline nozzle is spraying (On).

10 The 'Filter Clean' function of the G-Hub Controller can be:

- Set to 'Auto' so that pressure filter flushing automatically activates when all boom sections are switched Off or Boom Master Switch is Off.
- Manually switch the 'Filter Clean' to On *(shown above)* to flush the pressure filter while not actively spraying.

Refer to instructions the follow in this chapter.

'Filter Clean' only operates when boom recirculation (Rapid flow) is activated.

NOTE

The operator must wear the operator safety belt at all times when seated in the cabin or when the machine is in motion.



Press the Joystick 'Boom Master On/Off' push button to start/stop spray application.

11 As the Product Tank gets closer to minimum tank level (300 litres), it may be necessary to switch Off Agitation to reduce foaming.

12 When the Product Tank is empty:

- Press the Joystick 'Boom Master On/Off' push button *(shown above)* [or G-Hub screen touch button] to stop spraying
- Stop the Agitator
- Stop the Pump and
- Return to water source to refill (refer to 'Filling the Sprayer' & 'Adding Chemicals to the Product Tank'.

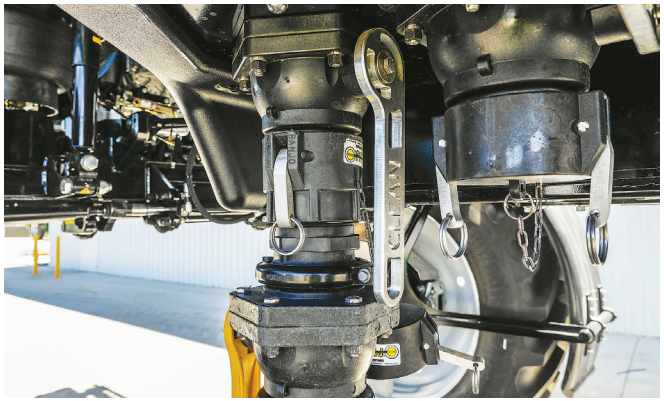
13 On completion of spraying at:

- End of the day
- End of a product or
- End of season,

Follow the appropriate rinsing instructions to ensure all plumbing is flushed & completely clean.

⚠CAUTION

Do not run a centrifugal pump dry as damage will occur to the pump.



Connect a 3" fill hose to the 'Clean Fill' inlet & Open the 'Clean Fill' ball valves for filling & rinsing water.

Rinsing the Sprayer After Spraying

Rinsing assists residue reduction within the sprayer system, but cannot guarantee complete removal of all chemical residues.

Residual traces may remain in the tank, plumbing, boom lines, or other components. Users are responsible for ensuring the Crop Cruiser is properly cleaned for intended use. Always follow product label requirements & industry best practice for rinsing & decontamination.

Never leave chemical or contamination within the Crop Cruiser spraying system. After spraying, its system must be rinsed clean.

The Crop Cruiser provides 3 modes of rinsing:

1 Quick Rinse (Boom Rinse)

2 Basic Rinse

3 Total Rinse.

Each Crop Cruiser rinsing function is factory preset. However, the G-Hub 'Auto Clean' screen provides opportunity to customise cleaning functions for recommended chemical cleaning and decontamination requirements.

Follow the instructions outlined in this chapter. Refer to Chapter 4 'Setting Up', '11 Auto Clean' for more information.



Quick Rinse - recommended from the cabin while still in the field or in a suitable place at the end of transit - always with boom fully open and lowered.

Quick Rinse (Boom Rinse)

Quick Rinse (Boom Rinse) is recommended for use only at emptying of the Product tank or for short operational breaks or at the end of day rinsing when it is intended to continue with the same chemicals.

Quick Rinse only flushes the spray pump, boom & induction plumbing with clean water from the onboard 500L Rinse tank.

Quick Rinse water used transfers into the Product (main) tank except for the final nozzle rinse function.

Quick Rinse is normally conducted from the Crop Cruiser cabin while still in the field or in a suitable place at end of transit. Quick Rinse can also be conducted from the external G-Hub screen on the side Quick Fill Station.

Quick Rinse requires a minimum of 500L clean water. Before starting Quick Rinse, ensure the Rinse tank is full and the Crop Cruiser is safely parked with the boom unfolded.

Quick Rinse can operate with booms folded, but never do this because of greater drift risks & machine contamination issues.

⚠CAUTION

When rinsing is taking place, the cleaning agents are potentially very hazardous depending on chemical content.

Use recommended personal protective equipment (PPE).

For specific information on rinsing & decontamination of the chemicals being applied, it is recommended to consult the chemical manufacturer's label and/or your chemical supplier.

Preset Order	Preset Quick Rinse Function	Preset Clean Time (Sec)
1	rapidflow	45
2	pressure_filter	5
3	bypass_valve	5
4	agitator	10
5	hopper	20
6	tank_rinse_pump	10
7	flush_nozzles	15

Factory default 'Quick Rinse Settings' shown above - total time 110 seconds (close to 2 minutes).

To Quick Rinse from the Cabin

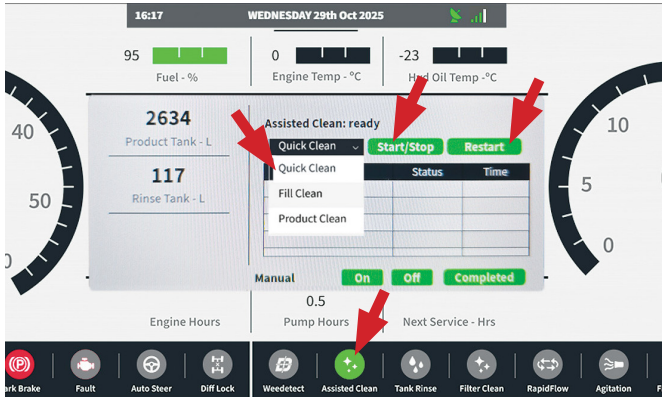
1 Safely park the Crop Cruiser & unfold the boom.

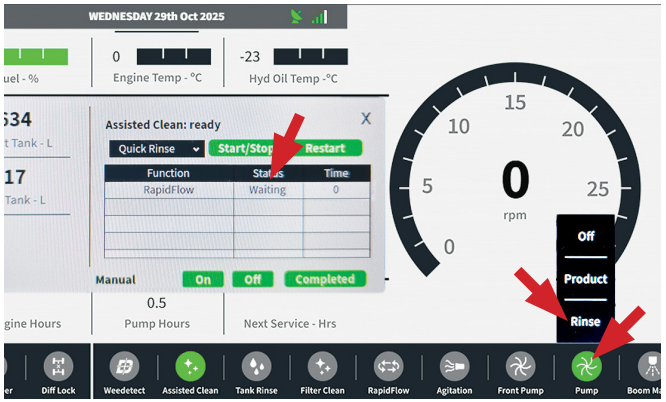
2 While in the cabin, press the 'Assisted Clean' touch button on the bottom menu bar of the G-Hub screen, then select 'Quick Rinse from the dropdown menu *(shown below).*

3 Press 'Restart' to clear previous data *(shown below).*

4 Press 'Start/Stop' touch button' to activate Assisted Clean *(shown below)* & 'Waiting' status is displayed *(shown next page)*.

Press the 'Assisted Clean' touch button (bottom menu bar), then select 'Quick Rinse (dropdown menu of the Assisted Cllean panel), then press 'Restart', then press 'Start' to activate Assisted Clean functions.





Press the 'Pump' touch button, then Rinse' touch button to start the Quick Rinse (RHS above). The 1st Function Status initally displays waiting (centre above)

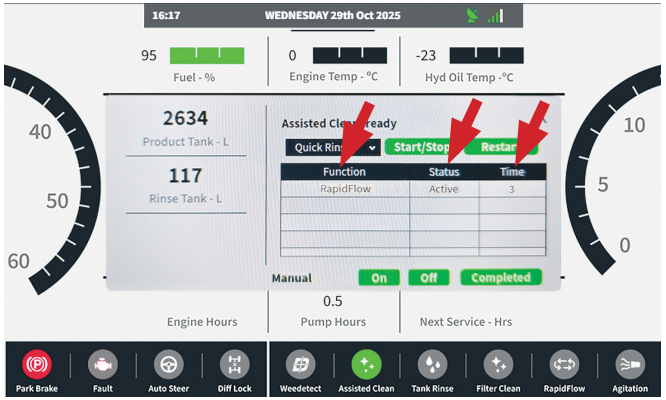
5 Press the 'Pump' touch button on the bottom menu bar of the G-Hub screen, then select 'Rinse' from the menu *(shown above)* to start the Quick Rinse sourcing water from the Rinse tank.

The Assisted Rinse Panel displays 1st Function 'rapidflow', Status changes to 'Active' & the timer begins counting as the Function starts.

Once 'Time' for the 1st Function reaches the pre-set limit, the 1st Function stops & Status changes to 'Complete'.

The next function then populates at the top of the Assisted Clean panel and automatically starts.

As Quick Rinse starts, 1st Function displays 'RapidFlow' & Status changes to 'Active' & Time begins counting for the 1st Function.



Assisted Clean 'Function Status' Legend	
'Waiting'	Operator must turn On a function to start the Auto Function, eg. pump
'Active'	The Rinsing Function is running
'Manual On'	Operator must do a Manual task before Starting a Function
'Manual Off'	Operator must do a Manual task after Stopping a Function
'Complete'	Rinsing Function is finished

Status Legend: Messages displayed in the 'Assisted Clean' panel to inform the operator of rinse function status & to notify the operator of manual tasks.

6 Each Quick Rinse Function automatically completes and populates & starts, namely:

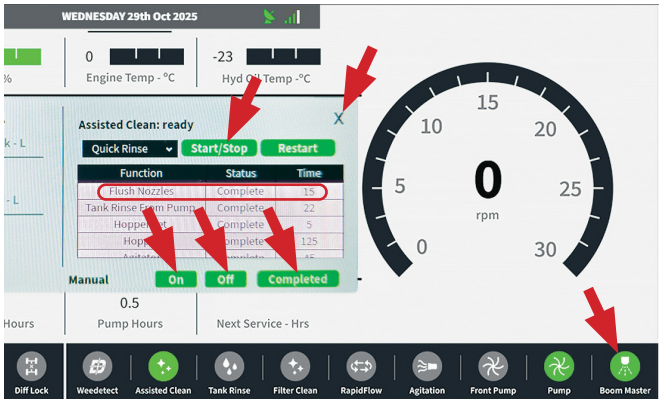
1) 'rapidFlow'
2) 'pressure_filter'
3) 'bypass_valve'
4) agitator'
5) 'hopper'
6) 'tank_rinse_pump'
7) 'flush_nozzles' - populates but waits for Manual start.

The Assisted Clean process turns valves On & Off as required to operate each Rinsing Function.

8 Once Function (4) 'tank_rinse_pump' completes, the Flush Nozzles Function loads but does not start.

9 For safety reasons, the operator must Manually start the 'flush_nozzle' Function after checking there are no people & animals in surrounding area.

It's strongly recommended to start the 'Quick Rinse' immediately after the Product tank is empty (while still in the field) and only Flush Nozzles' when the boom is fully unfolded.



Stop', 'On', 'Off', 'Complete', 'Boom Master' & 'X' touch buttons referred to in the text below.

10 Press the 'On' touch button on the 'Assisted Clean' panel *(shown above)* to start the Timer. The ISOBus 'Product State Master' must be on (Green) for this to work - this is done from the cabin.

Press the Down Arrow to access the Boom Master & Fence Jet menu. ??

Press the 'Boom Master' touch button [on the bottom menu bar of the G-Hub screen] *(shown above)* for 2 sec to Start spraying. The nozzles will spray for 15 seconds , then automatically turn Off. Status will change to 'Complete'.

11 Press the 'Boom Master' touch button (on bottom menu bar of the G-Hub screen) to Off (Grey) to stop spraying.

Press the 'Off' touch button on the Assisted Clean panel *(shown above)* to stop the timer. Status will change to 'Complete'.

Press the 'Start/Stop' touch button on the Assisted Clean panel *(shown above)* to Stop the Function. Status will change to 'complete'.

Press the 'Completed' touch button on the Assisted Clean panel *(shown above)* to Stop the Quick Rinse. Status will change to 'Complete'.

12 'Quick Rinse' is now completed.

To close the 'Clean Assist' panel, press the 'X' touch button in the top right hand corner of the panel *(shown above)*.



Open the Main Tank Drain Valve to drain the Product tank, then close the valve.

Basic Rinse

Basic rinse is recommended for use as an end of program Minimum Rinse Procedure when the Crop Cruiser may not be used for a period of time or when changing chemicals which do not require a full decontamination.

Refer to chemical labels for decontamination requirements for specific chemicals.

Basic clean must be done from the external G-Hub screen at the side Quick Fill Station. An external clean water source using the Fill Pump and 3" clean water inlet is require to conduct the Basic Rinse.

Rinsing assists residue reduction within the sprayer system, but cannot guarantee complete removal of all chemical residues. Residual traces may remain in the tank, plumbing, boom lines, or other components. Users are responsible for ensuring the Crop Cruiser is properly cleaned for intended use. Always follow product label requirements & industry best practice for rinsing & decontamination.

Each Crop Cruiser rinsing function is factory preset. However, the G-Hub 'Auto Clean' screen provides opportunity to customise cleaning functions for recommended chemical cleaning and decontamination requirements.

Follow the instructions outlined in this chapter. Refer to Chapter 4 'Setting Up', '11 Auto Clean' for more information

Preset Order	Preset Basic Rinse Function	Preset Clean Time (Sec)
1	main_tank_fill_line_side	35
2	main_tank_fill_line_front	80
3	tank_rinse_fill	30
4	chem_transfer_pump_to_ tank	60
5	chem_transfer_pump_to_ hopper	50
6	main_tank_suction_line	10
7	rapidflow	230
8	gauge_drain_line	10
9	pressure_filter	10
10	bypass_valve	10
11	agitator	45
12	hopper	115
13	tank_rinse_pump	20
14	flush_nozzles (from cabin only)	120

Factory default 'Basic Rinse Settings' shown above - total time 560 seconds (close to 9½ minutes).

To Basic Rinse:

1 Safely park the Crop Cruiser & fully unfold the boom.

2 Open the Product Tank drain valve (located at the bottom of the tank) by turning down the yellow drain ball valve handle to completely drain the tank. Close the valve when empty *(shown above left)*.

3 Lower the Chemical Induction Hopper keeping the hopper lid closed (refer to previous instructions in this chapter for more information if required.



Connect a 3" fill hose to the 'Clean Fill' inlet & Open the 'Clean Fill' ball valves.

4 Connect a 3" suction hose (not supplied) to the 3" 'Clean Fill' camlock coupling *(shown above)* with the other end of the hose connected to a clean water source (refer to 'Tank Filling' instructions in this chapter).

If fitted, the Front Fill external controller may be used as an alternative fill point (not available on 3PL Front Tank option.

5 Open the 'Clean Fill' ball valves (Crop Cruiser & suction hose) by moving the handles down *(shown above)*.

6 Unlock & open the storage cabinet at the Quick Filling Station to access the External G-Hub Controller.

7 Press the Screen Selector push button to select the 'Auto Clean' screen.

8 On the external G-Hub screen press the 'Right Across Arrow' to access the 'Auto Clean' Page.

9 Press the 'Profile' button to select 'Basic Rinse'

10 Open the clean water supply for the side Quick Fill Station 'main_tank_fill_line_side' Function (preset 1).

Alternatively, if using a Front Fill point, press the 'Complete' touch button to skip the Side Fill (preset 1), then Open the clean water supply for the Front Fill for the 'main_tank_fill_ line_front' Function (preset 2).

Press the 'Complete' touch button to skip the Front Fill (preset 2) if using Side Fill.

11 Press the ‘Auto Clean’ touch button to start.

Press the ‘On’ touch button to indicate you have opened the supply of water into the Crop Cruiser. This will start the timer.

Once the pre-set time is reached the status will change to ‘Manual Off’ Press the ‘Off’ touch button, then press the ‘Complete’ touch button to move to the next Function. Remain connected to the clean water supply.

12 Press the ‘On’ touch button to start the ‘tank_rinse_fill’ Function (preset 3).

Once the pre-set time is reached, Status will changes to ‘Manual Off’. Press the ‘Off’ touch button, then the ‘Complete’ touch button to move to the next Function. Remain connected to the clean water supply.

13 To do the ‘chem_transfer_pump_to_tank’ Function (preset 4), connect a clean water source to the Chemical Probe Inlet and open the valve, then rotate the ‘Chemical Pump’ valve to On.

Press the ‘On’ touch button to start the timer.

Once the pre-set time is reached, Status changes to ‘Manual Off’. Press the ‘Off’ touch button, then the ‘Complete’ touch button to move to the next Function.

Remain connected to the clean water source to the Chemical Probe Inlet.

14 To do the ‘chem_transfer_to_hopper’ Function (preset 5), rotate the Chemical Pump Output Selector to ‘Hopper’ position.

Press the ‘On’ touch button to start the timer.

Once the pre-set time is reached, Status changes to ‘Manual Off’. Press the ‘Complete’ touch button to move to the next Function.

15 Rotate the ‘Chemical Pump’ valve to Off, then close the Chemical Probe Inlet valve and disconnect the clean water source from chemical probe inlet.

16 Drain the liquid content of the Main (Product) tank and Chemical Induction Hopper into a safe storage location.

17 After the Main (Product) tank is fully drained, open the suction filter drain valve to drain liquid out of the ‘Main tank Suction Line’.

18 To do the ‘main_tank_suction_line’ Function (preset 6), press the ‘On’ touch button to open suction valve. The timer will start.

Once the pre-set time is reached, Status changes to ‘Manual Off’. Press the ‘Off’ touch button, then ‘Complete’ touch button to move to the next Function.

⚠CAUTION

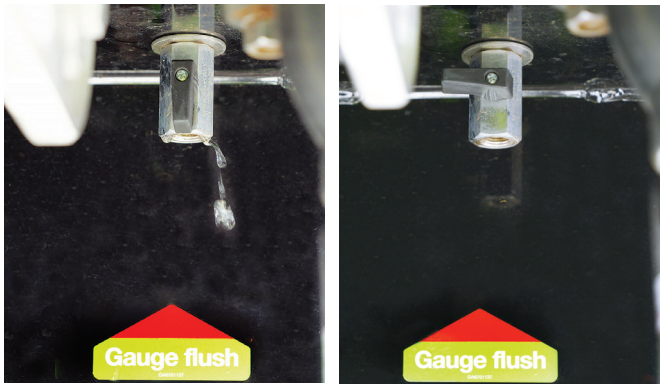
It is important not not close the ‘Clean Fill’ valve while the pump is running. Running the pump with a closed suction inlet may damage the pump.

NOTE

If filling the Rinse Tank at the same time as the Product Tank, the ‘Fill Rinse Tank’ push button will flash to indicate pausing until the Product Tank reaches 500 litre level. Rinse Tank filling will then resume as indicated by a solid colour of the push button. Individual tank filling rate is reduced when filling both tanks at the same time.

NOTE

After Rinsing, it is recommended to remove and clean the pressure filter and the suction filter.



Open (shown left) & Closed (shown right) Spray Gauge valve(s) to flush & decontaminate the line(s).

19 The ‘rapidflow’ Function (preset 7) Status displays ‘Waiting’.

Press the ‘Pump Rinse’ push button On (illuminates Blue) to start this Function. This will start the spray pump suction from the Rinse tank & the timer.

20 Open the ‘Gauge Drain Line’ valve(s) while ‘Rapidflow’ is rinsing.

21 While ‘Rapidflow’ is running, press the ‘Fill Rinse’ push button (illuminates Blue) to ensure sufficient water is available.

22 The ‘gauge_drain_line’ Function (preset 8) rinse is fully automated.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

Close the ‘Gauge Drain Line’ valve(s).

NOTE

Two Spray Gauge Flush valves are fitted when a Dual line boom option fitted. Ensure both spray gauge valves are flushed if fitted.

23 The ‘pressure_filter’ Function (preset 9) rinse is fully automated and requires no operator input.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

24 The ‘bypass_valve’ Function (preset 10) rinse is fully automated and requires no operator input.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

25 The ‘agitator’ Function (preset 11) is fully automated and requires no operator input.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

26 The ‘hopper’ Function (preset 12) is an automated Function and starts automatically.

While ‘Hopper’ clean is running, manually open the mixing jet valve to flush this line, then close the valve.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

⚠CAUTION

It is important to not close the ‘Clean Fill’ valve while the pump is running. Running the pump with a closed suction inlet may damage the pump.

27 The ‘tank_rinse_pump’ Function (preset 13) is a fully automated Function and requires no operator input.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

28 The ‘flush_nozzle’ Function (preset 14) must be manually started due to safety risks. It is strongly recommended to flush nozzles from the cabin with booms fully unfolded and the Crop Cruiser in a safe location.

29 Press the ‘On’ touch button to start the timer. The ISOBus ‘Product State Master’ must be on (Green) for this to work - this is done from the cabin.

Press the Down Arrow to access the Boom Master & Fence Jet menu. ??

Press the ‘Boom Master’ touch button to start spraying. The nozzles will spray for 15 seconds, then automatically stop.

NOTE

If filling the Rinse Tank at the same time as the Product Tank, the ‘Fill Rinse Tank’ push button will flash to indicate pausing until the Product Tank reaches 500 litre level. Rinse Tank filling will then resume as indicated by a solid colour of the push button. Individual tank filling rate is reduced when filling both tanks at the same time.

30 Press the ‘Off’ touch button to stop the timer and turn ‘Flush Nozzle’ Off. Status will change to ‘Complete’

32 Basic Rinse is now completed.

To close the ‘Clean Assist’ panel, press the ‘X’ touch button in the top right hand corner of the panel.

33 Finally, open the Main (Product) tank drain valve & Chemical Induction Hopper drain valve to fully empty contents into a safe storage location. Close drain valves when completed.

34 Store & shut-down the Crop Cruiser as required.

Total Rinse

Total rinse is to be used as an end of program decontamination where the Crop Cruiser when changing chemicals of high risk of causing crop damage which require full decontamination and when the Crop Cruiser will not be used for a period of time.

It is very important to ‘Total Rinse’ whenever changing chemicals or applications and at the end of spraying applications.

Total Rinse draws clean water from an external source using the Fill Pump & 3” clean water inlet and uses appropriate cleaners/decontaminants added to clean & neutralise any previously used chemicals.

Refer to chemical labels for decontamination requirements for specific chemicals

Total Rinse must be done from the external G-Hub screen at the side Quick Fill Station and a clean water source is required to conduct ‘Total Rinse’.

Preset Order	Preset Total Rinse Function	Preset Clean Time (Sec)
1	main_tank_fill_line_side	70
2	main_tank_fill_line_front	180
3	tank_rinse_fill	60
4	chem_transfer_pump_to_tank	130
5	chem_transfer_pump_to_hopper	100
6	main_tank_suction_line	25
7	Add 500L to main tank	
8	Add Cleaning Agent via Chemical Induction Hopper	
9	rapidflow agitator	500
10	agitator	90
11	gauge_drain_line	25
12	pressure_filter	25
13	bypass_valve	20
14	tank_rinse_pump	50
15	flush_nozzles (from cabin only)	250

Factory default ‘Total Rinse Settings’ shown above - total time shown 1550 seconds (at least 26 minutes).

NOTE

Dispose of chemical & pesticide waste safely.
If possible, reuse the cleaning agents when preparing the next batch of tank mixture. Make sure all the dirt and debris in the cleaning agents are filtered out before adding the cleaning agents to a spray tank. Small amounts of solids left should be dried, then taken to a hazardous waste disposal site or pesticide collection location.

NOTE

After Total Rinse & Decontamination, it is recommended to remove and clean the pressure filter and the suction filter.
Both filters should be cleaned regularly.

To Total Rinse:

1 Safely park the Crop Cruiser & fully unfold the boom.

2 Open the Product Tank drain valve (located at the bottom of the tank) by turning down the yellow drain ball valve handle to completely drain the tank. Close the valve when empty *(shown above left)*.

3 Lower the Chemical Induction Hopper keeping the hopper lid closed (refer to previous instructions in this chapter for more information if required.

4 Connect a 3" suction hose (not supplied) to the 3" 'Clean Fill' camlock coupling *(shown above)* with the other end of the hose connected to a clean water source (refer to 'Tank Filling' instructions in this chapter).

If fitted, the Front Fill external controller may be used as an alternative fill point (not available on 3PL Front Tank option.

5 Open the 'Clean Fill' ball valves (Crop Cruiser & suction hose) by moving the handles down.

6 Unlock & open the storage cabinet at the Quick Filling Station to access the External G-Hub Controller.

7 Press the Screen Selector push button to select the 'Auto Clean' screen.

8 On the external G-Hub screen press the 'Right Across Arrow' push button to access the 'Auto Clean' Page.

9 Press the 'Profile' button to select 'Total Rinse'

10 Open the clean water supply for the side Quick Fill Station 'main_tank_fill_line_side' Function (preset 1).

Alternatively, if using a Front Fill point, press the 'Complete' touch button to skip the Side Fill (preset 1), then Open the clean water supply for the Front Fill for the 'main_tank_fill_line_front' Function (preset 2).

Press the 'Complete' touch button to skip the Front Fill (preset 2) if using Side Fill.

11 Press the 'Auto Clean' touch button to start.

Press the 'On' touch button to indicate you have opened the supply of water into the Crop Cruiser. This will start the timer.

Once the pre-set time is reached, Status changes to 'Manual Off'. Press the 'Off' touch button, then press the 'Complete' touch button to move to the next Function.

Remain connected to the clean water supply.

12 Press the 'On' touch button to start the 'tank_rinse_fill' Function (preset 3).

Once the pre-set time is reached, Status will change to 'Manual Off'. Press the 'Off' touch button, then the 'Complete' touch button to move to the next Function. Remain connected to the clean water supply.

13 To do the ‘chem_transfer_pump_to_tank’ Function (preset 4), connect a clean water source to the Chemical Probe Inlet and open the valve, then rotate the ‘Chemical Pump’ valve to On.

Press the ‘On’ touch button to start the timer.

Once the pre-set time is reached, status changes to ‘Manual Off’. Press the ‘Off’ touch button, then the ‘Complete’ touch button to move to the next Function.

Remain connected to the clean water source to the Chemical Probe Inlet.

14 To do the ‘chem_transfer_to_hopper’ Function (preset 5), rotate the Chemical Pump Output Selector to ‘Hopper’ position.

Press the ‘On’ touch button to start the timer.

Once the pre-set time is reached the status will change to ‘Manual Off’. Press the ‘Complete’ touch button to move to the next Function

15 Rotate the ‘Chemical Pump’ valve to Off, then close the Chemical Probe Inlet valve and disconnect the clean water source from chemical probe inlet.

16 Drain the liquid content of the Main (Product) tank and Chemical Induction Hopper into a safe storage location.

17 After the Main (Product) tank is fully drained, open the suction filter drain valve to drain liquid out of the ‘Main tank Suction Line’.

18 To do the ‘main_tank_suction_line’ Function (preset 6), press the ‘On’ touch button to open suction valve. The timer will start.

Once the pre-set time is reached, Status changes to ‘Manual Off’. Press the ‘Off’ touch button, then ‘Complete’ touch button to move to the next Function.

19 With clean water supply connected to the ‘Clean Fill inlet, transfer minimum 500L into the Main (Product) tank (preset step 7) using the on-board fill pump. Press the ‘Fill Pump’ push button to start, then stop the pump as required.

20 Use the Chemical Induction Hopper to add ‘Cleaning Agent’ to the Main (Product) tank (preset step 8).

Press the ‘Pump Spray’ push button to start the spray pump (illuminates Green) and press the ‘Hopper’ push button to start the hopper (illuminates Green).

After the desired volume of cleaning agent has been added to the tank, press the ‘Hopper’ push button to stop the hopper (illuminates white).

The ‘Pump Spray’ push button remains On (illuminated Green). ‘Assisted Clean’ Functions can now re-start.

21 The ‘rapidflow’ Function (preset 9) Status shows ‘Waiting’. Press the ‘On’ touch button to start spray pump suction from the Main (Product) tank & start the timer.

Open the ‘Gauge Drain Line’ valve(s) while ‘Rapidflow’ is rinsing.

Once the pre-set time is reached the status will change to ‘Complete’ and the next Function will start automatically.

22 The ‘Agitator’ Function (preset 10) is fully automated and requires no operator input.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

23 The ‘gauge_drain_line’ Function (preset 11) rinse is fully automated.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

Close the ‘Gauge Drain Line’ valve(s).

24 The ‘pressure_filter’ Function (preset 12) rinse is fully automated and requires no operator input.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

25 The ‘bypass_valve’ Function (preset 13) rinse is fully automated and requires no operator input.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically.

26 The ‘tank_rinse_pump’ Function (preset 14) is a fully automated Function and requires no operator input.

Once the pre-set time is reached, Status will change to ‘Complete’ and the next Function starts automatically..

27 The ‘flush_nozzle’ Function (preset 15) must be manually started due to safety risks. It is strongly recommended to flush nozzle from the cabin with booms fully unfolded and the Crop Cruiser in a safe location.

28 Press the ‘On’ touch button to start the timer. The ISOBus ‘Product State Master’ must be on (Green) for this to work - this is done from the cabin.

Press the ‘Boom Master’ touch button to start spraying. The nozzles will spray for 15 seconds, then automatically stop.

29 Press the ‘Off’ touch button to stop the timer and turn ‘Flush Nozzle’ Off. Status will change to ‘Complete’.

30 Total Rinse is now completed.

To close the ‘Clean Assist’ panel, press the ‘X’ touch button in the top right hand corner of the panel.

NOTE

It is recommended to remove & clean the Pressure Filter after Quick Rinse, Basic Rinse and Total Rinse & Decontamination procedures are completed in which case self cleaning the pressure filter is already done.

⚠CAUTION

The chemicals & cleaning agents are potentially very hazardous depending on chemical contents. Use recommended personal protective equipment (PPE).

For information specific to your circumstances, the spraying equipment being used and the chemicals being applied, consult your agronomist or chemical supplier.

⚠CAUTION

If operating with Centrifugal spray pump, running the centrifugal spray pump dry will damage it.

The pressure filter must be fully assembled with the red drain valve open before operaing the pump to avoid damage.

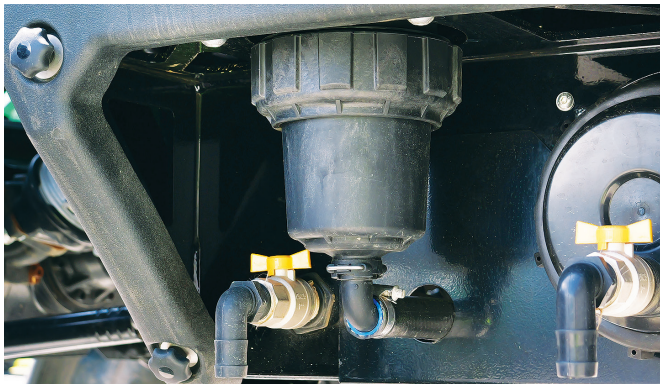
31 Finally, open the Main (Product) tank drain valve & Chemical Induction Hopper drain valve to fully empty contents into a safe storage location. Close drain valves when completed.

32 After decontaminating the whole system, proceed to the next step of flushing the system with fresh water.

Final Clean Water Rinse

After Final Rinse is completed, repeat the Basic Rinse process to rinse the Crop Cruiser with clean water (after total rinse & decontamination) to remove any remaining cleaning agents & cleaners.

After rinsing with fresh water, store & shut-down the Crop Cruiser as required.



Clean the Pressure Filter regularly.

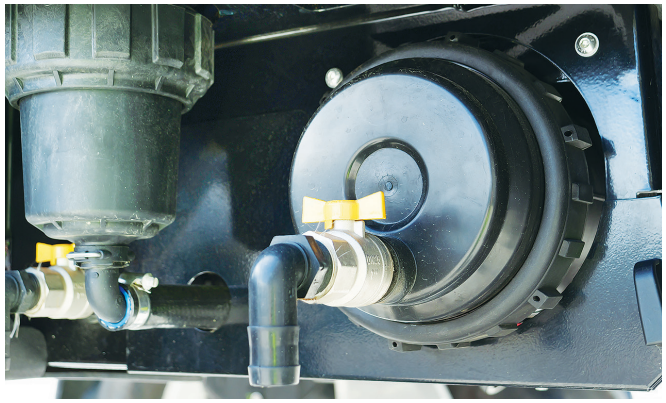
Pressure Filter Removal & Cleaning

It is recommended to remove & clean the Pressure Filter regularly - before each tank fill. Frequency of cleaning will depend on the quality of water and chemicals used.

The Pressure Filter receives liquid from either the Product Tank or the Rinse Tank via the spray pump.

The G-Hub Controller provides a Self Cleaning function controlled by via an electronic valve when Boom Recirculation (Rapid fire) is On.

This Self Cleaning function of the controller will only purge some material from the screen. It is NOT a full reverse flush.



Clean the Suction Filter regularly.

Suction Filter Removal & Cleaning

It is recommended to remove & clean the Suction Filter regularly - before each tank fill. Frequency of cleaning will depend on the quality of water and chemicals used

The Suction Filter receives liquid from either the Product Tank or Rinse Tank. All liquid to be sprayed or flushed through the system passes through this filter.

Fluid supply to the suction filter is controlled by an electronically operated valve. The valve operation is controlled by the presets in the G-Hub controller (refer to Chapter 4).

The suction filter valve is plumbed before the filter housing

Prior to removal of the filter for cleaning, self clean the filter using the G-Hub External Controller:

1 Open the storage cabinet of the side Quick Filling Station to access the External G-Hub Controller.

2 Press the Screen Selector push button to select the ‘Clean’ screen.

3 Press the Selector push button to select Pressure Filter, then press the Start push button

4 Press the ‘Pump Product’ push button On and allow the pump to run for several seconds to flush the filter out.

5 Press ‘Pump Product’ push button Off and turn Off the filter valve.

The Pressure Filter is now ready for manual removal & cleaning.

To Remove & Clean the Pressure Filter:

1 Make sure the ‘Pump Product push button is Off.

2 Loosen the filter bowl nut slowly using the filter spanner supplied. Be aware some residual chemical may dribble out.

3 After liquid stops coming from the filter, fully unscrew the filter bowl nut and remove the filter bowl.

Be careful of any chemical and avoid any damage to the O-Rings.

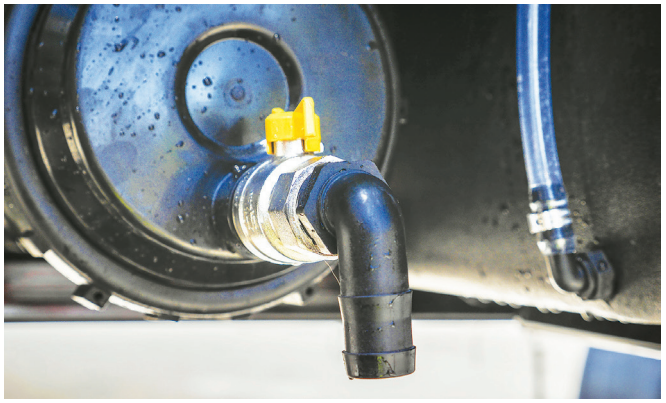
4 Clean the filter screen and O-rings, then refit the components making sure the filter bowl & O-rings are correctly placed. Fully tighten the filer bowl nut.

⚠CAUTION

When rinsing is taking place, the cleaning agents are potentially very hazardous depending on chemical content.

Use recommended personal protective equipment (PPE).

For specific information on rinsing & decontamination of the chemicals being applied, it is recommended to consult the chemical manufacturer’s label and/or your chemical supplier.



Open the drain valve to drain the Suction Filter.



Remove the Suction Filter screen.

To Remove & Clean the Suction Filter:

1 Make sure the 'Pump Product push button is Off.

2 Open the drain valve on the filter & allow the filter to drain fully.

Be sure to collect any hazardous chemical and wear appropriate PPE.

3 Close the drain and loosen the filter bowl collar slowly using the spanner provided. Be aware some residual chemical may dribble out.

4 After liquid stops flowing from the filter, fully unscrew the filter bowl collar and remove the filter bowl.

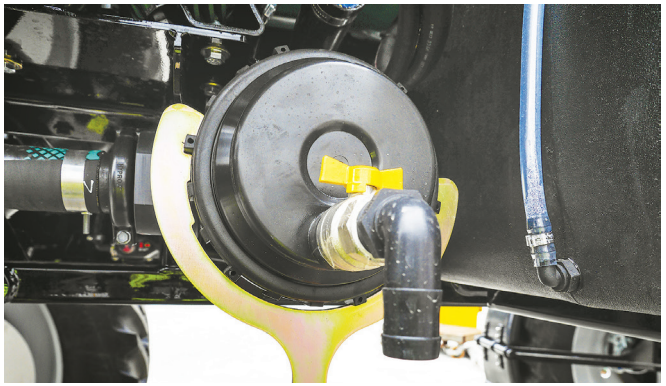
Be careful not to damage the O-Rings.

5 After removing the filter bowl, carefully remove the filter screen, then clean the filter bowl, body, screen & O-rings.

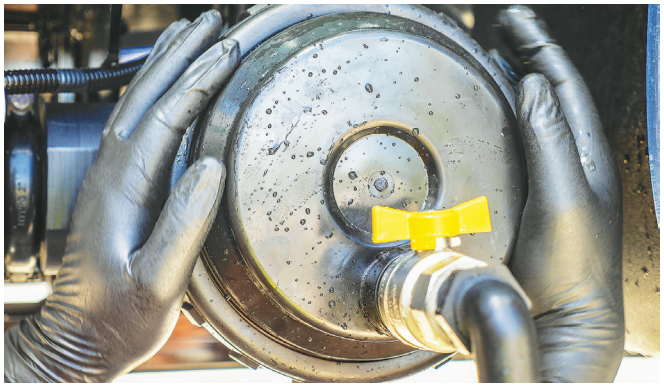
6 After cleaning, refit the components making sure the filter bowl & O-rings are correctly placed.

7 Fully tighten the filter bowl collar & close the drain valve.

Unscrew the filter bowl collar with the tool provided & remove the filter bowl.



Fully tighten the filter bowl collar by hand & close the drain valve.



End of Day

At the end of each spraying day, follow the instructions for Basic Rinsing or Total Rinse & Decontamination.

⚠CAUTION

If icing occurs, it is important to ensure any ice has thawed before using the Crop Cruiser.

Failure to thaw ice prior to use will cause damage to the machine.

⚠CAUTION

All chemicals have corrosive properties to some degree. Prevent damage to the machine by always consulting the chemical MSDS or the chemical supplier for advice concerning the corrosive properties of the chemical.

It is the responsibility of the operator to carry out preventative and ongoing maintenance to the machine, particularly while applying chemicals with highly corrosive properties.

⚠CAUTION

Machine components should be coated with a suitable protectant during storage, then washed down, thoroughly, before use.

Consult the supplier of protectants, if you require specific advice about the effectiveness of any particular protectant to prevent premature degradation of machine components.



Ensure the Crop Cruiser is properly cleaned and stored at the end of day & end of season.

End of Season

If the Crop Cruiser is to be stored for a long period of time without use, several procedures must be performed.

1 Follow the instructions for Total Rinse & Decontamination.

2 Thorough examine the Crop Cruiser to determine if there is any damage.

3 Park the Crop Cruiser where it will not be affected by frosts, and preferably out of direct sunlight.

4 Ensure all spray tanks are empty.

5 If necessary, remove consoles from cabin and store them in a safe & secure location.

Tow Bar

The Crop Cruiser is fitted with an height adjustable Tow bar.

When using the Tow bar, ensure the tow bar load & speed limits are adhered to at all times:

- Maximum vertical load on the tow bar is 100kg
- Maximum towing load (unbraked) is 750kg
- Maximum towing load (braked) is 2250kg
- Maximum speed with a trailer attached is 40km/hr.

To Use the Tow Bar:

1 Ensure the boom is fully folded.

2 Remove the safety clip from the holding pin.

3 Remove the holding pin & drop the tow bar down.

4 Refit the holding pin & safety clip.

5 Attached the trailer, safety chains & light cable.

NOTE

Store the machine in a suitable location to prevent freezing. If the machine is to be left where freezing may occur, cover the pump & flow meter with a material bag, empty the pump & flow meter of all water (run pump (diaghragm only) dry for 15-20 seconds).

It is recommended a small quantity of anti freeze be added to the main tank and circulated through the machine to minimise the chance of freezing.

NOTE

Do not run a centrifugal pump dry as damage will occur to the pump.

Remove the suction filter to drain the line and pump if a centrifugal pump is installed.



Press the 'Auto' push button to engage Autosteer as required (if fitted).

GPS Autosteer On/Off

Autosteer is retrofitted by the dealer/customer accoding to their requirements.

The black AUTO push button engage the GPS Autosteer On *(shown above)*.

To engage/disengage Autosteer (if fitted):

i) Press to Auto push button to activate the Autosteer.

ii) Turn the steering wheel to deactivate the Auto-steering.

Differential Lock (4WD only)

On 4WD models only, pressing the Differential Lock switch forward momentarily cycles the transfer case centre differential lock On or Off.

This switch option will only be present on 4WD optioned machines.

NOTE

The Autosteer function must be wired in or use CAN communications for the Autosteer to operate.

⚠CAUTION

When travelling on roads with a 4WD sprayer, the differential lock must be OFF. Failure to disengage the differential lock may cause damage to the gear train which is not covered by warranty. On 4WD sprayers, a WARNING will appear on the G-Hub screen @ 30Km/h.

7 - **Boom Settings** - Service 181

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Goldacres Boom Paralift.

Boom Settings & Adjustments

Boom Settings & Adjustments include:

1 Smiling Forward Settings (36 & 42m).
1 Smiling Forward Settings (48m).
2 Tilt Angle Settings (36 & 42m).
2 Tilt Angle Setting (48m).
3 Yaw Alignment (36 & 42m).
3 Yaw Alignment (48m).
4 Yaw Hydraulic Pressure (36 & 42m).
4 Yaw Hydraulic Pressure (48m)
5 Bi-Fold Breakaway Pressure (36 & 42m).
5 Bi-Fold Breakaway Pressure (48m)
6 Three-Way Tip Breakaway.
7 Test Folding the Boom.
8 Boom Centre Levelling.



On level ground, engage the Park Brake, chock wheels & have the boom in its working position before making adjustments.

Before Making Boom Adjustments:

- Park the sprayer on a flat level surface with the parking brake engaged & wheels chocked.
- Place the boom in its working (unfolded) position.

⚠CAUTION

Before adjusting the boom alignment, the hydraulic fold and bi-fold circuit must be free of air. Hydraulic circuits that contain air can make the boom appear that it is too far forward.

Adjustment of the boom without “bleeding” the hydraulic circuit first will result in a boom that becomes misaligned after a short period of use. .



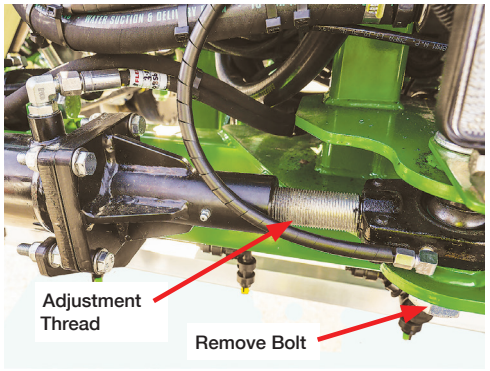
The boom shadow illustrates ‘Smiling Forward’ of a 36m boom.

1 Smiling Forward Setting (36 & 42m Booms)

The wings of the 36m & 42m booms comprise two sections and a breakaway end. The first and second sections are adjusted forward at the inner pivot points.

NOTE

It is important that both wings are adjusted the same. If one wing is adjusted further forward or back than the other, the boom may not sit level.



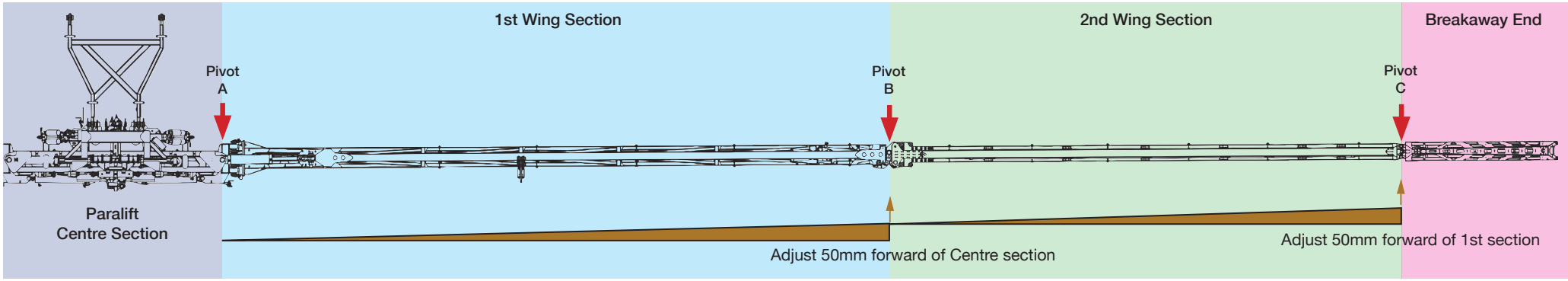
Detach the end of the fold cylinder from the boom pivot to adjust the 1st wing section forward.

To Adjust the First Section of the RH Wing:

1 Follow the ‘Before Making Boom Adjustments’ instruction on this page.
2 The first wing section adjustment should bring outer end of the section 50 mm forward of the centre section.
A string line can be used as a guide. Alternatively, it may be helpful to observe the boom from underneath as the bottom chords are 50 mm wide all along the section and provide a visual reference for the forward offset.
3 The first wing section of the smiling forward adjustment is made by rotating the rose end adjuster thread of the fold cylinder at pivot A (see illustration next page).
Loosen and remove the 1” bolt, nuts and washers attaching the fold cylinder to the boom pivot.

⚠CAUTION

When making adjustment to the wing fold cylinders, it is strongly recommended to use the help of a 2nd person to hold the boom wing in position especially when removing the 1” bolt attaching fold cylinders - for both safety and ease of making the adjustments.



36 metre Boom: Plan view of right hand side boom wing & the 'Smiling Forward' adjustment points (Pivot A & B).

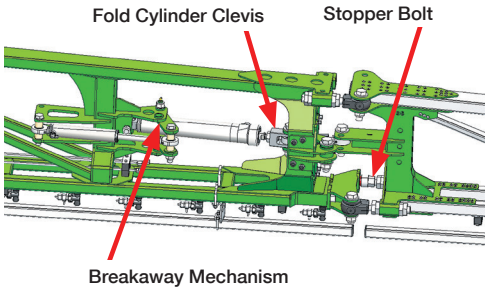
4 Rotate the rose end counter-clockwise to lengthen the cylinder and push wing section forward.

   After adjustment has been made, replace the bolt in the rose end & boom pivot without the nut and check the adjustment.

5 Repeat steps 2 and 3 until correct adjustment is achieved.

6 Once the correct adjustment is achieved, replace the bolt, washer & nut and retighten.

At Pivot B: Adjust the stopper bolt to bring the 2nd wing section forward, then adjust the fold cylinder clevis.



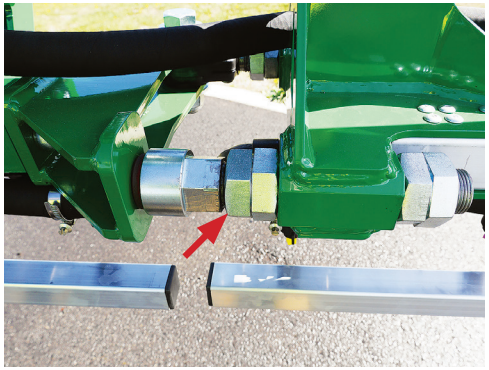
To Adjust the Second Section of the RH Wing:

1 The second wing section adjustment brings the outer end of the section 50 mm forward of the first section. The adjustment is set using the stopper bolts and Bi-Fold cylinder rod adjustment.

   Loosen the lock nut on the stopper bolts using a spanner.

2 Rotate the stopper bolt either in or out with a spanner until the correct boom adjustment is made.

Loosen the locknut & rotate the stopper bolt in or out until the correct forward-adjustment is made.



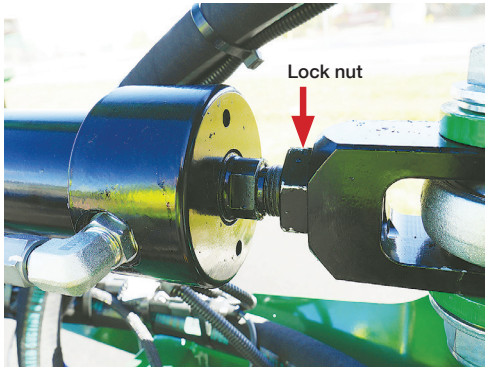
3 Loosen the lock nut on the fold cylinder clevis.

4 Rotate the fold cylinder shaft with a spanner so the boom is pulled hard onto its stopper. Tighten the fold cylinder but do not lift the breakaway cylinder base rose end off its hexagon bolt head stop.

5 Re-tighten the lock nut on the fold cylinder clevis.

6 Re-tighten the lock nut on the stopper bolt.

Loosen clevis locknut and rotate the fold cylinder shaft to bring the boom hard onto its stopper.



To Adjust the First Section of the LH Wing:

Repeat the procedure for the right wing.

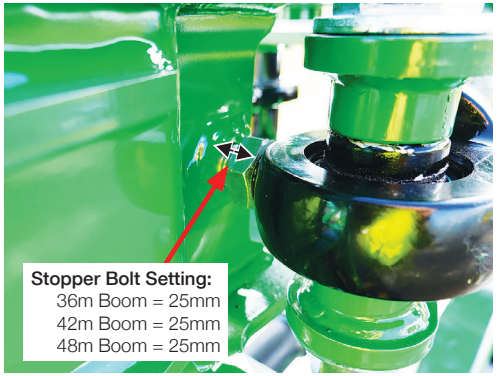
To Adjust the Second Section of the LH Wing:

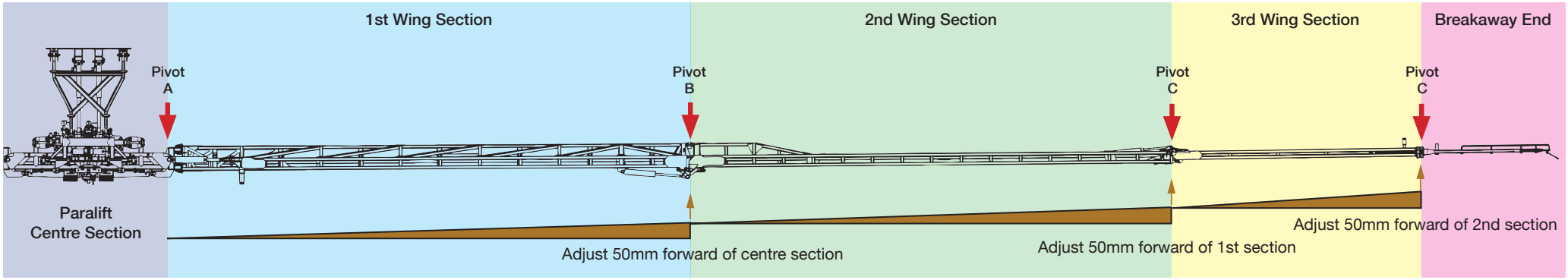
Repeat the procedure for the right wing.

NOTE

The boom should be adjusted as firm as possible against its stopper without engaging the breakaway mechanism (without lifting the breakaway cylinder base clevis off its hexagon bolt head stop).

Tighten the fold cylinder but do not lift the breakaway cylinder base clevis off the hexagon bolt head stop.





48 metre Boom: Plan view of right hand side boom wing & the 'Smiling Forward' adjustment points (Pivot A, B & C).

1 Smiling Forward Setting (48m)

The wings of the 48m boom comprise three sections and a breakaway end. The first, second & third sections are adjusted forward at the inner pivot point.

To adjust the first section of the RH wing:

1 Follow the 'Before Making Boom Adjustments' instruction.

2 The first wing section adjustment should bring outer end of the section 50 mm forward of the centre section.

A string line can be used as a guide Alternatively, it may be helpful to observe the boom from underneath as the bottom chords are 50 mm wide all along the section and provide a visual reference for the forward offset.

The first wing section of the smiling forward adjustment is made by adding or removing shim plates from the fold rams mounted on the centre section at pivot A.

3 Loosen and remove two top bolts, nuts and washers holding the fold ram and dampers together.

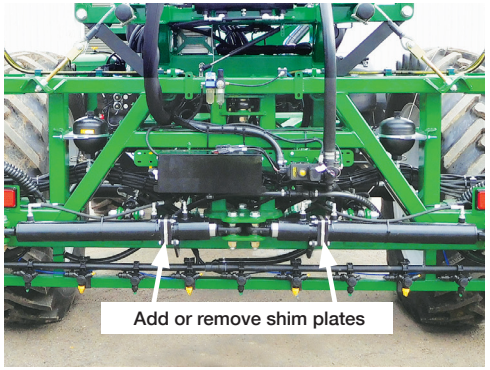
4 Loosen the two lower bolts, nuts and washers but do not remove them as the shim plates require them to rest on.

5 Insert or remove shims by trial and error until the 50 mm forward setting is achieved.

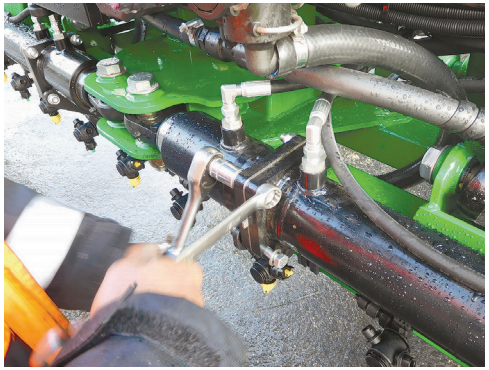
The two open slots in the shim plates should be facing downward when inserted to sit on the loosened but not fully removed bolts.

6 Once the correct adjustment is achieved, replace and tighten all nuts, bolts and washers (18 & 19mm spanner/socket).

The first wing section 'Smiling Forward' adjustment is made by adding or removing shim plates.



Loosen and remove the top 2 bolts, nuts & washers.



Face the open slot of the shims downwards.





Top stopper.



Lower stopper.



Damper stopper bolt.

To Adjust the Second Section of the RH Wing:

1 The second wing section adjustment brings the outer end of the section 50 mm forward of the first section. The adjustment is set using using two stopper bolts and a catch at pivot B.

2 Loosen the lock nut on the stopper bolt using a spanner.

Then, back the stoppers off so that they are not touching the second stage.

3 The catch position should be extended or retracted to place the end of the second section 50 mm in front of the end of the first section.

Loosen the lock nut on the catch on the side to be shortened and tighten the nut on the side to be lengthened.

4 Once the catch is in the desired position, wind out the upper and lower stoppers to touch the second stage.

Check that the catch hooks are just barely touching to ensure smooth operation of the mechanism.

5 When the setting is correct, re-tighten the lock nuts on the stoppers.

To Adjust the Third Section of the RH Wing:

1 The third wing section adjustment brings the outer end of the section 50 mm forward of the second section. The adjustment is set using using the stopper bolt on the end of the damper at pivot C.

Loosen the lock nut on the stopper.

2 Wind the stopper out to push the third stage forward or wind it in to let it come backwards.

3 Once the position is correctly adjusted, re-tighten the lock nut on the stopper.

To adjust the sections of the LH wing:

Repeat the procedure for the right wing.

To adjust the second section of the LH wing:

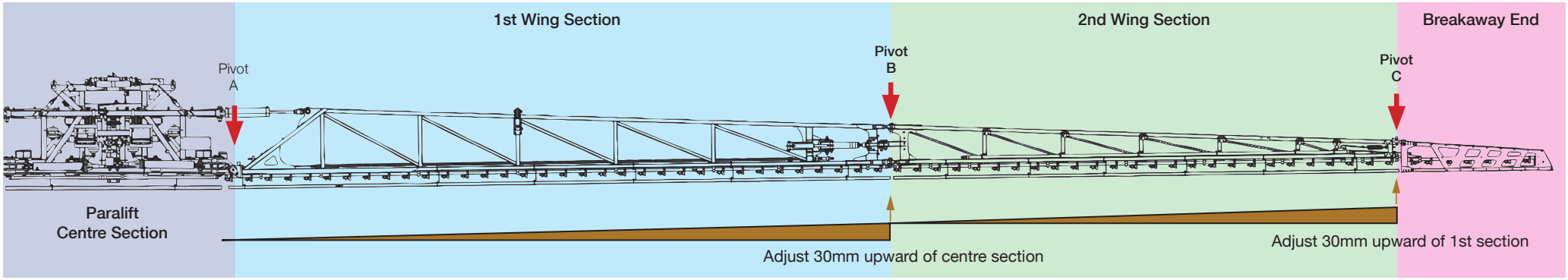
Repeat the procedure for the right wing.

To adjust the third section of the LH wing:

Repeat the procedure for the right wing.

NOTE

It is important that both wings are adjusted the same. If one wing is adjusted further forward or back than the other, the boom may not sit level.



36 metre Boom: Rear view of right hand side boom wing & the Tilt Angle adjustment points (Pivot A & B).

2 Tilt Angle Setting (36 & 42m)

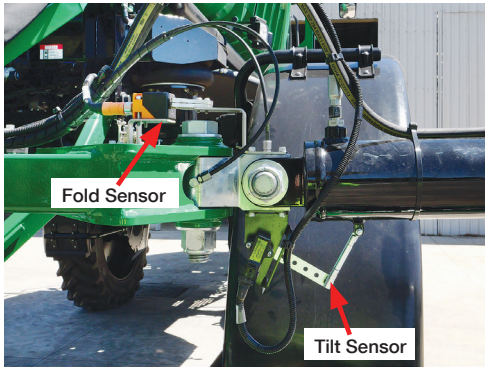
The wings of the 36m & 42m booms comprise two sections and a breakaway end. The first & second wing sections are adjusted upward at the inner pivot point.

The first section tilt angle, at pivot A, is adjusted automatically by the boom control system and does not need to be manually adjusted.

A tilt sensor is present on the tilt cylinder pivot is used by the system to maintain the tilt level.

The second stage tilt angle is adjusted using the clevis joint threads at pivot B.

Fold & Tilt sensors on boom 1st section pivot points automatically control fold & tilt functions.



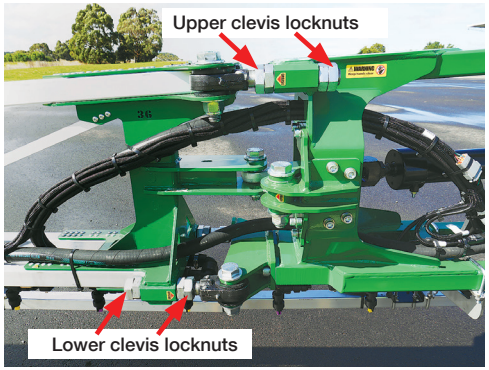
To Adjust the Second Section of the RH Wing:

1 Follow the 'Before Making Boom Adjustments' instruction.

2 The second wing section adjustment brings the outer end of the section 30 mm upward of the first section. The adjustment made on the clevis joints of pivot B.

Loosen the locknuts on the upper and lower clevis joint threads.

Adjust the upper & lower clevis joint threads to tilt the 2nd wing section upwards.



3 Wind the top rose end closer to the first section to raise the second section.

Wind the top adjuster away from the first section to lower the second section.

Once the correct alignment is acheived, the second stage height must be checked and adjusted in the Bi-fold position.

4 Fold the boom into the Bi-fold position. The second stage should couple into the boom support saddle with minimal clearance to the base plate.

If the second boom section is too low, both the upper rose end & the lower rose end must be lengthened by an equal amount.

If the second boom section is too high, both the upper rose end & the lower rose end must be shortened by an equal amount.

This will correct the height of the second stage boom in the Bi-fold position without effecting the working position.

5 Fold the boom into the working position to confirm correct alignment is still achieved.

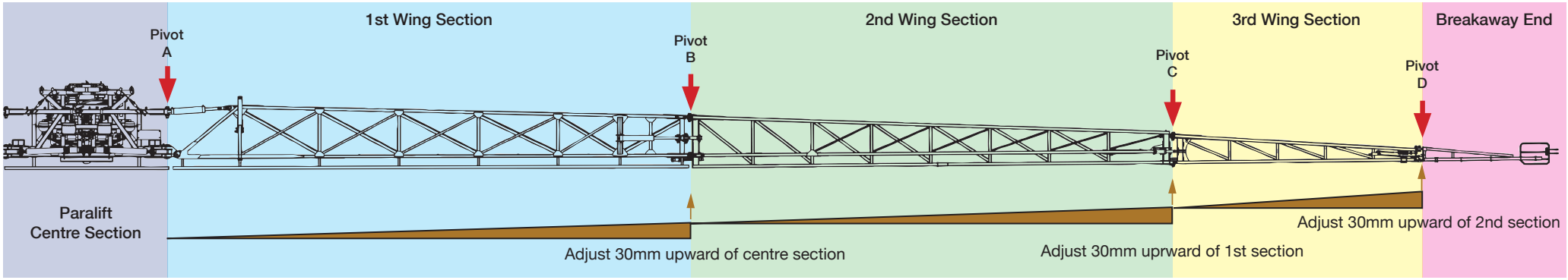
6 On completion, re-tighten the locknuts on the upper and lower clevis joint threads.

To Adjust the Second Section of the LH Wing:

Repeat the above procedure for the left wing.

NOTE

It is important that both wings are adjusted the same. If one wing is adjusted higher or lower than the other, the boom may not sit level.



48 metre Boom: Plan view of right hand side boom wing & the 'Tilt Angle' adjustment points (Pivot A, B & C).

2 Tilt Angle Setting (48m)

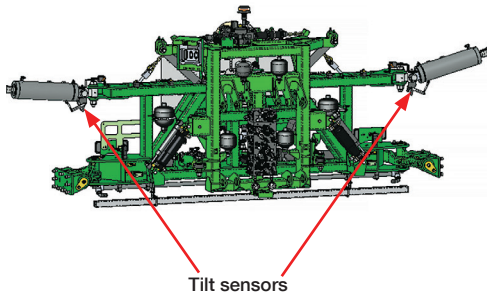
The wings of the 48m boom comprise three sections and a breakaway end. The first, second & third sections are adjusted upwards at the inner pivot point.

The first section tilt angle, at pivot A, is adjusted automatically by the boom control system and does not need to be manually adjusted.

A tilt sensor present on the tilt cylinder pivot is used by the system to maintain the tilt level.

The second stage tilt angle is adjusted using the clevis joint threads at pivot B.

Tilt angle on each boom 1st section is automatically controlled by the tilt sensors.



To Adjust the Second Section of the RH Wing:

1 Follow the 'Before Making Boom Adjustments' instruction.

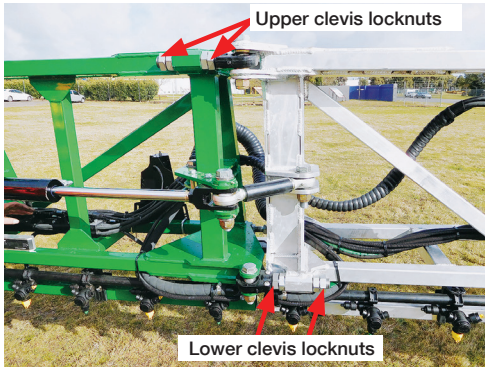
2 The second wing section adjustment brings the outer end of the section 30 mm upward of the first section. The adjustment made on the clevis joints of pivot B.

Loosen the locknuts on the upper and lower clevis joint threads.

3 Wind the top rose end closer to the first section to raise the second section.

Wind the top adjuster away from the first section to lower the second section.

Adjust the upper & lower clevis joint threads to tilt the 2nd wing section upwards.



Once the correct alignment is acheived, the second stage height must be checked and adjusted in the Bi-fold position.

4 Fold the boom into the Bi-fold position. The second stage should couple into the boom support saddle with minimal clearance to the base plate.

If the second boom section is too low, both the upper rose end & the lower rose end must be lengthened by an equal amount. If the second boom section is too high, both the upper rose end & the lower rose end must be shortened by an equal amount. This will correct the height of the second stage boom in the Bi-fold position without effecting the working position.

5 Fold the boom into the working position to confirm correct alignment is still achieved.

6 On completion, re-tighten the locknuts on the upper and lower clevis joint threads.

NOTE

It is important that both wings are adjusted the same. If one wing is adjusted higher or lower than the other, the boom may not sit level.

To Adjust the Second Section of the LH Wing:

Repeat the above procedure for the left wing.

To Adjust the Third Section of the RH Wing:

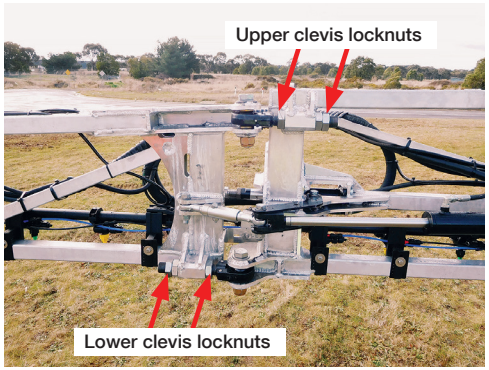
The third wing section adjustment brings the outer end of the section 30 mm upward of the second section. The adjustment made on the clevis joints of pivot C.

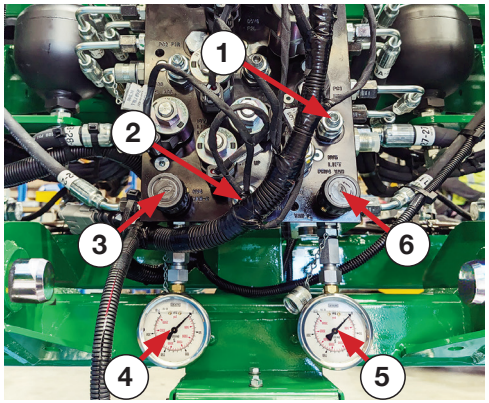
Repeat the steps of the second section.

To Adjust the Third Section of the LH Wing:

Repeat the above procedure for the left wing.

Adjust the upper & lower clevis joint threads to tilt the 3rd wing section upwards.

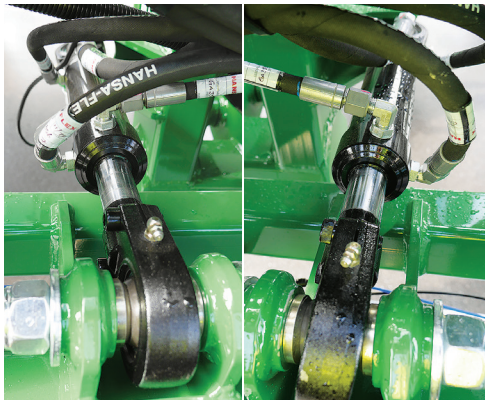




Hydraulic manifold on the centre section of 36m, 42m & 48m booms.

1 **Pressure Reducing Valve**
2 **Yaw Drain Valve**
3 **Yaw-R Valve**
4 **Test Port/Pressure Gauge Yaw YBT**
5 **Test Port/Pressure Gauge Yaw YAT**
6 **Yaw-L Valve**

Identification of items on the hydraulic block (shown left).



Exposed cylinder rod (on both left & right hand Yaw cylinders) must be the same.

3 Yaw Alignment (36, 42 & 48m)

The boom should be positioned parellel to the rear of the sprayer chassis. To check Yaw Alignment, measure the exposed cylinder rods on both the left & right Yaw hydraulic cylinders.

Each cylinder rod extension should be the same if the boom is running parellel to the end of the chassis.

To Adjust the Yaw Alignment:

1 Follow the 'Before Making Boom Adjustments' instruction.

2 The boom yaw is controlled by a pair of hydraulic cylinders & accumulators.

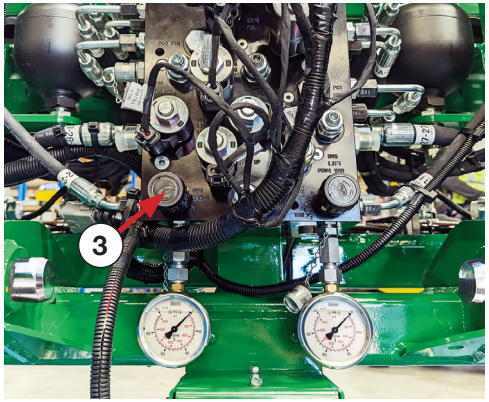
Loosen the locknuts, then wind out (counterclockwise) both 'Yaw A' and 'Yaw B' valves *(shown above left 3 & 6)* until fully open.

3 Move the boom by hand until it is sitting perpendicular to the chassis line of the machine - Each Yaw cylinder rod extension must be the same.

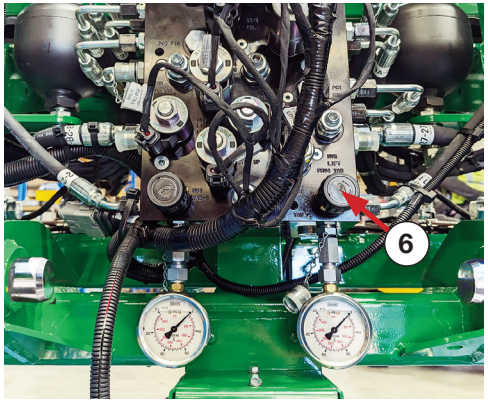
4 Wind in (clockwise) both both 'Yaw A' and 'Yaw B' valves (shown above 3 & 6) to until fully closed, then tighten the locknuts.

The default Aligned Yaw position is now set.

Wind out the Yaw-R valve until fully open.



Wind out the Yaw-L valve until fully open.



4 Yaw Hydraulic Pressure (36, 42 & 48m)

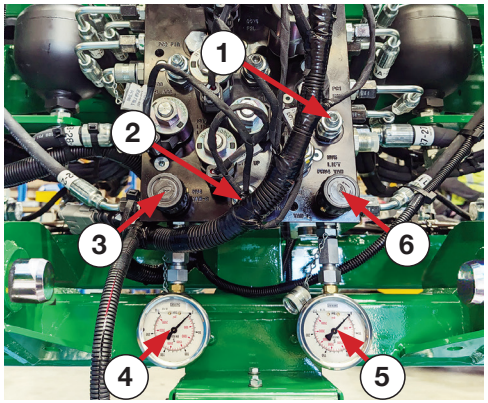
The Yaw Hydraulic Pressure controls the Yaw suspension

Two hydraulic cylinders and accumulators are charged with hydraulic pressure and closed off creating a closed circuit for the yaw suspension.

The base end of each yaw cylinder is connected to the rod end of the opposite cylinder with one nitrogen charged (70 bar) accumulator connected separately to each.

When the rod end of one cylinder compresses, it causes the base end of the opposite cylinder to extend and vice versa.

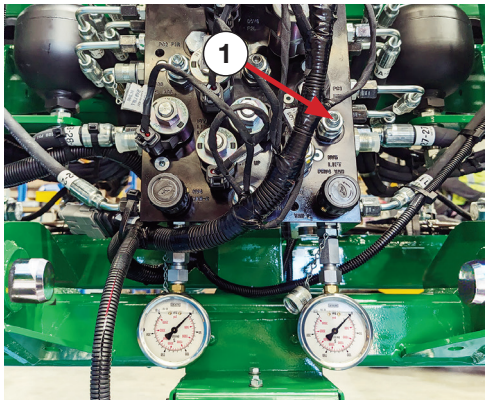
The accumulators help dampen movement & keep the boom centred.



Hydraulic manifold on the centre section of 36m, 42m & 48m booms.

1 **Pressure Reducing Valve**
2 **Yaw Drain Valve**
3 **Yaw-R Valve**
4 **Test Port/Pressure Gauge Yaw YBT**
5 **Test Port/Pressure Gauge Yaw YAT**
6 **Yaw-L Valve**

Identification of items on the hydraulic block (shown left).



Adjust Yaw Pressure using the Pressure Reducing Valve (1).

Three valves are normally closed to create a closed circuit so oil movement is restricted to the precharged pressure in the accumulator.

The precharged pressure restricts the ease of boom yaw movement away from the centered position. This pressure needs to be monitored and maintained.

Pressure gauges on the manifold display the closed loop hydraulic yaw pressures.

If set too high the boom centre damping will be too stiff and the boom will be prone to damage under normal operating conditions.

If set too low the boom will move too easily and not return to centre properly - making booms more vulnerable to damage.

To Set the Yaw Hydraulic Pressure:

The Hydraulic Yaw Pressure determines the effective stiffness of the Yaw damping.

Pressure gauges capable of reading up to 3000 PSI are fitted to the Yaw Test Ports (4 & 5 above) of the hydraulic manifold.

1 Follow the 'Before Making Boom Adjustments' instruction.
2 Check that the test port gauges are fitted to the test ports 'Yaw-R' and 'Yaw-L'. *Valve identification shown above.*
3 Loosen the locknuts and wind out (counterclockwise) both 'Yaw-R' (3) & 'Yaw-L' (6) valves to open them fully.

   The Yaw Drain valve (2) must be fully closed (clockwise).

NOTE

When the hydraulic yaw system is installed or any components are replaced, the closed loop hydraulic circuit needs to be bled of any air:

- The maximum pressure needs to be reset
- The system re-charged and
- The booms re-aligned.

4 The hydraulic system will build pressure when a boom function is activated.

   Preferably engage 'Stage 1 Fold' OUT as the boom is already folded out and will not move in a hazardous way.
5 Once pressure has built up fully, use the Pressure Reducing Valve *[(1) shown above]* to set it higher or lower as necessary.

   Loosen the lock nut, then:

   - Wind in (clockwise) - to increase pressure or
   - Wind out (counterclockwise) - to decrease pressure.

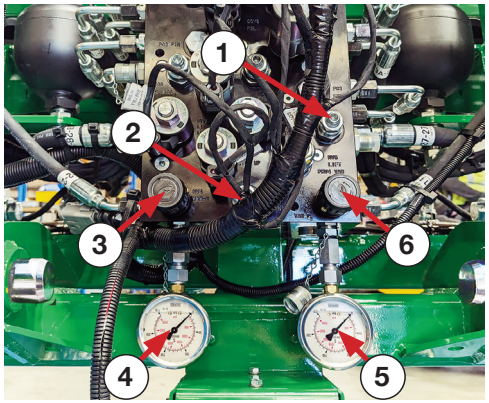
NOTE

If the pressure is too high then wind out (counter clockwise) the 'Yaw Bleed' valve to reduce it in addition to the pressure reducing valve. Then, close the 'Yaw Bleed' valve and check the maximum pressure achieved again.

Pressure will not decrease on the gauge if only the pressure reducing valve is wound out.

   Target pressure for:

   - 36m boom is 103 Bar (1500 psi)
   - 42m boom is 117 Bar (1700 psi)
   - 48m boom is 117 Bar (1700 psi)
6 Re-tighten the lock nut of the pressure reducing valve once correct pressure is achieved.
7 Close (wind-in clockwise) both 'Yaw A' (3) & 'Yaw B' (6) valves until fully closed, then tighten the locknuts.



Fully open the 'Yaw Drain Valve' (2), 'Yaw-R' (3) & 'Yaw-L' (6) valves to purge air from the circuit..

1 **Pressure Reducing Valve**

2 **Yaw Drain Valve**

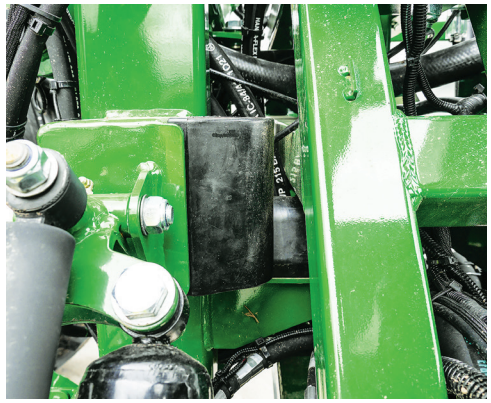
3 **Yaw-R Valve**

4 **Test Port/Pressure Gauge Yaw YBT**

5 **Test Port/Pressure Gauge Yaw YAT**

6 **Yaw-L Valve**

Identification of items on the hydraulic block (shown left).



Check rubber bumpers for wear. Replace if worn.

To Purge Air from the Yaw Hydraulic Circuit:

This procedure is typically only necessary when the hydraulic Yaw circuit has been opened, such as when replacing a component eg, a hose or fitting.

1 Follow the 'Before Making Boom Adjustments' instruction.

2 Loosen the locknuts and wind out (counterclockwise) the 'Yaw Drain Valve' (2), 'Yaw-R' (3) & 'Yaw-L' (6) valves until fully open *(valves shown above)*.

3 Start the engine, then move the boom around by hand for a minute or so to help force air out of the hydraulic Yaw circuit.

4 Wind in (clockwise) the 'Yaw Bleed Valve' (2), 'Yaw-R' (3) & 'Yaw-L' (6) valves until fully closed, then tighten the locknuts.

5 Finally, re-adjust both Yaw Alignment and Yaw pressure - for instructions see previous pages.

NOTE

If the pressure is too high then wind out (counterclockwise) the 'Breakaway bleed' valve to reduce it in addition to the pressure reducing valve. Then, close the 'Breakaway bleed' valve and check the maximum pressure achieved again. Pressure will not decrease on the gauge if only the pressure reducing valve is wound out.

Paralift Rubber Bumpers

Overall Yaw travel is limited by rubber bumpers mounted on the Paralift boom centre section.

If the boom centre section yaws excessively, the centre section will come into contact with the bumpers which will cushion the travel by collapsing the blocks. If the blocks collapse totally, the yaw travel will be stopped.

If the boom is excessively & continually yawed, the bumpers will wear out and require replacement.

5 Bi-Fold Breakaway Pressure Adjustment (36, 42 & 48m)

Breakaway cylinders are fitted to the stage two bi-fold mechanism on 36, 42 & 48 metre booms. Oil in these circuits flows through the hydraulic block mounted on the back of the boom centre section.

The hydraulic breakaway pressure setting determines the effective stiffness of the breakaway damping and return force.

Remove one of the Yaw pressure gauges and attach it to the test port 'BR MP' on the block.

To Set the Bi-Fold Breakaway Pressure:

1 Follow the 'Before Making Boom Adjustments' instruction.

2 Remove the cap and attached to the pressure gauge to the Gauge Test Port (4).

3 The 'Breakaway Bleed Valve' (8) must be fully closed (clockwise).

4 The hydraulic system will build pressure when a function is activated.

Preferably engage 'Stage 1 Fold' OUT as the boom is already folded out and will not move in a hazardous way.

5 Once pressure has built up fully, use the Pressure Reducing Valve (5) to set the pressure higher or lower as necessary.

Loosen the lock nut, then wind the Pressure Reducing Valve (5):

- IN to increase pressure or wind it
- OUT to decrease pressure.

Target pressure for:

- 36 metre boom is 100 Bar
- 42 metre boom is 115 Bar.

NOTE

Setting the Bi-Fold Breakaway Pressure is a 2 person job - one person is required to hold the boom fold-out switch to keep the circuit pressurised while the another person adjusts the pressure.

⚠CAUTION

DO NOT operate the Crop Cruiser with the Breakaway Speed Valve fully closed. The valve must be positioned at least one (1) turn open.

If the Breakaway Speed Valve is fully closed when operating, excess stresses will hit the boom structure eventually causing structural failure.

5 Tri-Fold Breakaway Pressure Adjustment (48m)

Breakaway cylinders are fitted to the 2nd, 3rd & 4th stage Tri-fold mechanisms on the 48m metre boom. Oil in these circuits flows through the hydraulic block mounted on the back of the boom centre section.

The hydraulic breakaway pressure settings determine the effective stiffness of the breakaway damping and return force.

Yaw pressure gauges are removed and attached to pressure ports on the block to set the pressures:

- BRA 134 Bar (2000psi)
- BRB 134 Bar (2000psi)
- BRAC 134 Bar (2000psi)
- BRT 104 Bar (1500psi)

⚠DANGER

When pressure adjustments are required for the bi-fold breakaway hydraulic circuits, ensure to consult with your Goldacres dealer and use a trained hydraulic service person.

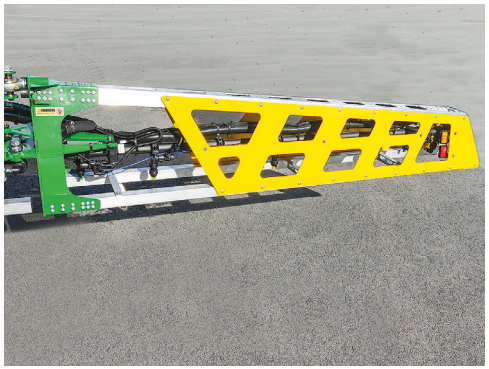
Failure to follow these instructions may result in severe injury.

To Set the Tri-Fold Breakaway Pressure:

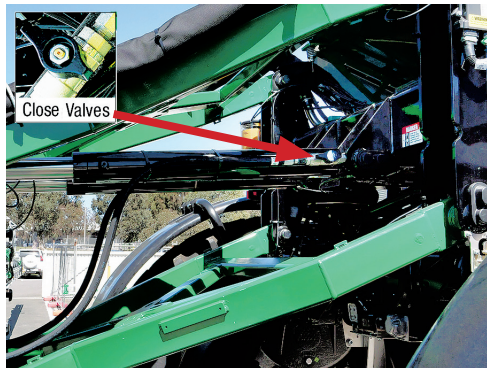
The Tri-Fold Breakaway Pressures of the 48m boom are factory set and generally does not require re-adjustment.

If problems occur with the Tri-Fold pressure settings, it is recommended to consult with your Goldacres dealer to trouble shoot and reset any pressures if required.

Adjustment for such pressure settings must be undertaken by a trained hydraulic service person.



36-42m boom end with Three-Way Breakaway protection.



Close the ball valve on each lift cylinder for safety.

To Purge Air from the Tri-Fold Breakaway Hydraulic Circuit:

This procedure is typically only necessary when the Tri-fold breakaway hydraulic circuit has been opened, such as when replacing a component eg, a hose or fitting.

1 Follow the 'Before Making Boom Adjustments' instruction.
2 Open (wind-out anti-clockwise) the Fold 3 Bleed Valve' (3) valves until fully open.
3 Press & hold the Tri-Fold OUT push button in cabin to supply high pressure to the cylinders. Continue for 30 seconds.
4 Release the Tri-Fold OUT push button.
5 Close (wind-in clockwise) the Fold 3 Bleed Valve' (3) valves until fully open.

NOTE

If the pressure is too high then wind out (counterclockwise) the 'Breakaway bleed' valve to reduce it in addition to the pressure reducing valve. Then, close the 'Breakaway bleed' valve and check the maximum pressure achieved again. Pressure will not decrease on the gauge if only the pressure reducing valve is wound out.

6 Three-Way Tip Breakaway

Each boom wing tip or end incorporates a three-way tip breakaway hinge which allows the wing tip to break-away:

- Forwards,
- Backwards and/or
- Upwards
  - minimising possible damage to the boom should an obstacle be hit.

It is important the breakaway hinge is properly adjusted for operating (just tightening the spring does not facilitate the breakaway function).

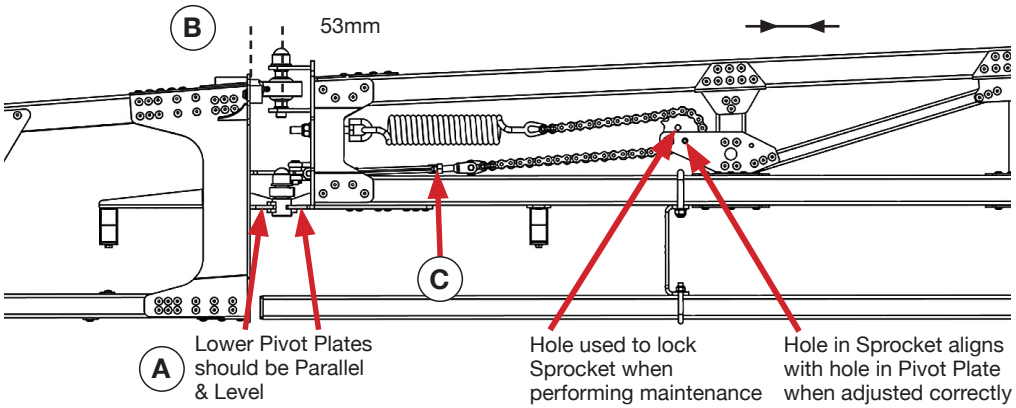
Upwards Tip Breakaway function.



To Set-Up the Three-Way Tip Breakaway:

1 Follow the 'Before Making Boom Adjustments' instruction.
2 Lower the boom to a good working height fully opened (working position).
3 Close the ball valves on the two hydraulic lift cylinders for safety purposes.
4 The lower pivot plates need to be in line with each other (A).
5 If the rose end is removed for any reason, anti-seize should be applied to the thread before it is screwed into the boom tip.

   The rose end should be screwed into the breakaway tip so that it measures 53 mm from the boom tip face plate to the centre of the rose end (B) or until correct vertical alignment is achieved.

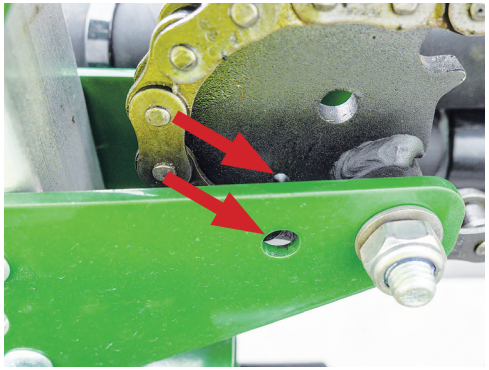


6 The small hole in the sprocket must align with the hole in the side of the pivot plate. This is adjusted by tightening or loosening the turnbuckle (C).

7 The spring tension must be adjusted so there is a 1-2 mm gap between the coils. This applies the ideal amount of resistance when breaking away.

The spring tension can be adjusted by tightening or loosening the eye bolt.

The small hole in the sprocket must align with the hole in the side of the pivot plate.



To Adjust the Turnbuckle:

1 Use an assistant to pull the boom wing tip back until the large hole in the sprocket aligns with the hole in the pivot side plate, then place a pin (such as a screwdriver) through the holes.

2 Have the assistant return the wing tip only enough to remove spring tension.

Do not let the wing tip fully return, otherwise the chain may jump off its sprocket and cause injury.

With the boom tip pulled back, place a pin through the holes to hold the sprocket to adjust the turnbuckle.





Adjust the turnbuckle to adjust spring tension as required.

3 Make adjustments to turnbuckle. Pull tip back and remove the pin. Release the tip and check alignment of small hole in sprocket with pivot plate.

4 Repeat previous steps until the small hole in the sprocket and hole in the side plate align.

⚠ DANGER

Adjusting the Turnbuckle is a 2 person job:

Firstly, one person is required to pull the wing tip back while the other person places the pin.

Secondly, one person must hold wing tip to just release the spring tension while the other person adjusts the turnbuckle.

Do not let the wing tip fully return fully while making adjustment, otherwise the chain may jump off its sprocket and cause injury.



Rearward Tip Breakaway function.

Maintenance

Several things are required to ensure that the breakaway will be functioning properly.

Two things are critical to the breakaway functioning correctly:

- The small hole in the sprocket must align with the hole in the side of the pivot plate, and
- The spring tension.

Check these on a regular basis and adjust as required.

The spring will stretch over time and will lose tension. Worn springs & chain should be replaced if there is insufficient tension on the spring to fully retract.



Forward Tip Breakaway function.

Lubricate the Three-Way Breakaway mechanism on a regular basis to ensure smooth & long lasting operation:

- **Oil** the sprocket pivot, chain and lower rose joints with a wet lubricant **every 8 hours**.
- **Grease** the upper rose joint **every 8 hours.**

⚠CAUTION

When folding the boom, either manually or automatically, ensure the sprayer chassis is laterally level.

If the chassis is sloping laterally, sprayer stability and boom folding can be compromised.



Joystick push buttons & switches - Boom Lift/Lower (vertical), Tillt (individual wings ^v & Dual Tilt (both wings ^v).

7 Test Auto Boom Folding

Test folding the boom is mandatory to check boom folding adjustments which allow the boom to fold correctly - checking tilt angle, boom rest alignment & boom locks.

Full testing is required after any alteration change has been made - to ensure automatic folding performs correctly for 36, 42m & 48m booms).

To Test Auto Boom Folding:

1 Follow 'Before Making Boom Adjustments' instruction at the beginning of this chapter.

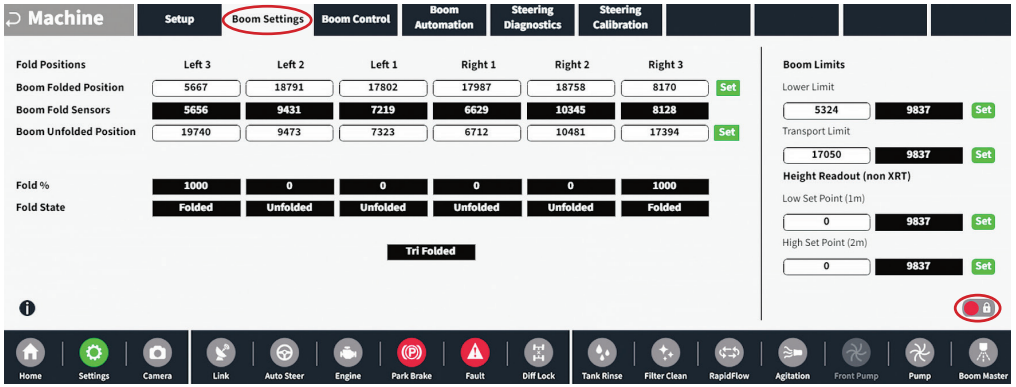
2 Refer to Chapter 4 Setting Up, for the 'Machine' pre-setting screens & information:

4 Boom Settings

5 Boom Control

6 Boom Automation

3 Calibrate 'Boom Automation' settings, then Test the Auto Boom Folding.



G-Hub Machine 'Boom Settings' screen.

To Calibrate Auto Boom Folding:

1 Follow 'Before Making Boom Adjustments' instruction at the beginning of this chapter.

2 On the G-Hub home screen, press the 'Settings' touch button, then 'Machine Menu' touch button, which displays the 'Machine Setup' screen with 3 boom tab touch buttons for Settings, Control & Automation screens.

3 Press the red 'Security Lock' touch button at the bottom RHS of the screen and a password request appears.

The Machine Settings screen is locked for protection from uninformed or accidental alteration.

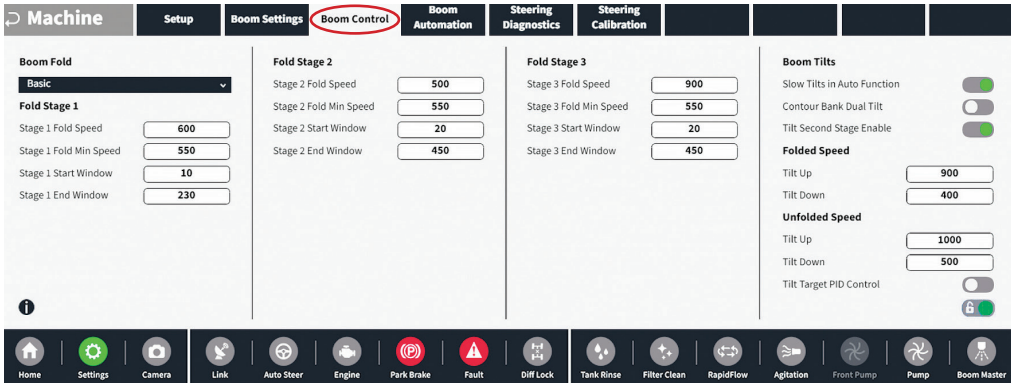
4 Press the password space & a numerical keypad appears *(shown below left)*.

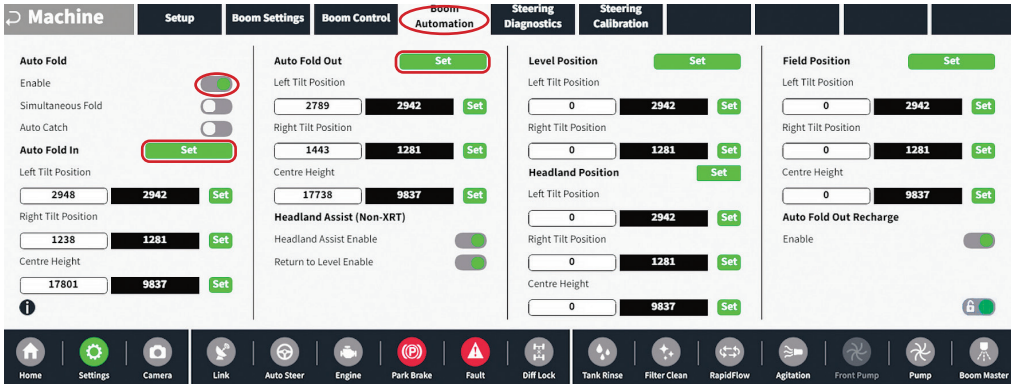
6 Press the numerical touch buttons to enter the password '1978', and press the 'Enter' touch button. The screen returns to the 'Password' display.

Press the 'OK' touch button and the screen is ready for 'Boom Fold Calibration'

The 'Security Lock' touch button emblem at the bottom RHS of the screen unlocks & shows Green).

G-Hub Machine 'Boom Contols' screen.





Press touch buttons to enable or disable & make the settings required.

7 Press the 'Boom Automation' tab touch button to access the Boom Automation screen - with boom fully folded.

8 Ensure Auto Fold is 'Enabled' *(shown above)*.

9 Press the 'Auto Fold In' 'Set' touch button *(shown above)* to set folded postion values.

10 With the engine running, manually unfold the boom as instructed in Chapter 6 Operation - 'Boom Unfolding/Folding'.

11 With the boom fully unfolded, press the 'Auto Fold Out' 'Set' touch button *(shown above)* to set the values.

12 With the boom fully unfolded, press & hold inwards the Armrest console 'Fold One' rocker switch until the boom is fully folded and resting in the boom rests.

Do not release the 'Fold One' rocker switch until the boom is fully folded,

Refer to instructions in Chapter 6 Operation - 'Boom Unfolding/Folding'

With Auto Fold, the boom automatically folds according to its calibrated (pre-set) values.

13 Carefully use the Joystick 'Boom Lower' rocker switch to ensure the boom is sitting firmly the boom rests.

Carefully use the 'Fold One' outwards switch to firm up inner wings against the vertical stops of the boom rests.

NOTE

When set to zero, a Boom Calibration sensor is manually over-ridden by the operator.

NOTE

As well as using the Dual Tilt rocker switch to tilt the boom, the left and right Tilt push buttons can be used to individually adjust the boom tilt.

To Test Auto Boom Unfolding/Folding:

Follow instructions for automatically unfolding & folding booms provided in Chapter 6 Operation - 'Boom Unfolding/Folding'.

If necessary, repeat folding & unfolding of the boom to make adjustments and refine the tilt, height and boom rest settings.

NOTE

The Tilt Setting must be set while the boom is in its working position.

Do not attempt to set the tilt when the boom is in the folded position.



Adjustment Valve.

To Adjust the Bi-Fold Cushion Speed:

1 Follow the 'Before You Begin' instructions.

2 Loosen the locknut of the Cushion Adjustment Valve.

3 Use an Allen key to wind the valve *(shown above)*:

- Inwards (clockwise) to slow the boom bi-fold speed.
- Outwards (anti-clockwise) to speed-up the boom bi-fold speed.

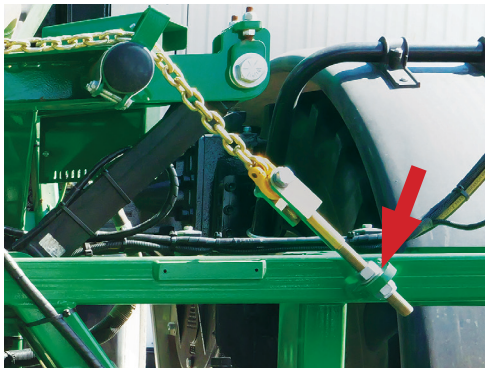
4 Tighten the locknut on the Adjustment Valve.

NOTE

The Bi-Fold Cusion Speed only functions for the last 50mm of cylinder stroke when the outer boom is folding into the bi-folded or transport postion.



Boom Centre Level cable adjusters (shown on 48m boom).



Make adjustment to the Boom Centre Level cable adjusters as required.



Ensure boom Protection Brackets are positioned correctly.

8 Boom Centre Levelling

The Boom Centre Levelling system keeps the boom in the same plane as the machine so that the boom folds evenly.

If one side is heavier than the other, the boom will tend to hang lower on the heavy side, therefore, both sides need to be levelled to maintain boom ends at the same height.

If the centre and the booms tilt excessively during folding, the centre level chains may need to be adjusted. With time & use, cables stretch and will require adjustment.

Cable tension can be adjusted by tightening or loosening the nuts on the end of the cable bolts on either side.

To Adjust Cable Tension:

1 Follow the 'Before You Begin Making Boom Adjustments' instruction.

2 Lower the boom to a suitable working level.

3 Loosen the upper nut at each end of the cable (each side).

4 Tighten the lower nuts on each end of the cable to set the desired cable tension.

5 Tighten the nut firmly against the bracket to hold its position.

6 Now check the boom folds correctly.

Get someone to stand behind the sprayer (out of the booms reach) and watch which side the boom is tilting excessively down when folding.

7 If necessary, unfold the boom and re-adjust the cable tension to correct any tilt problems.

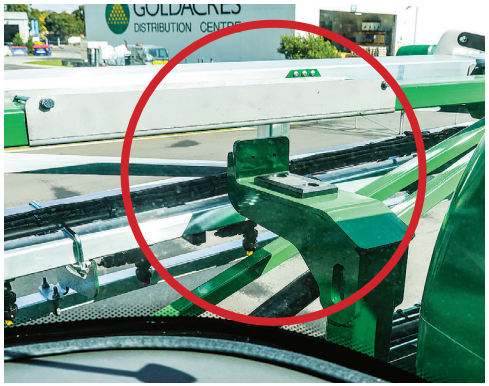
8 Repeat steps 2 - 5 until the boom is level when folding.

Boom Protection Brackets

Stainless steel boom protectors are fitted on the boom to protect it when resting on the boom rests for transport.

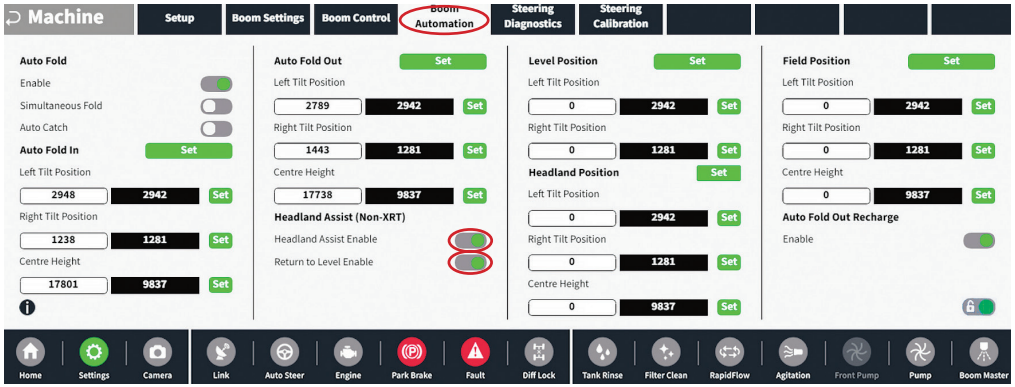
It is important to ensure that the boom protection brackets are positioned correctly.

Check & adjust the tilt angle on the RHS to raise or lower the boom to clear the boom rest.



Check & adjust the tilt angle on the LHS to raise or lower the boom to clear the boom rest.





Press touch buttons to enable or disable & make the settings required.

Headland Assist (Non XRT)

The 'Headland Assist' touch button is used enable or disable the 'Headland Assist' Auto functions.

When enabled, the touch button goes Green and Grey when disabled.

Do not enable the Headland Assist function when the XRT Option is fitted.

The 'Return to Level' touch button is used enable or disable the 'Return to Level' auto function.

When enabled, the touch button goes Green and Grey when disabled.

Do not enable the Headland Assist function here when the XRT Option is fitted.

Level, Headland & Field Positions

Set the sensor values for each Headland Assist Auto function by folding the boom out into the desired position, then:

To Set the 'Level Position'

1 Open the boom & move the boom to desired level position.

2 When in position press the 'Set' touch button. Repeat for each position.

To Set the 'Headland Position'

1 Operate & raise the boom to desired headland position.

2 When in position press the 'Set' touch button. Repeat for each position.

To Set the 'Field Position'

1 Operate & lower the the boom into the desired field position.

2 When in position press the 'Set' touch button. Repeat for each position.


GOLDACRES

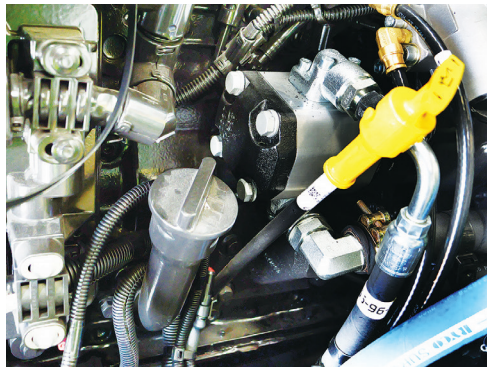
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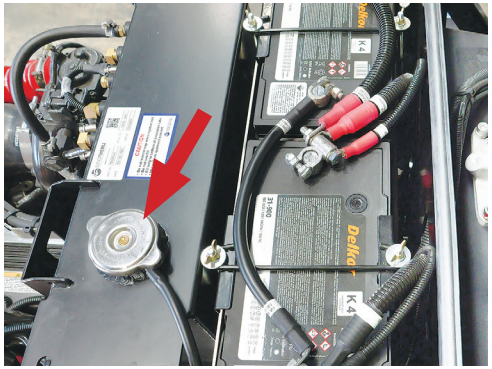
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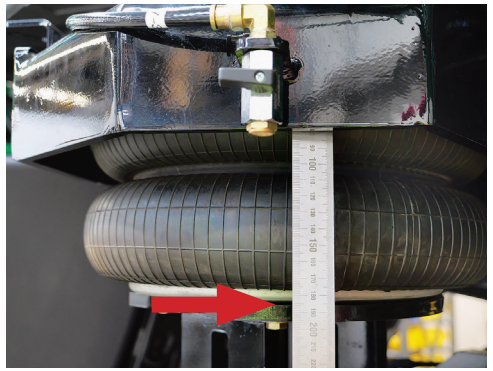
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Daily check the engine oil level during first 50 hours of operation.



Daily check the engine coolant level during first 50 hours of operation.



Check all Air Bag Heights are inflated to 185mm (+ or -5mm).



Check all hydraulic cylinder for their condition, leaks & end connections.

Daily Pre-Operation Checklist

Daily check all of the following prior to operation:

Engine & Driveline

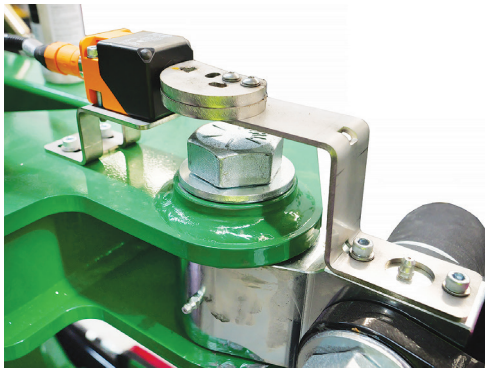
- ☐ Engine Oil Level
- ☐ Air Conditioiner Compressor Belt tension & condition
- ☐ Front Engine Serpentine Belt tension & condition
- ☐ Auxiliary Alternator Belt tension & condition
- ☐ Engine Coolant level
- ☐ Radiator Hose condition & leaks
- ☐ Radiator condition & cleanliness
- ☐ Transmission Fluid level via cabin G-Hub Screen
- ☐ Hydraulic Oil level
- ☐ Steering Ball Joints & locking nuts
- ☐ Front Axle Housing structural condition
- ☐ Front Airbags overall condition & inflation height
- ☐ Front Ride Height Valve linkage & operation
- ☐ Front Suspension Torque Rods (5) bolts & bushes
- ☐ Front Shocker condition, bolts & leaks
- ☐ Rear Axle Housing structural condition
- ☐ Rear Airbags overall condition & inflation height
- ☐ Rear Ride Height Valve linkage & operation
- ☐ Rear Suspension Torque Rods (5) bolts & bushes
- ☐ Rear Shocker condition, bolts & leaks
- ☐ Rear Suspension Sway Bar connection points & bolts
- ☐ Service & Park Brake operation
- ☐ Brake System Air Hose condition & leaks
- ☐ Drain Air Reservoirs (2)
- ☐ Drive Shaft Universals
- ☐ Tyre Pressures as per manual
- ☐ Tyre & wheel condition, cracks, splits, wear
- ☐ Wheel Nut Torque as per manual.

Cabin & Electrical

- ☐ Cabin Pressure Boost Fan operation
- ☐ Windscreen Washer fluid level
- ☐ Headlight Operation, high/low beam
- ☐ Front & Rear Indicator operation
- ☐ Tail Light operation
- ☐ Brake Lights operation
- ☐ Flashing Beacon operation
- ☐ Side Clearance Light operation
- ☐ Reverse Beeper operation
- ☐ Horn operation
- ☐ Battery condition.

Boom & Chassis Structure

- ☐ Chassis Structural condition & cracking
- ☐ Para-Lift Arm condition & cracking
- ☐ Boom Centre & Rear condition, cracks
- ☐ Front 3PL Arm Connection to Chassis condition (if fitted)
- ☐ Front 3PL Frame Quick Hitch connection hooks (if fitted)
- ☐ Boom Inner Wing condition & cracking
- ☐ Boom Main Folding Hinge, Pins & Bolts condition
- ☐ Boom Alloy Mid (48m boom) & Outer Alloy Wing condition & cracking
- ☐ Inner to Mid Boom Wing Locking Latch operation (48m boom)
- ☐ Boom Breakaway condition & mechanism operation
- ☐ Hydraulic Cylinder condition, leaks & end connections
- ☐ Yaw System Hydraulic Pressure within specifications
- ☐ Boom Wing Break Back Pressure within specifications
- ☐ All Boom Folding Pivot Points & Linkage condition
- ☐ Boom Section Air Control Lines condition & leaks
- ☐ Rapid Fire Air Reg Pressure
- ☐ Hydraulic Steel & Rubber Hose condition & leaks
- ☐ Fold Sensor & Linkages



Prior to operating, check function of sensors used for boom fold (shown above), boom tilt & boom height control.

- ☐ Tilt Sensor & Linkages
- ☐ Boom Height Controller Sensors operation (if fitted)
- ☐ Nozzles & Nozzle Body condition
- ☐ Boom Electrical Harness Routing ensuring no broken wires
- ☐ Auto Greaser Reservoir level (if fitted)
- ☐ All Grease Points greased manually if no auto greater fitted.

Sprayer Plumbing System

- ☐ Hand Wash Tank clean water level
- ☐ Spray Pump Wet Seal fluid level & air pressure
- ☐ Fill Pump Wet Seal fluid level & air pressure
- ☐ General Hose Routing & condition
- ☐ Sprayer System Suction & Pressure filter elements
- ☐ Main Product Tank mountings & overall condition
- ☐ Rinse Tank mountings & overall condition



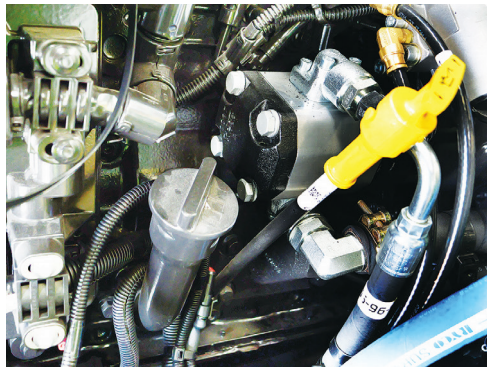
During the first 8 hours of operation, check wheel (shown above) & other retaining nuts frequently - until fully imbedded.

First 8 Hours Of Operation

During the first 8 hours of operation, it is important to closely check the following:

1 Torque Settings

- Check the torque on retaining nuts frequently
- Wheel nuts should be checked to ensure 350 ft/lb is maintained.



During the first 8 hours of operation, check the engine oil level frequently using the engine oil dip stick.

2 Engine

- Check the engine oil level frequently. Due to the “bedding in” of the engine components and additional friction between connecting parts, expect the oil usage to be higher than normal.
- Avoid excess engine idling
- Inspect the air intake system and check for leaks.
- Check components of the Integrated Cooling system for leaks.

⚠CAUTION

If the engine has been running, take extra care around hot engine parts such as the exhaust.

Failure to take care with hot componentry may result in severe burns & injury.

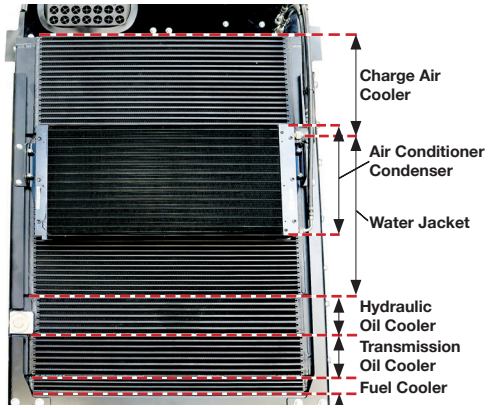


During the first 8 hours of operation, check drop leg oil level (shown above) & all other driveline oil levels.

3 Lubrication & Hydraulic Fluids

- Maintain correct hydraulic oil levels and monitor the oil temperature on a regular basis
- Check all transmission & driveline oil levels
- Ensure grease points are lubricated effectively
- Inspect for leaks in the hydraulic system.

Components of the Integrated Cooling System located at the front of the engine.





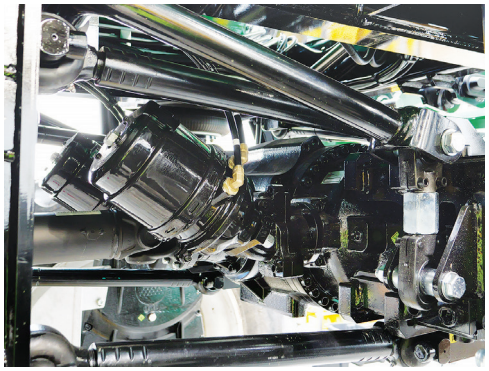
Check tank straps are fully tensioned after first use, Tighten straps if loosened.

4 Tank Retaining Straps

- Check tank retaining strap bolts to ensure they are not loose. Tighten if loose.

5 Pump Mounting Bolts

- Check all pump mounting bolts to ensure they are not loose.



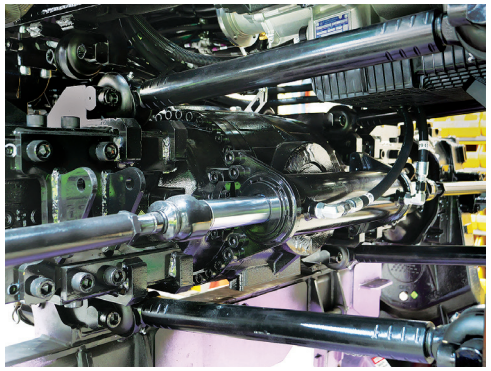
Check all suspension bolts at the each end of parallel links, panhard rods & sway bars to ensure they are not loose.

6 Suspension Bolts

- Check all suspension bolts located at each end of parallel links, panhard rods (450ft/lb) and sway bars to ensure they are not loose. Tighten if loose.

7 Lights

- Check each light around the vehicle for correct function.



Check ball joints & locknuts on steering arms to ensure all are tight.

8 Steering

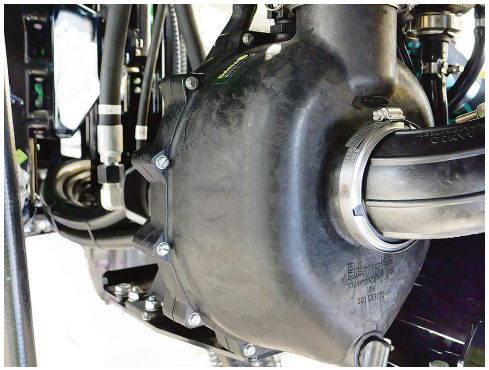
- Check for steering oil leaks.
- Check lock nuts on ball joints are tight.

Maintenance

Correct & timely service & maintenance of the Crop Cruiser are among the most important elements of safe, efficient & accurate operation.

Servicing and maintenance should be carried out according to the schedules in this chapter ‘Lubrication & Maintenance’.

During the first 8 hours of operation, check mounting bolts of the fill pump (shown below) & other pumps.



During the first 8 hours of operation, check the functioning of all lights around the Crop Cruiser.



⚠CAUTION

Before doing maintenance on the Crop Cruiser, read this manual & be aware of the encumbent risk of injury with all sprayer maintenance. Refer to the ‘Crush, Pinch, Burn, Injection, Hose Whip Striking Hazards’ in Chapter 2 ‘Safety’.

NOTE

Goldacres recommends a multi-purpose grease should be used for all grease lubrication. Make sure all open-end bearings are lubricated their full length by forcing lubricant into them until it begins to appear at the sides.

Protect all surfaces with corrosion inhibitor G15.

Service & Maintenance & Schedules

Service Task	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hrs	2500 hrs	3000 hrs	3500 hrs	4000 hrs	4500 hrs	5000 hrs
Engine											
Engine Oil	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace
Engine Oil Filter	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace
Engine Valve Adjustment											☐ Adjust
Engine Air Cleaner - Primary	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check
Engine Air Cleaner - Safety	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check
A/C Compressor Belt	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check
Front Engine Serpentine Belt	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check
Aux Alternator Belt - Aux 12V or 24V	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check
Fuel Filter - Primary	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace
Fuel Filter - Secondary	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace
Radiator	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Radiator Fan	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Radiator Fan Motor	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Engine Coolant	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check
Engine Coolant Hoses	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Charge Air Hoses	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Charge Air Hoses	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Engine Isolator Mounts	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace
Engine Breather Hose	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Coolant Overflow Hose	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check

Service & Maintenance & Schedule cont.

Hydraulic Reservoir	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hrs	2500 hrs	3000 hrs	3500 hrs	4000 hrs	4500 hrs	5000 hrs
Hydraulic Oil	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Hydraulic Oil Pressure Filter	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Hydraulic Oil Return Filter	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Hydraulic Reservoir Breather Cap	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Transmission											
Transmission Oil	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check	☐ Check	☐ Check
Transmission Cooler Hoses	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Transmission Breather Hose	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Transfer Case											
Transfer Case Oil	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Transfer Case Mounts	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace
Transfer Case Seals	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Transfer Case Breather	☐ Check	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Diff Lock Solenoid Breather	☐ Check	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Axle Front											
Differential Oil - Front	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace
Dropleg Oil - Front * 5 L (approx)	☐ * Partial	☐ Check	☐ * Partial	☐ Check	☐ Replace	☐ Check	☐ * Partial	☐ Check	☐ Replace	☐ Check	☐ * Partial
	Note: * Partial - Machine must have been stationary for at least 12 hours. Drain oil until oil runs clean then top up as required										
Dropleg Breathers - Front	☐ Check	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Wheel Bearings - Front	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Steering King Pins	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Steering 90° Rod Ends	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Steering Inline Ball Joints	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Axle Housing - Front	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check

Service & Maintenance & Schedule cont.

Axle Rear	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hrs	2500 hrs	3000 hrs	3500 hrs	4000 hrs	4500 hrs	5000 hrs
Differential Oil - Rear LSD	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace	☐ Replace
Dropleg Oil - Rear * 5 L (approx)	☐ * Partial	☐ Check	☐ * Partial	☐ Check	☐ Replace	☐ Check	☐ * Partial	☐ Check	☐ Replace	☐ Check	☐ * Partial
	Note: * Partial - Machine must have been stationary for at least 12 hours. Drain oil until oil runs clean then top up as required										
Dropleg Breathers - Front	☐ Check	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Wheel Bearings - Rear	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Axle Housing - Rear	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Brakes											
Brake Fluid - Front 2WD (G6 only)	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check
Brake Rotors Min 20mm - Front 2WD (G6 only)	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Brake Pads - Front 2WD Calipers (G6 only)	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Internal Wet Disc Brake - Front 4WD	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Internal Wet Disc Brake - Rear 4WD	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Brake Lines	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Brake Operation	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Park Brake Operation	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Park Brake Copntrol Solenoid Breather	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Brake System Air Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Air Dryer											
Air Dryer Cartridge	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Air Reservoirs	☐ Drain	☐ Drain	☐ Drain	☐ Drain	☐ Drain	☐ Drain	☐ Drain	☐ Drain	☐ Drain	☐ Drain	☐ Drain
Air Lines	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check

Service & Maintenance & Schedule cont.

Suspension	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hrs	2500 hrs	3000 hrs	3500 hrs	4000 hrs	4500 hrs	5000 hrs
Shock Absorbers - Front	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Ride Height Valve - Front	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Airbags - Front	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Torque Rods - Front	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Shock Absorbers - Rear	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Ride Height Valves - Rear	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Airbags - Rear	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Torque Rods - Rear	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Sway Bar Rose Ends	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Sway Bar Hanger Bushes	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Sway Bar Hanger Bolts	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Drive Shafts											
Drive Shaft Universals	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Drive Shaft Slip Splines	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease
Drive Shaft Centre Bearings	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Drive Shaft Mounting Bolts	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Wheels & Tyers											
Tyre Pressures	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Tyre Condition	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Wheel Rim Condition	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Wheel Nut Torque	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check

NOTE

Suspension System: * Parallel link bolts are to be torqued to 450 ft/lb.

NOTE

Axles & Dropleg: * Machines fitted with John Deere Autosteer systems need the tie rod ends checked and re-tensioned every 20 hours to prevent excessive toe angle change over time.

Service & Maintenance & Schedule cont.

Centre Section	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hrs	1500 hr2	3000 hrs	3500 hr	4000 hrs	4500 hrs	5000 hrs
Centre Section Frame	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hydraulic Cylinder Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hydraulic Cylinder Rose Ends	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hydraulic Hose Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Electrical Harness Routing	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Electrical Harness Connectors	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Fold Sensor & Linkages	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Tilt Sensor & Linkages	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Rapid Fire Air Reg Pressure	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hydraulic Yaw Pressure	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Bi-fold Breakaway Pressure	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Para-Lift Arm Condition	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Para-Lift Pins & Bushes	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
All Pins, Bushes & Bolts	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Tilt Pivot Pins & Bushes	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Centre Section Air Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Long Delta Links	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Short Delta Links	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Booms											
Inspect Boom Condition - Inners	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Inspect Boom Condition - Outers	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Inspect Boom Condition - Breakaway	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Boom Poly Mounts	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Boom Electrical Harness Routing	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Boom Recirculation Plumbing	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Boom Hydraulic Lines & Hoses	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check

Service & Maintenance & Schedule cont.

Booms cont.	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hrs	2500 hrs	3000 hrs	3500 hrs	4000 hrs	4500 hrs	5000 hrs
Boom Catches & Latches	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Bi-fold Cylinders	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Bi-fold Breakaway Cylinders	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Bi-fold Linkages	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Tri-fold Cylinders	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Tri-fold Breakaway Cylinders	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Tri-fold Linkages	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Boom Air Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Electrical											
Headlights x 4	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Front indicators	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Cabin lights Front	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Cabin Lights Rear	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Work Lights Front (Platforms)	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Work Lights Rear (Tank Cradle)	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Tail Lights	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Brake Lights	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Rear Indicators	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Rear Beacon	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Boom Lights	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Side Clearance Lights	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Earth Point - Front RH Chassis	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Earth Point - Front LH Chassis	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Earth Point - Mid RH Chassis	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Earth Point - Rear LH Chassis	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Battery Terminals	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check

Service & Maintenance & Schedule cont.

Electrical cont.	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hrs	2500 hrs	3000 hrs	3500 hrs	4000 hrs	4500 hrs	5000 hrs
Power Bus Bar	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
G-Hub Display - Side	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
G-Hub Display - Front	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Horn Condition	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Horn Function	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Rear View Cameras	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Cabin											
Carbon Filters	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Air Recirculation Filter	☐ Check	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Clean
Windscreen Washer Bottle	☐ Fill	☐ Fill	☐ Fill	☐ Fill	☐ Fill	☐ Fill	☐ Fill	☐ Fill	☐ Fill	☐ Fill	☐ Fill
Windscreen Washer Operation	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Cabin Mounts	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace
A/C Operation	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Heater Operation	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Cabin Pressure Boost Fan Operation	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Seat Lift / Lower Compressor	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Mirrors - Electronic Adjustment	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Cabin Door Seals	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
G-Hub Display	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
G-Hub Software Update	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
G-Hub Active Faults	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Rear View Cameras	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check

Service & Maintenance & Schedule cont.

Platforms	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hrs	2500 hrs	3000 hrs	3500 hrs	4000 hrs	4500 hrs	5000 hrs
Ladder Hinges	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Ladder Pneumatic Cylinder	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Ladder Lift / Lower Speed	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Ladder Stop Bolts	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Ladder Catch RH	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Boom Rest Linkages	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Boom Rest Wear Pads	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hand Rails	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hand Rail Pivot Bushes	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Mirror Mounting - LH	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Chassis											
Chassis Condition	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Chassis Hydraulic Manifold	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Chassis Manifold Electrical Harness	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Chassis I/O Modules	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hydraulic Hoses & Pipes	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Pneumatic Line Routing	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Chassis Air Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Steering Orbital	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Steering Hydraulic Hoses	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Manually Grease All Pts per Maintenance Schedule	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Auto Greaser Grease Level (if fitted)	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check

Service & Maintenance & Schedule cont.

Hopper	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hrs	2500 hrs	3000 hrs	3500 hrs	4000 hrs	4500 hrs	5000 hrs
Lift / Lower Mechanism	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Latch	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hopper Lid Seal	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hopper 3" Valve	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Hopper Hose Condition	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
12V Wash Gun Pump	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Spray Pump Pod											
Spray Pump Hydraulic Motor	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Spray Pump Hydraulic Motor Spline	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease
Spray Pump Wet Seal Fluid Level	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Spray Pump Wet Seal Air Pressure	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Plumbing Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Pump Pod I/O Module	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Suction Filter Element	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Replace	☐ Clean	☐ Clean	☐ Clean	☐ Replace	☐ Clean	☐ Clean
Suction Filter O-rings	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check
Pressure Filter Element	☐ Clean	☐ Clean	☐ Clean	☐ Clean	☐ Replace	☐ Clean	☐ Clean	☐ Clean	☐ Replace	☐ Clean	☐ Clean
Pressure Filter O-rings	☐ Check	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Check

NOTE

For more detailed engine maintenance information refer to 'Cummins Operation and Maintenance Manual QSB4.5 and QSB6.7 Engine' supplied with the machine.

NOTE

Braking System 2WD: Minimum thickness of the Brake rotor is 20mm. Replacement is required.

NOTE

Lubricant details are provided under 'Service Parts' which follow the 'Maintenance Schedules'.

Service & Maintenance & Schedule cont.

Plumbing	50 hrs	500 hrs	1000 hrs	1500 hrs	2000 hr	2500 hrs	3000 hrs	3500 hrs	4000 hrs	4500 hrs	5000 hrs
Chemical Pump Operation	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Chemical Pump Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Fill Pod Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Fill Pump Operation	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Fill Pump Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Fill Pump Wet Seal Fluid Level	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Fill Pump Hydraulic Motor Spline	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease	☐ Grease
Micromatic Rinse Socket	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Front 3PL Mechanism											
3PL Arm Condition	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
3PL Frame Condition	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
3PL Pins & Bushes	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
3PL Lift Cylinders	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
3PL Hydraulic Manifold	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
3PL Hydraulic Couplings	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
3PL Electrical Connections	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Front Mount Tank											
Frame Condition	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Spray Pump Hydraulic Motor	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Spray Pump Wet Seal Fluid Level	☐ Check	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace	☐ Check	☐ Replace
Spray Pump Wet Seal Air Pressure	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Plumbing Leaks	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check
Plumbing Hose Routing	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check	☐ Check

Fluids & Lubricants

Description	Quantity Required	Part Number	Description
Engine Oil	15L	GA5012457 (20L) GA5017913 (200L)	Engine Oil, SAE 15W-40, Heavy Duty Cummins Standard (CES 20081 CJ-4) or (CES 20086 CK-4)
Engine Coolant	39L	GA5008311 (205L)	Engine Coolant, TEC PG XL, Cummins
Transmission	17L	GA5078980 (20L)	Oil, Transmission, Ecofluid Life Plus, ZF
Hydraulic Oil	90L	GA5017199 (205L)	Oil, Hydraulic, Mono Grade 46, High Performance
Transfer Case	5.2L	GA5072325 (20L)	Oil, Gear, FE 75W-90, Synthetic
Differential - Front & Rear	48L Total (24L Each)	GA5047310 (200L)	Oil, Gear, 80W 90, API GL-5
Differential - Rear LSD	150ml	GA5055935	Fuchs Lubricant, Isuzu Diff, Break-in Additive 150ml
Droplegs - Front & Rear	124L Total (31L Each)	GA5047310 (200L)	Oil, Gear, 80W 90, API GL-5
Spray Pump ACE	560ml	GA5026390 (0.94L)	Lubricant, Barrier Fluid, Oasis Pump Seal, 1 Quart, ACE
Fill Pump - Banjo	750ml	GA0100309 (5L)	Coolant, 5L, Green Pre-mix, 50% Ratio, Penrite
Grease Points - Manual	N/A		Grease, General Purpose
Grease System - Automatic	4Kg	Contact Groeneveld	Grease, EP0 Grease, EP2
Air Conditioner - Gas	2Kg		Refrigerant Gas, R134a
Air Conditioner - Oil	150ml		Compressor Oil, A/C, Sanden SP20

Further Fluid & Lubricant Recommendations:

- For differing weather conditions consult the Cummins operator's manual to choose the suitable oil grade.
- Ensure lubricants are stored in a place where the lubricants are protected from contamination (such as dirt and moisture). Always use clean containers when handling lubricants.
- Do not mix lubricants. Proper lubrication may be affected by differences in chemical composition.
- Seek advice from the petroleum dealer on the correct use of lubricants & additives.
- At time of manufacture, G15 Anti-Corrosion Spray is applied to all fasteners (bolts, washers & nuts) and zinc plated components.
- G15 Anti-Corrosion Spray should also be applied to the machine both pre & post season.
- As a guide, application of G15 Anti-Corrosion Spray is recommended to the following (but not limited to) areas: Pump mounting bolts, boom rests, left hand pod, mudguard mounting bolts, induction hopper bolts & latches, hydraulic manifold, boom hinge bolts, airbag hose fittings, hydraulic hose crimp fittings, full boom etc.

Replacement Filters

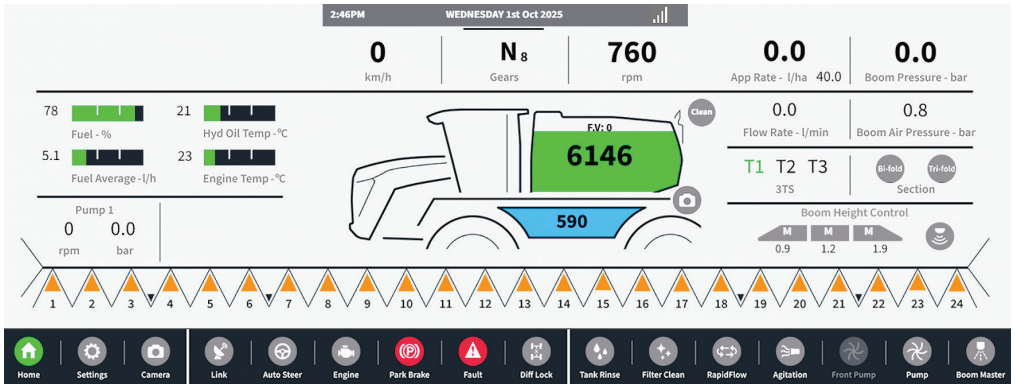
Part Number	Description	Qty
GA5051755	Filter, Engine Oil, Suit Cummins QSB & B6.7L	1
GA2700211	Filter, Fuel, Primary, Cummins B6.7L	1
GA2700193	Filter, Fuel, Element, Secondary, Cummins B-Series	1
GA5026395	Filter, Air Cleaner Element, Primary	1
GA5069032	Filter, Air Cleaner Element, Safety	1
GA3501940	Filter, Hydraulic Return Element, Degassing	1
GA3501114	Filter Element, Hydraulic Pressure Filter	1
GA5075450	Breather Cap, Oil Reservoir Filler	1
GA7000022	Cartridge, Air Dryer	1
GA7000021	Filter Silencer, Air Dryer	1
GA5025920	Carbon Filter Element, Series 3, Suit X11, CAT4 Claas	2
GA5026410	Filter, Internal Air Element, Suit X11 Claas	1
Sprayer System		
GA2000561	Filter Screen, 145 x 320mm, 32 Mesh, suit 319 3” filter, ‘Red’	1
OR		
GA2000281	Filter Screen, 145 x 320mm, 120/32 Mesh, suit 319 3” filter, ‘Grey’	Option
GA2000347	Filter Element, Pressure Filter, Yellow, 80 Mesh, Viton O Rings	1

Service Kits - G6 & G8 Series 3

GA1100094	Service Kit, G6 & G8 Series 3 @ 50 Hours (Items below)	QTY
GA5051755	Filter, Engine Oil, Suit Cummins QSB & B6.7L	1
GA2700211	Filter, Fuel, Primary, Cummins B6.7L	1
GA2700193	Filter, Fuel, Element, Secondary, Cummins B-Series	1
GA3501940	Filter, Hydraulic Return Element, Degassing	1
GA3501114	Filter Element, Hydraulic Pressure Filter	1
GA8700724	Decal, Next Service Indicator, Self Propelled	1

GA1100095	Service Kit, G6 & G8 Series 3 @ 500 Hour Intervals (Items below)	QTY
GA5051755	Filter, Engine Oil, Suit Cummins QSB & B6.7L	1
GA2700211	Filter, Fuel, Primary, Cummins B6.7L	1
GA2700193	Filter, Fuel, Element, Secondary, Cummins B-Series	1
GA5026395	Filter, Air Cleaner Element, Primary	1
GA5069032	Filter, Air Cleaner Element, Safety	1
GA8700724	Decal, Next Service Indicator, Self Propelled	1

GA1100096	Service Kit, G6 & G8 Series 3 @ 1000 Hour Intervals (Items below)	QTY
GA5051755	Filter, Engine Oil, Suit Cummins QSB & B6.7L	1
GA2700211	Filter, Fuel, Primary, Cummins B6.7L	1
GA2700193	Filter, Fuel, Element, Secondary, Cummins B-Series	1
GA5026395	Filter, Air Cleaner Element, Primary	1
GA5069032	Filter, Air Cleaner Element, Safety	1
GA3501940	Filter, Hydraulic Return Element, Degassing	1
GA3501114	Filter Element, Hydraulic Pressure Filter	1
GA5075450	Breather Cap, Oil Reservoir Filler Breather Cap, Oil Reservoir Filler	
GA7000022	Cartridge, Air Dryer	
GA7000021	Filter Silencer, Air Dryer	
GA5025920	Carbon Filter Element, Series 3, Suit X11, CAT4 Claas	
GA5026410	Filter, internal air element, suit X11 Claas	
GA8700724	Decal, Next Service Indicator, Self Propelled	



The G-Hub Home Screen for Spraying (shown above). Press the 'Settings' touch button to display 'Settings' screen.

Service Instructions

G-Hub Service Screen

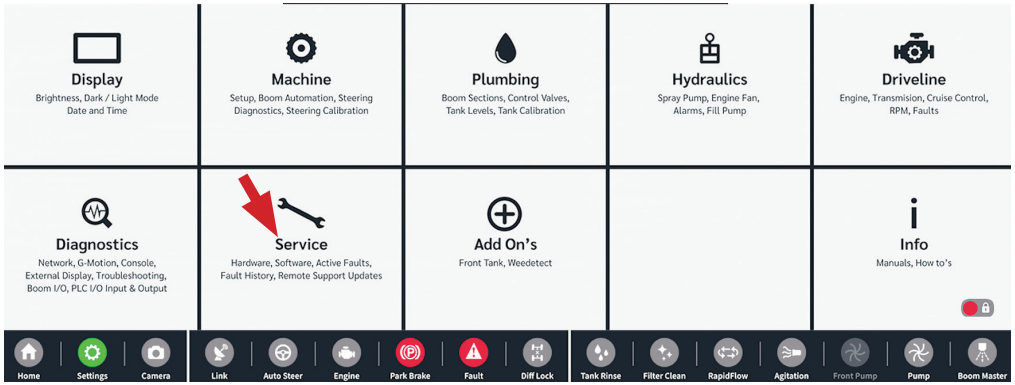
The G-Hub 'Service Screen' provides quick access to service intervals & service history.

To Access the Service Screen:

Press 'Settings' touch button to open the Settings Menu screen *(shown below)* which displays 9 Menu touch buttons:

- Display
- Machine
- Plumbing
- Hydraulics
- Driveline
- Diagnostics
- Service
- Add On's
- Info
- Touch button for Security Lock.

The G-Hub 'Settings' menu (shown below). Press the 'Service' touch button to display 'Service' screen & its menus.





Press the 'Settings' push button, then the 'Service' touch button to open the Hardware tab screen.

To Access Service Intervals & History:

Press the Service touch button *(shown below left)* & a Service menu opens with 5 tab menus:

i) Hardware
(see this chapter for instructions).

ii) Software
(see chapter 3 for instructions).

iii) Active Faults
(see chapter 9 for instructions).

iv) Fault History
(see chapter 9 for instructions)

v) Remote Support
(see chapter 9 for instructions).

i) Hardware

The 'Hardware' screen *(shown above) has* 4 service functions:

1 Service Intervals
2 Service History
3 Edit Service Table
4 Import from/Export to USB.

The 'Hardware' screen is locked for protection from uninformed or accidental alteration.

The screen must be unlocked before any setting or alterations can be made.

To unlock the screen, follow the instructions previously provided in chapters 4 & 6.

An 'Information (i)' touch button in the lower left hand corner of the screen can be pressed for further information.

1 Service Intervals

Required 'Service Due' is set for the Machine & Pump. Each service should be recorded after servicing is completed.

2 Service History

Machine & Pump services are recorded and displayed on the Service History.

To Record Machine Service Due:

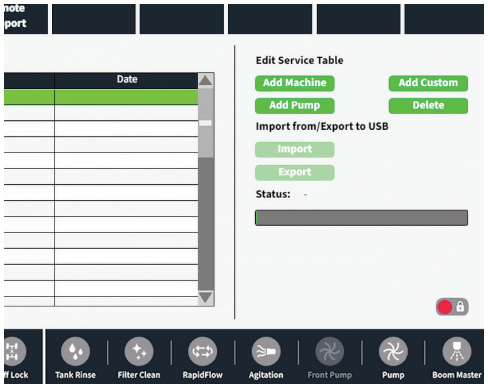
Complete the Machine Service as required, then press the 'Service History' green line touch button and enter the service type, date & time.

Machine hour service interval automatically updates to the next service requirement ('Machine Service Due').

To Record Pump Service Due:

Complete the Pump Service as required, then press the 'Service History' green line touch button and enter the service type, date & time.

Pump hour service interval automatically updates to the next service requirement ('Pump Service Due').



Edit Service Table & Import from/Export to USB touch buttons.

3 Edit Service Table

The 'Edit Service Table' has 4 touch button functions:

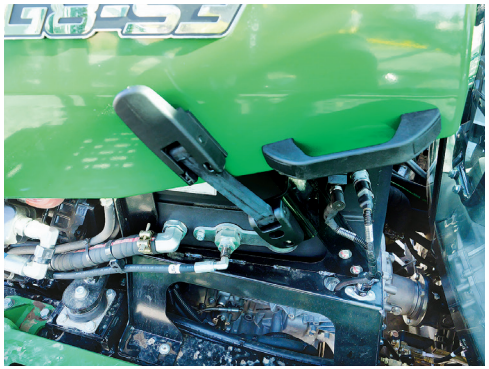
1 Add Machine
2 Add Pump
3 Add Custom
4 Delete.

4 Import from/Export to USB

The 'Import from/Export to USB' displays 2 touch buttons:

1 Import (from USB)
2 Export (to USB).

These allow transfer of digital information required for backup of service history.



The Tensioned Latch located on the left hand side of the bonnet close to the cabin.

Opening the Engine Bonnet

A Tensioned Latch is located on each side of the bonnet to hold the bonnet down for operating. The bonnet can lifted up and forwards for servicing.

To Open the Bonnet:

1 Release the tensioning lever of the left hand side latches *(shown above right)*.

2 Unclip the left hand side tensioning bracket *(shown below left)*.

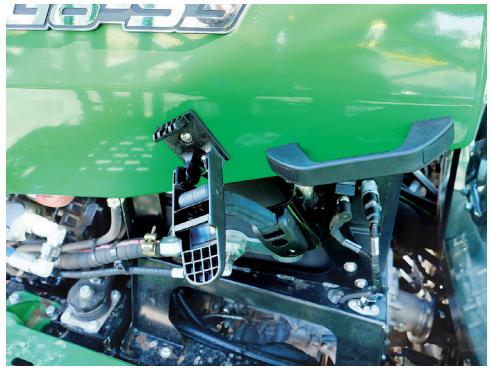
3 Repeat steps 1 & 2 on for the right hand side of the bonnet.

4 Once each latch is unclipped, from either side, use the bonnet handle to lift & control the movement of the bonnet forwards.

Do not let the bonnet fall forwards under it's own weight.

⚠CAUTION

When the bonnet is closed, ensure the latches are properly attached and tight before driving the sprayer.



The Tension Lever released on the left hand side bonnet latch. Use bonnet handles to lift the bonnet.

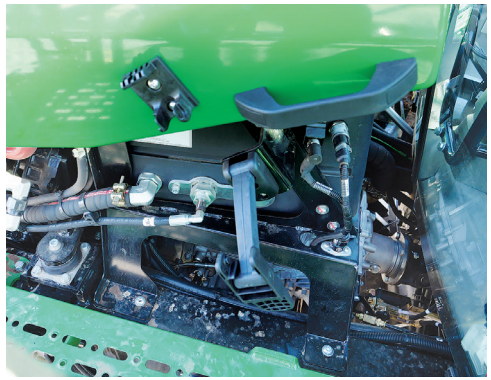
Once opened, the bonnet remains open by its own over-centre weight.

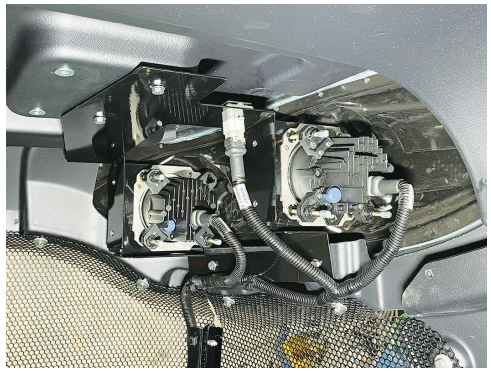
Be sure to close the bonnet & refasten the latches on both sides before driving the Crop Cruiser.

Ensure strap tension is tight when the bonnet is closed.

Replace the rubber tension straps, when necessary.

Bonnet Latch released & unclipped on the left hand side. Repeat on the other side & use handles to open bonnet.





Crop Cruiser Front RHS Headlights.

Headlights

Headlights comprise sealed LED lights & if a breakage or failure occurs, replacement of the unit is required.

To replace a unit, unclip the engine bonnet latches on both sides of the bonnet, then lift & move the bonnet forwards. Don't let the bonnet rotate forwards under it's own weight.

Ensure the engine is cold, then lean across to remove the loom from the light, then remove the light from the housing.

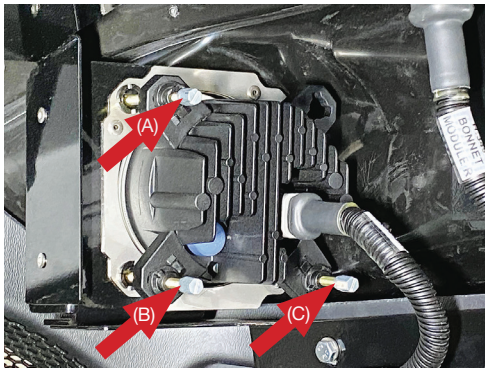
NOTE

Use the bonnet handles to lift open and close the bonnet.

⚠CAUTION

If the engine has been running, take extra care around hot engine parts such as the exhaust.

Allow the engine to cool down before doing maintenance and repairs.



Align the headlight by adjusting three screws (A, B & C) located around the headlight body.

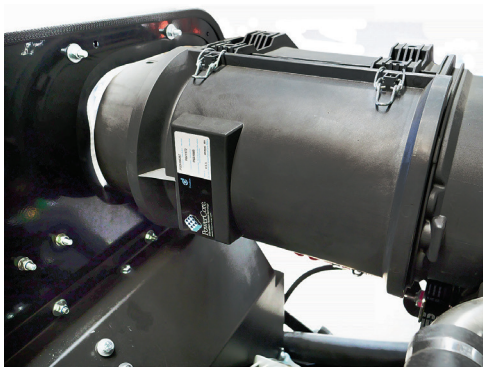
Replace the seal LED lights with a new unit, then, reconnect the loom.

Headlight alignment is made by adjusting three screws located around the headlight body *(shown above)*.

Make a small adjustment to the screws, then check to see if movement is in the correct direction.

Repeat screw adjustments until the headlight is properly aligned.

Ensure the bonnet is closed and latches re-fastened before driving.



Engine air cleaner.

Engine Air Cleaner

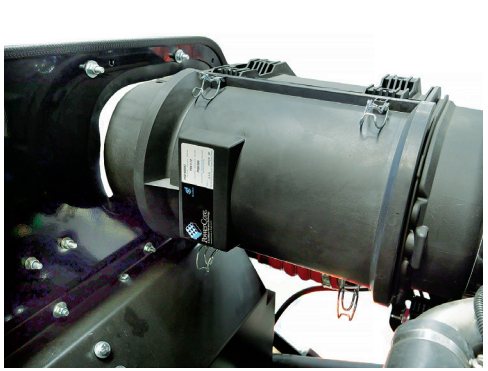
The engine air cleaner is located under the engine bonnet, at the top front right hand side of the engine.

A vacuum gauge (located on the right hand side of the hydraulic oil tank frame) is used to detect blockage of the air filter The vacuum gauge is visible from the cabin

In middle range, the gauge indicates normal function but in the 'RED' zone, shows filter blockage and the primary air filter must be removed and replaced.

NEVER attempt to clean the secondary filter, (located behind the primary air filter). The filter must be replaced when it is contaminated or damaged.

Inspection of filters is recommended when the Crop Cruiser is new and inspection of the primary air filter at each service interval and when the vacuum gauge indicates filter change.



Release the cover clips on top of the air cleaner.

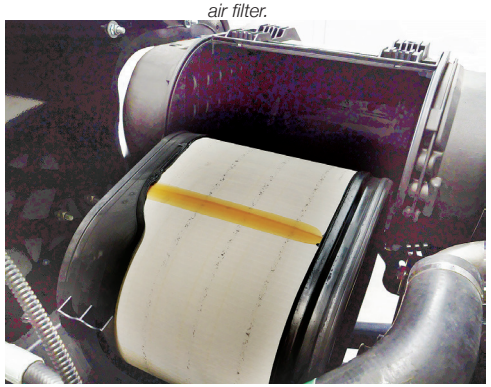
To Change the Air Filter:

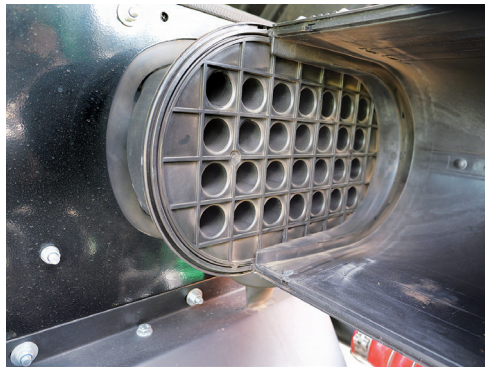
1 Open the engine bonnet (refer to instructions on the previous page).

2 Release the cover clips on top & bottom of the air cleaner *(shown above)*.

3 Remove the cover *(shown below)*, then remove the primary filter *(shown below)*.

Remove the air cleaner cover, then remove the old primary air filter.





Use compressed air to clean the air entrance & filter housing.

4 Used compressed air to clean the air entrance & housing of any debris or dust build up *(shown above)*.

4 Fit the new primary air filter *(shown below)*.

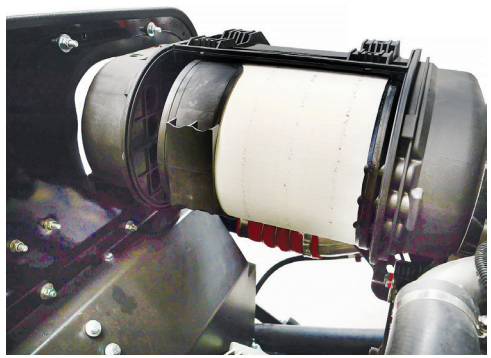
5 Carefully refit the air cleaner cover.

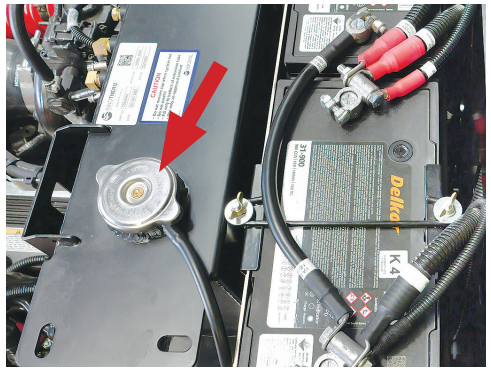
6 Reconnect & fasten the cover clips on top of the air cleaner. This completes the primary air filter change *(shown above far left)*.

7 Close the engine bonnet

Refer to Air Filter specification provided in the 'Maintenance Schedules' of this chapter.

Fit a new primary air filter.





The engine radiator cap.

Engine Coolant

The engine radiator is fitted with a header tank which allows for expansion of coolant as the engine warms up.

The radiator cap allows excess fluid to drain out of the over flow as coolant expands.

Radiator coolant level must be checked DAILY.

Ensure the engine is cool before checking. Do not open the radiator cap if the engine is hot.

The coolant level must be visible when the cap is removed. Coolant should be no more than 50mm below the opening when the engine is cool.

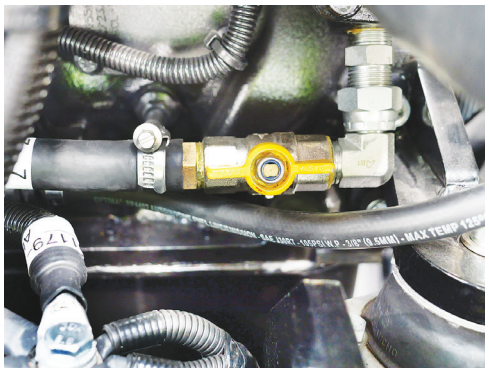
The header tank is fitted with a level sensor so that if coolant drops below the sensor, the engine controller initiates an alarm via the G-hub controller & shuts the engine down.

The coolant condition must be checked at regular service intervals. Refer to 'Engine Maintenance Schedules' in this chapter.

Coolant test kits are available from Cummins.

⚠CAUTION

Never remove the radiator cap when the engine is hot. Failure to follow this instruction may result in severe injuries.



Open the heater ball valve (on the LHS rear of the engine) when replacing coolant to bleed any air.

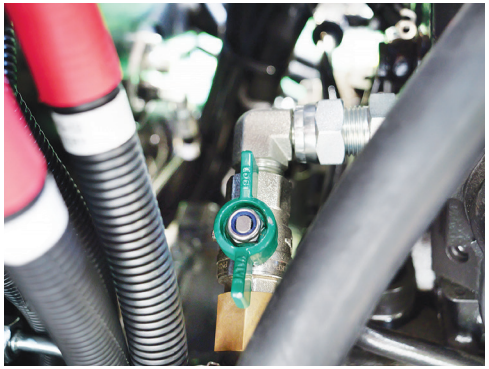
Coolant Replacement

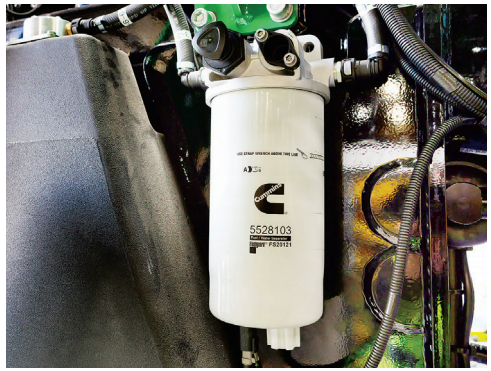
Coolant must be replaced every 4000 hours. Follow the instructions on top of the radiator. Quantity & coolant type as shown in the 'Maintenance Schedules' of this chapter.

Ball valves (located on heater hoses on RHS rear of the engine & header tank) may be isolated during hotter weather to allow air conditioning to operate more efficiently.

When replacing the coolant, these ball valves must be opened so that all the air is bled from the coolant lines.

Open the heater ball valve (on the top rear of the engine) when replacing coolant to bleed any air.





Fuel filter is located on the left hand side of the chassis.

Fuel Filters

Two fuel filters are located on the left hand side of the Crop Cruiser engine area:

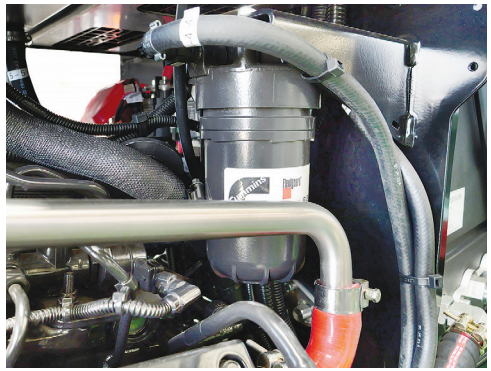
- Primary fuel filter with water separator & manual hand pump, mounted on the left hand chassis.
- Secondary fuel filter, locate on the left hand side above the engine oil dip stick (fine pressure filter).

The Primary filter *(shown above)* separates any water from the fuel and also filters contaminants.

The water trap at the base of the filter cylinder should be drained daily.

It has a sensor at its base which triggers an alarm when excessive amounts of water are detected in the fuel.

Unscrew & pump the plunger to prime the fuel. Re-tighten the plunger after the fuel is primed.



The Secondary fuel filter is located at the top rear left hand side of the engine.

The Primary filter should be replaced within the first 50 hours of use, then every 500 hours of engine operation.

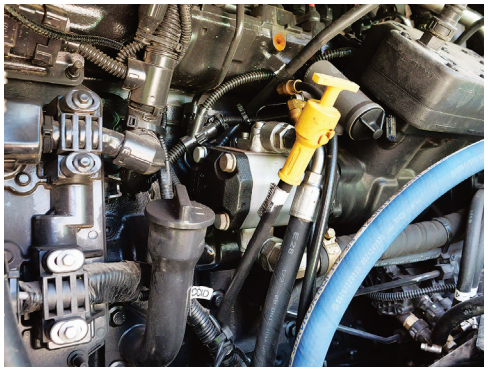
The Secondary (engine) filter is mounted on the left hand side of the engine *(shown above)*.

Replace the Secondary filter at 500 hours.

Refer to Fuel Filter specification provided in the 'Maintenance Schedules' of this chapter.

NOTE

Required Fuel Filter maintenance is provided under 'Engine Maintenance Shedules & Filter' specifications in this chapter.



Engine oil filler cap oil filler cap & yellow oil dip stick are located on the left hand side of engine.

Engine Oil & Filter

Follow the recommended service schedules for engine oil and filter.

Check engine oil level DAILY.

To Check the Engine Oil:

1 Stop the engine.

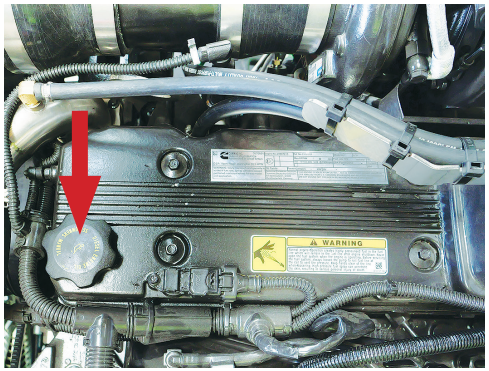
2 Remove the engine oil dipstick from the engine tube and wipe it clean of oil.

3 Replace the engine dipstick, then remove it to measure the engine oil level.

The oil level must be between the 'ADD' and 'FULL' marks on the dipstick.

If the oil level is below the 'ADD' mark, top-up the oil level with the appropriate oil.

Refer to Lubricant specification provided in the 'Maintenance Schedules' of this chapter.



Engine oil filler cap on the front end of the engine rocker cover..

Engine Oil & Filter Change

The engine oil & oil filter must be changed within the first 50 hours of engine use. Refer to the 'Maintenance Schedules' in this chapter.

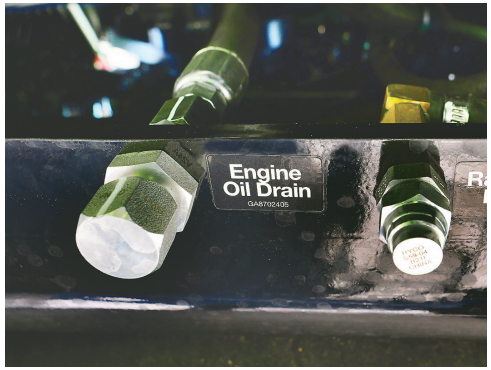
If the Crop Cruiser is operating in harsh conditions, engine oil and filter can be changed at 250 hour intervals.

To Change the Engine Oil & Oil Filter:

1 Place a container (at least 30 litre capacity) under the remote drain plug, located at the front left hand side of the front cross rail

2 Remove the engine oil drain plug located on chassis base (LHS) in front of engine.

Engine oil drain plug on the chassis base in front of the engine.





Engine oil filter located on the right hand side of the engine.

The engine oil filler cap can be loosened to allow the oil to drain more freely.

3 Remove the spin-on external engine oil filter (located on the RHS of the engine) by rotating it in the counter-clockwise direction. A standard strap-type wrench may be used.

4 Replace the filter with new filter. Lubricate the filter gasket with film of engine oil.

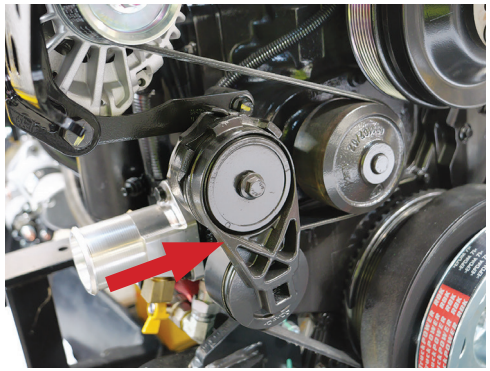
5 Install the filter by hand, until the gasket tightens onto the engine (hand tight only).

6 After the engine oil is fully drained, refit the oil drain plug.

7 Fill the new engine oil via the filler cap in the rocker cover on the top of the engine or via the filler cap located by the dipstick on the left hand side of the engine.

8 Check the oil level using the dipstick on the left hand side of the engine.

9 On completion, ensure the oil filler caps, oil drain plug and oil filter are fitted correctly and wipe any oil spills from the machine.



Engine drivebelt tensioner.

Engine Drive Belt

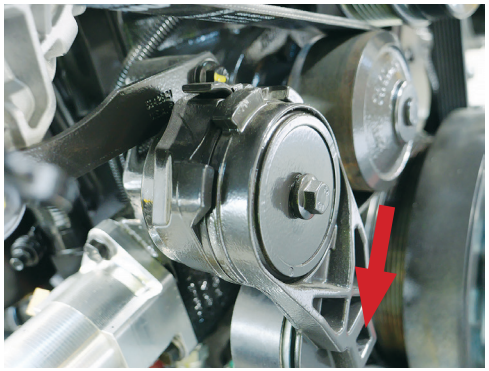
The Engine Drive Belt (located on the front of the engine) uses a spring tensioner which requires no manual adjustment, but requires inspection at regular service intervals.

If the tensioner loses tension, belt slip will occur and the tensioner must be replaced.

Check the belt regularly, as it may become slippery, frayed or cracked over time. The belt should be replaced at minimum every 2000 hours.

NOTE

Refer to 'Engine Maintenance Shedules' in this chapter for Engine Oil & Oil Filter specifications.



Use a breaker bar with a 1/2” socket to release the engine belt tensioner.

To Replace the Engine Drive Belt:

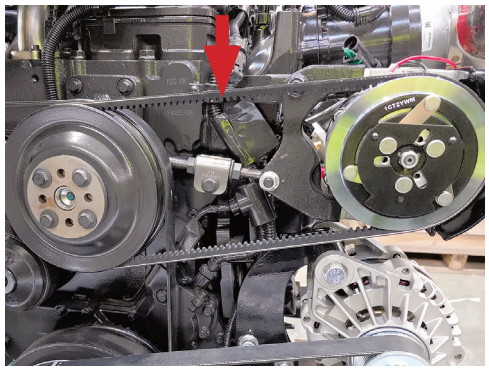
1 Remove the drive belt using a breaker bar with a 1/2” socket to rotate the belt tensioner to release belt tension, then slip the belt off.

After belt removal, slowly & smoothly release the bar to avoid any snap-back damage & injury.

2 Replace the drive belt using the breaker bar with a 1/2” socket to shift the belt tensioner and slip-on the new belt.

Ensure belt ribs are correctly aligned with each of the pulleys.

Slowly & smoothly release the bar to avoid any snap-back damage & injury.



When tensioned correctly, the compressor belt deflection should be no more than 12mm.

Air Conditioner Compressor Belt

The Air Conditioner Compressor Drive Belt (located on the front of the engine) requires manual adjustment. Check the belt regularly.

A deflection of no more than 12mm is present in the belt when tensioned correctly.

The belt should be replaced at minimum every 2000 hours. Refer to the specification provided in the ‘Maintenance Schedules’ of this chapter.



Rotate the adjuster bolt lock nuts to tension the compressor belt. Tighten all bolts when tension is correct.

To Tension the Compressor Belt:

1 Loosen all compressor mounting & adjuster bolts

2 Rotate the lock nuts on the adjuster bolt to move the compressor & tension the belt.

3 When the belt is correctly tensioned, tighten all mounting and adjuster bolts.

To Replace the Compressor Belt:

1 Loosen all compressor mounting & adjuster bolts

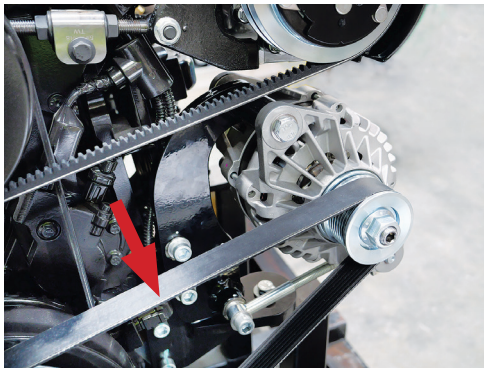
2 Release the lock nuts on the adjuster bolt and loosen the belt for removal.

3 Remove the belt.

4 Fit a new belt.

5 Use the lock nuts on the adjuster to move the compressor and tension the belt.

6 When the belt is correctly tensioned, tighten all mounting and adjuster bolts.



When tensioned correctly, the 2nd Alternator belt deflection should be no more than 12mm.

2nd Alternator Option

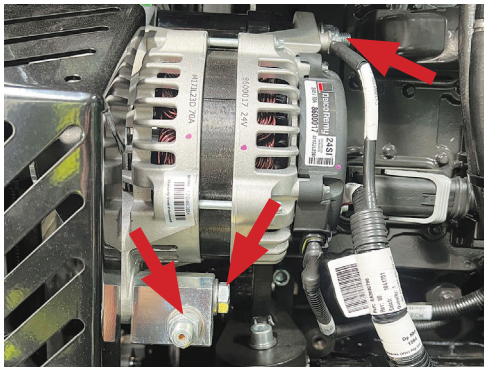
A 12 or 24 Volt Alternator option is required for the optional spot spraying.

If fitted, the 2nd alternator is located on the front of the engine and the drive belt is auto tensioned.

Check the belt and auto-tensioner regularly.

The belt should be replaced at minimum every 2000 hours.

Refer to the specification provided in the ‘Maintenance Schedules’ of this chapter.



Loosen the Alternator mounting & adjuster bolts.

To Replace the Alternator Belt:

1 Loosen the Alternator mounting & adjuster bolts

2 Release the lock nuts on the adjuster bolt and loosen the belt for removal.

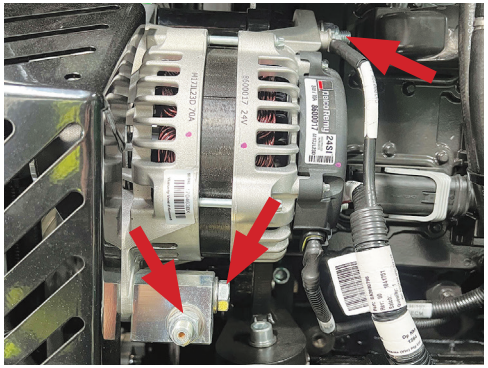
3 Remove the belt.

4 Fit a new belt.

5 Use the lock nuts on the adjuster to move the Alternator and tension the belt.

6 When the belt is correctly tensioned, tighten all mounting & adjuster bolts & nuts.

When the belt is correctly tensioned, tighten all mounting & adjuster bolts & nuts.





Unlock two locking knobs of the air filter cover (above the cabin door), then open the air ilter cover upwards.

Cabin Air Cleaner

The Cabin Air Cleaner is built into the cabin. The air cleaner is located on the left hand side above the cabin entrance door.

The air filter cleans impurities from air entering the cabin. Air is drawn in through the carbon filter by a fan which pressurises the cabin preventing impure air entering the cab from gaps or possible seal leaks.

Filter elements comprise carbon filters.

Carbon balls in the Carbon filter capture air impurities from air passing through the filter.

Recommended new Carbon filter replacement details.





Remove the old carbon filter element from its housing, then fit the new air filter element into the housing.

A colour indicator on the end of the filter shows when the filter needs replacement (or recharging by a certified agent).

The Carbon filter must be checked regularly and changed when necessary.

To Service the Cabin Air Filter:

1 Unlock two locking knobs of the air filter cover (above the cabin door) and open the air filter cover upwards *(shown above left)*.

2 Remove the carbon filter elements from their housing *(shown above)*.

6 Check the carbon ball colour guide:

- Purple - Active
- Brownish Orange - Active
- Brownish Red - Filter must be replaced (or recharged by a certified agent).

When the indicator shows Brownish Red, replace/renew the carbon filter.

NOTE

Standard only cabin air filters are factory fitted. Carbon Filter Elements are supplied but not fitted.

It's the operator's responsibility to fit the Carbon Filter Elements prior to operating the Crop Cruiser as the cabin decal instructs.



Carefully fit new carbon filters.



Fully insert new carbon filters then close & lock the cover.

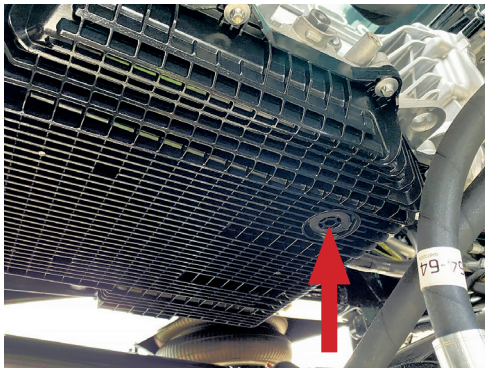
7 Carefully fit the new air filter elements into their housings.

8 Close the air filter cover downwards.

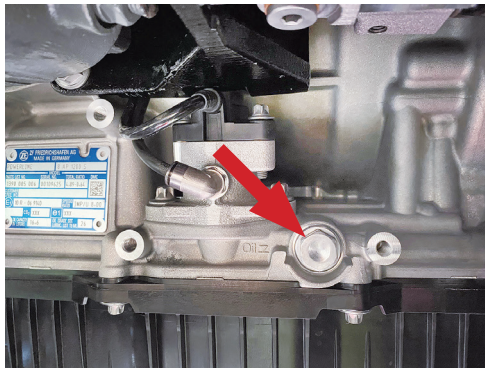
9 Lock the two locking knobs of the air filter cover.

NOTE

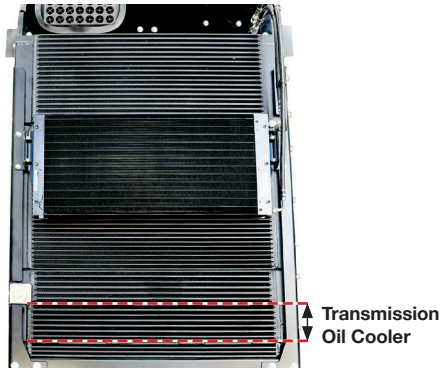
Carbon Filter specification is provided in the 'Service Parts' & 'Filters' section in this chapter.



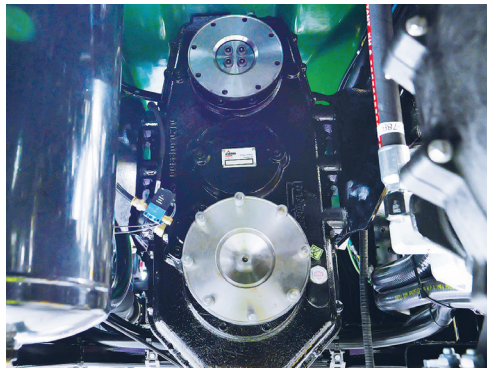
Oil Drain Plug in the base of the Gearbox.



Oil Fill & Level Plug on the RHS of the Gearbox housing.



The Transmission Oil Cooler is located at the front of the engine - as part of the integrated cooling systems.



Transfer Case (before drivelines fitted).

Transmission

The ZF 8 Speed Automatic Transmission has an oil level sensor within the transmission which displays the oil level in the G-Hub.

Follow the transmission oil & oil filter service schedules specified in the 'Maintenance Schedules' of this chapter.

To Replace the Transmission Oil:

1 Park the Crop Cruiser on a flat level surface.

2 Place a suitable container under the transmission to collect draining oil.

3 Remove the drain plug from the bottom of transmission oil pan. Warm oil will drain more easily.

4 Allow the oil to drain out fully, then re-fit the drain plug.

5 Refill the transmission with fresh oil via the RHS Oil Fill & Level plug until the oil level is correct - the transmission level, 40 deg temp & fill until overflow ing.

Oil can also be added through the Fill plug on top of the gearbox.

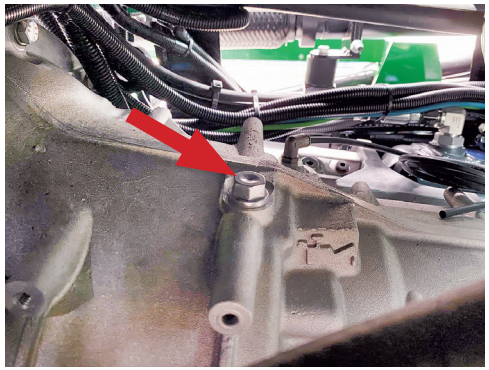
6 On completion, fit and tighten oil fill and level plugs.

Refer to the oil & filter specification provided in the 'Maintenance Schedules' of this chapter.

NOTE

Transmission Maintenance Schedules and transmission fluid specification can be found the 'Maintenance Schedules' of this chapter.

Oil Fill Plug on top of the Gearbox housing.



Transmission Oil Cooler

The transmission oil cooler is integrated within the engine radiator cooling systems.

⚠CAUTION

Avoid any skin contact with used transmission oil.

Beware that draining transmission oil may be hot.

Failure to follow these cautions may result in personal injuries.

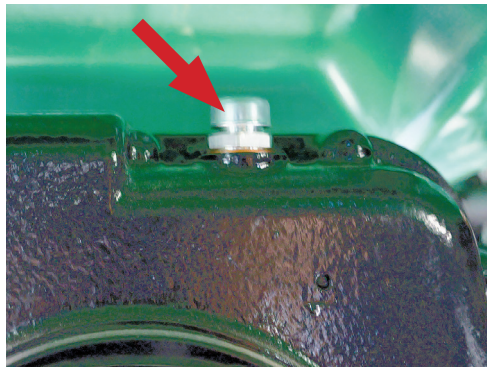
Transfer Case

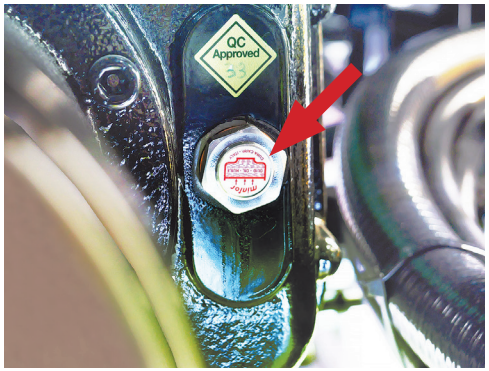
The Transfer Case directs drive from the transmission to the front & rear axles.

A breather (on the top of the transfer case) allows oil to expand and contract without creating a vacuum or pressurising the differential housing.

The breather must be cleaned at regular service intervals.

Transfer Case breather - clean at regular service intervals..





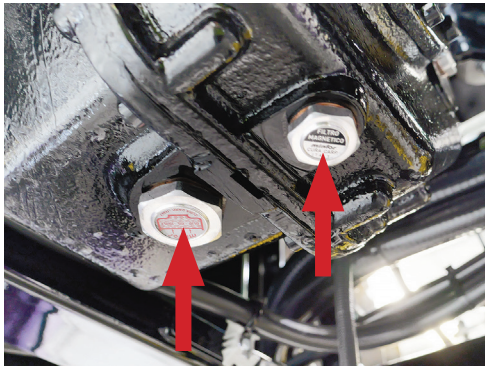
Transfer Case oil level plug.

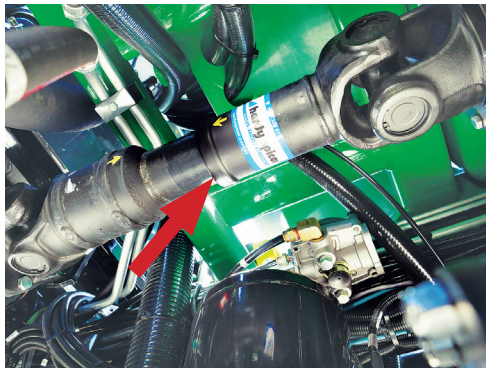
Oil level is checked by removing the oil level plug located on the side of the transfer case.

Oil level should be checked regularly.

For service & lubricant details, refer to the Lubrication & Maintenance schedules in this chapter.

Transfer Case oil drain plug.





Check & lubricate telescopic splines of fixed drive shafts regularly.

Fixed Drive Shafts

Fixed Drive Shaft transmit drive from the transfer case to front & rear axles.

Both front rear drive shafts have telescopic splines which require regular lubrication.

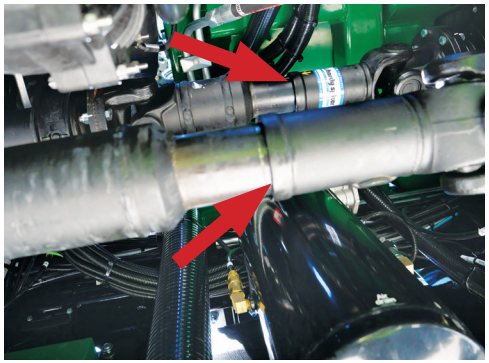
Check & lubricate the splines of front & rear drive shafts at regular service intervals.

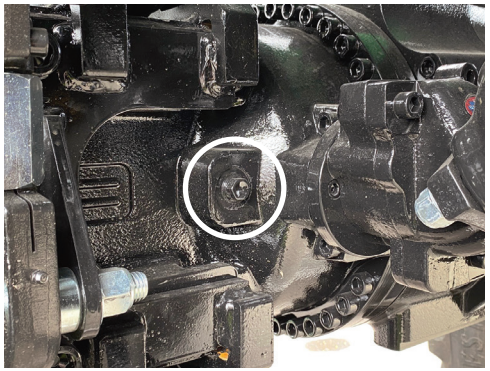
Inspect drive shaft universal joints for wear at regular service intervals.

Driveline universal joints are not greasable.

Refer to the ‘Grease Points’ & ‘Maintenance Schedules’ in this chapter.

Check & lubricate telescopic splines of fixed drive shafts regularly.





Differential Oil Level Plug on the front of the housing.

Differentials

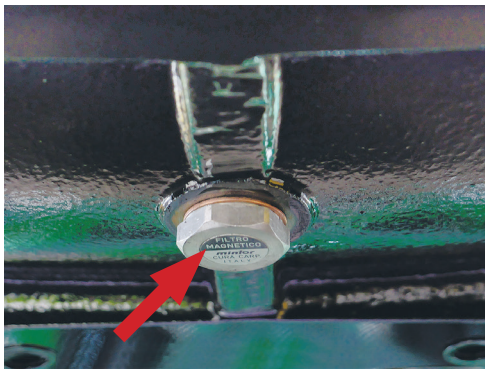
Differentials run in an oil bath sump.

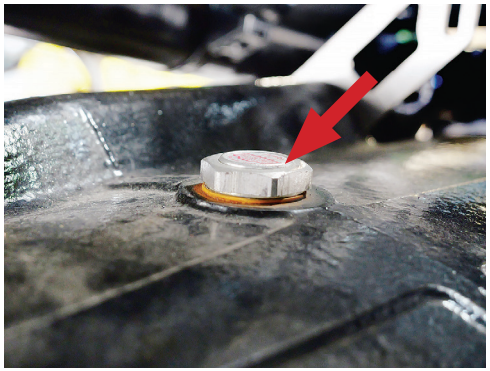
The oil level can be checked by removing the oil level plug on the side of the differential housing.

The oil should be replaced at the first service to remove manufacturing contamination. The oil must be replaced every 500 hours.

Refer to the specification provided in the ‘Maintenance Schedules’ of this chapter.

Differential Oil Drain Plug in the base of the housing.





Differential Oil Fill Plug on top of the housing.

A breather, located on the top of the differential, allows oil to expand and contract without creating a vacuum or pressurising the differential housing.

Differential breathers must be cleaned at regular service intervals.

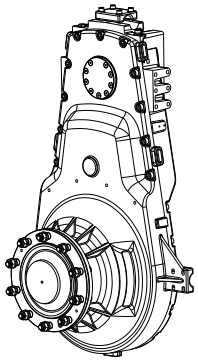
Limited slip oil additive can be used in the rear differential only.

NOTE

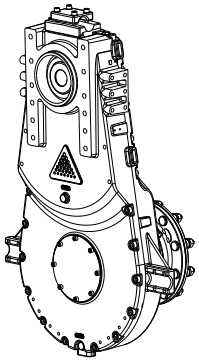
Drive Shaft & Differential Maintenance Schedules are provided in the ‘Maintenance Schedules’ of this chapter.

NOTE

Rear differentials are fitted with an LSD. Some chattering noise may be present during first use, but will subside over time. This is normal.



Drop Leg illustration - outside (wheel attachment).



Drop Leg illustration - inside (axle attachment).

Drop Legs

Drop legs incorporate an oil bath sump in which chains run & carry oil for the chains, sprockets & bearings.

Each idler shaft bearing housing utilises a sump to ensure bearings are always lubricated.

Dropleg oil levels should be checked as per the schedules given in this chapter.

Partially replace dropleg oil at first 50 hour service to remove manufacturing contamination.

Refer to specifications provided in the ‘Maintenance Schedules’ of this chapter.

Partial Drop Leg Oil Change

To conduct a partial dropleg oil change in the first 50 hours of operation as specified in the Service Schedule:

1 Ensure the Crop Cruiser is stationary for at least 12 hours.

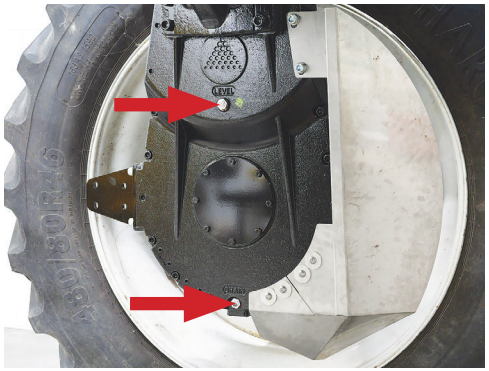
2 Place a container below the drain plug at the base of the drop leg to collect the draining oil.

3 Remove the drop leg oil drain plug and allow oil to drain until it becomes clean - approximately 5 litres may be drained.

4 Refit & tighten the oil drain plug.

5 Remove the drop leg oil level/fill plug and refill the with clean oil.

6 Refit & tighten the level/fill plug.



Dropleg oil level plug / oil fill port (top arrow) and drain plug (bottom arrow).

To Check Drop Leg Oil Levels:

1 Remove the drop leg oil level/fill plug.

2 Check the oil level. Oil level must be just below the level/fill plug.

3 If required, add more oil.

4 Refit & tighten the level/fill plug.

5 Repeat the procedure for each drop leg.

To Change Dropleg Oil:

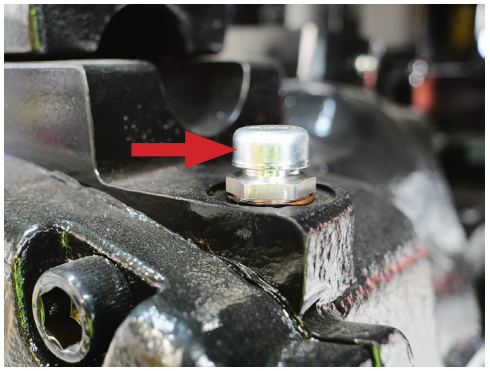
1 Place a container below the drain plug at the base of the dropleg to collect the draining oil.

2 Remove the drain plug to empty old oil.

3 After the oil is completely drained, refit and properly tighten the drain plug.

4 Refill the dropleg with recommended oil. Refer to the specification provided in the ‘Maintenance Schedules’ of this chapter.

5 Repeat the procedure for each dropleg.



Clean Drop Leg Breathers (4) at regular service intervals.

Drop Leg Breathers

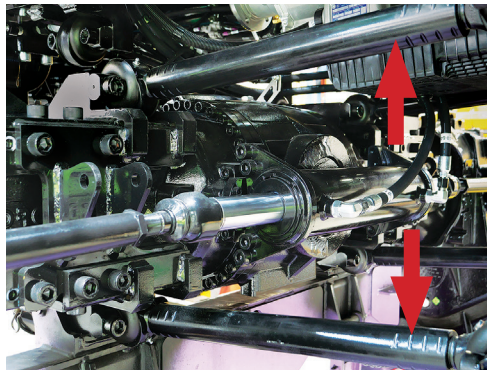
A Drop Leg Breather on top of each drop leg *(shown above)* allow oil to expand & contract without pressurising or creating a vacuum in the drop leg housings.

Each drop leg breather must be cleaned at regular service intervals.

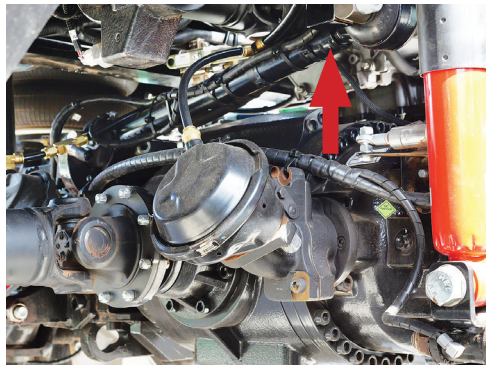
Refer to the specification provided in the ‘Maintenance Schedules’ of this chapter.

Dropleg oil level plug & oil fill port.





Trailing arm torque rods.



Panhard rod.

Dropleg Drive Chains

Drive chains of highest quality & designed for long trouble free life are used in the droplegs. Ensure proper dropleg care & maintenance is followed to maximise chain & sprocket life.

Top drive chain uses Tsubaki 140 Super HT chain & bottom drive chain uses Tsubaki 160 Super HT chain. Refer to the specification provided in the 'Maintenance Schedules' of this chapter.

Even the best chains will eventually stretch over time & loosen. Maximum allowable chain stretch is 1.5%. When this occurs the chains must be replaced.

Chain service life is gauged by total stretch. There is no tensioning mechanism. As chains stretch beyond 1.5%, the chains will no longer align correctly with the drive teeth. Therefore proper replacement is mandatory to prevent excessive wear of the drive sprocket teeth.

Condition of Drop Chains

Drop chains do not have a specific service life. Chain condition is determined by observing metal particles in the oil & on the sump plug.

Larges numbers of metal particles larger than 1mm indicate the dropleg must be opened for inspection. Possible chain & bearing failure may be imminent and the dropleg should be overhauled.

As preventative maintenance measure, chains should be replaced whenever a dropleg is opened.

Suspension

The Crop Cruiser's five point axle suspension system comprises:

- Four trailing arm torque rods on each axle
- One Panhard rod on each axle
- Two air bags on each axle - allowing axles to oscillate
- Rear axle anti-roll sway bar.

Trailing Arm Torque Rods

Trailing arm torque rod links hold axles in place on the chassis. The rods allow the axle to distort or twist fore & aft when wheels come onto an obstruction such as pot holes, logs, rocks or embankments, etc.

Any oscillation is absorbed by spherical bearings in each end of the links. Each end of the parallel link is attached to the chassis and differential with bushes & M22 high tensile bolts.

Bolts & bushes should be checked each time that the vehicle is serviced.

Refer to the specification provided in the 'Maintenance Schedules' of this chapter.

NOTE

Refer to the specification provided in the 'Maintenance Schedules' of this chapter.

Panhard Rods

Panhard rods hold the axle centred in the chassis and to prevent any sideways movement holding axles central to the chassis.

Panhard rods are attached to the top of the axle & bottom of the chassis with two spherical bearings and M22 high tensile bolts.

Bolts and bushes should be checked each time that the vehicle is serviced.

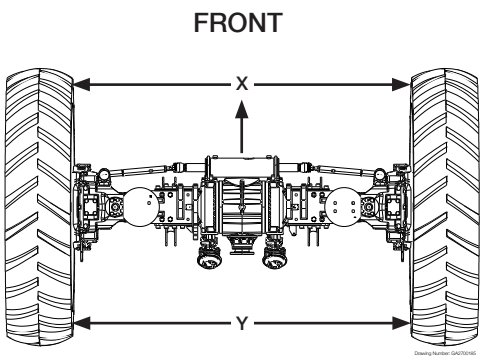


Illustration - Plan View: Steering Toe-In Distance 'X' should be 1-5 mm less than Distance 'Y'.



Regularly check tyre pressure and wheel nut tension.

Tyre Size	Part No	Description	Rating	Max Load per Tyre	Max kPa (PSI)	Recommended Pressure kPa (PSI)			
						Front Std	Front Tank Option	Rear Std	Rear 48m Boom
480/80R50	GA1500081	Tyre, 480/80R50, VF, VDR900, Ascenso	179D	7750kg	358 (52)	179 (26)	358 (52)	317 (46)	358 (52)
580/85R42	GA1500097	Tyre, 580/85R42, VF, VDR900, Ascenso	186D	8750kg	200 (29)	138 (20)	200 (29)	158 (23)	200 (29)

Crop Cruiser G6-G8 Series 3 - Tyre Options, Specifications & Recommended Pressures.

Steering Toe-In

Steering Toe-In should be set to 1-5 mm.

To check Steering Toe-In:

1 Park the Crop Cruiser on a flat level surface, apply the parking brake & remove the ignition key

2 Measure up 900mm from the ground on the inside front right hand side front steer tyre & mark the front part of the tyre.

3 Measure up 900mm from the ground on the Inset front left hand side front steer tyre & mark the rear part of the tyre.

4 Repeat steps 2 & 3 on the rear side steer tyre.

5 Measure between the front marks (previously made) on the left & right front steer tyres and record the distance.

6 Measure between the rear marks (previously made) on the left & right front steer tyres and record the distance.

7 The front measurement must be 1-5 mm less than the rear measurement.

8 To make an adjustment, loosen the tie rod lock nuts, then rotate the rod to extend or shorten the rod, until the toe-in measurement is correct.

9 When correct, re-tighten the lock nuts.

Wheel Camber

Wheel Camber is factory set and cannot be adjusted. At the time of manufacture the wheel camber is set to +1.0º.

Tyre Maintenance

The Crop Cruiser has two tyre options (see above).

It is very important that tyres are properly maintained.

Tyre pressure is the most important factor for maintaining correct load rating of the tyre. Correct tyre pressure should be maintained at all times.

Tyre pressure should be checked regularly - every 8 to 12 hours of operation.

Inflation above or below recommended pressures may cause damage to the tyres.

High road speeds & heavy loads may cause tyres to wear prematurely.

If a tyre is replaced with a different brand or size, please contact the supplier for correct air pressures to suit the load carrying capacity of the Crop Cruiser.

Protect the tyres as much as possible to minimise wear and deterioration. Chemical sprays & insecticides may be harmful to the rubber in the tyres and should be washed off after use.

⚠DANGER

Take extreme care when inflating tyres and use an accurate inflation gauge when doing so.

If tyres are inflated at a rapid rate then the tyre rim combination may explode. This can result in serious or fatal injuries.

⚠DANGER

Do not work under the machine when supported solely by a jack.

⚠DANGER

When the tank is fully loaded each wheel supports a weight up to approximately 7 tonnes.

Always ensure that the jack is designed to operate under this pressure.



Recommended wheel nut torque tension is 350 ft/lb.

Wheel Nut Tension

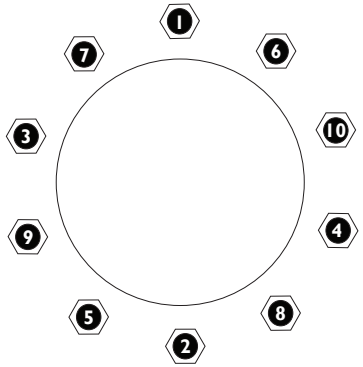
Wheel nuts must be tensioned daily when the machine is new and whenever wheel nuts are removed and refitted.

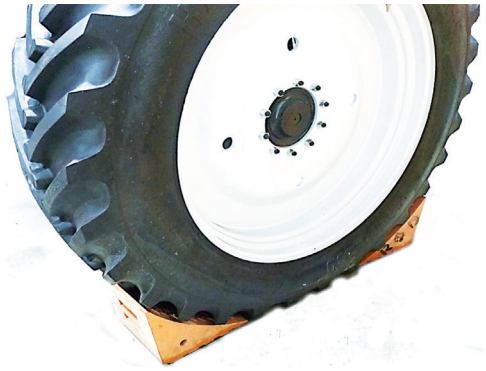
Once wheel nuts hold their tension, inspection can be lengthened to approximately 50 hours.

Wheel nut tension specification on Crop Cruiser front & rear wheels is 350 ft/lb.

Follow the wheel nut tightening sequence (shown above) to ensure even wheel nut torque distribution.

Follow the wheel nut tightening sequence (above) to ensure even wheel nut torque distribution (350 ft/lb).





Chock opposite wheels of the Crop Cruiser before lifting.

Wheel Changing

Changing of wheels should only be done by an experienced person working with the correct equipment.

To change a wheel:

- Ensure the Crop Cruiser is on hard, flat level ground and wheels are chocked at the opposite end of lifting.
- Remove the isolator key and ignition key.
- Ensure the boom is fully closed before raising the machine off the ground.

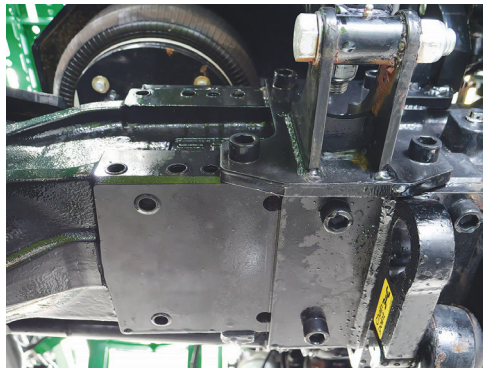
⚠ DANGER

Do not work under the machine when supported solely by a jack.

⚠ DANGER

Do not chock or support the machine using materials that may crumble.

Use only load rated supports.



LHS front axle jacking point.

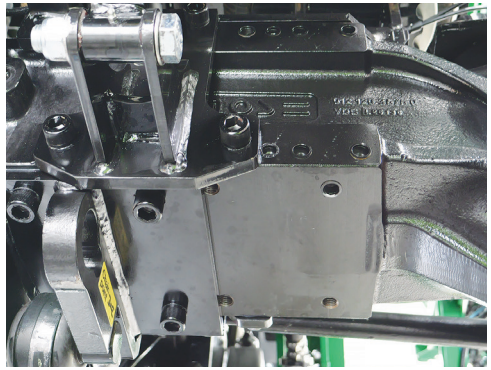
- Empty the spray tank if possible before lifting the machine.
- Place a rated jack securely under the jacking point required, then gently raise the machine until the weight is taken off the wheel being changed.

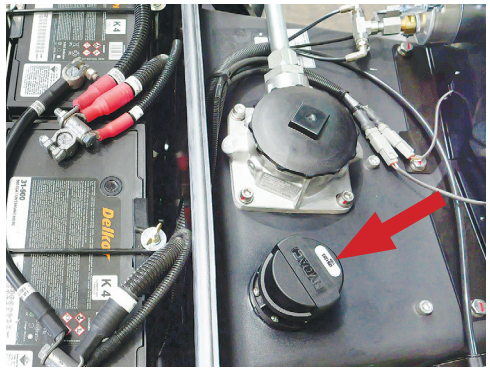
⚠ DANGER

When the tank is fully loaded each wheel supports a weight up to approximately 7 tonnes.

Always ensure that the jack is designed to operate under this pressure.

RHS front axle jacking point.





Hydraulic Oil Tank & fill point located under the engine bonnet in front of the cabin.

Hydraulic Oil System

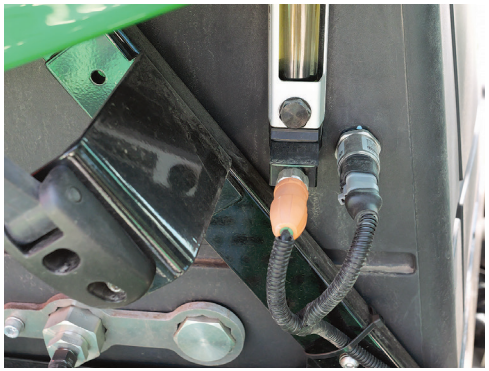
The Hydraulic Oil System uses a pressure filter for maintaining oil cleanliness in every circuit.

An electronic filter blockage indicator monitors filter health which is displayed in the G-Hub.

Hydraulic Oil Tank

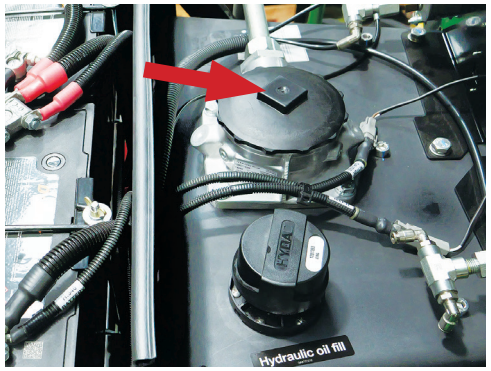
The Hydraulic Oil Tank is located under the engine bonnet in front of the cabin and:

- All hydraulic systems operate from this common hydraulic reservoir.
- The reservoir has a sight tube mounted on the side. The oil level must always be visible in top third of the tube.
- Optimal oil operating temperature range is 50-70 degrees Celsius.
- Digital temperature and low oil level sensors connect into the G-Hub system for real time hydraulic oil temperature and low oil level alarm.



Visual oil level display & G-Hub Temperature sensor on the side of the oil tank.

- The visual oil level display window includes a red float for quick oil level checks.
- The gauge layout on top of tank shows closed centre variable displacement hydraulic pump pressure through the cabin windscreen.
- The dedicated case drain return ports are at front of tank.



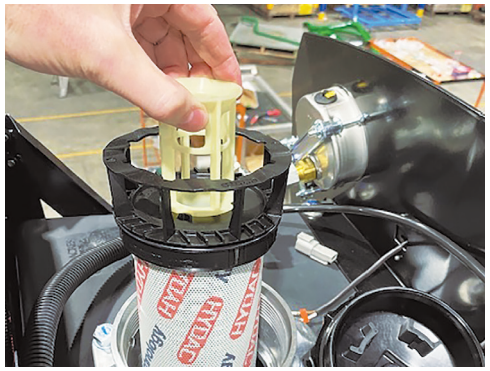
Hydraulic Return Filter and indicator located on top of the oil tank.

Return Filter

The Return Filter, located on the top of the hydraulic reservoir tank in front of the cabin, filters returned oil to the reservoir.

This filter should be replaced after the first 50 hours of use and there after every 1000 hours.

Refer to the specification provided in the ‘Maintenance Schedules’ of this chapter.



Lift the Return Filter element out of its housing.

To Replace Return Filter:

1 Park, then stop the Crop Cruiser engine & remove the ignition key.

2 Remove the Return Filter Cap.

3 Lift the Return Filter element out of its housing.

4 Remove the Oil Return Drop Tube from the old filter element.

IMPORTANT: Do not discard the Oil Return Drop Tube when changing the Return Filter element. It must be retained & inserted into the new filter element.



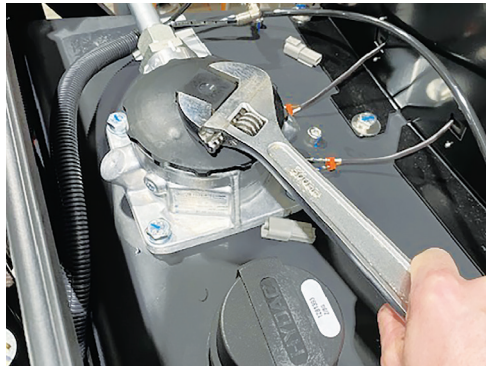
Insert the Oil Return Drop Tube into a new Return Filter

5 Insert the Oil Return Drop Tube into a new Return Filter element.

6 Install the new Return Filter element into the Return Filter housing.

7 Re-fit & tighten the Return Filter Cap.

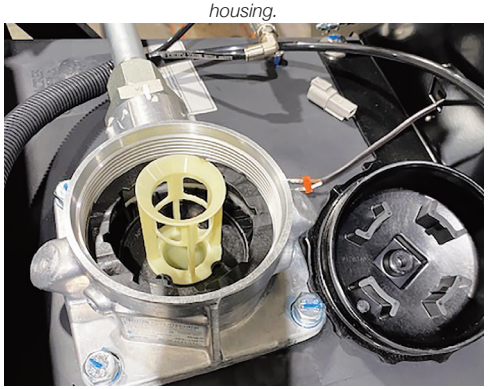
Remove the Return Filter Cap.

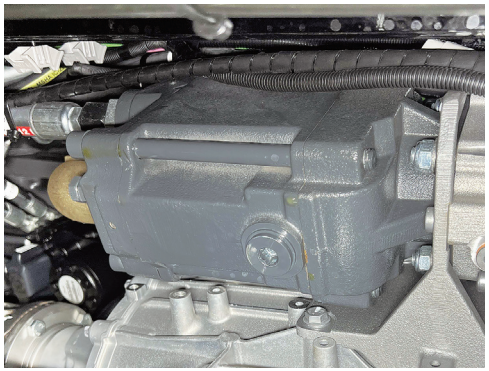


Remove the Oil Return Drop Tube from the old filter



Install the new Return Filter element into the Return Filter housing.





Closed Centre Variable Displacement Pump with Load Sensing

Closed Centre Variable Displacement Pump

The Closed Centre Variable Displacement Pump with Load Sensing (located at the rear of the engine) powers the:

- Boom functions (boom lift, boom tilt, boom fold & boom rest
- Spray pump
- High flow fill pump and
- Steering system.

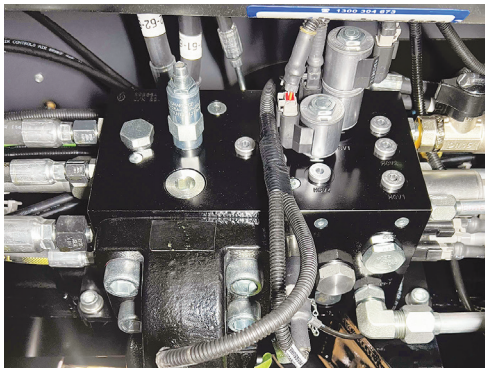
The pump is driven by the transmission PTO.

The pump is 110cc which delivers relatively high flow at low engine RPM. Oil flow is on demand.

Centrifugal Pumps

Wet Seal Coolant Level maintenace is critical to both the Spray & Fill pumps.

Contact Goldacres for the Pump Operator's manual for full instructions.



Mid-Mounted Hydraulic Manifold.

Mid-Mounted Hydraulic Manifold

The Mid-Mounted Hydraulic Manifold (located on the LHS behind the front axle) controls the:

- Spray pump speed (electric control with soft start/stop)
- Adjustable boom rest activation
- Fill pump & load sensing for the variable displacement hydraulic pump
- Steering priority
- Spray pump.

A single Hi-flow pressure filter keeps the flowing oil clean.

A pressure relief valve is built into the manifold with an opening pressure of 2750 PSI.

⚠CAUTION

Do not use this machine in ambient temperatures exceeding 40°C.

Significant damage may occur where machine is operated continuously in very hot conditions.



Hydraulic oil filter on the right hand side of the Crop Cruiser.

Hydraulic Pressure Filters

The hydraulic pressure filter filters oil before it is pumped through the manifolds.

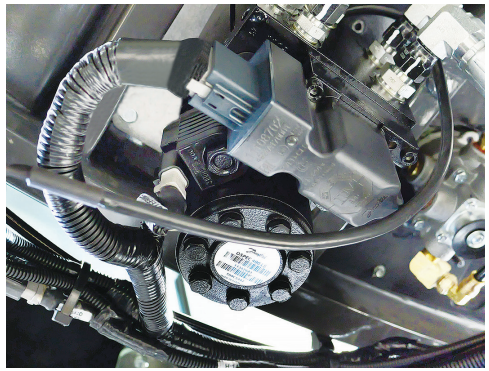
The filtration element is rated at 10 micron.

The filters are fitted with electronic condition sensors which report to the G-Hub integrated system. A warning shows on the controller display when replacement is necessary.

The pressure filters have a general usage life expectancy of 1000 hours.

NOTE

Refer to the 'Maintenance Schedules' this chapter for information on hydraulic maintenance, lubricants and parts.



The Danfoss OSPE Steering Orbital located under the cabin.

Danfoss OSPE Steering Orbital

The Danfoss OSPE Steering Orbital, located under the cabin, is a high performance steering unit with a fully integrated GPS ready steering ready system which removes need to add any extra hydraulic valves to the machine.

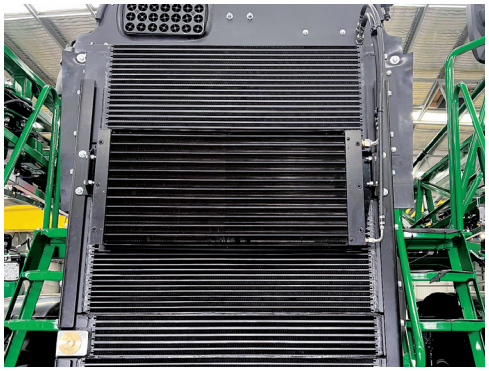
The steering valve is powered on via the 'Spray mode/Road mode' switch on the upper right hand side console in the cabin.

The valve is disabled when in 'Road mode'.

Auto steer ready AgLeader, Trimble, Raven & Topcon applications can be steered directly from the Nav controller via CAN BUS network.

For John Deere applications, a separate 'CAN Bridge' is required (Solsteer or Agra GPS) - dealer to supply. Solsteer is recommended by Goldacres.

Wheel angle and steering manual override sensors are factory fitted.



The Hydraulic Oil Cooler is located at the front of the integrated engine radiator cooling systems.

Hydraulic Oil Cooler

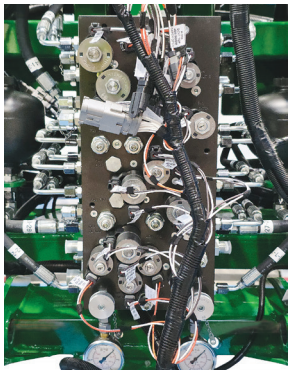
The Hydraulic Oil Cooler, located at the front of the engine, is integrated within the engine radiator cooling systems.

The integrated system incorporates the hydraulic oil cooler core & variable speed fan.

A thermal bypass allows oil to rise to optimum operating temperature as quickly as possible. The oil cooler engages when the oil temperature reaches 60°C.

A warning is given in the cabin when the hydraulic oil may be overheating. The warning activates if oil temperature reaches 95°C.

If the warning sounds, cease operating the Crop Cruiser immediately and assess whether the cooler is operating correctly or ambient temperature is too high for operating.



Rear Manifold at the front of the boom centre section - 36m Option (Stardard RIVX)

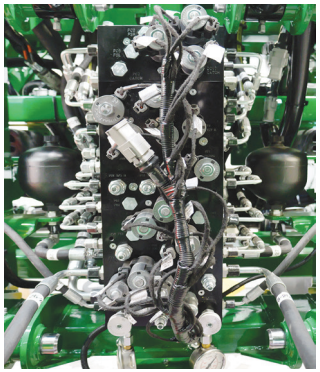
Rear Manifold

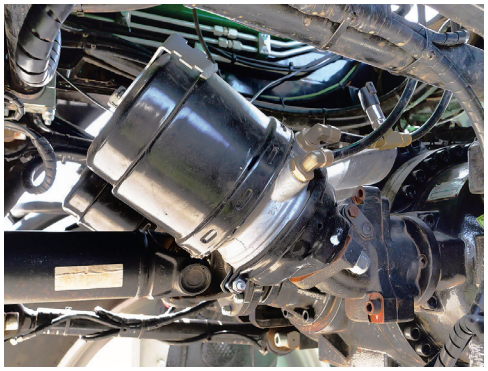
The Rear Manifold with compact cartridge style valves, located on the front of the boom centre section, controls all boom functions including lift, fold, tilt, bi-fold, centre level and hydraulic yaw.

The hydraulic block is divided into left and right sections with hydraulic hoses directed to each side of the boom.

Manual overrides are fitted to the solenoids.

Rear Manifold at the front of the boom centre section - 48m Option.





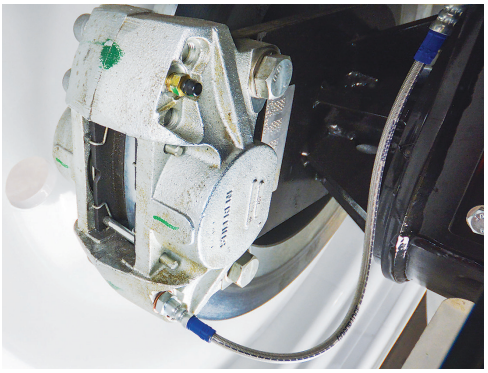
4WD Crop Cruisers incoorporate Wet Brake manifolds on both front & rear axles (rear axle shown above).

Braking System

The 4WD Crop Cruiser braking system is pneumatically operated & incorporates internal wet brakes on both front and rear.

The 2WD Crop Cruiser braking system has internal wet brakes on the rear axle and front wheels are fitted with disc rotors & calipers.

Front 2WD brakes use DOT4 fluid.



Brake caliper & pads with 600mm diameter rotors (discs) are fitted to each front wheel of 2WD Crop Cruisers only.

Rotors (2WD)

600mm diameter rotors are fitted to the hub on the inside of each front wheel of 2WD models only. Rotor thickness is 22mm new. Minimum rotor thickness is 20 mm.

A rotor with a thickness of less than 20mm must be replaced.

Rotors used on the Crop Cruiser are a customized and replacements must be purchased from your local Goldacres dealer.

NOTE

Refer to the specification provided in the 'Maintenance Schedules' of this chapter.

⚠CAUTION

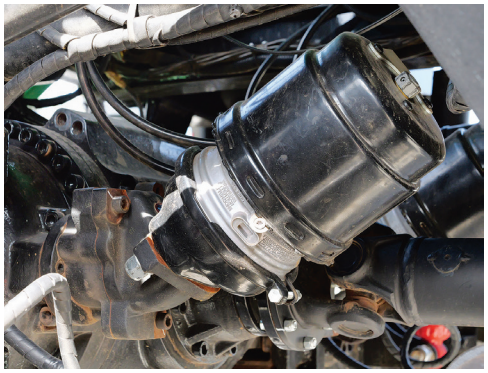
During the brake bleeding process, the person bleeding the brakes must wear suitable eye protection and gloves.
Failure to follow this caution may result in personal injury.

Brake Calipers & Pads (2WD)

Brake Calipers (used on the front axle of 2WD Crop Cruisers only) have two brake pads on each caliper which clamp onto the rotor when the brakes are applied.

These pads must be inspected regularly for wear. When the pads wear down to the indicator groove they must be replaced.

Built up of mud and debris will cause the brake pads to wear prematurely for this reason the brake calipers must be kept clean at all times.



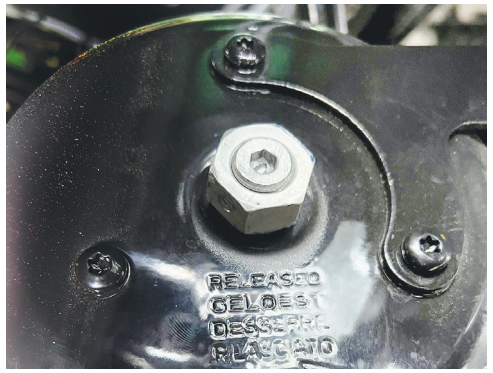
The Park Brake features 2 wet disc brakes mounted on the rear axle differential (shown above)

Park Brake

The Park Brake features 2 wet disc brakes mounted on the rear axle differential for powerful holding capacity. The brakes operate with a 'Spring On' and hydraulic release which means the park brake is automatically On (Engaged) when the engine is not running.

Normal Park Brake application is controlled via an electric switch located in the top right hand side console of the cabin.

An alarm sounds & a warning illuminates, if the transmission is moved into any gear other than Neutral when the Park Brake is engaged.



Use a 24mm spanner to fully release the spring tensioning bolt (counter-clockwise) on each rear wet brake.

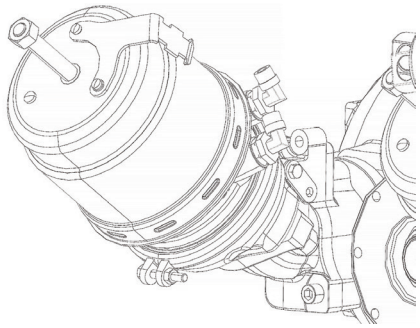
Overiding the Park Brake

If cases of a machine failure, the Park Brake can be manually released allowing the Crop Cruiser to be moved, towed or transported.

Equipment required to release park brakes:

- 24mm spanner
- Secure wheel chocks.

Before attempting to manually release the Park Brake, ensure Crop Cruiser wheels are securely chocked to hold machine from inadvertently moving while releasing the park brake.



Spring tensioning bolt of a wet brake fully released (illustrated above)

To Manually Release the Park Brake:

1 Ensure Crop Cruiser wheels are securely chocked.

2 Use the 24mm spanner to fully release the spring tensioning bolt (counter-clockwise) of each rear wet brake.

After moving the Crop Cruiser, the wet brake spring tensioning bolts must be reset (re-tensioned).

To Reset the Spring Tensioning Bolts:

1 Ensure Crop Cruiser wheels are securely chocked.

2 Use the 24mm spanner to fully tension the spring tensioning bolt (clockwise) of each rear wet brake.

Use a torque wrench to retention each wet brake spring tension bolt to 25 Nm.

Pneumatic System

The Pneumatic System is used to operate the:

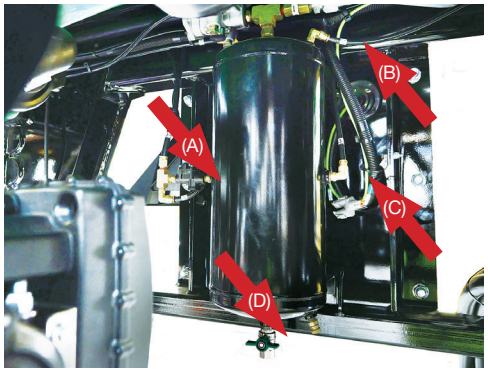
- Air bags
- Chemical pump
- RapidFire system
- Cabin access ladder
- Engage & disengage centre differential lock on 4WD models
- Brakes.

Air Tank

Two Air Tanks (located under the chassis on the left and right sides) are the reservoir of compressed air from the compressor used to supply pneumatic functions on the Crop Cruiser.

An air dryer filter (located on the LHS of the Crop Cruiser) extracts moisture from the incoming compressed air.

The filter requires changing periodically (see next page).



An Air Tank showing the Pressure Relief Valve (A), Low Pressure Sensor (B), Air Outlet (C) & Drain Valve (D).

Manual drain valves, at the bottom of each air tank, can be used to decompress the pneumatic system or check for presence of any moisture and debris.

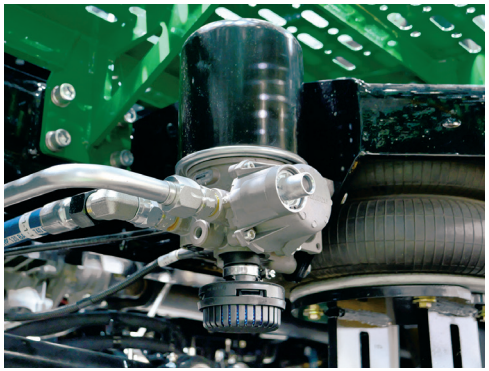
Pressure Relief Valve

A Pressure Relief Valve incorporated on the Air Tank tank prevents air pressure within the system reaching unacceptable limits.

The valve is set to open if 150 PSI is reached.

Low Pressure Sensor

A Low Pressure Sensor is fitted to the tank so that if the air pressure within the tanks reduces to 55 PSI or lower, an alarm will sound in the cabin to warn the operator.



The Wabco Air Dryer Filter located on the LHS of the Crop Cruiser.

Air Dryer Filter Maintenance

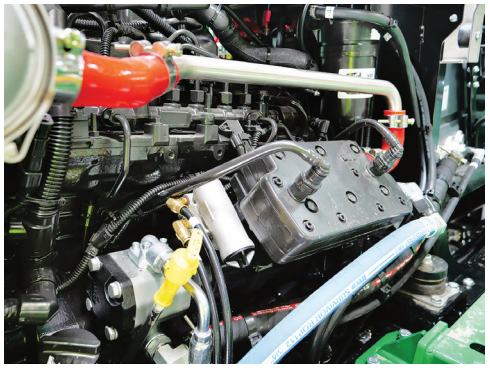
Routine maintenance recommended to keep the air dryer & filters operating efficiently:

1 Each week, ensure the dryer purges when the compressor unloads at completion of operation.

2 Each week, at completion of operation, check for moisture in the air system by slowly opening the drain valves of each air tank.

3 Replace the desiccant air dryer cartridge every 1000 hours.

4 Replace the desiccant air dryer cartridge whenever the compressor is rebuilt.



The Air Compressor located on the left hand side of the engine.

Air Compressor

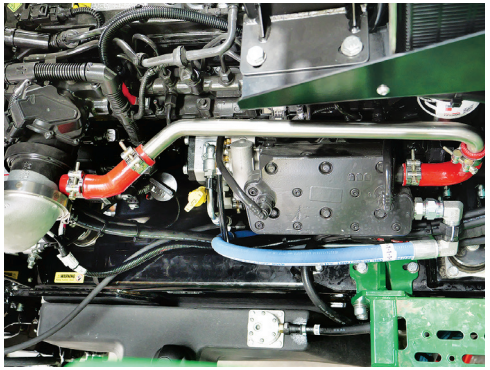
The Air Compressor (located on the left hand side of the engine) is turbo charged air intake assisted.

A governor, attached to the side of the compressor, regulates the amount of air being generated by the compressor.

The governor enables the compressor to continue pumping until the required tank pressure is achieved, then stops the compressor.

The governing pressure is set to 120 PSI.

Turbo-charged air inlet of the compressor.





A pneumatic cylinder raises & lowers the folding ladder for cabin access.

Folding Ladder

A pneumatic cylinder *(shown above)* is used to raise & lower the cabin access folding ladder.

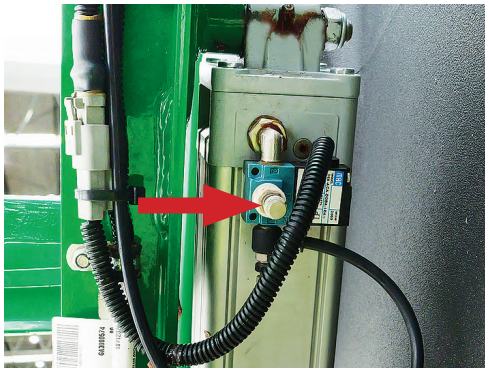
The folding speed of the ladder is factory set. If adjustment needs to be made, a flow control needle valve on the inlet of the cylinder *(shown above right)* is used to control its speed of the lift & fall.

To Adjust Ladder Folding Speed:

1 Rotate the flow control needle valve In (clockwise) to decrease the lifting/lowering speed.

2 Rotate the flow control needle valve Out (anticlockwise) to increase lifting/lowering speed.





Flow Control Inlet Needle Valve on the air cylinder.

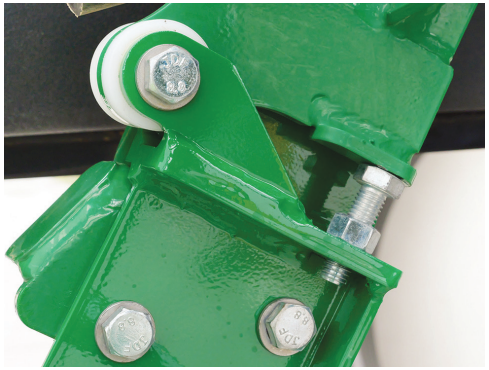
Hinge Adjustment Bolts on each side of the ladder hinge points enable the upper & lower sections of the ladder to be properly aligned (straight) when lowered.

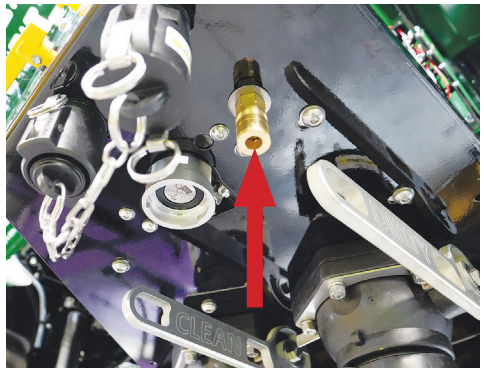
Maintenance includes:

1 Regularly check the hinge adjustment bolt lock nuts are tight on each side of the ladder. Tighten if loose.

2 If necessary, use the hinge adjustment bolts on each side of the ladder to re-align the ladder sections when lowered, then tighten each lock nut.

Outer ladder hinge point adjustment lock bolt/nut (shown below). Check lock bolt/nut on side of the ladder.





Quick release auxilliary air outlet on the underside side of the Quick Fill panel.

Auxiliary Air Outlet

A quick release air coupling, located on the left hand side Quick Fill area, provides an Auxiliary Air Outlet for cleaning filters, nozzles & other uses.

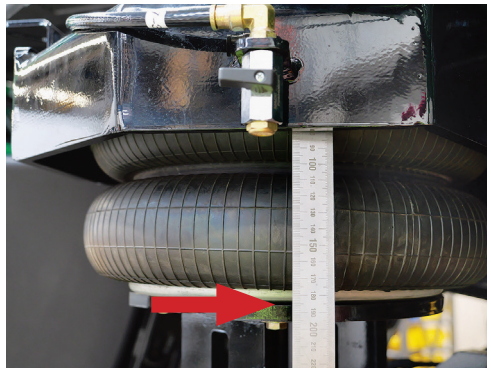
Chemical Transfer Pump

The Chemical Transfer Pump is a pneumatic twin diaphragm high capacity pump ideal for direct chemical transfer.

A valve on the left hand fill line pod is used to turn it On and Off.

Graco Chemical Transfer Pump.





Check all Air Bag Heights are set to 185mm (+ or -5mm).

Air Bag Ride Height Settings

The Crop Cruiser suspension system incorporates Airbags to maintain a comfortable and stable ride in the machine.

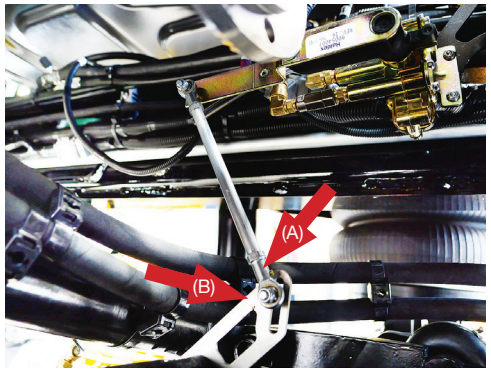
Front & rear air bag height should be set at 185mm (+ or -5mm).

If the correct ride height setting is not maintained, the angle of the drive shaft will change which can cause vibration and possible damage to the drive train.

Air bag height measurement is from the inside of the top mount to the bottom of the plastic skirt of the air bag.

Ride height valves are used to adjust the air pressure within the air bags to maintain the correct ride height.

Two ride height valves are located on each side of the rear axle and one located in the centre of the front axle.



Front axle ride height adjustment - turnbuckle adjuster rod (A) and front axle adjuster plate (B).

To Adjust the Front Ride Height

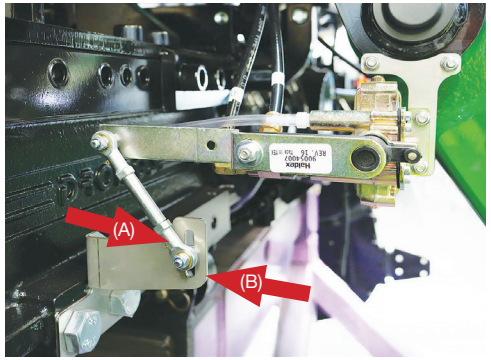
1 Park the Crop Cruiser on a flat level surface.

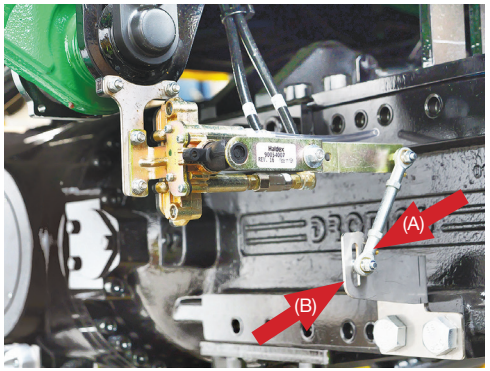
2 Loosen the bolt of the turnbuckle adjuster rod (A) which attaches to the front axle adjuster plate (B).

3 Move the bolt in the adjuster plate up or down to achieve the correct ride height. The adjuster plate has notches to use as a guide. Re-tighten the bolt after adjustment.

The turnbuckle adjuster rod (A) can also be lengthened or shortened to facilitate correct ride height. Re-fit and re-tighten all bolts and lock nuts after adjustment.

LHS rear axle ride height adjustment - turnbuckle adjuster rod (A) and rear axle adjuster plate (B).





RHS rear axle ride height adjustment - turnbuckle adjuster rod (A) and rear axle adjuster plate (B).

To Adjust the Rear Ride Height

1 Park the Crop Cruiser on a flat level surface.

2 Loosen the bolt of the turnbuckle adjuster rod (A) which attaches to the rear axle adjuster plate (B).

3 Move the bolt in the adjuster plate up or down to achieve the correct ride height. The adjuster plate has notches to use as a guide. Re-tighten the bolt after adjustment.

The turnbuckle adjuster rod (A) can also be lengthened or shortened to facilitate correct ride height. Re-fit and re-tighten all bolts and lock nuts after adjustment

4 Repeat procedure on the other side of the rear axle.



Rotate the handle of the Dump Valve downwards on all 4 airbags.

To Deflate Air Bags for Trailer Transport:

1 Load & park the Crop Cruiser on a transport platform.

2 Open the Drain Valve on each air tank and let the air empty out.

3 Open each Air Dump Valve:
- On the front airbags (2)
- On the rear airbags (2).

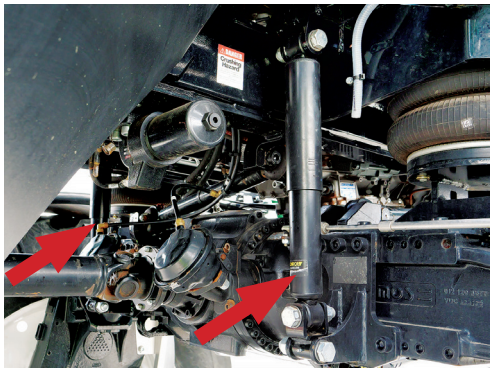
4 The air bags will lower onto the bump stops.

5 Once the Crop Cruiser is on the bump stops, close the air tank drain valves and all airbag dump valves.

⚠CAUTION

Beware when releasing air from the air tank, there can be dangerous particles being released at high-speed.

Be aware due to the rapid expansion of air, the tank release valve may become very cold.



Front shock absorbers.

Shock Absorbers

Four shock absorbers are fitted to the Crop Cruiser, one fitted to each side of the front and rear axles. The shocker absorbers dampen movement of the air bags & prevent recoil.

Shockers absorbers should be regularly checked for damaged rubbers or oil leaks.

Refer to the specification provided in the ‘Maintenance Schedules’ of this chapter.



'Remote Grease Bank' with a 'Grease' Decal used to simplify greasing access.

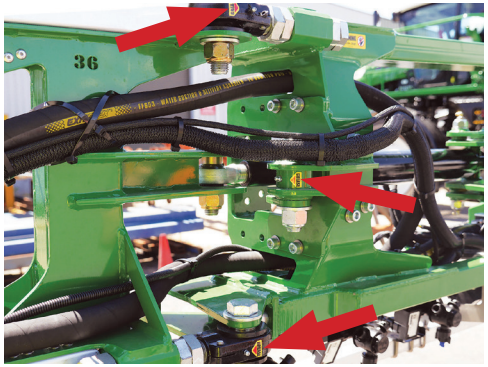
Grease Points

'Remote Grease Banks' with a 'Grease' Decal are used to simplify access to greasing points.

'Grease' Decals are used to assist in locating grease points.

Additionally, a Crop Cruiser may be optionally fitted with an auto-greasing system.

'Grease Decals' are used to assist locating individual grease points.





Optional Groenveld BekaMax Auto-Greasing System.

Auto-Greasing System Option

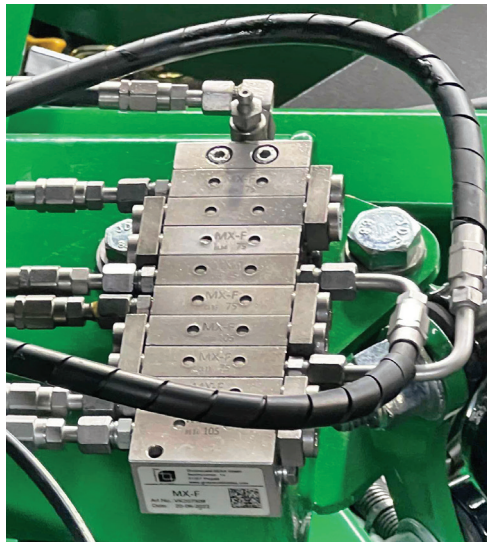
The Groenveld BekaMax Auto-Greasing System can be fitted as an option.

The Groenveld BekaMax Auto-Greasing System includes up to:

- 94 grease points
- 4 Liltre grease capacity
- NLGI0 type grease - cool climate
- NLGI2 type grease - warm climate.

If fitted, refer to the manufacturer's website for detailed product instructions & maintenance:

https://www.groeneveld-beka.com

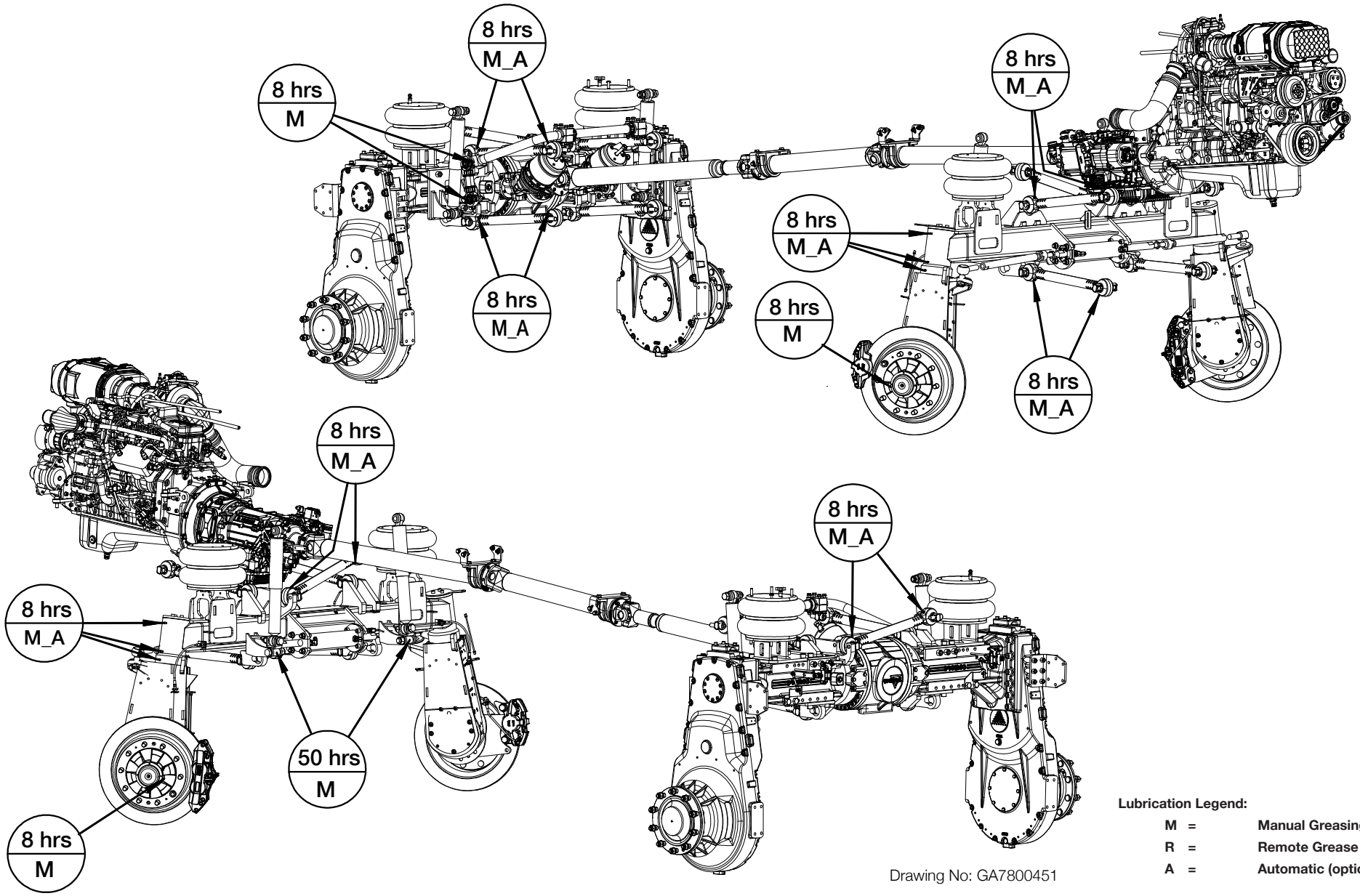


An Auto-Greasing Manifold.

Location of Grease Points and Greasing Schedules are provided in the illustrations that follow:

1 Axle & Suspension Grease Points - 2WD
2 Axle & Suspension Grease Points - 4WD
3 Boom Rest Grease Points - 36M & 42M
4 Paralift & Headstock Grease Points
5 Centre & Rear Grease Points - 1
6 Centre & Rear Grease Points - 2
7 Boom Grease Points - 36M & 42M
8 Boom Grease Points - 48M
9 Front Linkage Grease Points.

1 Axle & Suspension Grease Points - 2WD

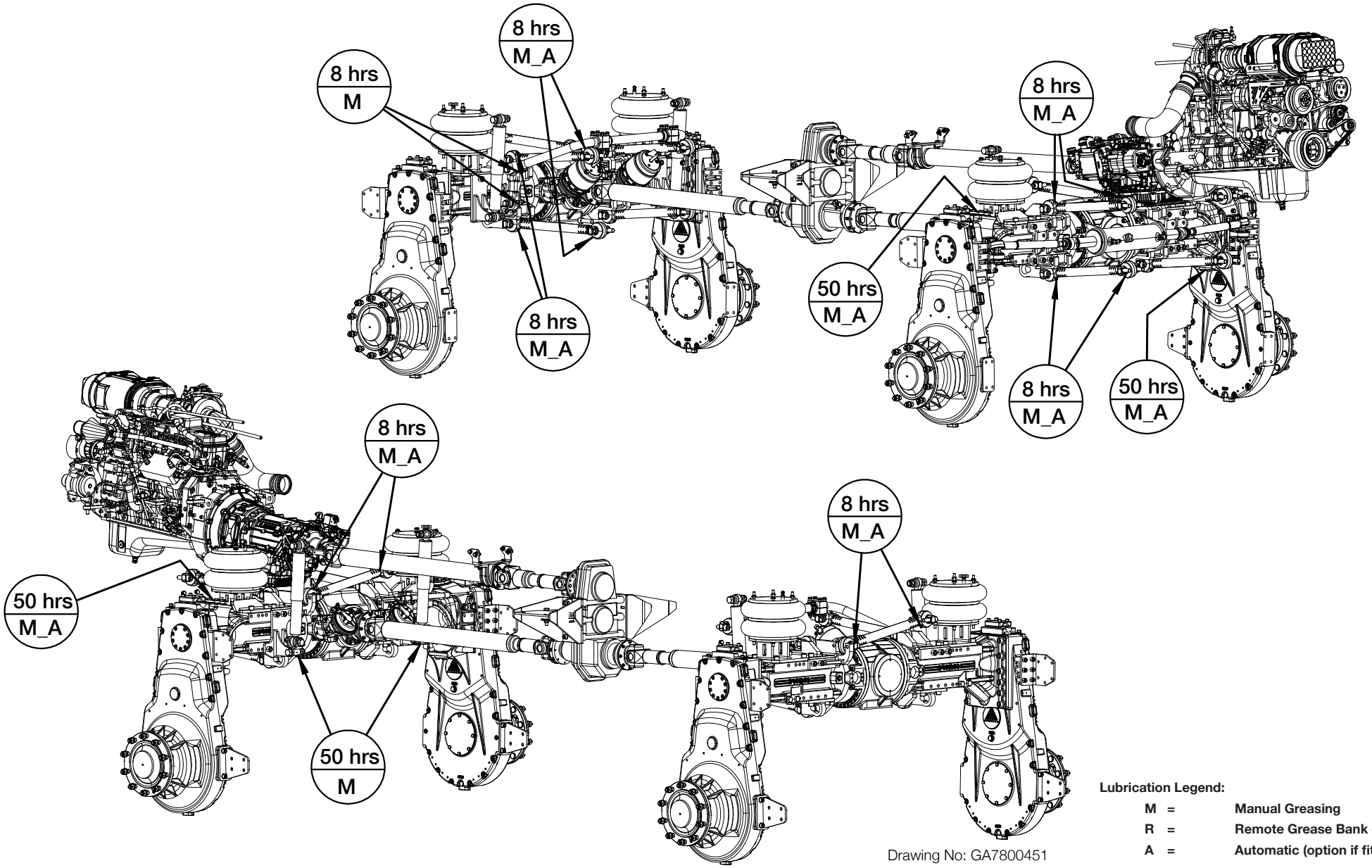


Drawing No: GA7800451

Lubrication Legend:

M	=	**Manual Greasing**
R	=	**Remote Grease Bank or**
A	=	**Automatic (option if fitted)**

2 Axle & Suspension Grease Points - 4WD

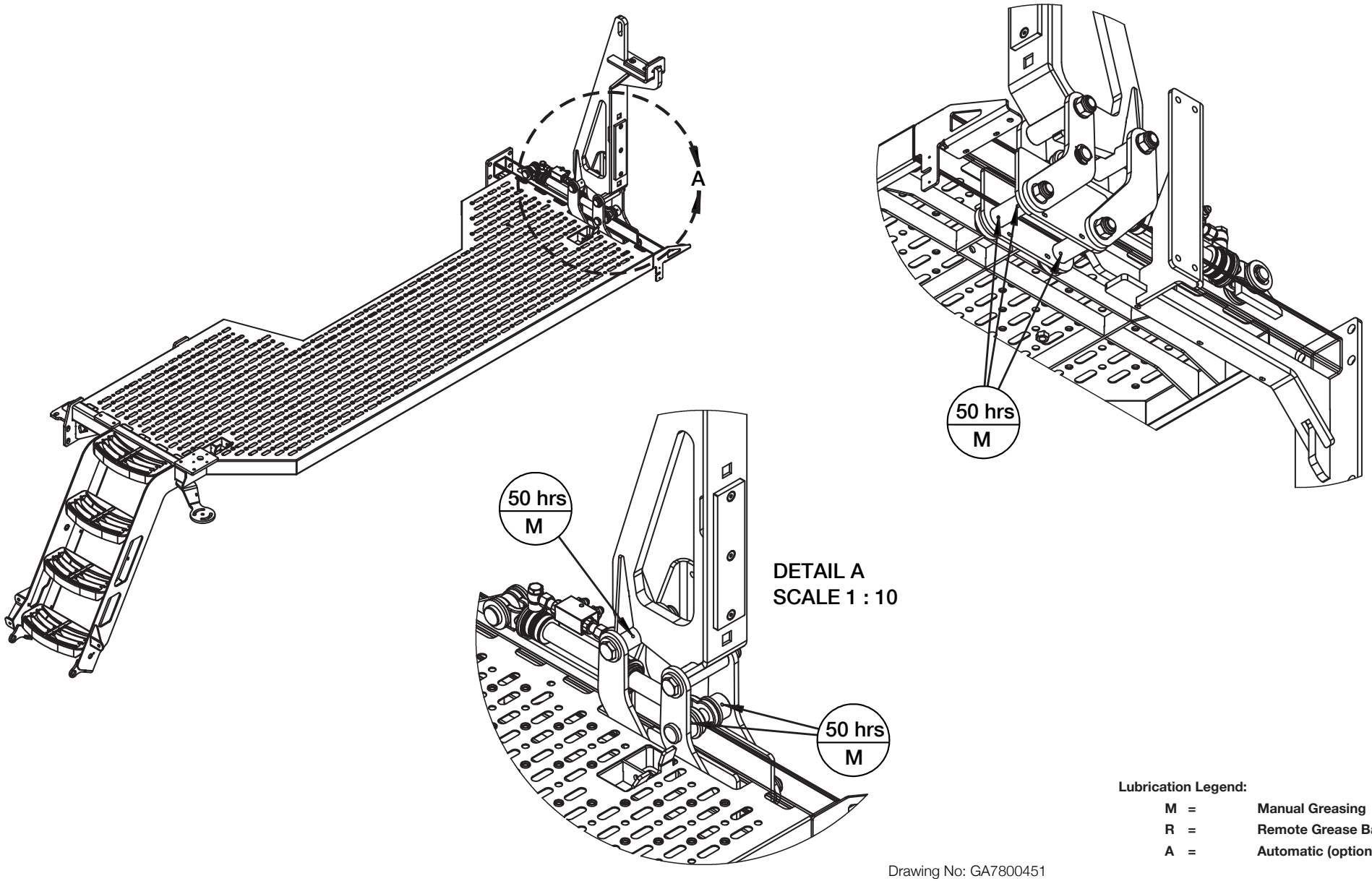


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Lubrication Legend:

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R	=	**Remote Grease Bank or**
A	=	**Automatic (option if fitted)**

3 Boom Rest Grease Points - 36M & 42M

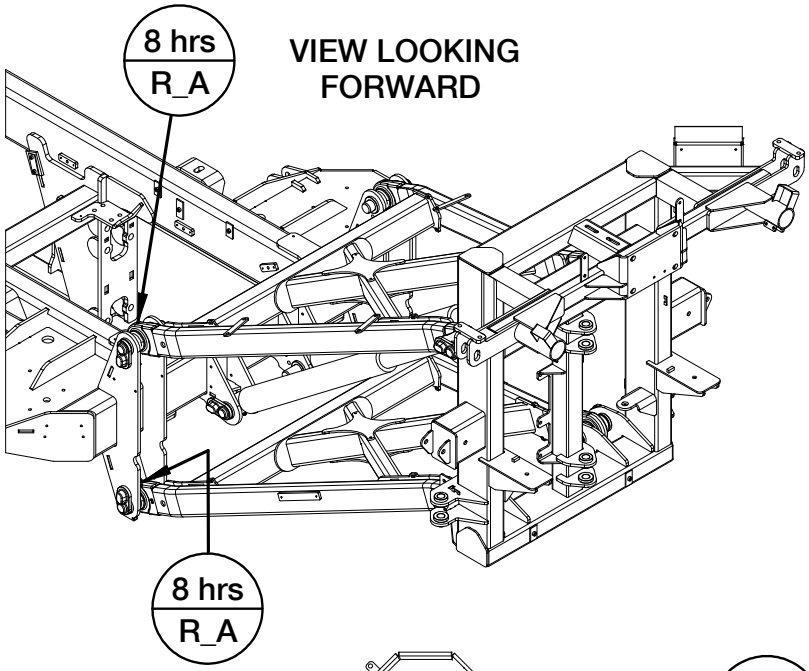


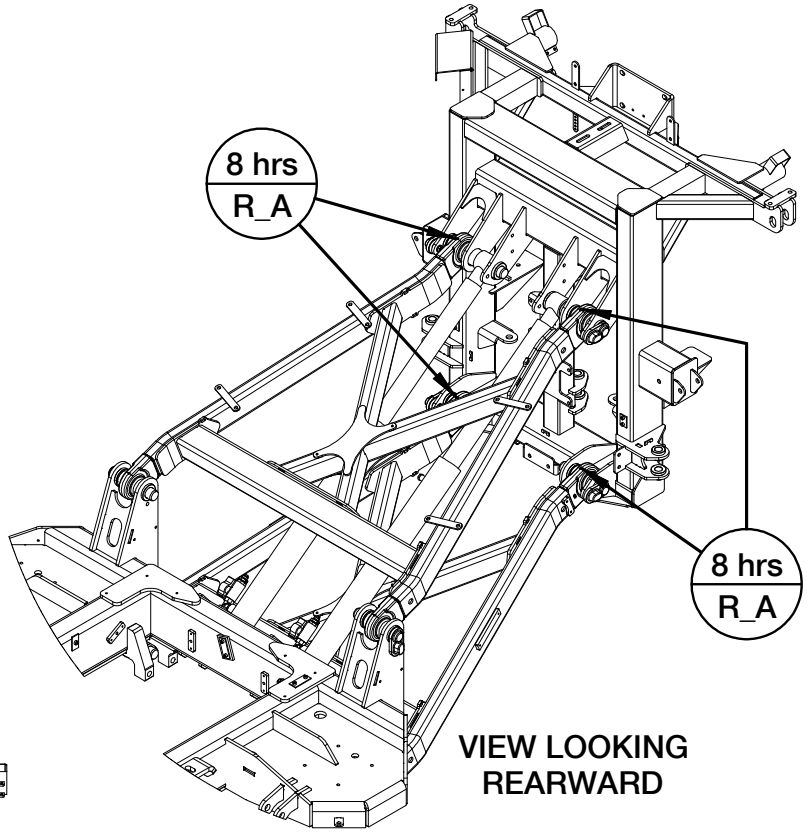
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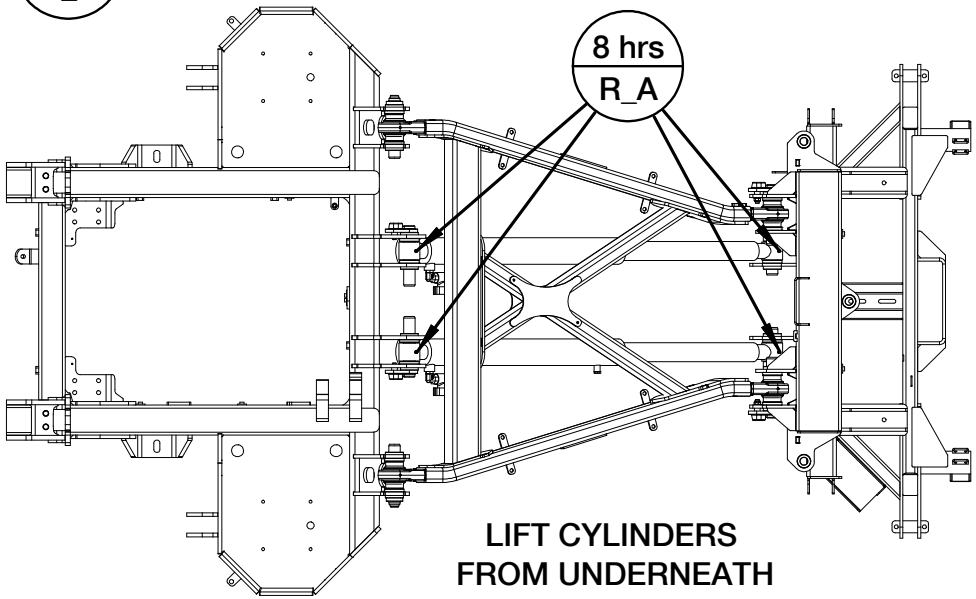
Lubrication Legend:

M	=	**Manual Greasing**
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A	=	**Automatic (option if fitted)**

4 Paralift & Headstock Grease Points





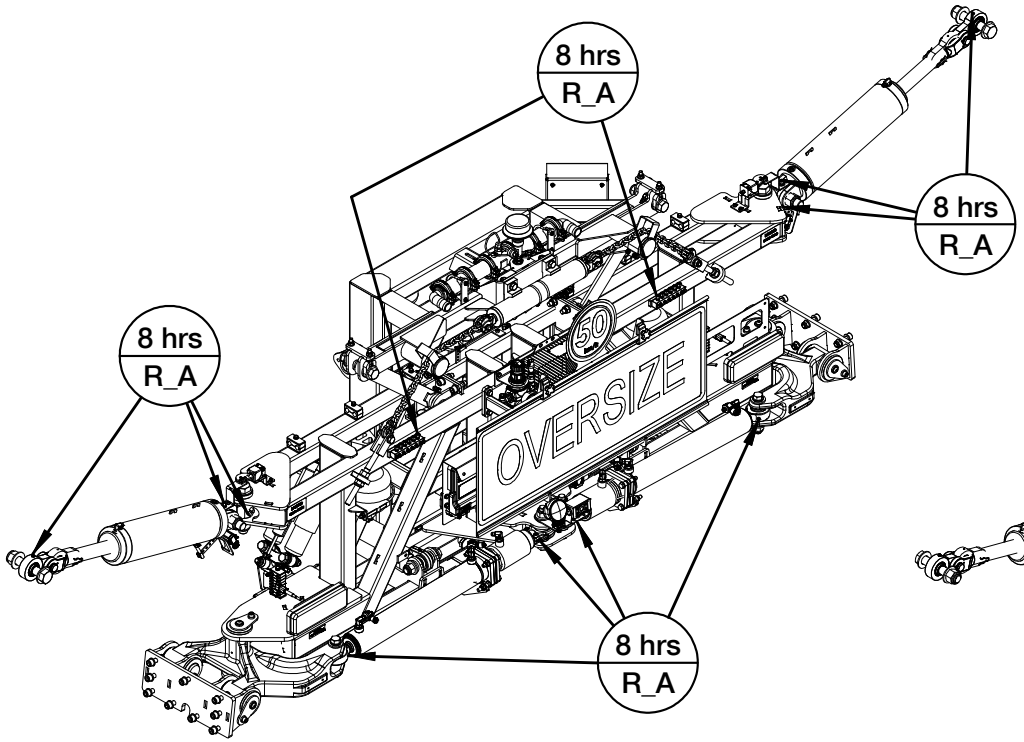


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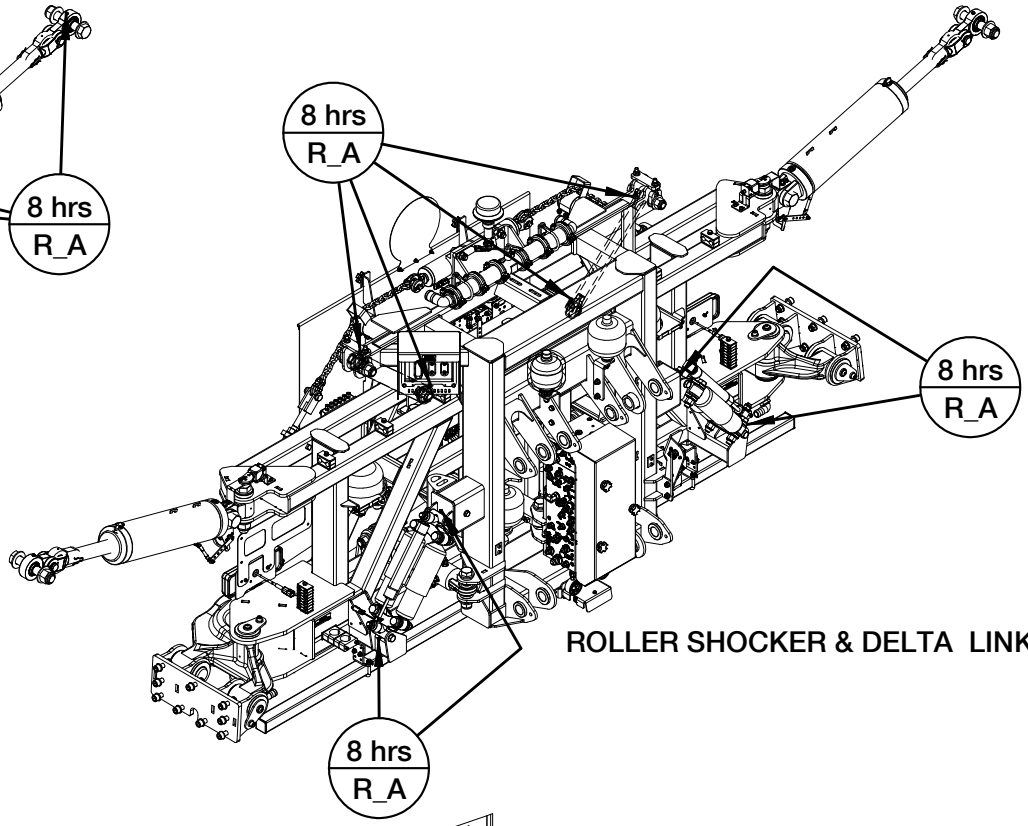
Lubrication Legend:

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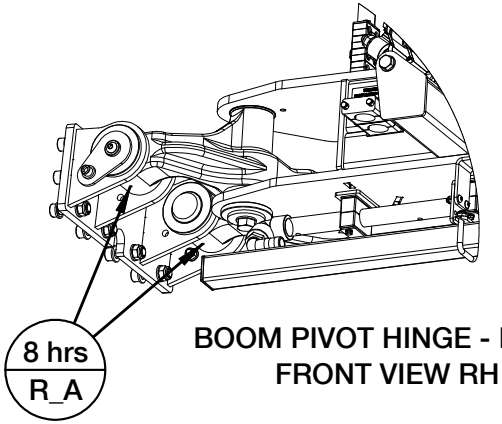
5 Centre & Rear Grease Points - 1



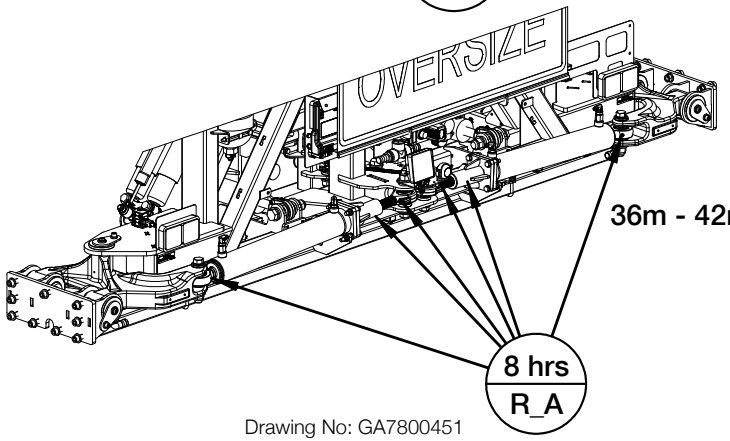
48m FOLD & TILT CYLINDERS



ROLLER SHOCKER & DELTA LINKS



BOOM PIVOT HINGE - BOTH SIDES
FRONT VIEW RH HINGE



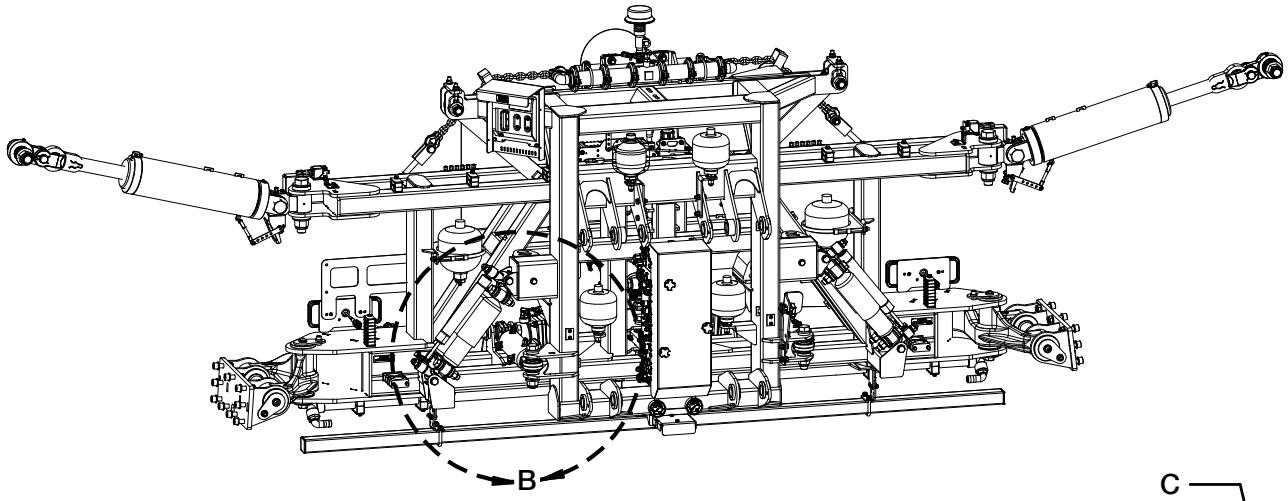
36m - 42m FOLD & TILT CYCLINDERS

Drawing No: GA7800451

Lubrication Legend:

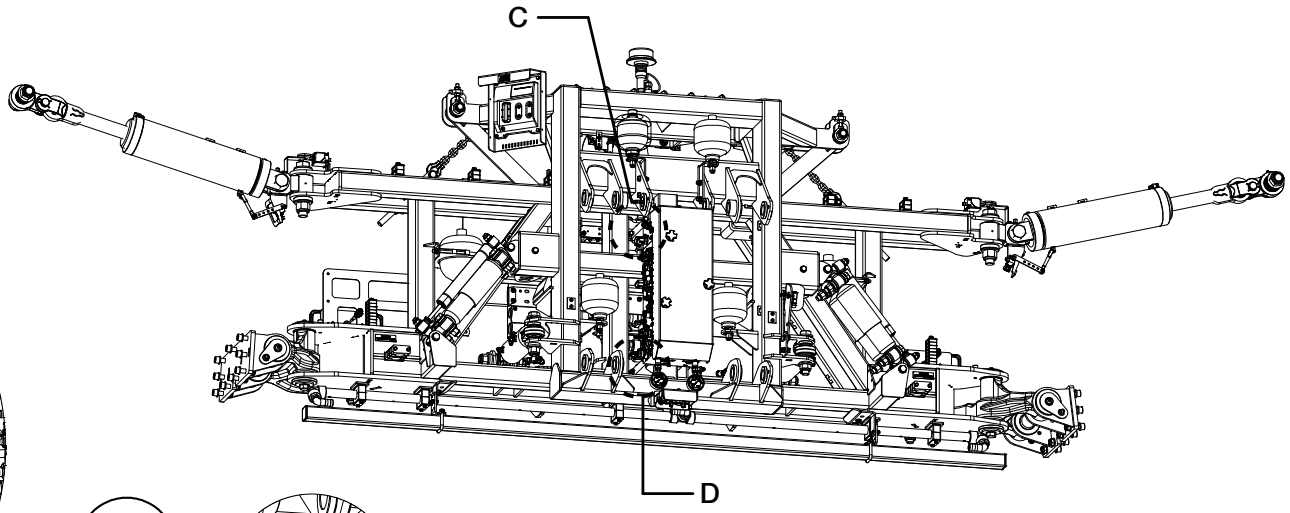
M	**=**	**Manual Greasing**
R	**=**	**Remote Grease Bank or**
A	**=**	**Automatic (option if fitted)**

6 Centre & Rear Grease Points - 2

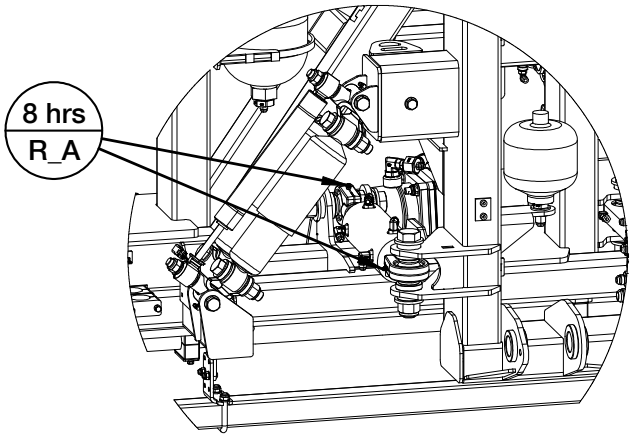


Lubrication Legend:

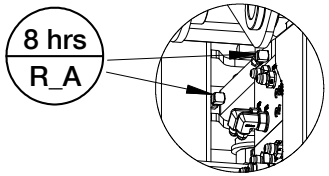
M	=	**Manual Greasing**
R	=	**Remote Grease Bank or**
A	=	**Automatic (option if fitted)**



DETAIL B - SCALE 1 : 15

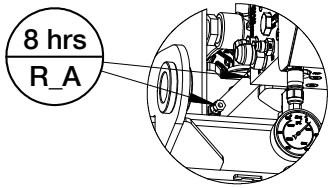


YAW CYLINDERS LH & RH



DETAIL C
SCALE 1 : 10

DELTA LINK UPPER

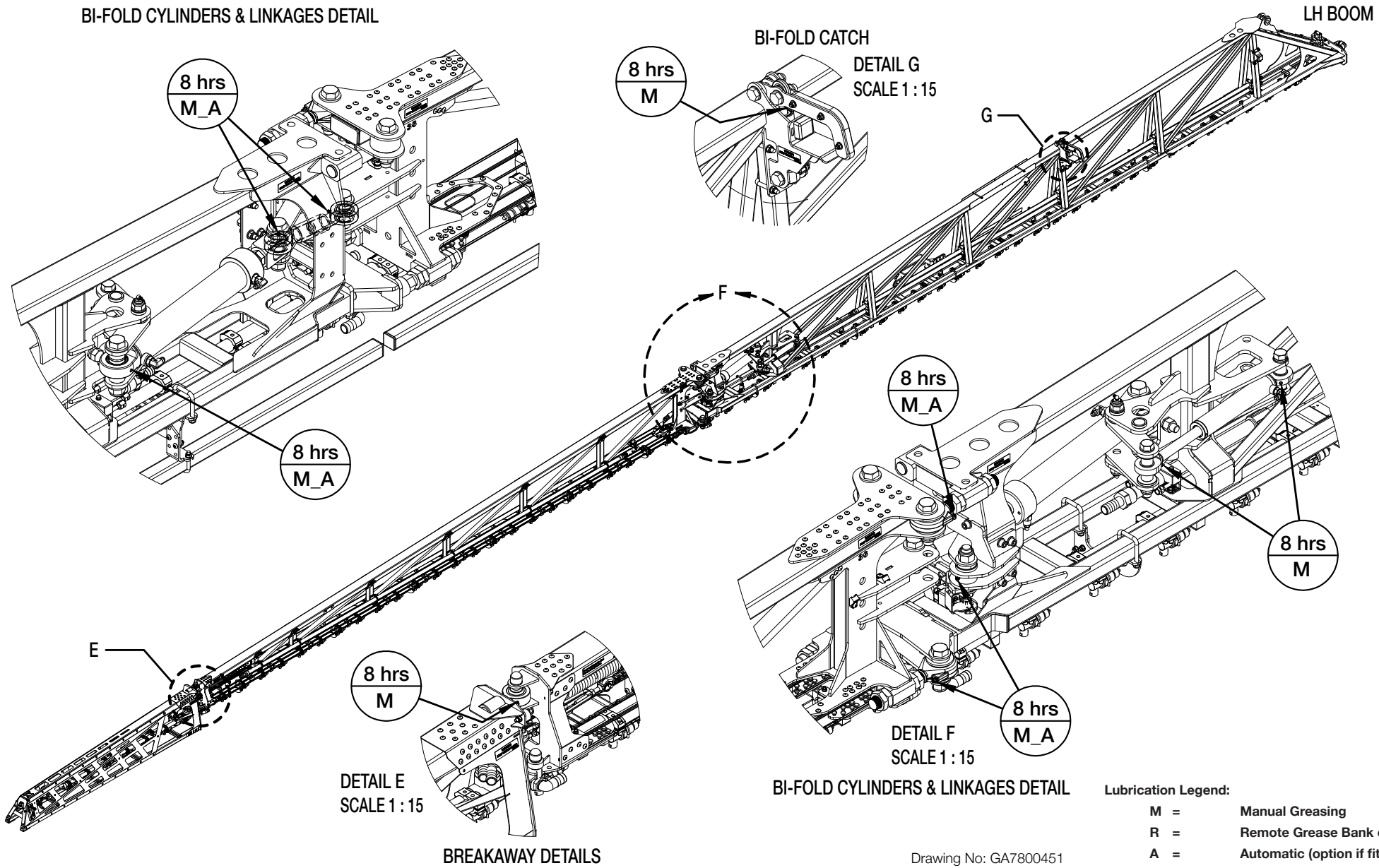


DETAIL D
SCALE 1 : 10

DELTA LINK LOWER

Drawing No: GA7800451

7 Boom Grease Points - 36M & 42M

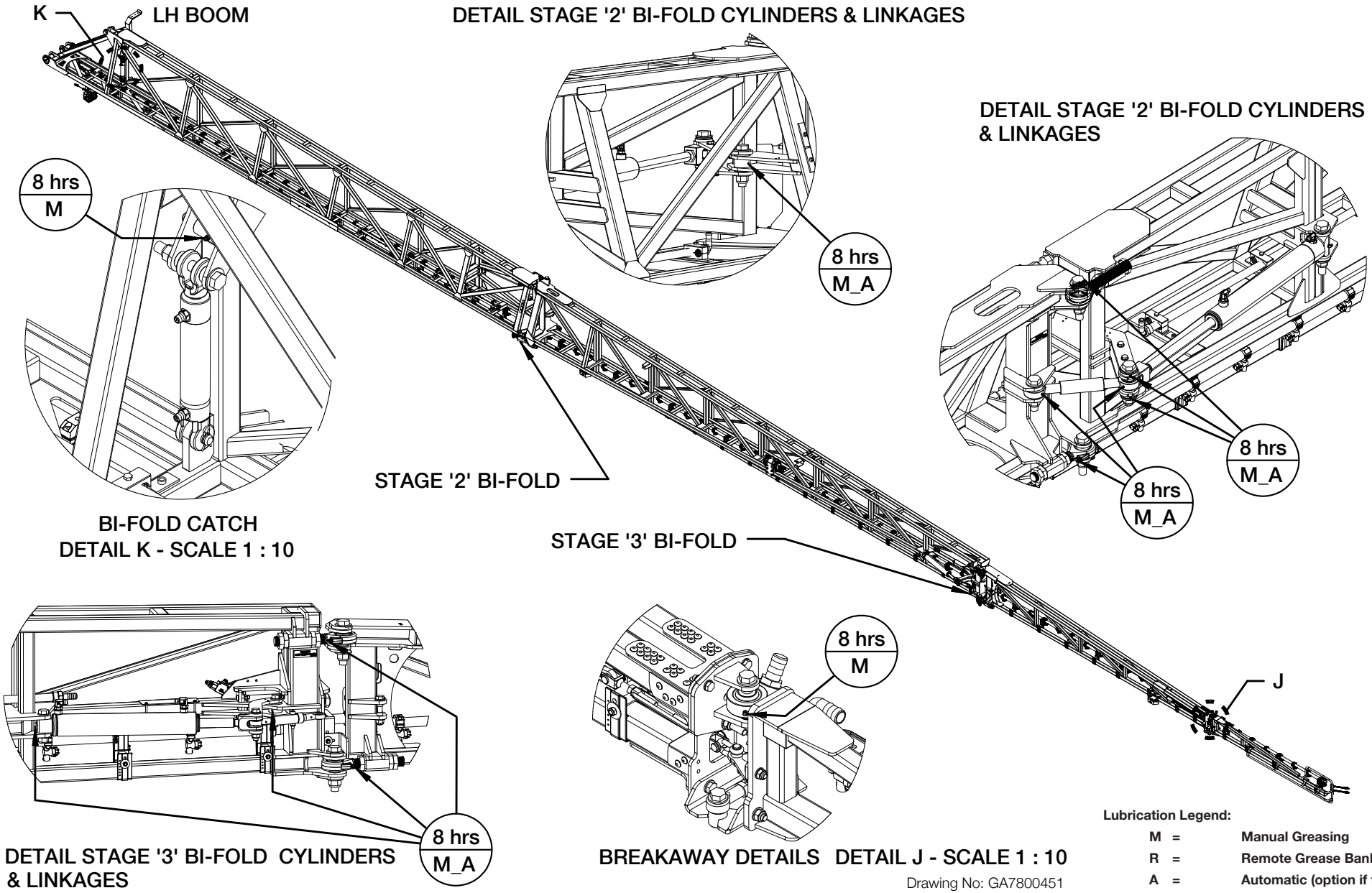


Drawing No: GA7800451

Lubrication Legend:

M	**=**	**Manual Greasing**
R	**=**	**Remote Grease Bank or**
A	**=**	**Automatic (option if fitted)**

8 Boom Grease Points - 48M

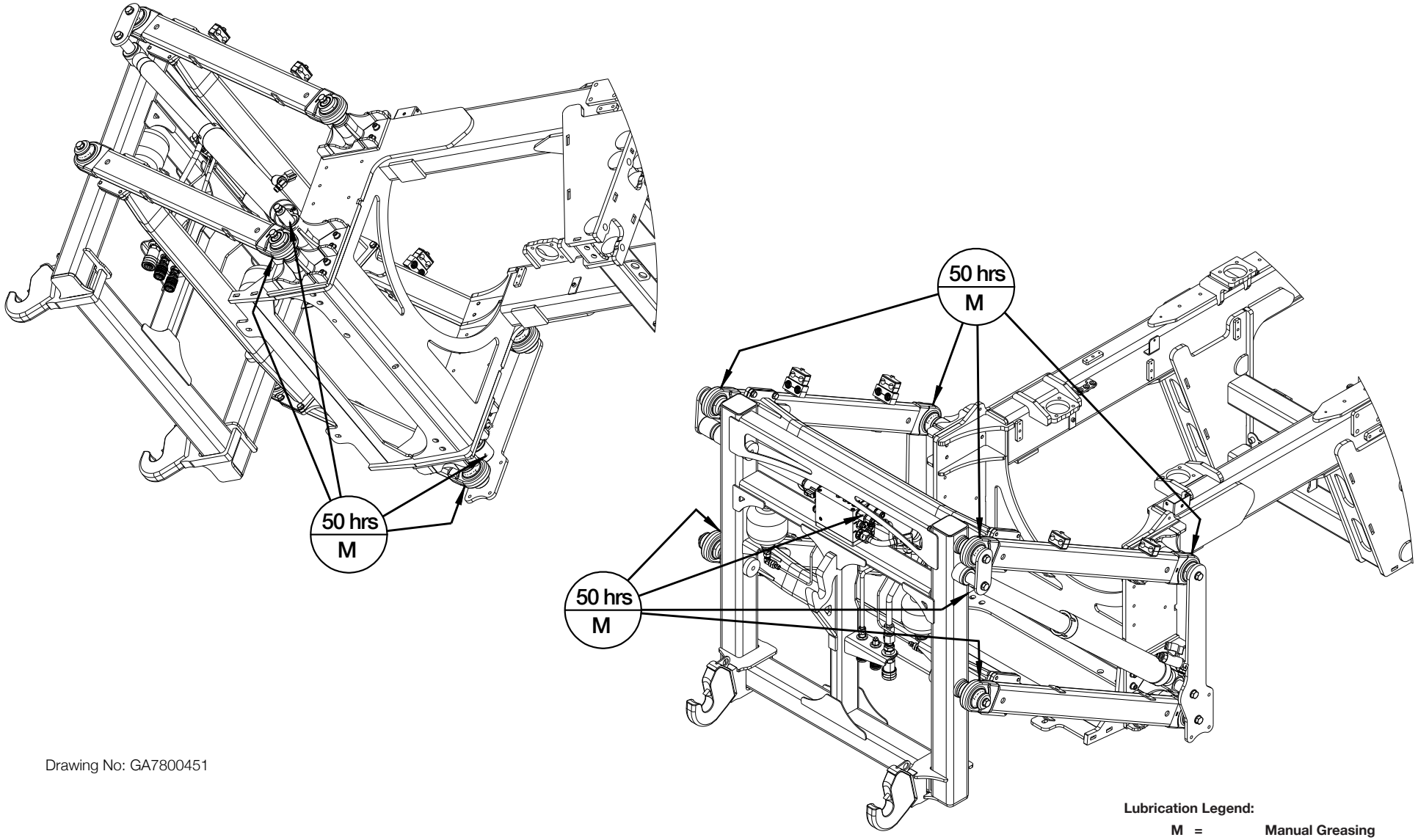


Drawing No: GA7800451

Lubrication Legend:

M	=	**Manual Greasing**
R	=	**Remote Grease Bank or**
A	=	**Automatic (option if fitted)**

9 Front Linkage Grease Points



Drawing No: GA7800451

Lubrication Legend:

M	**=**	**Manual Greasing**
R	**=**	**Remote Grease Bank or**
A	**=**	**Automatic (option if fitted)**

9 - **Trouble Shooting** – Fast Tracking Problems **247**

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Contact Goldacres if you require Trouble shooting information

Trouble Shooting Preface

The following troubleshooting information is provided as a reference if your machine is not functioning correctly.

To ensure you receive the best possible service, it is recommended that you exhaust all applicable troubleshooting solutions shown in this chapter prior to calling your dealer, or Goldacres for service advice.

Parts information and schematics can be found in the parts manual supplied.

Integrated G-hub System

Goldacres Integrated G-hub System offers full system diagnostics, including warnings and operation states.

Pop up on-screen dialogs will display any system information and warnings.

Some problems may simply be resolved by cycling the G-Hub system Off and On again.

It is recommended to try this first before resorting to more advanced troubleshooting.

All valves will be reset to their initial position on the G-Hub System start up.

The G-Hub 'Diagnostics' screens provide detailed information on all system components.

To access the 'Diagnostic' screens, press 'Settings' touch button, then the 'Diagnostics' touch button to open the Diagnostics screen displaying the Network screen - with a total of 10 tab screens (areas) for trouble shooting:

1 Network
2 Cabin PLC
3 Module A
4 Module B
5 Module C
6 Boom PLC Inputs
7 Boom PLC Outputs
8 Virtual Controls
9 Machine Status
10 Graphs.

Other Diagnostic screens:

1 Steering Diagnostics
2 Transmission Diagnostics
3 Weedetect Diagnostics

Start with the 'Network' screen to make sure all CAN components are online and operational, then move onto targeted areas of any faults.

1 Network

The CAN-link between the PLC and the main display are critical for the system to function correctly.

The 'Network' screen gives a quick overview of the whole G-Hub connectivity system:

- If an item displays Green it is connected & working.
- If an item displays Red, it is not connected or not working.

  Go to the next relevant G-Hub diagnostic page to further check the item.

Always start with the 'Network' screen to to ensure all CAN components are online and operational, then move onto the targeted area of any faults.

NOTE

If a CAN component has been replaced, it is important to:

- Upload the correct software, and
- Set the correct CAN address for it to function correctly.

2 G-Motion

Press the G-Motion tab touch button to display the G-Motion screen

The G-Motion display screen provides two testing functions:

- To check the function of each push button and rocker switch on the Joystick.
- To operate each function in Virtual Mode.

In Virtual mode, the Joystick is disabled & the screen touch buttons can be used to operate the various joystick push button & rocker switch functions.

This is useful for example, if the Joystick fails - the boom can be folded & Crop Cruiser moved temporarily without the Joystick being functional.

To Check the Function of Each Switch:

1 While in the 'G-Motion' diagnostic screen, press the relevant push button/switch on the Joystick:

- If a push button/switch is working, its corresponding touch button on the G-Motion screen will light up 'Green' each time the push button or switch is pressed.
- If a Joystick push button/switch is not working, its corresponding touch button on the G-motion screen will not light up.

2 If the corresponding touch button on the G-Motion screen button fails to light up, then go to the Joystick Control Module which is located under the control console in the cabin (shown right [A]).

3 Remove the top cover of the console & check the connectors .

The Cabin Switch Module is also located under the control console (shown right [B]).

4 After checking the Joystick Module connectors, re-check the function of the relevant push buttons/switches using the Joystick & the G-Motion Diagnostic screen.

5 If the function continues to not light up it will be neccessary check the relevant function in Virtual Mode.

To Check a Function in Virtual Mode:

1 Press the Virtual Mode touch button to engage/disengage the Virtual Mode.

The touch button displays Green when engaged & Grey when disengaged.

2 Press the relevant screen button to test its function (eg, 'Boom Lift').

If working, the boom will raise while the push button is being pressed and stop when the push button is released.

3 When testing is completed, press the Virtual Mode touch button to disengage Virtual Mode.

The touch button displays Grey when disgaged & Green when engaged.

3 Console

Press the Console tab touch button to display the Console screen which provides two testing functions:

- To check the function of each switch along the top of the cabin switch panel
- To operate switches in Virtual Mode

  When Virtual Mode is enabled, cabin switches are disabled

  If any switches fail, Virtual Mode push buttons can be used to operate the cabin switch functions.

To Check the Function of Each Switch:

1 While in the diagnostic 'Console' screen, press a switch on the Cabin console switch panel:
   - If a cabin console switch is working, its corresponding touch button on the Console screen will light up 'Green' each time the push button or rocker switch is pressed.
   - If a cabin console switch is not working, its corresponding touch button on the Console Diagnostic screen will not light up.

2 If a touch button on the Console diagnostic screen fails to light up, then locate the Console Control Module (shown right) and check that connectors are fitted correctly.

3 Remove the top cover of the console (shown below) and check the connectors.

4 After checking the console Module Connectors, re-check the function of the switches using the control console switches & the diagnostic Console screen.

5 If the function continues to not light up, it will be neccessary check the relevant function in Virtual Mode.

To Check a Function in Virtual Mode:

1 Press the Virtual Mode touch button to enable/disable the Virtual Mode.

  The touch button displays Green when enabled & Grey when disabled.

2 Press a screen touch button to test its function (eg, In Fold Stage 2).

  If working, the boom will fold while the switch is being pressed and stop when the switch is released.

3 When testing is completed, press the Virtual Mode touch button to disable Virtual Mode.

  The touch button displays Grey when disabled & Green when enabled.

NOTE

The Park Brake cannot be enabled/disabled in Virtual Mode.

4 External Display

Press the 'External Display' tab touch button to display the External Display which provides diagnostic & virtual control functions:

- To check the function of each touch button and push button of the external control functions
- To operate Fill only touch buttons in Virtual Mode.

In Virtual mode, the RPM Raise, Pump Product, Fill Product, Agitator, Hopper, Pump Rinse, FIll Rinse, Fill Pump and Rinse Nozzle push button switches are used operate the fill functions.

To Check Function of Each Push Button:

1 While in the 'External Dispay' screen, press the relevant touch button on the External Controller:
   - If a push button switch is working, its corresponding switch on the 'External Display' diagnostic screen will light up 'Green' or 'Blue' each time the push button switch is pressed.
   - If a push button is not working, its corresponding touch button on the diagnostic External Dispay screen will not light up.

2 If a corresponding touch button on the External Display diagnostic screen fails to light up, then go to the External Display Module (located in the left hand side of the Quick Fill Toolbox [shown right) and check that connectors are fitted correctly.

3 Open the door of the toolbox and check the connectors.

4 After checking the External Display Module connectors, re-check the function of the relevant External Display push buttons and the External Display diagnostic screen touch buttons.

5 If a function continues to not light up it may be neccessary check the relevant function in Virtual Mode.

The External Controller located on the Boom Centre section.



To Check Functions in Virtual Mode:

1 Press the Virtual Mode touch button to enable/disable 'Virtual Mode'.

   The touch button displays Green when enabled & Grey when disabled.

2 Press a Fill function touch button (on the right hand side of the screen) eg, 'Fill Rinse' to test its function.

   If working, the item will operate while the touch button is On and stop when the touch button is Off.

3 When testing is completed, press the Virtual Mode touch button to disable Virtual Mode.

   The touch button displays Grey when disabled & Green when enabled.

NOTE

All functions should be turned off when leaving this screen.

5 Troubleshooting

Press the ‘Troubleshooting’ Display tab touch button to display the screen.

The ‘Troubleshooting’ screen provides function checklists for:

- Auto Fill
- RPM Raise
- Auto Fold
- Spray Pump.

If an indicator displays Green it is connected & working.

If an indicator displays Grey, it is Off

If an indicator displays Red, it is not working

If Red, go to the relevant control module or setting and check the connections.

6 Boom I/O

Press the ‘Boom I/O’ Display tab touch button to display the screen.

The ‘Boom I/O’ screen provides checklists and readouts for the boom functions operating through Boom Module A & Boom Module B located on the right hand side of the boom centre section.

Used to test and troubleshoot system inputs and outputs.

Fields display the raw sensor data for inputs and the PWM value for outputs of the system.

Circular indicator lights for inputs & outputs:

- Black = Off
- Green = Input is working ok & in range
- Red = Sensor is out of range or disconnected - see fault log for more details.

  Go to the Boom Module A & Boom Module B and check connections.

7 PLC I/O In

Press the ‘PLC I/O In’ Display tab touch button to display the screen.

The ‘PLC I/O In’ screen provides checklists & readouts for all Inputs to the Chassis Controller or Main Control Module (located in the left hand side Fill Area toolbox).

Used to test and troubleshoot system inputs and outputs.

Fields display the raw sensor data for inputs and the PWM value for outputs of the system.

Circular indicator lights for inputs:

- Black = Off
- Green = Input is working ok & in range
- Red = Sensor is out of range or disconnected - see fault log for more details.

  Also go to the Chassis Controller or Main Control Module and check the Input connections.

8 PLC I/O Out

Press the ‘PLC I/O Out’ Display tab touch button to display the screen.

The ‘PLC I/O Out’ screen provides checklists & readouts for all Outputs to the Chassis Controller or Main Control Module (located in the left hand side Fill Area toolbox).

Used to test and troubleshoot system inputs and outputs.

Fields display the raw sensor data for inputs and the PWM value for outputs of the system.

Circular indicator lights for outputs:

- Black = Output is Off
- Green = Output is On and working ok
- Red = Error fault – see fault log for more details

  Also, go to the Chassis Controller or Main Control Module and check the Input connections.

NOTE

The number indicators shown on the PLC I/O Out screen above, namely:

- Spray Pump Drive ‘350’ and
- Tank Fill Shut Off Vavle ‘650’

are the PWM outputs. Numbers range from 0 to 1000 where 0 is Off & 1000 is fully On.



The ISOBus Module (also known as the r Main Control Module) located on the boom centre section.

Active Faults

Another G-Hub screen, useful in trouble shooting, is ‘Active Faults’ accessed in the Service tab screen.

Press ‘Settings’ touch button, then the ‘Service’ touch button, then press the ‘Active Faults’ tab touch button to open a screen displaying all active faults.

Only active faults are displayed.

Once corrected the fault code automatically clears.

Fault History

‘Fault HIstory’ is also available in the Service tab screen to assist with trouble shooting.

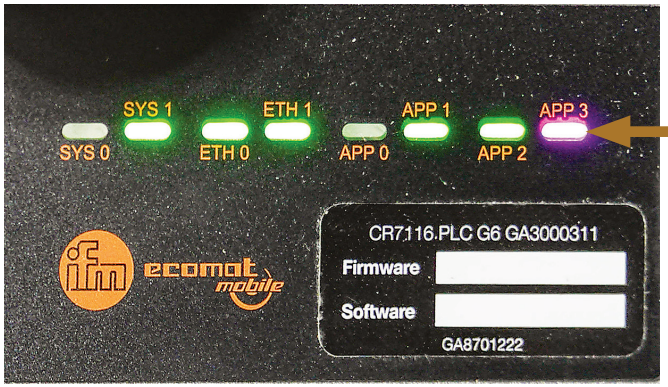
Press the ‘Fault History’ tab touch button to open the screen ‘Fault History’ displaying recorded faults since last cleared.

Press the ‘Clear’ touch button to clear recorded faults.

G-Hub Main PLC Controller

The G-Hub Main PLC Controller, also known as the Chassis Controller or Main Control Module, is located in the storage box of the Filling Station on the right hand side of the Crop Cruiser.

Illustrations & a table (next page) provide trouble shooting touch buttons & information



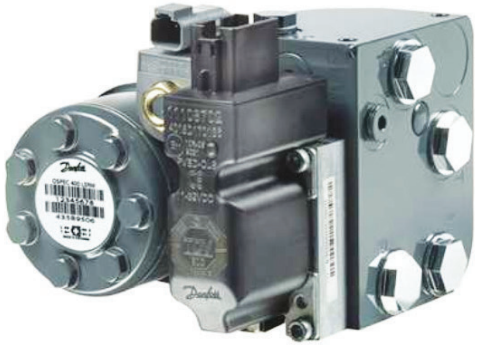
LED lights & keys on the ISOBus Module

LED KEY	LED COLOUR	DESCRIPTION
SYS0	Red	PLC Error, PLC not running
	Green (Flashing)	PLC OK, running
	Off	No PLC power
SYS1	Green	Not used (second PLC)
ETH0	Off	No Ethernet connection
ETH1	Off	No Ethernet connection
APP0	Off	Error
	Blue	G-Hub online
APP1	Red	No HMI settings transfer
	Green	HMI Settings transferred ok
APP2	Blue	No HMI settings changed
	Green	HMI Settings changed ok
	Red	HMI Settings changed failed
APP3	Green	CAN OK, online
	Red	CAN RAW fault
	Blue	CAN open fault
	Yellow	CAN ISOBUS fault
	Magenta	CAN J1939 fault

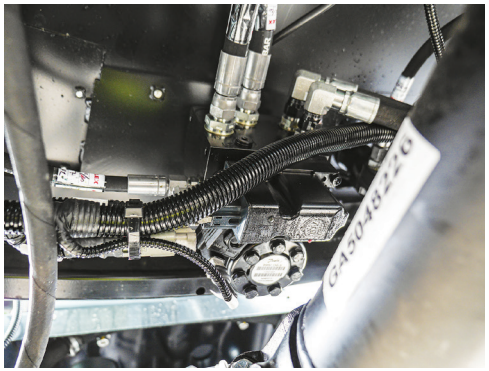
NOTE

When nothing appears on the G-Hub screen, first, check the lights of the PCL Controller (located in the filling station storage box) for more information.

Check the LED colours and if problem is showing according to the LED lights Description, contact you local Dealer for service.



Danfoss autosteer unit.



Autosteer unit fitted under the cab.

Goldacres Autosteer Orbital Error Codes

Goldacres high performance Danfoss OSPE steering unit with PVED CLS control valve is a fully integrated GPS steering ready solution.

The control valve is compliant with all current legislation and safety standards, and functions correctly without GPS system installation.

The steering system runs on a dedicated CAN bus network (separate from the ISO BUS) and includes a CAN SASA sensor to measure the current steering wheel angle and speed for steering break out control, as well as, an analogue wheel angle sensor (WAS) to report the angle of the front wheels.

All CAN addresses are setup to utilise the default GPS steering controller source address of ‘28’.

To assist trouble shooting problems, the following tables provide the error codes which may appear if problems arise.

Spray Pump

PROBLEM	COMMON CAUSES	COMMON SOLUTION
Pressure & Flow rate are too low	Centrifugal pump speed	Check pump speed is 4000 - 4200 RPM
	Diaphragm pump diaphragms	Check oil for colour change. If the oil appears milky, a diaphragm will be damaged and needs to be replaced
	Suction line air leak	Check suction line for air leak.
	Suction blockages	Check the tank sump, suction line & suction filter for blockage
	Nozzle wear	Measure the flow per minute coming out of one nozzle, then check the nozzle chart for the corresponding flow.
	Reulator valve function	Check the regulator valve is rotating the full 90 degrees when the boom valves are switched Off
	Excessive bypass on pressure manifold	Verify the Console calibration settings
	Supply to pump is restricted	Check the pressure relief valve setting on the pump.
Pressure & Flow rate are too high	Bypass line is restricted or blocked.	Verify console calibration settings Check for restriction in bypass line Check pump speed is not too fast Check if Bypass valve is turned On

Spray Pump

PROBLEM	COMMON CAUSES	COMMON SOLUTION
Pressure gauge reads higher than the nozzle flow indicates	Blocked filters of nozzles	Check and clean all pressure and nozzle filters
	Flow loss due to resistance in lines, valves & filters.	Re-calibrate console to allow for pressure loss
Pressure fluctuation	Air leak on suction side of pump	Check suction pump for air leaks.
	Incorrect pump speed	Adjust pump speed: • Centrifugal pump: 4000 - 4200 RPM
	Faulty pump valves	Replace pump valves
Pump pressure pulsating	Incorrect pump speed	Adjust pump speed: • Centrifugal pump: 4000 - 4200 RPM
	Air leak on suction side of pump	Check pump suction for air leaks
Pump oil is becoming milky	Cracked diaphragm	Replace all diaphragms
Pump is noisy	Low oil level	Refill or replace oil
	Damaged pump valves	Replace pump valves
	Pump suction line has air leak or is restricted	Clean suction filter and check for leaks in suction lines
Pump housing or mounting cracked.	Extremely cold weather can cause liquid in the pump to freeze	Check for ice in the pump and let defrost if required

Flow Meter & Controller

PROBLEM	COMMON CAUSES	COMMON SOLUTION
Application rate is inaccurate, unstable or zero	Incorrect console calibration	Re-calibrate console
	Inconsistent ground speed reading	Check cabling
	Inconsistent flow meter reading	Replace flow meter
	Faulty control valve	Replace control valve
		Check using manual increase/decrease flow control
Speed sensor display is inaccurate, unstable or zero	Incorrect speed calibration	Re-calibrate console speed
Volume display is inaccurate, unstable, zero or not changing	Meter calibration is incorrect	Reset meter calibration
	Flow meter cable pins are corroded	Replace flow meter plugs & pins
	Flow meter is pointing the wrong way	Disconnect flow meter and reinstall in the correct orientation
	Faulty cable	Manually test the cable
Flow meter appears not to be working	Flow meter is seized or blocked	Remove and clean any foreign materials so the turbine spins freely
	Faulty cable	Test cable as per instructions following
	Calibration figure is incorrect	Reset meter calibration
Application rate or pressure will not alter	Faulty control valve	Test valve manually and replace if required
Control valve has failed	Faulty cable Faulty valve	Replace control valve
		Temporary solutions: Remove the motor from the 3 way ball valve and manually adjust the flow by turning the shaft with a spanner

If the flow meter fails to give accurate readings, the following actions should be taken:

- Adjust the spraying pressure by putting the flow control switch into manual and using the increase decrease switch to adjust to the desired pressure as shown on the pressure gauge on the machine.
- Drive the machine at a constant speed in order to apply the required application volume as determined by the nozzle selection chart.
- The machine should then be operated to empty the tank. Once the machine is empty of chemical, partially fill the tank with fresh water so that test can be performed in order to correct the problem. Repair or replace the flow meter as soon as possible.

Spray Nozzles

PROBLEM	COMMON CAUSES	COMMON SOLUTION
Streaky pattern coming from nozzle	Nozzle tip blockages.	Check for blockages by removing the nozzle, rinsing thoroughly with water and cleaning with compressed air. DO NOT clean by blowing into nozzle with mouth.
	Nozzle worn or damaged.	Visually inspect nozzle for damage or wear, conduct a jug test if necessary.
No spray coming from nozzle	Nozzle tip blockages.	Check for blockages by removing the nozzle, rinsing thoroughly with water and cleaning with compressed air.
	Check valve blockages.	Remove the check valve and clean as required.

Boom

PROBLEM	COMMON CAUSES	COMMON SOLUTION
Inner and outer wing are not in line with each other when the boom is unfolded	Stopper bolt holding out the boom	Adjust the boom stopper bolt
Booms will not fully fold to the boom rests	Insufficient lubrication	Lubricate all boom pivots
	Fold cylinder mounts have moved	Adjust fold cylinder mounts
Boom unfold unevenly	Air trapped in the hydraulic lines	Unfold booms completely and hold switch for a few seconds. Then, fold booms completely and hold switch for a few seconds. Do this multiple times as necessary to purge any air out of the hydraulic lines.
Outer boom does not line up with the inner wing when unfolded	Incorrect boom adjustment	Fold the boom out and note the position the outer boom is in. Fold the boom in to transport position and note position outer boom is in. Follow the table below to adjust boom so it sits level in the out (work) position and to have the bottom chords sitting parallel in the folded (transport) position

Plumbing

PROBLEM	COMMON CAUSES	COMMON SOLUTION
No water at boom.	No Tier valve value entered or is at 0	Enter value greater than 0

Induction Hopper

PROBLEM	COMMON CAUSES	COMMON SOLUTION
Induction hopper is not performing as well as it should	Insufficient flow to venturi in the hopper bottom	Check the pressure supplied to the hopper bottom is around 550 kPa (80 PSI).
	Air leaks on induction system	Check all hoses, clamps, and cam lever fittings are sealed

Hydraulic & Pneumatic

PROBLEM	COMMON CAUSES	COMMON SOLUTION
No hydraulic pressure	Low hydraulic oil level	Check the oil level in the hydraulic reservoir and top up if necessary
	Fill pump is engaged	Switch the hydraulic fill pump off
The air bags are not inflating	Low system pressure	The bags will not inflate until the pressure in the system is above 75 PSI, check system pressure.
	Compressor not working properly	Check that the compressor is working correctly
Vehicle sits unevenly	Incorrectly adjusted ride height valves.	Adjust the ride height valves as per the instructions in the Lubrication and Maintenance chapter.
Air conditioning not cooling effectively	Condenser blocked	Check the condenser for a build up of dirt and plant matter, clean if required
	Compressor belt loose	Inspect the belt to see if it is tensioned correctly. If belt is showing signs of wear, replace
	A/C system needs re-gassing	If this is the case, only allow a qualified air conditioning technician to work on the system. R134a refrigerant must not be allowed to escape to the atmosphere
	Evaporator blocked	Build up of dirt and plant matter, clean if required. Be careful not to damage any of the components



Front left tie-down attachment & towing point.



Front right tie-down attachment & towing point.



Use the touch buttons & content pages to quickly access the information required.

Towing & Transporting a Disabled Crop Cruiser

- A disabled Crop Cruiser is best transported on a drop deck trailer.

  Use chains to secure the machine via the tie-down attachment point located under the front and rear axles.

- The Crop Cruiser must not be towed unless the engine is running (as the steering and brakes require engine power to operate).

  Before towing, the front tail shaft should be disconnected, due to the risk of damaging the transmission.

  While towing do not travel at a speed greater than 10 Km/h.

- A Crop Cruiser must be actively steered & braked if being towed.

Document Centre

Copies of Operators & Parts manuals in PDF format can be accessed and viewed via the 12” G-Hub screen screen in the cabin.

Use the touch buttons and contents page to quickly access the information you require.

Please note manuals on the G-Hub are accurate at of time of loading and are subject to change.

For the most recent and accurate versions of all manuals refer to the Goldacres website -

www.goldacres.com.au

Rear left tie-down attachment point.

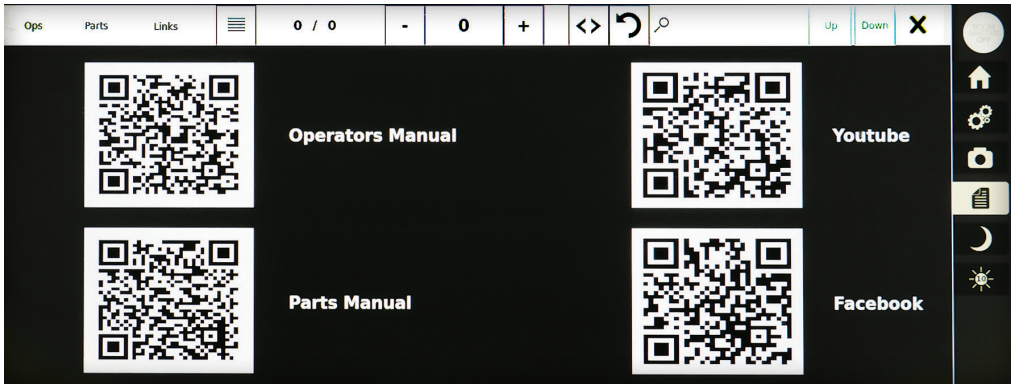


Rear right tie-down attachment point.



Use the touch buttons & content pages to quickly access the information required.





The 'QR Codes' screen provide quick access to the most up to date information from Goldacres website.

QR Codes

'QR Codes' give quick online access to the most up-to-date versions of the Operator's and Parts manuals on the Goldacres website.

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- Hydraulic Schematic - Oil Tanks & Pumps 296
- Hydraulic Schematic - Fan & Brake Circuit 297

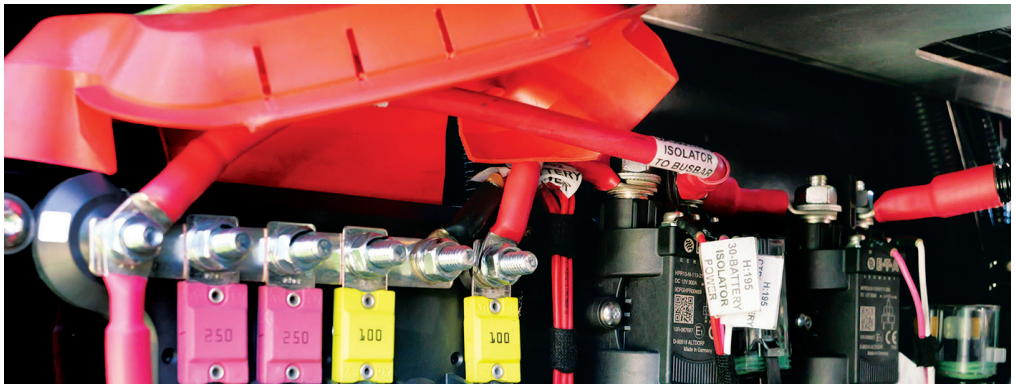


G-Hub - Goldacres Integrated Control System console.

G-Hub - Goldacres Integrated Control System

G-Hub Glossary of Terms:

CANBUS	- Controller Area Network which allows devices to communicate
Crash	- PLC code run failure; Requires restart
Ethernet	- Network technology like CANBUS but 100 times the bandwidth
G-hub	- Goldacres integrated machine control system
HC	- High current
ifm	- Company brand name of PLC hardware used
I/O	- Input/output
PDM	- Power distribution module
PLC	- Programmable logic controller
RCM	- Raven control module used for product rate control
XRT	- Raven boom height control system (replaces Norac)
	- Weedetect smart spraying system.



In cabin - G-Hub Controller Display/Touch Home Screen.

Internal Controller Display:

- Full colour, 12” 8:3 ratio Touch screen, running embedded Linux OS, IP 67which displays important machine data to the operator from all connected systems
- Full system diagnostics, including warnings and operation states “Right to repair ready“
- Displays all relevant machine data for the operator
- Goldacres have custom designed the user interface with inbuilt help
- The system has been designed to keep going even if individual components fail.
- Responsible for sending the steering safety information to the Danfoss steering valve (*Auto steer will not operate if this display is disconnected*)
- Full virtual controls in case of component failures with input switches and joystick.
- Full virtual control of external display in case of external display failure.
- Interface to change settings and configure the system.

External Controller Display:

- Full colour, 5” Non Touch screen, running embedded Linux OS, IP 67
- Activating the external display temporally locks the main display screen
- External CAN Key pad with function indicator LED’s, 8 push button can pad with coloured indicator lights
- Automatic tank fill function
- System Rinse functionality
- Control of electric plumbing valves, valves including colour indicator lights for easy diagnostics.

External G-Hub Controller Display.





The Main PLC Control Module.



Raven ECU ISOBUS Module.

Main PLC:

- Main 'brain' of the control system, contains all the chassis I/O for sensors and control
- The diagnostic lights on the PLC tell inform the user if software is loaded and if there are any problems (see PLC LED table in Chapter 11 'Troubleshooting')
- The software has been written to allow continued operation even when sensors fail, if a sensor is faulty it can be disconnected. But please note that some system functionality may be lost until the sensor can be replaced.
- Links via CAN to the Raven RCM to get sprayer information and transfer tank volume
- Links via CAN to Raven XRT for control and sense when in operation
- Links to engine and transmission CAN to exchange information and control cruise control
- Correct operation of the PLC is critical to machine operation.

Main PLC Indicators

LED FUNCTION	SYS	ETH	APP 0	APP 1	APP 2	APP 3
	PLC	Ethernet	GA CAN	J1939 CAN	ISOBUS CAN	Claas CAN

LED Status

OK	Missing Devices	Error

Go to G-Hub > Settings > Diagnostics > Network tab for comprehensive network diagnostics.



PVED-CLS Led Diagnostics

GA8702419

State	LED bedhavior
Main Controller in the bootloader mode or **Main Controller** detects the **Safety Controller** in the bootloader mode.	Blinking Orange & Green
PVED-CLS is performing the initialisation or is in the on-road mode (electro-hydraulic steering disabled).	Orange
PVED-CLS is in the Safe State and information about the detected failure is available on CAN bus.	Blinking Orange
PVED-CLS is in the off-road steering mode (steering wheel, auto-guidance or other program) and the spool is in its neutral position or PVED-CLS is in the service mode.	Green
The coils supply switch is turned on and the spool is outside its dead-band.	Blinking Green
PVED-CLS is in the Safe State, but no information about the detected failure is available on CAN bus.	Red

Cabin I/O Modules:

- There are two basic I/O modules inside the cabin side console that convert the input from the console switches and joystick into CAN bus messages
- The CAN bus messages are then sent to and interpreted by the PLC to operate machine functions
- The I/O modules are not programmed, rather they are configured with mechanical selectors that set the CAN address and the CAN data speed. If not set correctly they will not be detected on the network.
- Each module has built in power and input status lights for each input allowing quick and easy diagnostics.

NOTE

The Park Brake is not controlled by the Main PLC for safety reasons.

Boom I/O Modules:

- In order to reduce the amount of wires running to the rear of the machine, two smaller I/O modules do the work for the PLC at the rear
- The two modules look the same but they are different
- Each module has a unique CAN bus address as displayed on their screens
- The CAN bus address and data rate can be manually set and adjusted as required with the buttons
- The modules house diagnostic LEDs to assist troubleshooting
- The indicator lights will display when the output is on and flash if there is an output disconnected. The small screen displays the node address and the status of the CAN bus connection.
- The modules do not contain software and do not require updating.



Raven Rate Control Module



XRT Autoboom Unlock Control Module

Valves & Solenoids:

- Most of the plumbing valves have a built in light, red or green, that primarily indicates the valve position but also the fact that they have power connected
- Note that the main suction valve has three positions and is normally in the centered OFF position. There will be no light on in this position but it may still have power connected as normal.
- The main plumbing valves have a breakout harness for easy assembly and diagnostics if required with the use of a break in tee harness
- The main hydraulics also have a breakout harness for easy assembly and diagnostics
- The rear I/O modules will also flash a red LED when a solenoid is disconnected (they run a small amount of current into the output to detect presence of connections).

CANBUS

The machine control systems use six independent CANBUS networks & these are critical to complete operation of the G-Hub:

1 Goldacres CAN network (PLC to displays)

2 Goldacres CAN control (PLC to I/O modules)

3 J1939 CAN (Engine and Transmission)

4 ISOBUS CAN (RCM, Raven XRT and GPS, etc

5 GA steering CAN (Steering Orbital, SASA sensor, GPS, Display)

6 Goldacres CAN open (Keypad to external display screen).

Raven & Hawkeye run their own sub-CANBUS networks. These networks are separate and must not be joined.

They must be fully installed before they will operate, ie, fully installed including installation of terminators (see CANBUS layout schematics on the following pages).

G-Hub Settings Backup

The internal controller display gives the operator the ability to back up the G-Hub settings, this can save information such as the machine setup and the tank calibration values to an external USB drive for future use if required.

Software Updates

The three components that can be updated include:

- Main PLC
- Internal display
- External display.

The customer can enjoy improvements and added functionality from future software updates as it is designed and released.

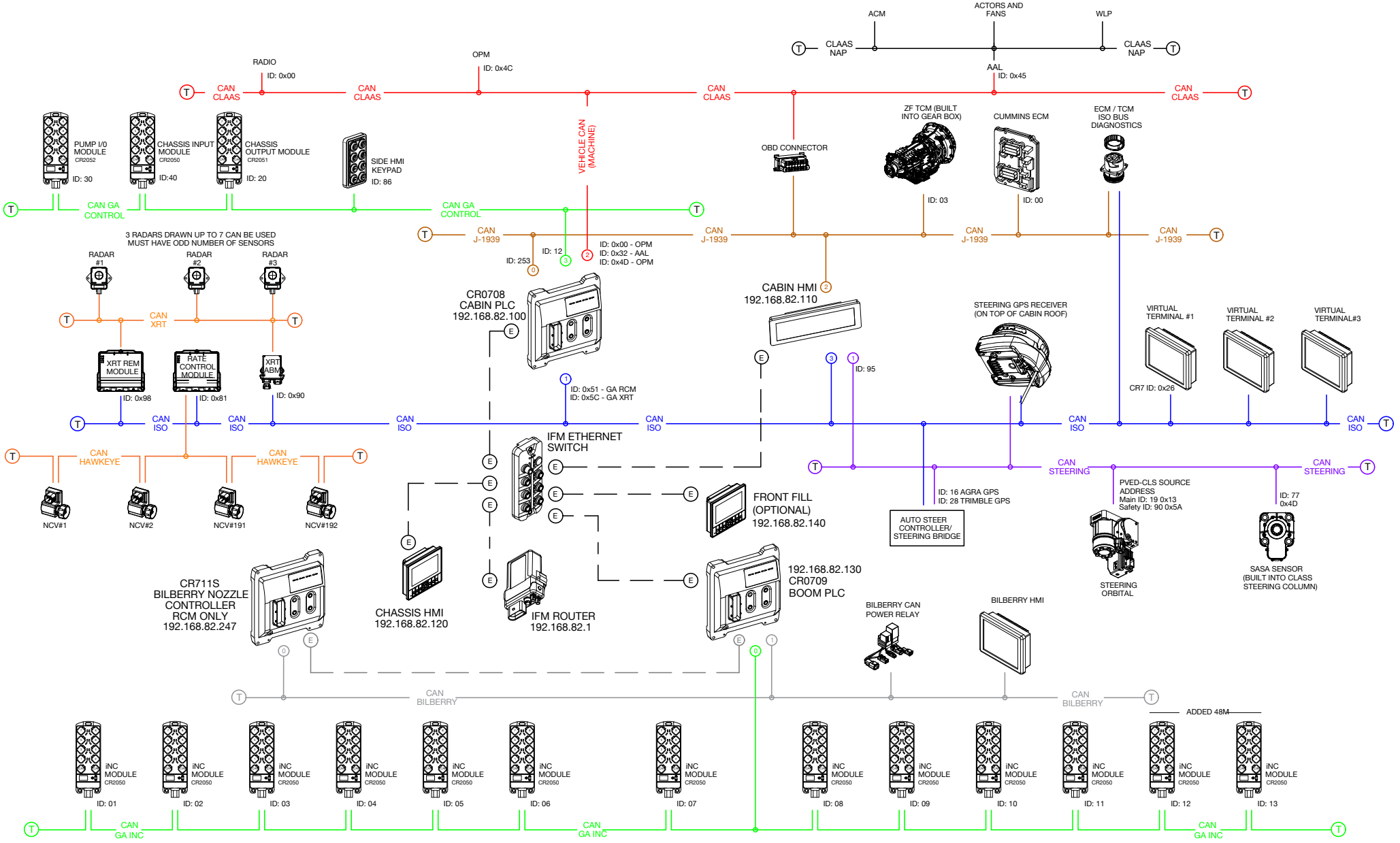
Software updates are performed using:

- USB port to the internal controller display in the cabin (G-hub Controller updates [see instructions at the end of chapter 3 ‘Cabin’]) and
- IFM maintenance tool (PLC updates).

Further information on how to perform updates will be provided with each software update release.

It is highly recommended that all settings are backed up before performing a software update in case of issues.

CANBUS System/Network Layout





Two 12 volt supply batteries located under the bonnet.

Electrical System

Batteries

The electrical system operates on 12 volts. To provide a 12 volt supply with sufficient current, two 12 volt batteries are used in parallel.

- Before carrying out any repairs to the electrical system turn the Battery Isolator switch to the 'Off' position.

  The battery isolator is located just behind the fuel tank on the right hand side.
- When welding, connect the ground terminal directly to the part being welded and ensure that the batteries are disconnected.

  Disconnect any electronic controls such as the engine controller, transmission controller, G-hub controllers, PLC, RCM, etc.
- When welding on the machine ensure, if fitted, that all weed seeker controllers are totally removed from the machine.



Battery Isolator Switch connects (illuminated) & isolates (not illuminated) power for the Crop Cruiser systems.

Battery Isolator Switch

The Battery Isolator Switch (located below the ignition key on the RHS rear corner console of the cabin *[shown above]*) must be isolated when the machine is not in use to prevent battery leakage or power faults.

The Battery Isolator Switch automatically disengages battery power & egress lighting 15 minutes after the engine is stopped & the ignition key is Off. Turn all lights Off.

The battery isolator switches power flow from the batteries to the machine.

The isolator switch is a 250 Amp unit which cuts all power to the machine except for the radio back up power.

Engage the Battery Isolator Switch by pressing the rocker switch for 2 seconds. When engaged, the switch is illuminated.

⚠CAUTION

The Battery Isolator switch does NOT function as an emergency engine stop.

Shut down the engine using the On/Off Ignition key in the cabin.



Auxiliary power connection points located on the left hand side of the machine.

Chassis Auxiliary Power Points

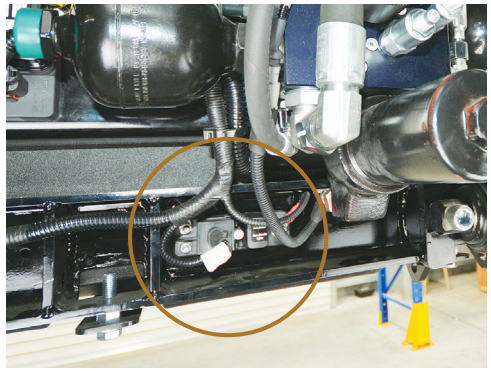
General

Auxiliary power connection points (12V, 30A maximum) are fitted to the front of the chassis.

They can be used as a battery charging point or to power electrical attachments, but NOT to be used for jump starting.

LH Mirror Wiring GA8702421

CAV	CIR Color	Function
1	127	Common H/V
2	130	Vertical
3	129	Horizontal
5	126	Heater Power
6	88	Heater Ground



Switched/fused power stud located under the front axle.

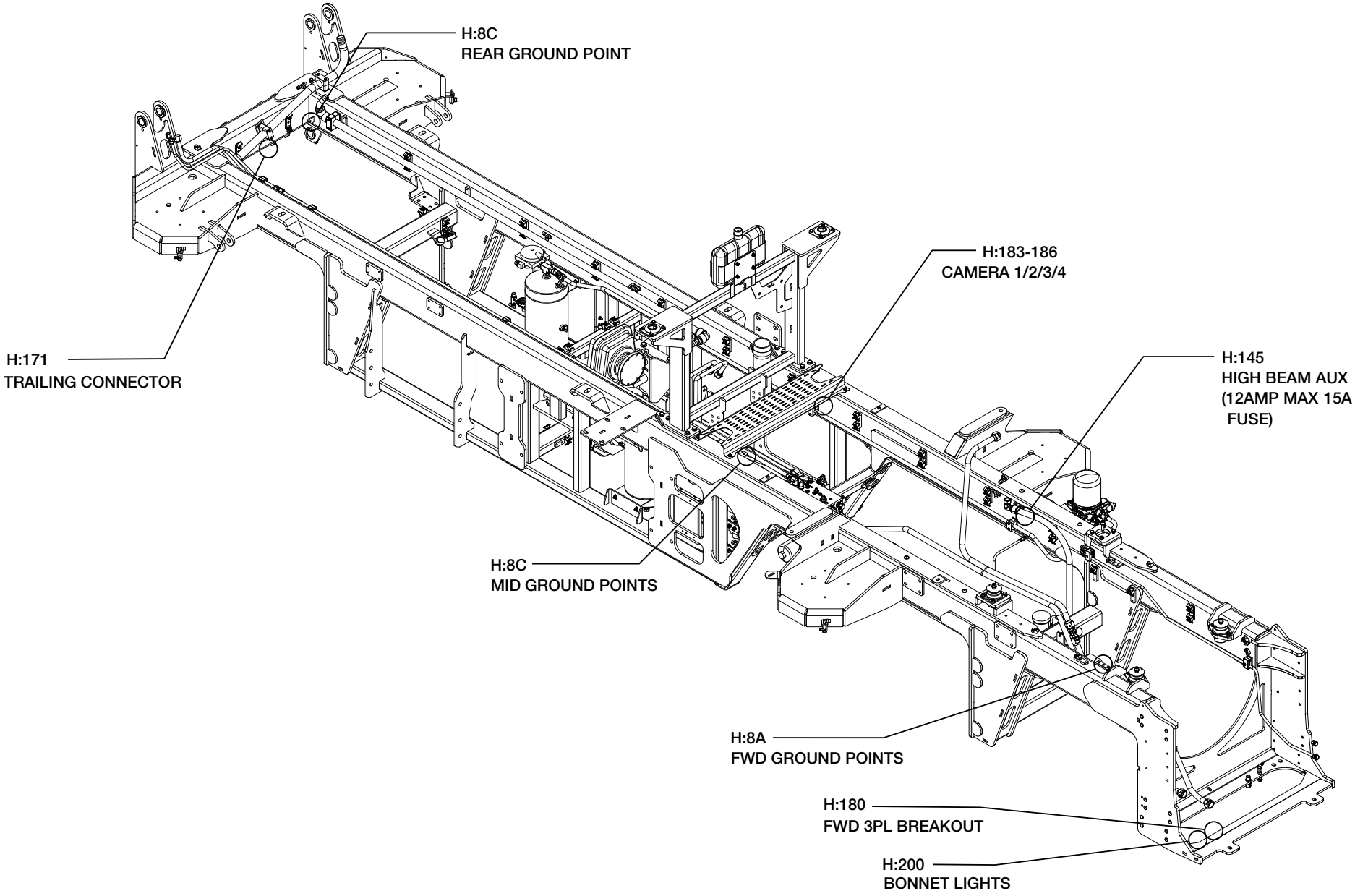
Chassis Connector Points

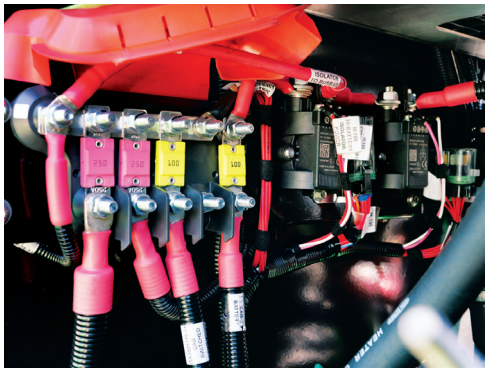
There are eight chassis points located on the chassis to assist with connection of light and other equipment *(shown next page)*.

Lighting

A switched and fused power stud (12V, 500W maximum) is provided for customer fitted lighting accessories under the front axle area just under the hydraulic manifold.

Chassis Connection Point Schematic





Main Power Distribution terminals located under the bonnet on the RHS rear of the engine.

Chassis Mounted Components

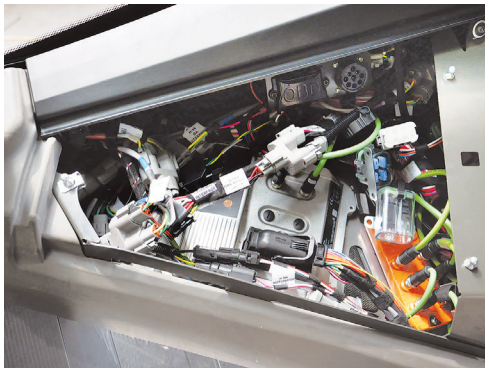
Some electrical components are mounted under the chassis in the front axle area.



Chassis Power Distribution & Warning decals.

These include the;

- ACC relay,
- Chassis fuse block &
- Chassis PDM.



First (front) Electrical Compartment with the storage tray cover removed.

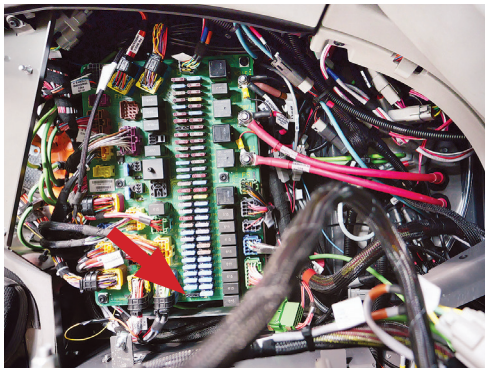
Cabin Electrical Compartment

The electrical compartment is located under the armrest controls in the cabin. To access the electrical compartment, refer to instructions on page 52 of this manual.

The electrical compartment contains two main fuse boxes and various fuses and relays to activate the machine circuitry.

The fuses have been placed in the system to protect the system against electrical faults and incorrect connections.

In the case of incorrect connections or faults, a fuse will blow and disconnect the related circuit.



Second Electrical Compartment with the storage tray/cover removed - Arrow showing 'Fuse Test Point'.

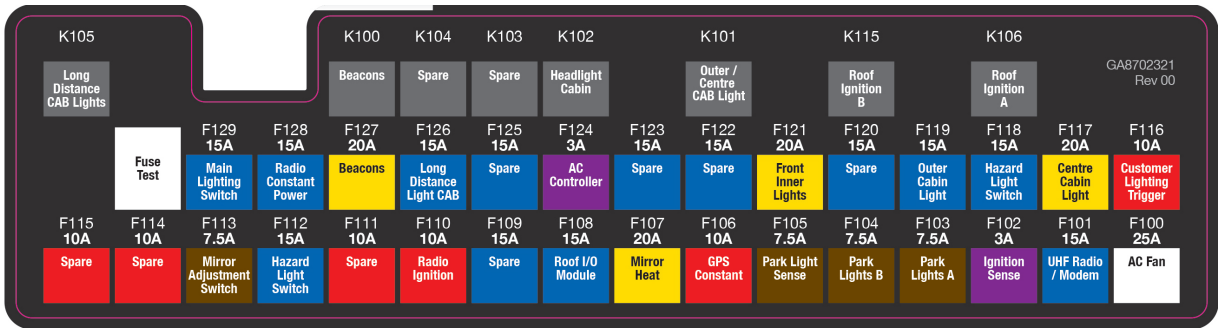
If a fuse has blown, identify the corresponding components in the circuit and investigate the cause before reconnecting with a new fuse.

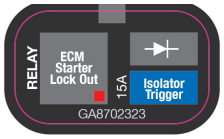
When a fuse is replaced it is important that the fuse is replaced with another fuse of the same rating.

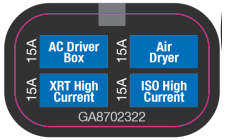
Do NOT use a higher rated fuse in an attempt to correct an electrical fault.

Cabin Fuses & Relays

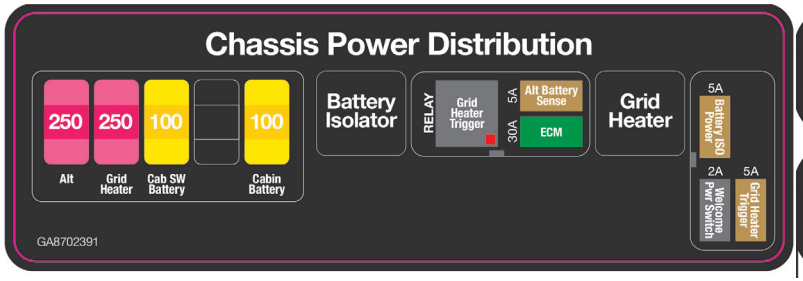


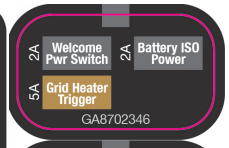


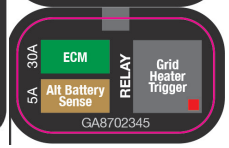




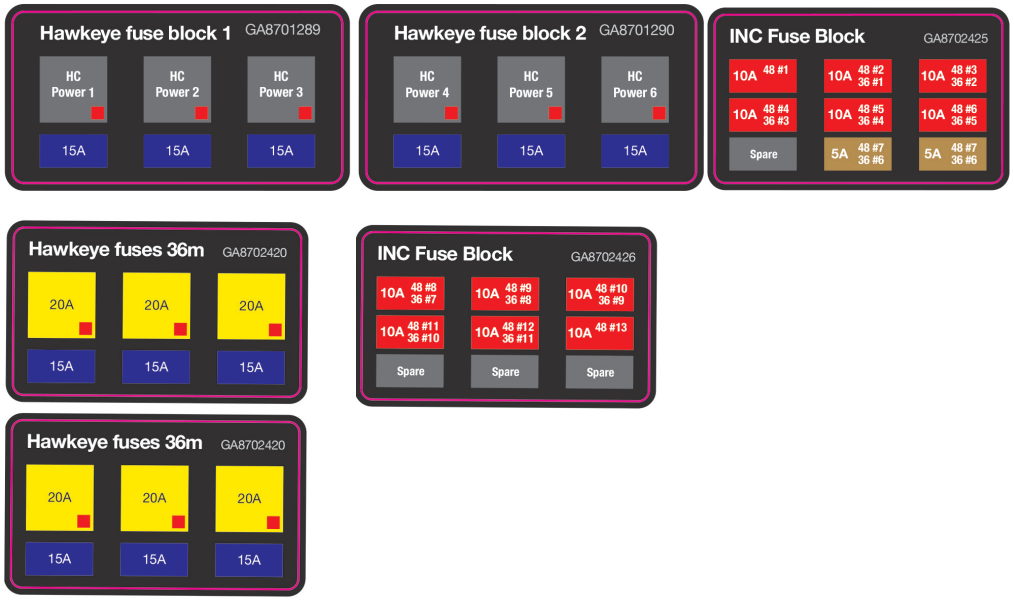
Chassis Fuses & Relays

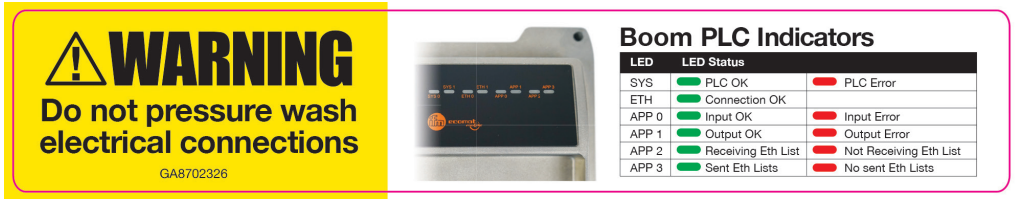


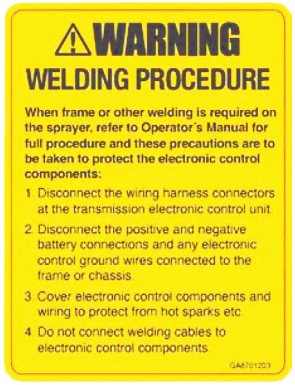




Booms Fuses & Relays







Welding Procedure Warning Decal used on the G8 Series 3 Crop Cruiser.

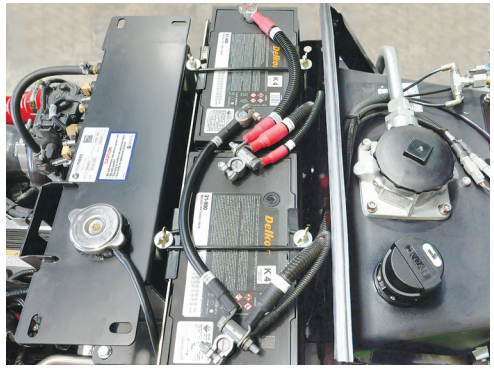
Welding Safety

Electrical systems & components must be fully protected if any welding maintenance is required on a Crop Cruiser.

If not properly protected, electrical spikes and stray currents from maintenance activities such as welding can & will severely damage electrical equipment & components.

Follow the information provided to protect:

- Crop Cruisers's Electrical Systems from damage and
- Personal Safety to avoid injury.



Before welding, disconnect the both 12 volt supply batteries located under the bonnet.

Electrical System Protecton

If welding maintenance is required on a Crop Cruiser, you must follow the steps outlined to protect the electrical system and its components:

1 Disconnect the Batteries

Disconnect both positive and negative battery cables to protect the battery and the Crop Cruiser's sensitive electronic control modules (ECMs) from voltage spikes and stray current.



Welding requires PPE.

2 Ground near the work area:

Always attach the welding ground clamp to bare metal as close as possible to the spot you are welding.

This ensures the welding current takes the shortest path back to the welder and prevents it from flowing through unintended pathways like bearings, bushings, or the main wiring harness, which can cause severe damage.

3 Remove Sensitive Components

If possible, remove any particularly sensitive electronic modules {like the ECM) entirely, or at least anything within 12 inches (300mm) of a weld area.

4 Avoid certain areas:

Do not weld on or run current through the engine block, transmissions, electrical or hydraulic components.

Personal Safety

Welding has specific hazards which require personal protection measures safety and injury avoidance.

1 Wear appropriate Personal Protective Equipment (PPE)

PPE includes:

- Welding helmet with correct shade
- Fire-resistant gloves
- Flame-resistant clothing without cuffs
- ANC sturdy boots.

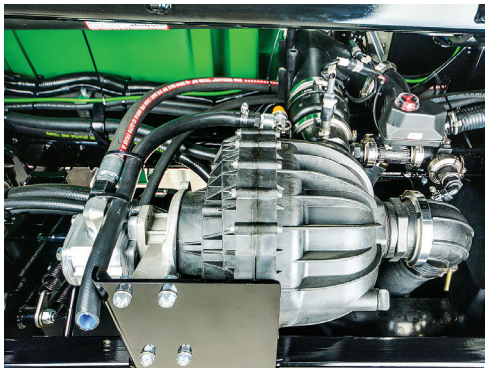
2 Ensure Good Ventilation

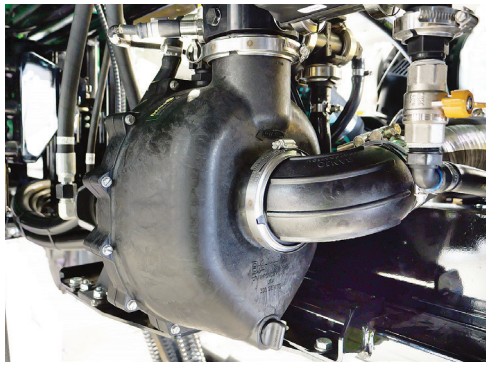
Work in a well-ventilated area and/or use fans to remove hazardous fumes & gases from your breathing area.

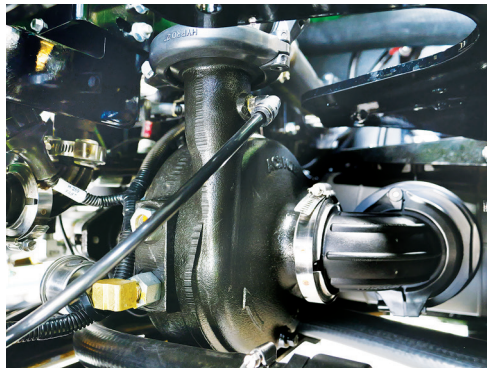
3 Practice Fire Safety

Keep the work area free of flammable materials (oil, grease, rags, etc.) and have a fire extinguisher nearby.

10 Appendix – **Integrated Systems**







Liquid Application System

The Liquid Application System comprises the liquid & chemical:

- Filling & Cleaning system
- Spraying system

Filling & Cleaning System

Filling & Cleaning functions of the Crop Cruiser are primarily controlled and monitored on the External G-Hub Controller & Filling Station Pod of the Quick Filling Station on the left hand side of the Crop Cruiser. Refer to chapter 6 ‘Operation - Ready to Spray’ for operating details.

Primary components include:

- Fill pump
- Chemical transfer pump.

Fill Pump

A 3” high-capacity fill pump combined with high flow fluid plumbing and hydraulics is capable of filling the sprayer at rates of up to 1150 l/min. The pump & distribution valves are controlled by the G-Hub system to regulate fill rate & tank level soft shut-off .

Chemical Transfer Pump

A pneumatic twin diaphragm high-capacity chemical transfer pump (up to 40 l/min) ideal for high viscosity chemicals allows neat chemical to be delivered directly to the main product tank or diverted to the induction hopper to be measured before being transferred



Spraying System

Optimum droplet sizing, pressure, nozzle flow rate and spray uniformity across the boom width are all critical to accurate chemical application.

Goldacres Rapid flow, boom recirculation, 3 tiered nozzle system (3TS, 3TS-Pro) options and Hawkeye Pulse Width Modulated (PWM) system option offer many application benefits.

All Spraying application functions of the Crop Cruiser are controlled and monitored on the G-Hub Controller in the cabin. Refer to chapter 6 ‘Operation - Ready to Spray’ for operating details.

Primary components include:

- Spray pump, filters & valves
- Rate Control Module (RCM)
- Spray pump & liquid controls
- RapidFlow & RapidFire
- Boom sections & height control
- Driveline & speed control

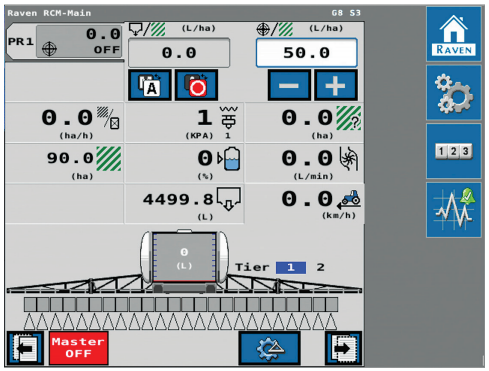
Spray Pump

The Crop Cruiser is standard with a centrifugal spray pump:

- A five-stage centrifugal pump can deliver up to 644 l/min at 11 bar of pressure. The multi-stage pump technology proved far more linear relationship between flow and pressure which is crucial in keeping large volumes of chemical in solution whilst spraying at relatively high pressures.

The centrifugal pump is standard with all 36m, 42m & 48m booms and when the Hawkeye PWM option is fitted.

Pumps are protected by a large suction filter as well as rpm and run-dry sensors for peace of mind spraying.



RCM screen.

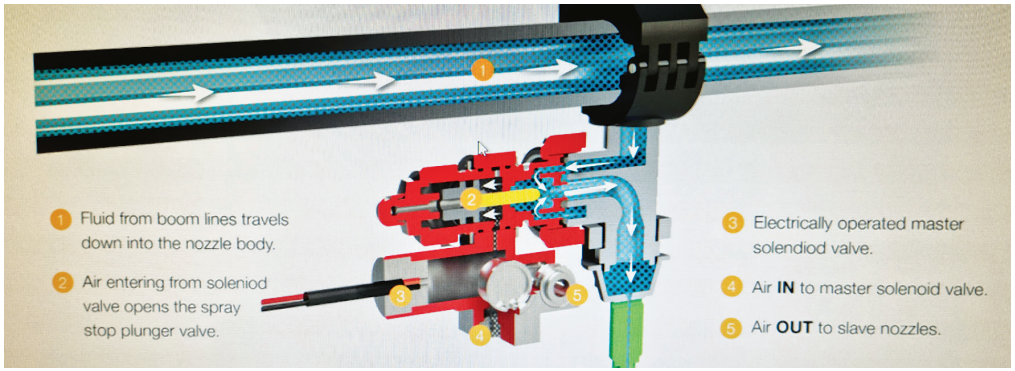


Illustration of the RapidFlow and RapidFire nozzle technologies.

Centralised Filters & Valves

All filling, rinsing and spraying fluid circuits are controlled using motorised electric ball valves which are centralised to minimise pressure drop which is essential for maximising pump performance.

Electric motorised ball valves feature LED status lights and valve position indicators to aid trouble shooting.

A large single pressure filter featuring a self-flushing flushing function helps keep contaminates from blocking nozzles.

Rate Control Module (RCM)

The Raven Control Module (RCM) fitted as standard. It uses innovative control algorithms for precise application including 16 section boom control to eliminate expensive skips and overlaps.

The RCM is compatible with many ISOBUS universal terminals on the market, including the CR7 from Raven - ISOBUS compliant CAN channel, plus 3 available CAN subnets. Compatible with ISOBUS Universal Terminal and Task Controllers Integrated Bluetooth providing long range line-of-sight wireless connectivity for control, monitoring & testing.

It has multi-language support including English, French, Russian, Spanish and Portuguese. IP 67 environmental rating for the harshest of environmental conditions.

Refer to the Raven RCM operation manual supplied for detailed setup and calibration information.

RapidFlow

RapidFlow boom recirculation, fitted as standard, allows the sprayer boom lines to be fully primed without spraying a single drop, significantly reducing wastage at the start of spraying, changing chemicals and cleaning. RapidFlow is used to thoroughly flush out the boom lines without the need to physically spray on the ground.

Boom recirculation can also be controlled through the G-Hub system and can be set to be either manual or automatic in its operation.

RapidFire - Air Solenoid Nozzles

The Crop Cruiser is fitted standard with 16 section boom section and RapidFire nozzle control.

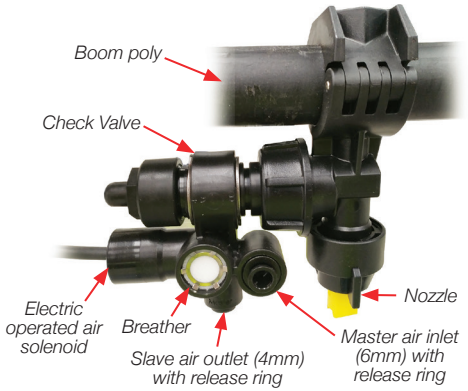
The nozzle system contains a master and slave arrangement for each section. One master air solenoid per section is electrically operated, which sends air to activate a number of slave cylinders which are pneumatic only.

Master cylinders have dual or single nozzle bodies, depending on the spacing option at time of purchase, but operate in the same way.

In the event of nozzles not operating as expected, there are checks to help diagnose and solve the problem.

First check the electrical connections to the master air solenoids. There should be power at the connector when the nozzles are activated from the cabin and the connectors should be securely plugged in to the nozzle.

Secondly, check the air lines for secure fitment and presence of air pressure in the 6 mm supply lines to the masters when the machine is running.



Master air solenoid valve.

RapidFire - Nozzle & Air Check

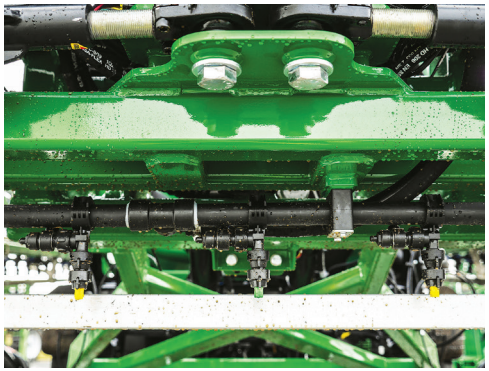
Test the air check nozzles for instantaneous response at the nozzle tip. With the lines at spraying pressure switch the nozzles On & Off. Each nozzle must respond quickly without dribbling, as the pressure builds up or subsides.

The air checks Close under a spring tension of 140 PSI. This traps the liquid in the spray line at the same pressure that it was being applied.

When the booms are turned On, air pressure (acting against the 140 PSI springs) instantly opens flow to the nozzle applying the boom line liquid pressure at the rated pressure and droplet size with full fan angle.

The air check valve is located on the side of the nozzle, it has 2 O-rings in it. Over time, the O-ring may swell or be damaged. This may result in the nozzle dripping or being slow to shut when it has been turned off.

If the nozzle leaks the outer O-ring requires replacement. If the air shut off has poor or delayed response, the inner O-ring requires replacement.



Centreline plumbed boom with optional 3TS single nozzles at 250mm spacing.

3 Tier System - 3TS & 3TS Pro (Options)

The 3 Tier System (3TS) provides a wider range of flexibility with application rates and spraying speed. The 3TS effectively gives a much wider operating band whilst still maintaining optimum droplet size.

The 3TS might be described as a three step gearbox or in the case of the 3TS Pro, a seven step gearbox.

3TS Option

Each nozzle type on 2 tiers has an operating pressure band for a given droplet size. As the first nozzle set or tier reaches the top of its pressure band, the next larger size nozzle tier is activated.

When the second tier reaches the top of its pressure band, the first tier will be reactivated to spray at the same time. This effectively gives three operating bands.



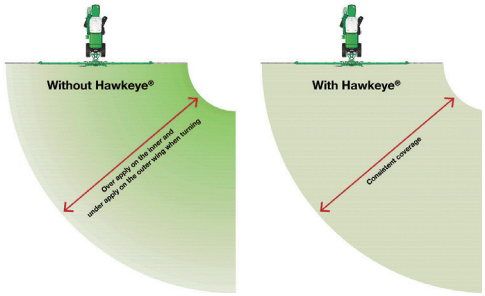
Boom with 3TS Pro with alternating single & double nozzles at 250mm spacing.

3TS Pro Option

The 3TS Pro option is an extension of this idea using three different nozzle sizes and gives seven effective bands of operation for even greater application control.

It requires an unlock code for the Raven RCM which is provided when the feature is optioned.

The Raven RCM controls the 3TS system. For specific calibration and operating instructions, see Raven RCM operation manual supplied.



Nozzle by nozzle turn compensation with the Hawkeye option.

Hawkeye (Option)

The optional Raven Hawkey is a Pulse Width Modulated (PWM) spray system. Known as Hawkeye 2.0, this PWM is offered on 36m and 48m booms with nozzle spacing at 250mm (& 500mm on request). This system provides:

- Nozzle by nozzle turn compensation. Each nozzle features its own microprocessor which can perform diagnostic functions.
- Up to 16 virtual sections or individual nozzle control.

The system runs at 10Hz with blended pulse application & is controlled through the ISO BUS terminal.

Speed Sensors

The Raven Automatic Rate Controller utilises a speed reading from the transmitted GPS speed over ISOBUS network.

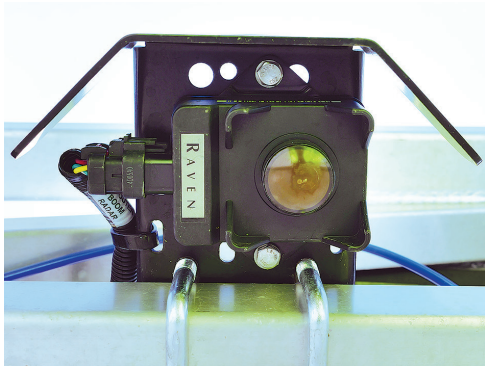
The GPS system must be configured to transmit the gound speed over the ISOBUS network.

Flow Control Valve

The flow control valve (mounted on the chassis) regulates the amount of liquid going to the boom sections as directed by the console. It controls the flow to the boom by regulating the amount of liquid which bypasses and flows back to tank.

The flow control valve is a positive ball valve which means it can control flow infinitely to the boom from 0 L/min to the maximum pump output, dependant on the system pressure.

The flow control valve can be operated in manual mode from the console for boom priming, flushing & troubleshooting.



AutoBoom XRT radar sensor.

XRT Auto Boom Height Control (Optional)

Boom height control is automated using the Raven AutoBoom XRT radar sensor system. This system is standard on 48 metre equipped machines and optional for 36-42 metre boom machines.

Centre section stability is physically managed using variable rate roll dampeners.

Variable rate dampeners are used to stiffen the centre section roll action which allows the boom wing tilts to be operated much faster without effecting the boom stability.

The XRT operating status is displayed on the G-Hub internal screen whilst the setup is configured through the ISO BUS terminal.

The XRT height sensors are radar based. They enable a larger height measurement range over ultrasonic types and can detect both ground and crop canopy and are less affected by spray drift, dust and mud.

The sensors are also very compact, allowing simple fitment along the boom.

The Raven XRT system uses extra sensors to monitor:

- The machine chassis rate of roll
- The boom centre position relative to the chassis &
- Boom wing tilt angle.

These extra sensors allow the computer to predict how the boom will react well before the radar sensors even see the change in boom height. The end result is a more stable boom in uneven terrain.

More detailed and specific information can be found in the product documentation from the Goldacres and Raven websites.

www.goldacres.com.au

www.ravenprecision.com

Air Conditioning System

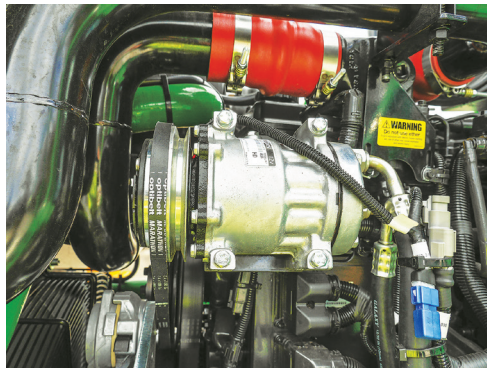
The Air Conditioning System provides all heating, ventilation & cooling of the cabin.

A separate pressurising fan draws clean air into the cabin through the carbon filter - pressurising the cabin with clean air and forcing air out through any holes or leaking seals in the cabin ensuring no impurities can be drawn into the operator's clean environment.

A blower fan pulls air through the air conditioning evaporator & heating evaporator and pushes air to the demist & roof vents.

When the air conditioning compressor is engaged, the air conditioner evaporator will cool the air.

If the heater thermostat is turned to heat, the air will warm again as it passes through. If the heater is off, the cool air passes through to the vents.



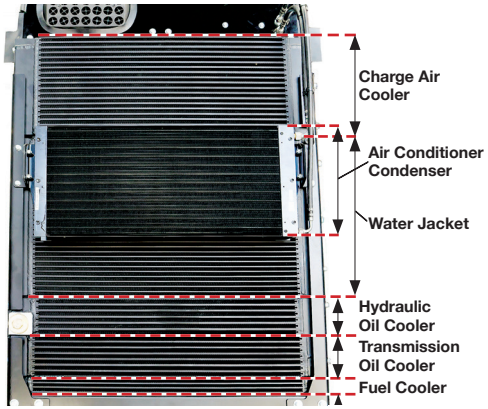
The air conditioner Compressor.

Compressor

The air conditioning compressor is located on the front side of the engine. This compressor is driven by an engine V-belt.

The function of the compressor is **controlled by the air conditioning controller unit in the cabin**.

A thermostat will cycle the air compressor if the evaporator gets too cold.



Components of the Integrated Cooling System located at the front of the engine.

Condenser

The air conditioning Condenser is located in front of the engine radiator. The condenser is cooled by air being drawn through from the engine fan.

The condenser requires regular cleaning of dust and any debris.

NOTE

Take care not to damage the condenser coils or fins when cleaning the condenser.

Receiver Dryer

The air conditioning Receiver Dryer unit is fitted to the right hand side chassis rail under the cabin.

This unit captures any moisture circulating within the air conditioner system. Moisture within the air conditioning system will freeze & cause blockages.

The Receiver Dryer must be replaced every time the air conditioning system is opened or serviced.

Heating System

Coolant from the engine flows through the heater core causing it to radiate heat into the cabin when the engine is up to temperature.

The volume of the water travelling through the system, and therefore the amount of heat transferred, may be adjusted by setting the temperature on the A/C head unit.

To enable the heating core to be isolated from the engine two taps have been installed.

NOTE

If the heating is not working when the engine is warm, ensure that the isolating taps are allowing coolant to flow through to the heater core.

The first tap is located on the right hand side of the engine at the rear of the exhaust manifold.

The second isolating tap is located on the left hand side on top of the engine near the header tank.

Boom, Plumbing & Nozzle Layout - 36m Boom

Section Details of a 36m Boom with **Centreline** Plumbing			
Section Number (L to R)	Nozzle Spacing (m)	No Nozzles in Section	Section Width (m)
1	0.5	3	1.5
2	0.5	3	1.5
3	0.5	3	1.5
4	0.5	3	1.5
5	0.5	3	1.5
6	0.5	3	1.5
7	0.5	3	1.5
8	0.5	3	1.5
9	0.5	3	1.5
10	0.5	3	1.5
11	0.5	3	1.5
12	0.5	3	1.5
13	0.5	4	2.0
14	0.5	3	1.5
15	0.5	3	1.5
16	0.5	3	1.5
17	0.5	3	1.5
18	0.5	3	1.5
19	0.5	3	1.5
20	0.5	3	1.5
21	0.5	3	1.5
22	0.5	3	1.5
23	0.5	3	1.5
24	0.5	3	1.5
Total No of nozzles:		**73**	
Spray Application Width:			**36.5m**

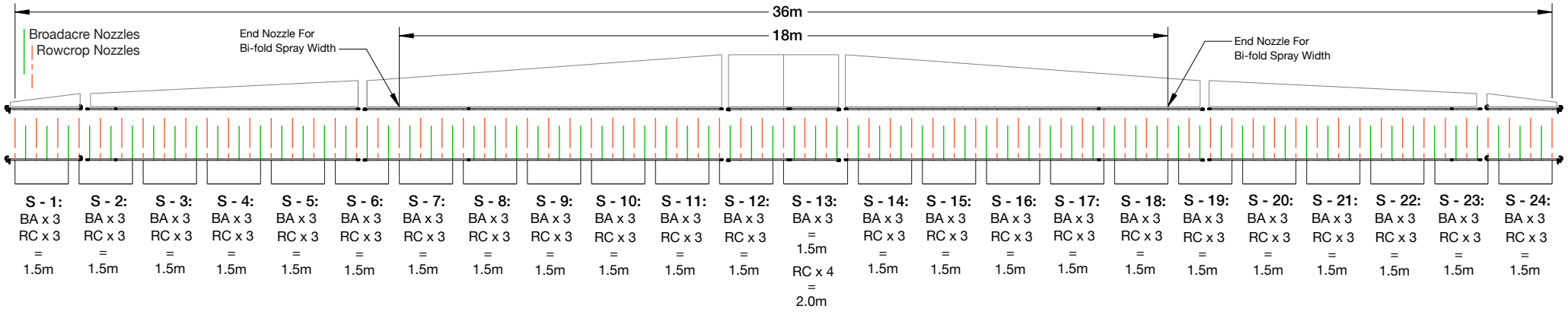
Section Details of a 36m Boom with **Broadacre** Plumbing			
Section Number (L to R)	Nozzle Spacing (m)	No Nozzles in Section	Section Width (m)
1	0.5	3	1.5
2	0.5	3	1.5
3	0.5	3	1.5
4	0.5	3	1.5
5	0.5	3	1.5
6	0.5	3	1.5
7	0.5	3	1.5
8	0.5	3	1.5
9	0.5	3	1.5
10	0.5	3	1.5
11	0.5	3	1.5
12	0.5	3	1.5
13	0.5	3	1.5
14	0.5	3	1.5
15	0.5	3	1.5
16	0.5	3	1.5
17	0.5	3	1.5
18	0.5	3	1.5
19	0.5	3	1.5
20	0.5	3	1.5
21	0.5	3	1.5
22	0.5	3	1.5
23	0.5	3	1.5
24	0.5	3	1.5
Total No of nozzles:		**72**	
Spray Application Width:			**36.0m**

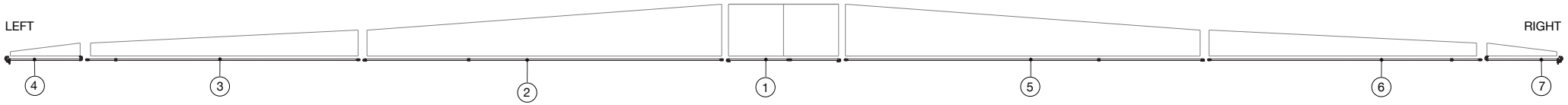
An illustration of a 36m Centreline (Rowcrop) plumbed boom showing the details of the 24 boom sections.
Sections are numbered 1 to 24 starting from the left hand side. Dotted vertical lines illustrate Centreline (rowcrop) plumbing nozzle locations. Solid vertical lines illustrate the broadacre plumbing nozzle location option.

Left boom end

Right boom end

LAYOUT, BOOM SECTION PLUMBING - 24 SECTION, 36M, 250mm, RIVX





BOOM WIDTH 10250 (36m) & BOOM STYLES:

- 3TS RAPID FIRE AND RAPID FLOW 250mm SPACING (STAGGERED) (10061)
- 3TS RAPID FIRE WITH RAPID FLOW 250mm SPACING (STAGGERED) WITH TRIJETS ON TIER 1 (10067)
- 3TS RAPID FIRE WITH RAPID FLOW 250mm SPACING (STAGGERED) WITH TRIJETS ON TIERS 1 & 2 (10069)
- 3TS PRO (10072)

Drawing No: GA7500228

ITEM	PART NUMBER	DESCRIPTION	QTY
1	GA4950260	BOOM POLY ASSEMBLY, BARE, CENTRE SECTION, DRILLED 250mm, TRITECH S	1
2	GA4950330	BOOM POLY ASSEMBLY, BARE, 36M, RH SECTION, DRILLED 250mm, TRITECH S	1
3	GA4950325	BOOM POLY ASSEMBLY, BARE, 36M, RH OUTER SECTION, DRILLED 250mm, TRITECH S	1
4	GA4951000	BOOM POLY ASSEMBLY, BARE, RH BREAKAWAY SECTION, DRILLED 250mm, TRITECH S	1
5	GA4950320	BOOM POLY ASSEMBLY, BARE, 36M, LH INNER SECTION, DRILLED 250mm, TRITECH S	1
6	GA4950315	BOOM POLY ASSEMBLY, BARE, 36M, LH OUTER SECTION, DRILLED 250mm, TRITECH S	1
7	GA4950995	BOOM POLY ASSEMBLY, BARE, LH BREAKAWAY SECTION, 1700mm, DRILLED 250mm, TRITECH S	1

Boom, Plumbing & Nozzle Layout - 42m Boom

Section Details of a 42m Boom with **Centreline** Plumbing			
Section Number (L to R)	Nozzle Spacing (m)	No Nozzles in Section	Section Width (m)
1	0.5	3	1.5
2	0.5	3	1.5
3	0.5	3	1.5
4	0.5	3	1.5
5	0.5	3	1.5
6	0.5	3	1.5
7	0.5	3	1.5
8	0.5	3	1.5
9	0.5	3	1.5
10	0.5	3	1.5
11	0.5	3	1.5
12	0.5	3	1.5
13	0.5	4	2.0
14	0.5	3	1.5
15	0.5	3	1.5
16	0.5	3	1.5
17	0.5	3	1.5
18	0.5	3	1.5
19	0.5	3	1.5
20	0.5	3	1.5
21	0.5	3	1.5
22	0.5	3	1.5
23	0.5	3	1.5
24	0.5	3	1.5
Total No of nozzles:		**73**	
Spray Application Width:			**42.5m**

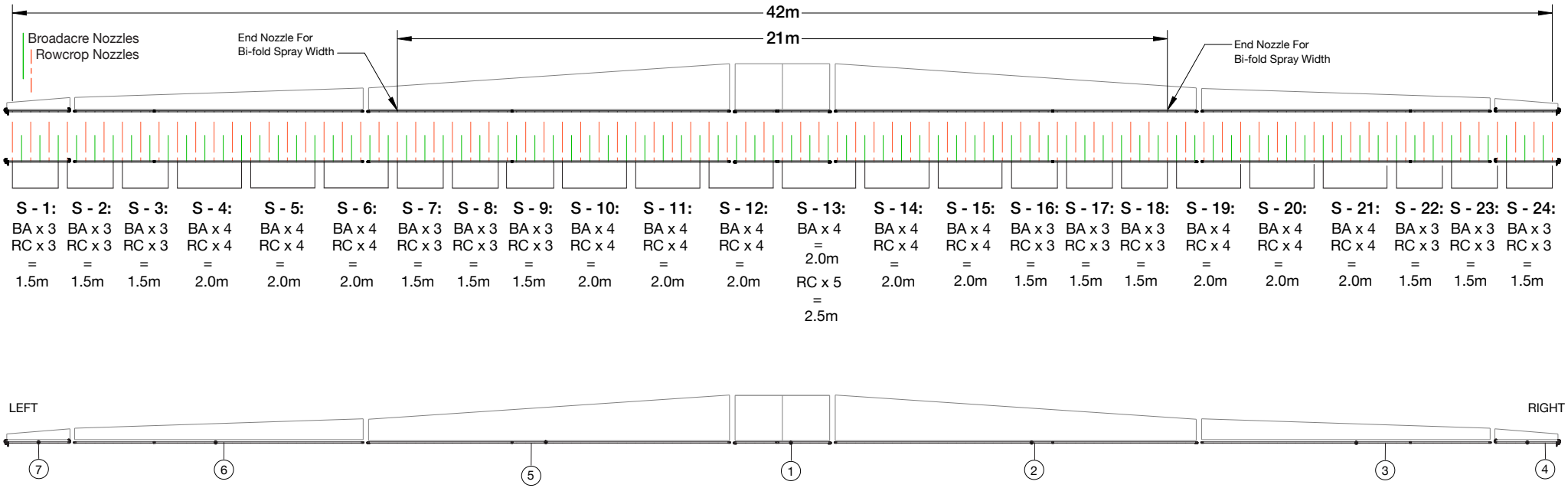
Section Details of a 42m Boom with **Broadacre** Plumbing			
Section Number (L to R)	Nozzle Spacing (m)	No Nozzles in Section	Section Width (m)
1	0.5	3	1.5
2	0.5	3	1.5
3	0.5	3	1.5
4	0.5	3	1.5
5	0.5	3	1.5
6	0.5	3	1.5
7	0.5	3	1.5
8	0.5	3	1.5
9	0.5	3	1.5
10	0.5	3	1.5
11	0.5	3	1.5
12	0.5	3	1.5
13	0.5	3	1.5
14	0.5	3	1.5
15	0.5	3	1.5
16	0.5	3	1.5
17	0.5	3	1.5
18	0.5	3	1.5
19	0.5	3	1.5
20	0.5	3	1.5
21	0.5	3	1.5
22	0.5	3	1.5
23	0.5	3	1.5
24	0.5	3	1.5
Total No of nozzles:		**72**	
Spray Application Width:			**42.0m**

An illustration of a 42m Centreline (Rowcrop) plumbed boom showing the details of the 24 boom sections.
Sections are numbered 1 to 24 starting from the left hand side. Dotted vertical lines illustrate Centreline (rowcrop) plumbing nozzle locations. Solid vertical lines illustrate the broadacre plumbing nozzle location option.

Left boom end

Right boom end

LAYOUT, BOOM SECTION PLUMBING - 24 SECTION, 42M, 250mm, RIVX



BOOM WIDTH 10260 (42m) & BOOM STYLES:

- 3TS RAPID FIRE AND RAPID FLOW 250mm SPACING (STAGGERED) (10061)
- 3TS RAPID FIRE WITH RAPID FLOW 250mm SPACING (STAGGERED) WITH TRIJETS ON TIER 1 (10067)
- 3TS RAPID FIRE WITH RAPID FLOW 250mm SPACING (STAGGERED) WITH TRIJETS ON TIERS 1 & 2 (10069)
- 3TS PRO (10072)

Drawing No: GA7500229

ITEM	PART NUMBER	DESCRIPTION	QTY
1	GA4950260	BOOM POLY ASSEMBLY, BARE, CENTRE SECTION, DRILLED 250mm, TRITECH S	1
2	GA4950350	BOOM POLY ASSEMBLY, BARE, 42M, RH INNER SECTION, DRILLED 250mm, TRITECH S	1
3	GA4950345	BOOM POLY ASSEMBLY, BARE, 42M, RH OUTER SECTION, DRILLED 250mm, TRITECH S	1
4	GA4951000	BOOM POLY ASSEMBLY, BARE, RH BREAKAWAY SECTION, DRILLED 250mm, TRITECH S	1
5	GA4950340	BOOM POLY ASSEMBLY, BARE, 42M, LH INNER SECTION, DRILLED 250mm, TRITECH S	1
6	GA4950335	BOOM POLY ASSEMBLY, BARE, 42M, LH OUTER SECTION, DRILLED 250mm, TRITECH S	1
7	GA4950995	BOOM POLY ASSEMBLY, BARE, LH BREAKAWAY SECTION, 1700mm, DRILLED 250mm, TRITECH S	1

Boom, Plumbing & Nozzle Layout - 48m Boom

Section Details of a 48m Boom with **Centreline** Plumbing			
Section Number (L to R)	Nozzle Spacing (m)	No Nozzles in Section	Section Width (m)
1	0.5	3	1.5
2	0.5	3	1.5
3	0.5	3	1.5
4	0.5	3	1.5
5	0.5	3	1.5
6	0.5	3	1.5
7	0.5	3	1.5
8	0.5	3	1.5
9	0.5	3	1.5
10	0.5	3	1.5
11	0.5	3	1.5
12	0.5	3	1.5
13	0.5	4	2.0
14	0.5	3	1.5
15	0.5	3	1.5
16	0.5	3	1.5
17	0.5	3	1.5
18	0.5	3	1.5
19	0.5	3	1.5
20	0.5	3	1.5
21	0.5	3	1.5
22	0.5	3	1.5
23	0.5	3	1.5
24	0.5	3	1.5
Total No of nozzles:		**73**	
Spray Application Width:			**48.5m**

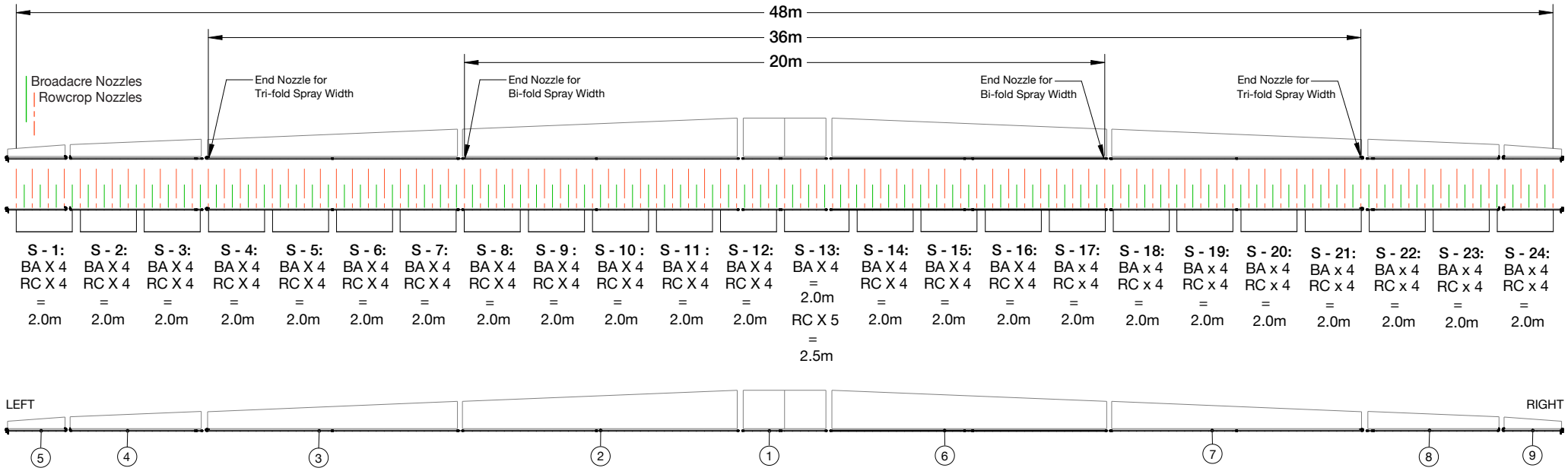
Section Details of a 48m Boom with **Broadacre** Plumbing			
Section Number (L to R)	Nozzle Spacing (m)	No Nozzles in Section	Section Width (m)
1	0.5	3	1.5
2	0.5	3	1.5
3	0.5	3	1.5
4	0.5	3	1.5
5	0.5	3	1.5
6	0.5	3	1.5
7	0.5	3	1.5
8	0.5	3	1.5
9	0.5	3	1.5
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11	0.5	3	1.5
12	0.5	3	1.5
13	0.5	3	1.5
14	0.5	3	1.5
15	0.5	3	1.5
16	0.5	3	1.5
17	0.5	3	1.5
18	0.5	3	1.5
19	0.5	3	1.5
20	0.5	3	1.5
21	0.5	3	1.5
22	0.5	3	1.5
23	0.5	3	1.5
24	0.5	3	1.5
Total No of nozzles:		**72**	
Spray Application Width:			**48.0m**

An illustration of a 48m Centreline (Rowcrop) plumbed boom showing the details of the 24 boom sections.
Sections are numbered 1 to 24 starting from the left hand side. Dotted vertical lines illustrate Centreline (rowcrop) plumbing nozzle locations. Solid vertical lines illustrate the broadacre plumbing nozzle location option.

Left boom end

Right boom end

LAYOUT, BOOM SECTION PLUMBING - 24 SECTION, 48M, 250mm



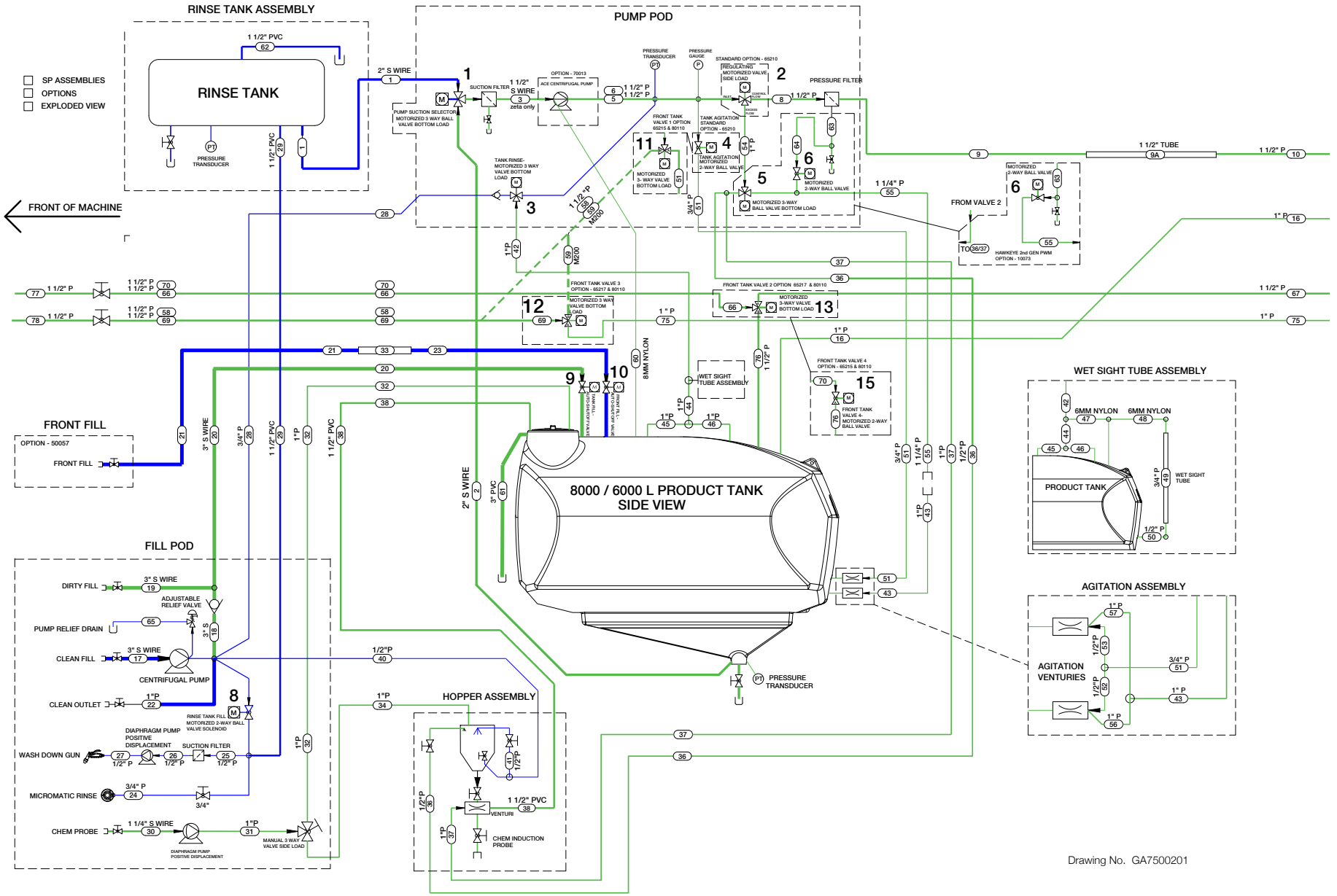
BOOM WIDTH 10195 (48m) & BOOM STYLES:

- 3TS RAPID FIRE AND RAPID FLOW 250mm SPACING (STAGGERED) (10061)
- 3TS RAPID FIRE WITH RAPID FLOW 250mm SPACING (STAGGERED) WITH TRIJETS ON TIER 1 (10067)
- 3TS RAPID FIRE WITH RAPID FLOW 250mm SPACING (STAGGERED) WITH TRIJETS ON TIERS 1 & 2 (10069)
- 3TS PRO (10072)

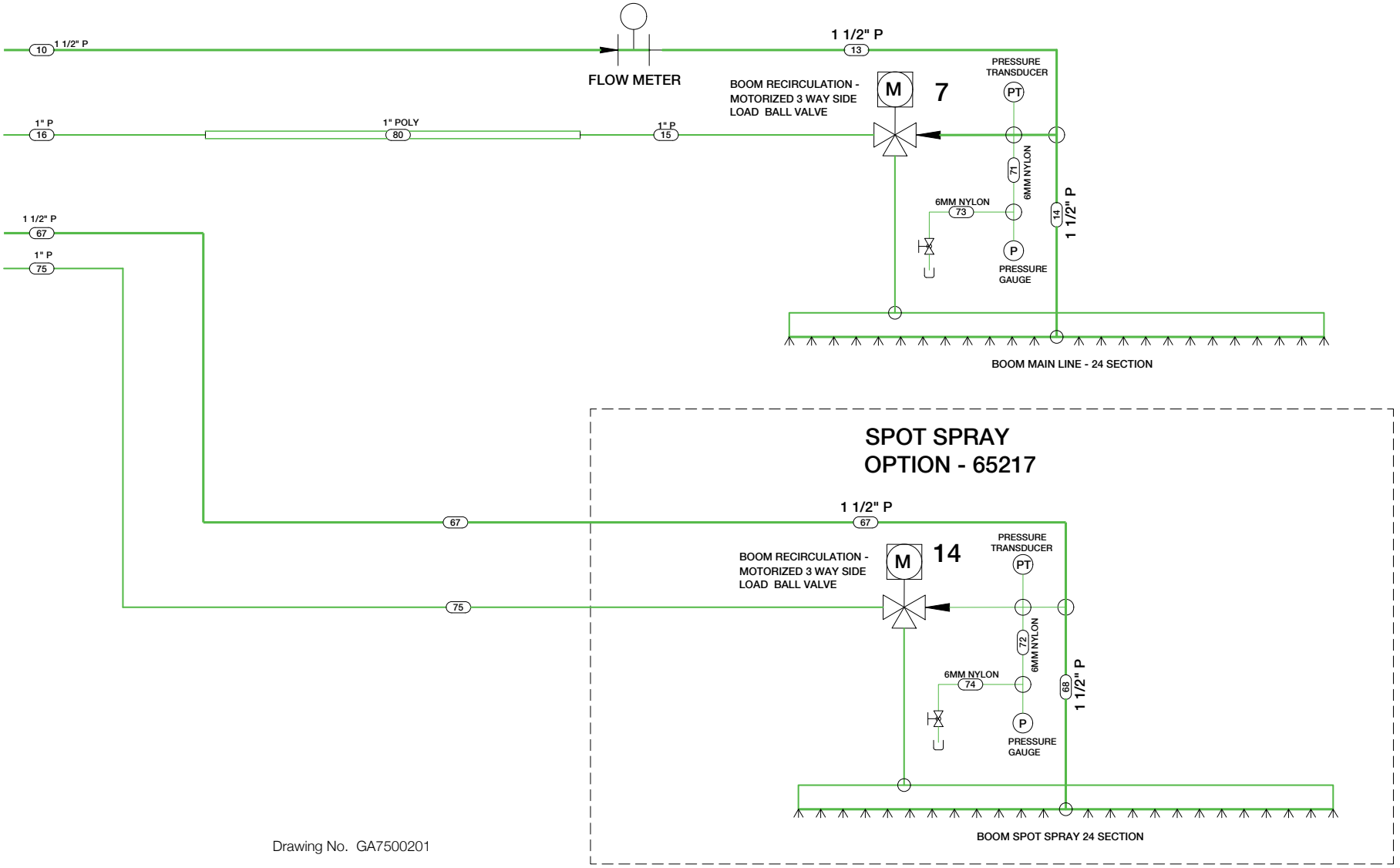
Drawing No: GA7500230

ITEM	PART NUMBER	DESCRIPTION	QTY
1	GA4951715	BOOM POLY ASSEMBLY, BARE, CENTRE SECTION, 48m, 250mm	1
2	GA4951720	BOOM POLY ASSEMBLY, BARE, 48M, LH INNER, 250mm	1
3	GA4951730	BOOM POLY ASSEMBLY, BARE, 48M, LH MIDDLE, 250mm	1
4	GA4951740	BOOM POLY ASSEMBLY, BARE, 48M, LH OUTER, 250mm	1
5	GA4951750	BOOM POLY ASSEMBLY, BARE, 48M, LH BREAKAWAY SECTION	1
6	GA4951725	BOOM POLY ASSEMBLY, BARE, 48M, RH INNER, 250mm	1
7	GA4951735	BOOM POLY ASSEMBLY, BARE, 48M, RH MIDDLE, 250mm	1
8	GA4951745	BOOM POLY ASSEMBLY, BARE, 48M, RH OUTER, 250mm	1
9	GA4951755	BOOM POLY ASSEMBLY, BARE, 48M, RH BREAKAWAY SECTION	1

Plumbing Schematic G8 8000L Tank



Plumbing Schematic Spot Spray

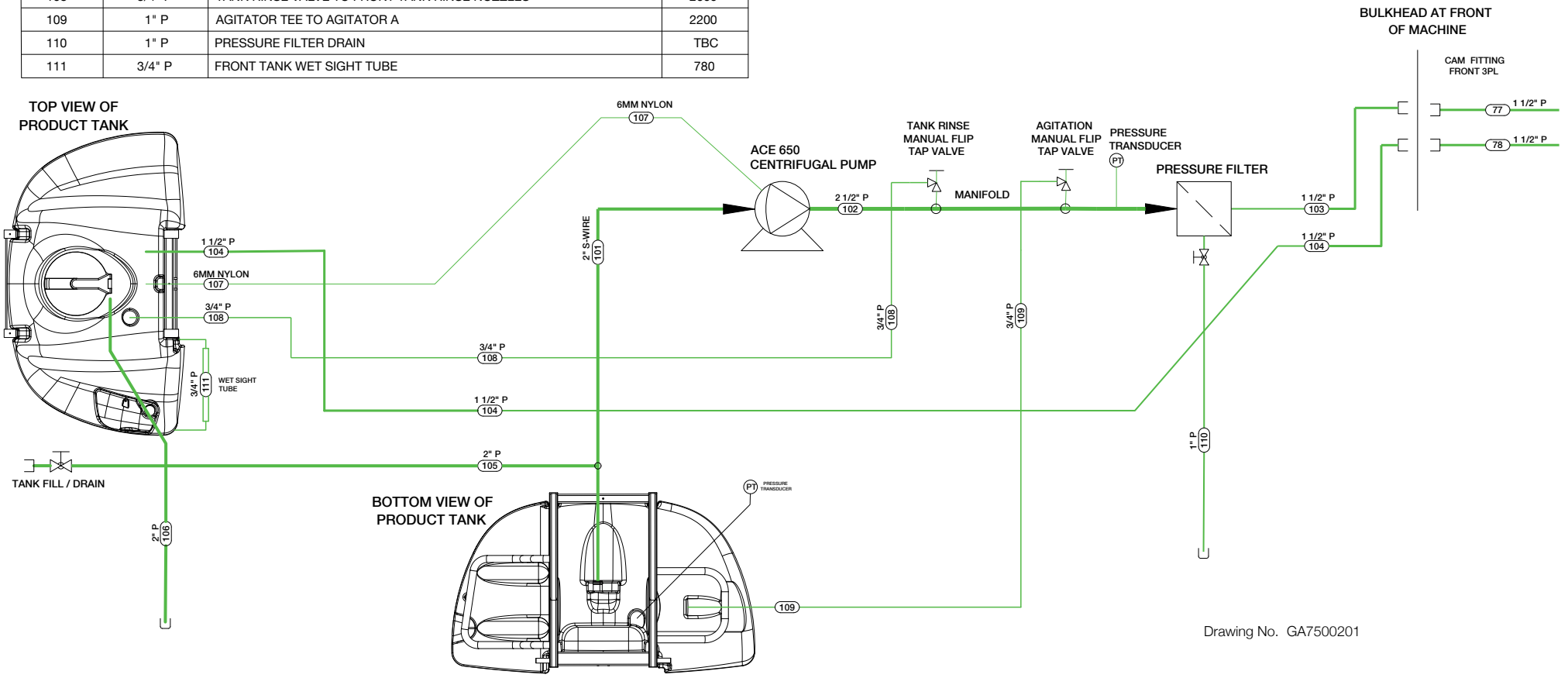


Drawing No. GA7500201

Plumbing Schematic 3PL Front Tank 1500L Tank

HOSE #	TYPE	DESCRIPTION	LENGTH
101	2" S WIRE	FRONT TANK TO SUCTION FILTER	410
102	2 1/2" P	ACE FRONT MOUNT SPRAY PUMP TO FRONT TANK MANIFOLD	1200
103	1 1/2" P	PRESSURE FILTER TO FRONT TANK BULKHEAD	1000 TBC
104	1 1/2" P	SPOT SPRAY BOOM RECIRCULATION FRONT TANK BULKHEAD TO TANK	1200 TBC
105	1 1/2" P	FRONT TANK DRAIN	340
106	2"P	TANK OVERFLOW	1600
107	8MM NYLON	HYPRO PUMP BLEED LINE	1500
108	3/4" P	TANK RINSE VALVE TO FRONT TANK RINSE NOZZLES	2600
109	1" P	AGITATOR TEE TO AGITATOR A	2200
110	1" P	PRESSURE FILTER DRAIN	TBC
111	3/4" P	FRONT TANK WET SIGHT TUBE	780

FRONT 3PL - OPTION 80110



Drawing No. GA7500201

Plumbing Hose List - G8 8000L & G6 6000L

HOSE #	TYPE	DESCRIPTION	LENGTH	WHERE CUT
1	2" S	WIRE RINSE TANK TO SUCTION FILTER 3-WAY 2" ELECTRIC BALL VALVE 1	950	STG 3
2	2" S	WIRE PRODUCT TANK TO SUCTION FILTER 3-WAY ELECTRIC BALL VALVE 1	250	STG 3
3				
4				
5				
6	1 1/2" P	(OPTION 70013) ACE SPRAY PUMP TO CONTROL VALVE ASSEMBLY		LIGHT SUB
7				
8	1 1/2" P	(OPTION 70013) ACE CONTROL VALVE ASSEMBLY TO PRESSURE FILTER		LIGHT SUB
9	1 1/2" P	FROM PRESSURE FILTER TO 1 1/2" TUBE	1000	STG 3
9A	1 1/2" P	11/2" TUBE (CHASSIS) TO BOOM		
10	1 1/2" P	FROM 1 1/2" TUBE TO BOOM FLOW METER	3500	STG 3
11				
12				
13	1 1/2" P	FLOW METER TO BOOM	1180	STG 3
14	1 1/2" P	BOOM TEE TO BOOM PLUMBING		
15	1" P	BOOM RECIRCULATION 3-WAY ELECTRONIC BALL VALVE 7 TO BOOM RECIRCULATION PIPE	3200	STG 3
16	1" P	BOOM RECIRCULATION PIPE TO PRODUCT TANK	2700	STG 3
17	3" S	WIRE CLEAN FILL 3' BALL VALVE TO FILL PUMP ASSEMBLY	310	STG 3
18	3" S	WIRE FILL PUMP ASSEMBLY TO FILL MANIFOLD	420	LIGHT SUB
19	3" S	WIRE DIRTY FILL 3' BALL VALVE TO FILL PUMP ASSEMBLY	1000	LIGHT SUB
20	3" S	WIRE FILL MANIFOLD TO TANK FILL 2-WAY 3" ELECTRIC BALL VALVE 9 (MAIN TANK)	1070	STG 3
21	3" S	WIRE (OPTION 50057) FRONT FILL VALVE TO FRONT TANK FILL PIPE		STG 3
22	1" P	FILL PUMP TO AUXILLARY OUTLET BALL VALVE	700	LIGHT SUB
23	3" P	(OPTION 50057) FRONT TANK FILL PIPE TO 2-WAY 3" ELECTRIC BALL VALVE 10 (MAIN TANK)		STG 3
24	3/4" P	MICROMATIC RINSE SOCKET TO BALL VALVE ON FILL PUMP TEE	800	STG 3

HOSE #	TYPE	DESCRIPTION	LENGTH	WHERE CUT
25	1/2" P	FILL PUMP MANIFOLD TO WASH DOWN GUN PUMP FILTER	1200	LIGHT SUB
26	1/2" P	WASH DOWN GUN PUMP FILTER TO WASHDOWN GUN PUMP		LIGHT SUB
27	1/2" P	WASHDOWN GUN PUMP TO WASHDOWN GUN	4000	STG 3
28	3/4' P	FILL PUMP MANIFOLD TO TANK RINSE 3-WAY VALVE	2800	STG 3
29	1 1/2" PVC	FILL PUMP MANIFOLD TO RINSE TANK	2400	STG 3
30	1 1/4" S	WIRE CHEMICAL PROBE CAMLOCK VALVE TO CHEMICAL PUMP		LIGHT SUB
31	1" P	CHEMICAL PUMP TO 3 WAY BALL VALVE		LIGHT SUB
32	1" P	3 WAY BALL VALVE TO PRODUCT TANK	3750	STG 3
33	3" PIPE	(OPTION 50057) FRONT FILL PIPE 3"	-	-
34	1" P	3 WAY BALL VALVE TO HOPPER	3300	STG 3
35				
36	1/2" P	HOPPER/BYPASS VALVE MANIFOLD TO HOPPER MIXING JET BALL VALVE	4100/4300 (PWM)	STG 3
37	1" P	HOPPER/BYPASS VALVE MANIFOLD TO HOPPER VENTURI	4000/4200 (PWM)	STG 3
38	1 1/2" PVC	HOPPER VENTURI OUTLET TO PRODUCT TANK	6000	STG 3
39				
40	1/2" P	FILL PUMP MANIFOLD TO HOPPER DRUM RINSE TEE	3000	STG 3
41	1/2" P	HOPPER DRUM RINSE TEE TO HOPPER RINSE NOZZLE	850	STG 3
42	1" P	TANK RINSE 3-WAY VALVE TO WET SIGHT TUBE TEE	4200	STG 3
43	1" P	AGITATOR UNION JOINER TO AGITATOR TEE 500		TANKS
44	1" P	WET SIGHT TUBE TEE TO TANK RINSE TEE		TANKS
45	1" P	TANK RINSE TEE TO NOZZLE A		TANKS
46	1" P	TANK RINSE TEE TO NOZZLE B		TANKS
47	6MM NYLON	WET SIGHT TUBE TEE TO 6MM TEE	420	TANKS
48	6MM NYLON	6MM TEE TO WET SIGHT TUBE JOINER	680	LIGHT SUB

Plumbing Hose List - G8 8000L & G6 6000L cont.

HOSE #	TYPE	DESCRIPTION	LENGTH	WHERE CUT
49	3/4" P	WET SIGHT TUBE		
50	1/2" P	PRODUCT TANK TO WET SIGHT TUBE	3200	STG 3
51	3/4" P	AGITATOR BALL VALVE TO AGITATOR JETS	1700	STG 3
52	1/2" P	AGITATION JET TEE TO AGITATION JET A		TANKS
53	1/2" P	AGITATION JET TEE TO AGITATION JET B		TANKS
54	1" P	REGULATING 3-WAY ELECTRONIC VALVE 2 TO HOPPER/BYPASS 3-WAY ELECTONIC VALVE 5		LIGHT SUB
55	11/4" P	HOPPER BYPASS MANIFOLD 3-WAY ELECTRONIC BALL VALVE 6 TO AGITATOR TEE JOINER	1200/1350 (PWM)	STG 3
56	1" P	AGITATOR TEE TO AGITATOR A		TANKS
57	1" P	AGITATOR TEE TO AGITATOR B		TANKS
58	11/2" P	(OPTION 65215) FRONT TANK VALVE TO ELECRRINIC 3-WAY ELECTRONIC BALL VALVE 11	4600	STG 3
59	M200	PLUMBING COUPLING STRAIGHT 2" X 4 1/2" LONG, BANJO M200CPG	-	-
60	8MM NYLON	(OPTION 70013) ACE SPRAY PUMP BLEED TO PRODUCT TANK	5000	LIGHT SUB
61	3" PVC	PRODUCT TANK OVERFLOW HOSE	4000	TANKS
62	1 1/2" PVC	RINSE TANK OVERFLOW	1100	LIGHT SUB
63	1" P	PRESSURE FILTER TO FILTER CLEAN TEE	1000	LIGHT SUB
64	1" P	FILTER CLEAN TEE TO FILTER CLEAN MANIFOLD VALVE	275	LIGHT SUB
65	3/4" P	FILL PUMP RELIEF DRAIN	500	LIGHT SUB
66	11/2" P	(OPTION 65217 & 80110 SPOT SPRAY) FRONT TANK BULKHEAD TO 3-WAY VALVE 2	2800	STG 3
67	11/2" P	(OPTION 65217 & 80110 SPOT SPRAY) 3-WAY VALVE 2 TO SPOT SPRAY BOOM LINE 2	7500 TBC	STG 3
68	11/2" P	BOOM TEE TO SPOT SPRAY BOOM PLUMBING		BOOMS
69	11/2" P	(OPTION 65217 & 80110 SPOT SPRAY) FRONT TANK VALVE TO 3-WAY FRONT TANK VALVE 12	4600	STG 3
70	11/2" P	(OPTION 65215 & 80110 ADDITIONAL CAPACITY) FRONT TANK BULKHEAD TO 2-WAY VALVE 4	2800	STG 3

HOSE #	TYPE	DESCRIPTION	LENGTH	WHERE CUT
71	6MM NYLON	BOOM SPRAY PRESSURE LINE	10000	STG 3
72	6MM NYLON	SPOT SPRAY BOOM SPRAY PRESSURE LINE	12000 TBC	STG 3
73	6MM NYLON	BOOM PRESSURE GUAGE TO DRAIN VALVE	4200	STG 3
74	6MM NYLON	BOOM SECOND LINE PRESSURE GUAGE TO DRAIN VALVE	4200 TBC	STG 3
75	1" P	SPOT SPRAY BOOM RECIRCULATION 3-WAY ELECTRONIC BALL VALVE 14 TO PUMP POD MANIFOLD	6000 TBC	STG 3
76	11/2" P	RETURN TO MAIN TANK - 2-WAY / 3-WAY VALVE TO MAIN TANK	2500 TBC	STG 3
77	11/2" P	PRESSURE SUPPLY LINE FROM FRONT TANK BULK HEAD TO FRONT TANK PRESSURE BALL VALVE	2200 TBC	STG 3
78	11/2" P	RETURN LINE FROM FRONT TANK RETURN BALL VALVE TO FRONT TANK BULK HEAD	2201 TBC	STG 3
79				
80	1" POLY	BOOM RECIRCULATION PIPE		STG 1

Hydraulic Schematic - Chassis

Hydraulic Schematics still to be completed

Hydraulic Schematic - 48m Boom

10 Appendix – **Integrated Systems**

Hydraulic Schematic - 30m, 36m & 42m Booms

Hydraulic Schematic - Raven XRT

10 Appendix – **Integrated Systems**

Hydraulic Schematic - Oil Tanks & Pumps

Hydraulic Schematic - Fan & Brake Circuit

10 Appendix – **Integrated Systems**