

Front Mount

Operator's Manual



GOLDACRES
Australia's World Class Sprayers

CHAPTER I

INTRODUCTION

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INTRODUCTION

Congratulations on your purchase of a new Goldacres sprayer. I am proud of the reputation that Goldacres has established for providing technologically advanced equipment to a wide variety of industries.

This operators manual has been designed to ensure that you will get the optimum performance from your equipment. Please take the time to read and understand this manual prior to using your equipment.

For further information on the Goldacres product range please visit our website:
www.goldacres.com.au.

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PLEASE NOTE:

All information in this operator's manual is based on the latest product information available at the time of printing. The policy of Goldacres is one of continuous improvement and as such Goldacres reserve the right to alter any specifications and designs without notice and without incurring any obligation regarding such changes.

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CHAPTER 2

WARRANTY REGISTRATION & DELIVERY

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GENERAL

In order to ensure that the equipments operation is trouble free and that all systems are functioning properly Goldacres carry out an extensive range of quality control checks during the manufacturing process prior to your equipment reaching your Goldacres dealer.

Your dealer has also completed a pre-delivery inspection of this equipment prior to delivery to you in order to ensure that the equipments operation is trouble free and that all systems are functioning properly.

Please take the time to complete the warranty registration card and return the Goldacres at your earliest convenience.

PRE-DELIVERY CHECKLIST

Dealer to complete

WARRANTY REGISTRATION CARD

Dealer & customer to complete

PRE DELIVERY

The correct delivery of a sprayer is important for all concerned - the customer, the dealer and Goldacres.

As part of the dealers obligations when selling a new sprayer a pre-delivery checklist is to be completed. Following pre-delivery, the sprayer delivery should be performed at the owner's property, utilising the tractor that they intend to use for spraying. If delivery cannot take place on the customers

property it is recommended that the tractor is taken to the dealership for set up.

The following pre-delivery checklist is to be **completed by the dealer and filed at the dealership.**

NOTE: Please complete the sections relevant to this equipment. Leave sections that are not relevant blank.

GOLDACRES - RESELLER TERMS AND CONDITIONS OF SALE

Goldacres Goods are only available for purchase upon the terms and conditions set out below.

Interpretation

1. In terms and conditions:
- (1) "Goldacres" means Goldacres Trading Pty. Ltd. A.C.N. 061 306 732 trading as Goldacres Agricultural Equipment (its successors and assigns) which is the seller of the Goods;
- (2) "Purchaser" means the purchaser of the Goods;
- (3) "Goods" means the products and, if any, the services sold or provided by Goldacres to the Purchaser;
- (4) "GST Act" and "GST" are given the meanings referred to in a New Tax System (Goods and Services Tax) Act 1999.
- (5) "PPSA" means the Personal Property Securities Act 2009 (Cth) (as amended);
- (6) Nothing in these terms and conditions shall be read or applied so as to exclude, restrict or modify or have the effect of excluding, restricting or modifying, any condition, warranty, guarantee, right or remedy implied by law (including the Competition and Consumer Act 2010) and which by law cannot be excluded, restricted or modified.

General

2. (1) The Goods and all other products or services provided by Goldacres are provided subject to these terms and conditions. These terms and conditions and any terms and conditions incorporated herein by virtue of clause 3 hereto shall prevail over all other terms and conditions of the Purchaser or otherwise to the extent of any inconsistency.
- (2) These terms and conditions may not be modified or amended without the expressed written consent of Goldacres endorsed by the Managing Director of Goldacres Trading P/L.

Additional Terms and Conditions

3. From time to time Goldacres may provide additional or extended warranties in respect of certain goods and/or services. Where such additional or extended warranties are provided to a Purchaser in writing they will be incorporated into these terms and conditions provided that in the event of any inconsistency between these terms and conditions and the terms of any additional or extended warranty, the provisions of the additional or extended warranty shall prevail.

Goldacres quotations.

4. Unless previously withdrawn, Goldacres quotations are open for acceptance within the period stated therein or, when no period is stated, with 14 days only of the quotation date. Goldacres reserves the right to refuse any order based on any quotation within 7 days of receipt of the order.

Packing

5. The cost of any special packing and packing materials used in relation to the Goods shall be at the Purchaser's expense notwithstanding that such cost may have been omitted from any quotation.

Shortage

6. The Purchaser waives any claim for shortage of any Goods delivered if a claim in respect thereof has not been lodged with Goldacres within (7) seven days from the date of receipt of the Goods by the Purchaser.

Specifications, etc: Catalogues, etc: Quantities

7. All specifications, (including but not limited to: drawings, particulars of weights, volumes, capacities, dimensions, load factors) are approximate only and any deviation shall not be taken to vitiate any contract with Goldacres or form any claim against Goldacres. The descriptions, illustrations, and performances contained in catalogues, price lists and other advertising matter do not form part of the contract of sale of the Goods. Where specifications, drawings or other particulars are supplied by the Purchaser, Goldacres' price is made on estimates of quantities required. Should there be any adjustments in quantities above or below the quantities estimated by Goldacres and set out in a quotation, then any such increase or decrease shall be adjusted on a unit rate basis according to unit prices set out in the quotation.

Performance, Capacities, Chemicals, Liquids, Application Methods, Environmental Effects

8. Any performance, volumes, and/or capacity figures given by Goldacres are estimates only. Goldacres shall be under no liability for damages for failure to obtain such figures unless specifically guaranteed in writing and any such written guarantee shall be subject to the recognised tolerances applicable to such figures. The suitability of chemicals and other liquids for any application and the application methods and the environmental effects shall be the sole decision and responsibility of the Purchaser and the user of the Goods. Goldacres gives no warranty as to the suitability of any chemicals or other liquids for any application, nor the application methods nor the environmental effects, which may result from the use of the Goods. Goldacres shall be under no liability for damages arising out of the use of any chemicals, liquids, or mixtures in the Goods nor for any application, nor for the application methods nor for the environmental effects, which may result from the use of the Goods.

Delivery/Service Times

9. The delivery times and service times made known to the Purchaser are estimates only and Goldacres shall not be liable for late delivery, non-delivery or delay and under no circumstances shall Goldacres be liable for any loss, damage or delay occasioned by the Purchaser or its customers arising from the late or non-delivery or late installation of the Goods.

Loss or damage in transit

10. Goldacres is not responsible for any loss or damage to Goods in transit. Goldacres shall render the Purchaser such assistance as may be necessary to press claims on carriers provided that the Purchaser shall have notified Goldacres and the carriers immediately the loss or damage is discovered on receipt of Goods and shall lodge a claim on the carrier within three days of the date of receipt of the Goods. Insurance of Goods in transit is the responsibility of the Purchaser.

Limit of Liability

11. (1) Goldacres liability for Goods manufactured by it is limited to:
 - (a) where the law implies consumer guarantees into these terms and conditions pursuant to Part 3.2 Division 1 of Schedule 2 to the Competition and Consumer Act 2010 (Cth) ("consumer guarantees") which cannot be excluded and Goldacres breaches a consumer guarantee, the loss and damage the Purchaser is entitled to at law which cannot be excluded by these terms and conditions;
- and, in all other cases
- (b) making good any defects by repairing the same or at Goldacres option by replacement within a period not exceeding either 1000 hours or twelve calendar months, whichever comes first, after

the Goods have been dispatched provided that:

- (i) the defects have arisen solely from faulty materials or workmanship;
- (ii) the Goods have not received maltreatment inattention or interference;
- (iii) accessories of any kind used by the Purchaser are manufactured or approved by Goldacres;
- (iv) where applicable, the seals on the Goods remain unbroken;
- (v) there has been no improper adjustment, calibration or operation;
- (vi) the use of accessories including consumables, hardware or software (not manufactured by Goldacres) has been approved in writing by Goldacres;
- (vii) no contamination or leakage has been caused or induced;
- (viii) any modification to the Goods have been authorised in writing by Goldacres;
- (ix) there has been no inadequate or incorrect use, storage, handling or application of the Goods;
- (x) there has been no use or operation of the Goods outside of the physical, electrical or environmental specifications of the Goods;
- (xi) there has been no inadequate or incorrect site preparations;
- (xii) there has been no inadequate or improper maintenance of the Goods;
- (xiii) it has not been caused by fair wear and tear; and
- (xiv) firstly the Goods have been thoroughly inspected and any damage (from whatever cause) to the Goods (and in particular – the structure, welding, seams, bolts, booms) has been repaired prior to the Goods being operated, used driven or moved and on each occasion the tanks are filled; and
- (xv) there has been no failure to comply with the requirements of all present or future laws or regulations relating to the Goods and/or the use and/or the operation of the Goods; and
- (xvi) there has been no failure to maintain a record of hours of operation (which record shall contain full details of all inspections, repairs and maintenance) and produce same to Goldacres at the time of the claim;
- (xvii) the defective Goods or any damaged part of the Goods are promptly returned free of cost to Goldacres or a representative of Goldacres;
- (xviii) all warranty related repairs have been carried out with the prior authorisation of Goldacres;
- (2) If Goods or any part thereof are not manufactured by Goldacres, in particular engines, engine accessories, transmissions, transfer cases, differentials, tyres, tubes, batteries, radios and UHFs, the guarantee of the manufacturer thereof shall be accepted by the Purchaser and is the only guarantee given to the Purchaser in respect of the Goods or that part provided always that this clause does not seek to exclude the consumer guarantees;
- (3) In the case of hydraulic systems, Goldacres shall replace defective parts in accordance with clause 11(1) of these conditions, provided that the failure of the part was not related to contamination within the system, Goldacres shall not be liable for labour in the case of repairing hydraulic system defects;
- (4) Goldacres will not accept liability for damage attributed to fair wear and tear including but not limited to fair wear and tear to nozzles, chains, belts, filters, brake pads, polyethylene bushes and liquid pump valves, valve O-rings, diaphragms and seals;
- (5) Goldacres shall not be liable for and the Purchaser releases Goldacres from any claims in respect of faulty or defective design of any Goods supplied unless such a design has been wholly prepared by Goldacres and the responsibility for any claim has been specifically accepted by Goldacres in writing and in any event Goldacres liability hereunder shall be strictly limited to the replacement of defective parts in accordance with paragraph 11(1) of these conditions provided always that this clause does not seek to exclude the consumer guarantees;
- (6) Except as provided herein, all express and implied warranties, guarantees and conditions under statute or general law as to the merchantability, description, quality, suitability or fitness of the Goods for any purpose or as to design, assembly, installation, materials or workmanship or otherwise are hereby expressly excluded and Goldacres shall not be liable for physical or financial injury, loss or damage or for consequential loss or damage of any kind arising out of the supply, layout, assembly, installation or operation of the Goods or arising out of Goldacres negligence or in any other way whatsoever;
- (7) The benefit of any warranty provided under these terms and conditions shall only be available to the Purchaser and shall not be transferable by the Purchaser;
- (8) The warranties provided under these terms and conditions do not extend to second hand or used Goods that may be sold by Goldacres.
12. Goldacres liability for breach of a consumer guarantee is hereby limited (in the case of goods and services not used for personal, domestic or household purposes) to:
 - (1) in the case of Goods, any one or more of the following:
 - (a) the replacement of the Goods or the supply of equivalent Goods;
 - (b) the repair of the Goods;
 - (c) the payment of the cost of replacing the Goods or acquiring the equivalent Goods;
 - (d) the payment of having the Goods repaired; or
 - (2) in the case of services;
 - (a) the supplying of the services again; or
 - (b) the payment of the cost of having the services supplied again.

Prices

13. (1) Unless otherwise stated in writing by Goldacres, all prices quoted by Goldacres are inclusive of GST for supplies within Australia and exclusive of GST for exports outside of Australia. Prices quoted are those ruling at the time of quotation or the date the price is given and are based on rates of freight, insurance, customs, duties, taxes, exchange, shipping expenses, sorting and stacking charges, cartage, cost of materials and other charges affecting the cost of production ruling on that date and any alterations thereto either before acceptance of or during currency of the contract shall be to the Purchaser's account.
- (2) For the purpose of 38-185 of the GST Act, the day upon which the seller gives the invoice for the supply shall be the date of the invoice.

Payment

14. (1) The purchase price in relation to the Goods and the cost of the service shall be payable without deduction and or set off and payment thereof shall be made on or before the thirteenth day of the month following the delivery of the Goods or performance of the services unless other terms of payment are expressly stated in writing.
- (2) A decreasing or increasing adjustment and or the issuing of an adjustment note, pursuant to

Division 21 and Division 29-C of the GST Act, shall not, in any way, constitute a release, waiver, and or forgiveness of the debt incurred by the Purchaser.

Interest on overdue payments

15. If Goldacres is not paid for any Goods or services on the due date specified in this agreement without prejudice to any other right or remedy, all outstanding money shall bear interest at the rate set, pursuant to the Penalty Interest Rates Act, Victoria, 1986, as such money, together with interest shall be recoverable forthwith from the Purchaser.

Rights in relation to Goods.

16. (1) Title to the Goods supplied by Goldacres to the Purchaser shall remain with Goldacres until the total amount due in respect of the Goods and all monies owing to Goldacres have been paid in full (the "Debts"). Risk in the Goods shall pass to the Purchaser upon delivery.
- (2) The Purchaser shall have the right to resell Goods but only as fiduciary agent and trustee for Goldacres by way of bona fide sale at full market value and in the ordinary course of its business.
- (3) Until all the Debts have been paid in full:
 - (a) the Purchaser shall take custody of the Goods as trustee, fiduciary agent and bailee for Goldacres;
 - (b) the Purchaser shall keep the Goods separate from any other goods and properly marked, stored, protected and insured;
 - (c) the Purchaser must hold all of the money it receives ("Proceeds"):
 - (i) from the sale of any property into which Goods supplied have been incorporated; and
 - (ii) from the sale of Goods or provision of services including the Goods supplied by the Goldacres as bailee, fiduciary agent and trustee for Goldacres, but the Purchaser need not hold on trust any money exceeding the amount of the Debts at the time the money is received.
 - (d) The Purchaser expressly acknowledges that it is bound by the fiduciary obligation created in the preceding paragraph and acknowledges that:
 - (i) it must hold the Proceeds on trust for Goldacres;
 - (ii) it must place the whole of the Proceeds in an account separate from its own moneys (the "Proceeds Account");
 - (iii) it must maintain the Proceeds Account separate from its own moneys at all times.
 - (iv) it must maintain proper records for the Proceeds Account.
 - (v) it must not assign or encumber any book debts arising from sales made in circumstances set out in clauses 16(c)(i) and (ii) or do any other act in derogation of Goldacres' legal or beneficial interests; and
 - (vi) it must account to Goldacres on demand for all moneys standing to the credit of such account.
 - (e) For the purposes of identification of different consignments of Goods purchased from Goldacres and receipt of Proceeds, the Purchaser agrees that the principle of "Last In, First Out" shall be applied to any items that cannot be distinguished.
 - (f) Goldacres may trace the Proceeds in equity.
- (4) Goldacres may at any time, without notice to the Purchaser and without prejudice to any other rights which it may have against the Purchaser, terminate any contract connected with the Goods and the bailment referred to in clause 16(3) and enter upon any premises owned or occupied by the Purchaser where Goldacres reasonably believes the Goods may be stored, and repossess the Goods without liability for any damaged caused, and subsequently dispose of the Goods at Goldacres' discretion if:
 - (a) the Debts are not paid in accordance with these terms and conditions or any other contract or arrangement between Goldacres and the Purchaser; or
 - (b) Goldacres receives notice of or reasonably believes that:
 - (i) a third person may attempt to levy execution against the Goods; or
 - (ii) the Purchaser is insolvent (within the meaning of the Corporations Act 2001) or bankrupt; or
 - (iii) the Purchaser has entered into any arrangement or composition with its creditors, gone into liquidation, or has appointed a receiver, a receiver and manager or administrator.
- (5) If after repossession under clause 16(4) Goldacres sells the Goods, Goldacres shall account to the Purchaser for any proceeds of sale (less expenses of repossession and sale) that exceeds the amount of the outstanding Debts.
- (6) If any Goods belonging to Goldacres are disposed of by the Purchaser or an insurance claim is made in respect of them, Goldacres shall be entitled to trace the sale or insurance proceeds, which proceeds shall be held by the Purchaser in a separate bank account on trust for Goldacres.
- (7) The Purchaser agrees and acknowledges that in the event it sells Goods to a third party on account, it will include in its terms and conditions of sale a provision under which the Purchaser retains title to the Goods until such time that the total amount due in respect of the Goods and all monies owing to the Purchaser have been paid in full by that third party debtor. The Purchaser also agrees and acknowledges that in these instances, it will register its PMSI in accordance with the PPSA in respect of its security interest in the Goods.

PPSA provisions

17. (1) The Purchaser acknowledges that these terms and conditions constitute a security agreement for the purposes of section 20 of the PPSA and that a security interest exists in all Goods (and any associated Proceeds from their sale) previously supplied by Goldacres to the Purchaser (if any) and in all in future Goods (and any associated Proceeds from their sale) that may be supplied to the Purchaser by Goldacres.
- (2) The Purchaser acknowledges that Goldacres has a first ranking purchase money security interest ("PMSI") (as defined in section 14 of the PPSA) in the Goods and the Purchaser must not jeopardise such ranking (whether by act or omission).
- (3) The Purchaser acknowledges that it has received value as at the date of first delivery of the Goods and has not agreed to postpone the time for attachment of the security interest (as defined in the PPSA) granted to Goldacres under these terms and conditions.
- (4) The Purchaser will execute documents and do such further acts as may be required by Goldacres to register the security interest granted to Goldacres under these terms and conditions under the PPSA.
- (5) Until ownership of the Goods passes, the Purchaser must not give to Goldacres a written demand or allow any other person to give Goldacres a written demand requiring Goldacres to register a financing change statement under the PPSA in respect of Goldacres' interest in the Goods.
- (6) The Purchaser must indemnify Goldacres and on demand reimburse Goldacres for all costs and expenses incurred by Goldacres in respect of these terms and conditions including but not limited to Goldacres registering its security interest in the Goods, lodging, discharging or amending any financing statement or financing change statement, or otherwise complying with the PPSA.
- (7) The Purchaser agrees (other than as provided in these terms and conditions) not to sell, lease,

mortgage, deal with, dispose of or create or attempt to create any other security interest in or affecting the Goods unless and until the Purchaser's Debts have been satisfied.

- (8) The Purchaser waives its rights under the following provisions of Chapter 4 of the PPSA:
 - (a) to receive a notice on enforcement action against liquid assets (section 121(4));
 - (b) to receive a notice to seize collateral (section 123);
 - (c) to receive a notice of disposal of Goods by Goldacres purchasing the Goods (section 129);
 - (d) to receive a notice to dispose of Goods (section 130);
 - (e) to receive a statement of account following disposal of Goods (section 132(2));
 - (f) to receive a statement of account if no disposal of Goods for each 6 month period (section 132(4));
 - (g) to receive notice of any proposal of Goldacres to retain Goods (section 135(2));
 - (h) to object to any proposal of Goldacres to either retain or dispose of Goods (section 137(2));
 - (i) to redeem the Goods (section 142);
 - (j) to reinstate the security agreement (section 143);
 - (k) to receive a notice of any verification statement (section 157(1) and section 157(3));
- (9) The rights Goldacres may have under the PPSA are supplementary and in addition to those set out in these terms and conditions and do not derogate from the rights and remedies of Goldacres under these terms and conditions or under any other statute or under general law.
- (10) The Purchaser must give 10 business days prior written notice of any proposed change in the Purchaser's name or other identifying characteristics and details.

Purchasers property

18. Any property of the Purchaser under Goldacres' custody or control shall be entirely at the Purchaser's risk as regards loss or damage caused to the property or by it.

Storage

19. Goldacres reserves the right to make a reasonable charge for storage if delivery instructions are not provided by the Purchaser within (14) fourteen days of a request by Goldacres for such information.

Returned Goods

20. Goldacres shall not be under any obligation to accept Goods returned by the Purchaser and will do so only on terms to be agreed in writing in each individual case.

Goods sold

21. All Goods to be supplied by Goldacres shall be described on the purchase order agreed by Goldacres and the Purchaser and the description on such purchase order modified as so agreed shall prevail over other descriptions including any Purchaser's specification or enquiry.

Cancellation

22. No order may be cancelled except with the consent in writing and on terms, which will indemnify Goldacres against all losses.

No waiver

23. The failure of any party to enforce the provisions of these terms and conditions or to exercise any rights expressed in these terms and conditions shall not be a waiver of such provisions or rights and shall not affect the enforcement of this agreement. The exercise by any party of any of its rights expressed in this agreement shall not preclude or prejudice such party from exercising the same or any other rights it may have irrespective of any previous action taken by that party.

Force Majeure

24. If by reason of any fact, circumstance, matter or thing beyond the reasonable control of Goldacres is unable to perform in whole or in part any obligation under these terms and conditions then Goldacres shall be relieved of that obligation under these terms and conditions to the extent and for the period that it is so unable to perform and shall not be liable to the Purchaser in respect of such inability.

Passing of risk

25. Risk in the Goods shall pass to the Purchaser upon delivery of the Goods to the Purchaser or collection of the Goods by the Purchaser's agent or carrier as the case may be.

Exclusion of liability

26. To the extent permitted by law Goldacres shall not be liable to the Purchaser in contract or in tort arising out of, or in connection with, or relating to, the performance of the Goods or any breach of these conditions or any fact, matter or thing relating to the Goods or error (whether or not it is negligent or a breach of contract) in information supplied to the Purchaser or a user before or after the date of the Purchaser's or user's use of the Goods and Goldacres shall be under no liability for damages arising out of the use of any chemicals, liquids, or mixtures in the Goods, nor for any application, not for the application methods nor for the environmental effects, which may result therefrom or from the use of the Goods.

Exclusion of representations and arrangements

27. To the extent permitted by law the terms and conditions supersede and exclude all prior and other discussions, representations (contractual or otherwise) and arrangements relating to the supply of the Goods or any part thereof including, but without limiting the generality of the foregoing, those relating to the performance of the Goods or any part thereof or the results that ought to be expected from using the Goods.

Place of contract

28. The contract for sale of the Goods and the provision of the services is made in the State of Victoria and the Purchaser agrees to submit all disputes arising with Goldacres to the courts of such State and any court competent to hear appeals therefrom.

CHAPTER 3

SAFETY

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GENERAL

The following pages outline important safety information. At Goldacres safety is a high priority. These safety and warning instructions **MUST** be followed to ensure the safe operation of your Goldacres equipment.

Each signal word tells you: what the hazard is, what can happen, and what you can do to reduce chance of injury.

Explanation of key terms used in this operator's manual:

DANGER You will be killed or seriously hurt if you don't follow instructions

WARNING You can be killed or seriously hurt if you don't follow instructions

CAUTION You can be hurt if you don't follow instructions

NOTE Is used to notify people of installation, operation or maintenance information that is important but not hazard related.

THE OPERATOR

All operator's of this equipment should be adequately trained in the safe operation of this equipment. It is important that all operator's have read and fully understand the operator's manual prior to using this equipment.

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

SAFETY PRECAUTIONS

WARNINGS

- Any unauthorised modifications to this equipment may affect its function and create a serious safety risk.
- Keep clear of overhead obstructions – especially powerlines as contact can be fatal.
- Never attempt to clean parts, or nozzles, by blowing with mouth.
- Never attempt to siphon chemicals, or substances, by sucking.
- It is imperative that the vehicle manufacturer's specifications be checked and all instructions for use when transporting, or towing, be adhered to at all times.
- Care should be taken when transferring liquid into the tank to ensure that the gross weight of the equipment does not exceed the carrying, braking and/or towing capacity of the vehicle to which the equipment is attached as specified by the vehicle manufacturer.

NOTE: 1 LITRE WATER = 1 KG.

- Water weighs 1kg per litre, however conversion factors must be used when spraying liquids that are heavier or lighter than water. Example: liquid nitrogen has a density of 1.28 kg/L and will therefore be significantly heavier than water if the tank is filled completely.
- Suitable care should be taken when driving with the equipment attached to the vehicle. Consideration should be given to both the carrying capacity of the vehicle and the gradient of the terrain when determining the speed at which the vehicle can be driven safely.
- Ensure that the maximum speed of the vehicle, when loaded, is within the vehicle manufacturer's limitations.
- Ensure equipment is securely fastened, or attached, to vehicle at all times.
- Where equipment is fitted to a tractor, ensure tractor linkage arms are secure and do not sway.
- Never stand within the radius of boom wings.
- Never work under any hydraulically raised boom.
- Do not use access steps or ladders on this

equipment unless it is safely supported on solid blocks or by vehicle attachment. If unsupported, the equipment can become unstable and may become likely to tip.

ENTANGLEMENT IN ROTATING DRIVE LINES

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 this machine with covers, shrouds, or guards removed.



PERSONAL PROTECTIVE EQUIPMENT (PPE)

Always wear close fitting clothing and safety equipment designed for the job.



Exposure to loud noise over an extended period can cause impairment or loss of hearing. Be active in the conservation of your hearing and wear appropriate hearing protection at all times.

Chemicals can be harmful to humans, appropriate PPE should be used when handling chemicals. Always refer to the chemical manufacturers label for guidelines on the appropriate PPE to use with the chemical/s you are using.

Goldacres also suggest that you read and understand the following Australian standards:

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

AIR BORNE PARTICLES

Always stand well clear of equipment during operation. Any spray drift is dangerous and may be hazardous to humans.



WARNINGS (Continued)

When heating and welding components, ensure that all paint and other such materials are removed. Often hazardous air borne particles and fumes are generated from welding and heating.

When sanding the machine, work in a well ventilated area and wear an approved respirator. If a solvent is used to remove paint and other substances, wash the area with soap and water to neutralize the work area.

DO NOT HEAT PRESSURIZED FLUID LINES

When conducting any process on the machine that involves heat; be aware of pressurized fluid lines in the vicinity of your work area.



Pressurized lines can be easily cut when the heat over shoots the target object.

DO NOT CARRY PASSENGERS

Do not stand or carry passengers on the steps or platform when the equipment is in motion or when the booms



are being folded or unfolded.

FLUIDS UNDER PRESSURE

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

This hazard can be avoided by relieving the pressure in the system.



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.

When the repair is complete ensure that all fittings and lines are secured before re-applying pressure.

CAUTIONS

- A supply of fresh water should be with the equipment at all times.
- Tanks are not designed for use with diesel fuel or any flammable liquid.
- Do not use this machine in ambient temperatures exceeding 40 degrees Celsius.
- Each individual boom section has a maximum delivery of 35 litres per minute with clean filters fitted.
- The maximum combined flow of all boom sections is limited to 140 litres per minute, or 50% of the pump flow whichever is the lesser amount, with clean filters.
- Do not exceed the maximum spraying pressure of 8 Bar.
- Ensure that all bolts are tightened and secured before operation.
- Where fitted, care should be taken to never overfill the diaphragm pump with oil or operate at speeds exceeding 540 rpm.
- Always ensure that the boom is securely supported when travelling.

NOTES

- Always read, and understand, the operator's manual prior to operation of this equipment.
- It is the responsibility of the operator to ensure that there are no decals missing from the equipment and that any damaged, or missing, decals are replaced prior to operation.
- Goldacres equipment ordered, or operated, outside the guideline limitations may not be warranted by Goldacres for successful performance. Operators working outside these limitations do so at their own risk, unless specific advice has been sought from, and provided by, Goldacres, in writing.
- Always read and follow the chemical manufacturer's guidelines for safe application as per the chemical label. Particular attention should be given to the recommended target application rate of the chemical being applied as per the chemical label.
- Inspect the equipment thoroughly for damage and wear before operation.
- Lubricate the equipment as per recommended requirements before operating.
- Flush chemicals from equipment immediately after use.
- Certain chemicals may be unsuitable for use with Goldacres standard plumbing designs. Consult your Goldacres dealer if in doubt.
- Do not operate the equipment while under the influence of any drugs, alcohol or if excessively tired.
- Make sure that the equipment complies with all relevant road regulations when transporting.
- Goldacres equipment uses several materials that may be harmful to the environment. Potentially harmful waste used with Goldacres equipment includes such items as oil, fuel, coolant, brake fluid and batteries. If these items are disposed of incorrectly the waste can threaten the surrounding environment and ecology. The waste products can leech into surrounding water sources and contaminate the area.
- When draining fluids from the equipment use appropriate, leak proof containers. Do not use food or beverage containers because someone may consume the contents by mistake.

SAFE USE OF CHEMICALS

The safe use of chemicals with this equipment is the responsibility of the owner/operators. All operators should be trained in the safe use of chemicals.

Goldacres suggest that you always follow the chemical label and that a relevant ChemCert course is completed by owners/operators prior to operation of this equipment.

ChemCert course overview:

The ChemCert course is aimed at providing the level of training needed by producers to make sure that they understand the requirements to use agricultural and veterinary chemicals safely and effectively. The course also encourages people to think about using alternatives to chemicals in their production systems by taking a risk management approach.

The ChemCert course has become the industry standard for chemical training. Satisfactory completion of the ChemCert AgVet Chemical Users Course results in ChemCert registration and the award by the training provider of a Statement of Attainment for two nationally recognised competency standards:

RTC 3704A

Prepare and apply chemicals

RTC 3705A

Transport, handle and store chemicals

The ChemCert course is generally delivered by trainers over two days, plus additional assessment activities.

Further information on ChemCert courses can be supplied by the ChemCert organisation in your state:

Victoria:

www.chemcertvic.org.au

Ph: 03 5622 2055

South Australia:

www.chemcertsa.com.au

Ph: 08 8842 4048

Queensland:

www.chemcertqld.org.au

Ph: 07 5466 5850

Western Australia:

www.chemcertwa.com.au

Ph: (08) 9341 5325

New South Wales:

www.chemcert.com.au

Ph: 02 9387 4714

CHAPTER 4

GENERAL INFORMATION & SPECIFICATIONS

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GENERAL

Chassis:

The chassis is an all steel construction, that is fully welded for superior strength. The chassis is shot blasted, primed and then protected by the Goldacres paint process for excellent chemical resistance and durability.

Paint Colours:

Steel work: G13 Dark Green

Tank:

All tanks are constructed from UV resistant polyethylene. Polyethylene tanks have a very high chemical resistance. Due to the rotomoulding process, there can be a variance in the overall dimensions of the tank which in turn results in variations to the tank capacity. For this reason, calibration markings should be used as a guide only.

Agitation:

Where fitted, the agitator is located at the back of the tank and is used to generate increased agitation of fluids within the tank. The pressure line to the Supermix agitator from the control manifold passes through a nozzle and then through the barrel into the tank. This causes extra agitation as flow around the agitator is sucked into the barrel and is then passed back into the tank. To increase this venturi effect, the bypass flow from the electric control valve also passes through the barrel, multiplying the agitation effect. The supermix agitator has an approximate capacity of 300 - 1300 l/min depending of the pump size and pressure operating pressure. For further information refer to the "maintenance" chapter.

Boom Valves:

Motorised boom valves or solenoids, for control of boom section on/off, can be fitted depending on the control system. Typically these are mounted on the pressure manifold. The number fitted is dependent on the number of boom sections and number of boom lines being controlled.

Controller:

Front mount modules can be controlled via an electric controller or through an automatic rate controller. Information on the controller fitted can be found in the optional equipment chapters of this manual.

Automatic rate controllers will maintain a user defined application rate automatically as the towing vehicle speed changes. In order to function, the automatic rate controller relies on a compatible (and functional) flow meter, speed sensor and control valve. For specific information on Raven controllers please refer to Raven operator's manual supplied.

Filtration:

Filtration is a critical part of the sprayer's performance.

Goldacres sprayers are typically fitted with:

1 x Suction filters (30 mesh)

2 x Pressure filters (1 x 80 & 1 x 100 mesh)

Pump:

Udor, positive displacement, oil backed diaphragm pumps are fitted as standard on Goldacres equipment. The normal operating range is from 1 - 8 bar which is sufficient for efficient nozzle performance. Front mount

modules use a hydraulic drive as standard.
Centrifugal pumps are also available.

Chemical Induction:

The method of chemical induction into your sprayer is dependent on the optional chemical induction equipment fitted to your sprayer.

Goldacres chemical induction equipment available includes:

- Chemical probe (standard)
- Chemical induction hopper (option)
- Transcal volumetric measuring device (option)
- Direct Chemical Injection modules (option)

Nozzles:

As information regarding nozzles is specific to those being used in your application, no specific reference is made to nozzle application rates or nozzle types in this operator's manual. Goldacres suggest the use of a current TeeJet nozzle selection catalogue for reference to nozzle sizes, outputs, spray patterns and general spraying information. For more technical information on the function of spray nozzles and factors affecting their performance you can also use the TeeJet "User's guide to spray nozzles".

The TeeJet nozzle selection catalogue and Users guide to spray nozzles are available from Goldacres dealers, or as a free download from the TeeJet website:

www.teejet.com

Machine Limitations:

All Goldacres equipment is subject to operating limitations, it is the operator's responsibility to ensure that this equipment is being operated within these limitations and appropriately to the operating conditions at hand.

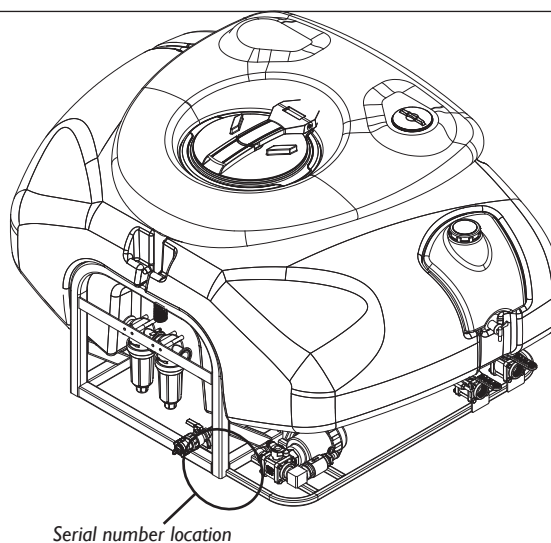
Goldacres do not endorse use of this machine for spraying at speeds greater than 20 km/hr and should not be used in ambient temperatures exceeding 40 degrees celsius.

Custom built equipment:

Where the owner of this sprayer has requested that custom built equipment or options be fitted to this sprayer it is necessary to understand that custom fabrication and engineering is subject to many variables. Goldacres cannot fully field test all custom built options prior to despatch, and owners of new sprayers fitted with custom built equipment or options need to understand that the functionality of these items may require refining in order to operate as desired.

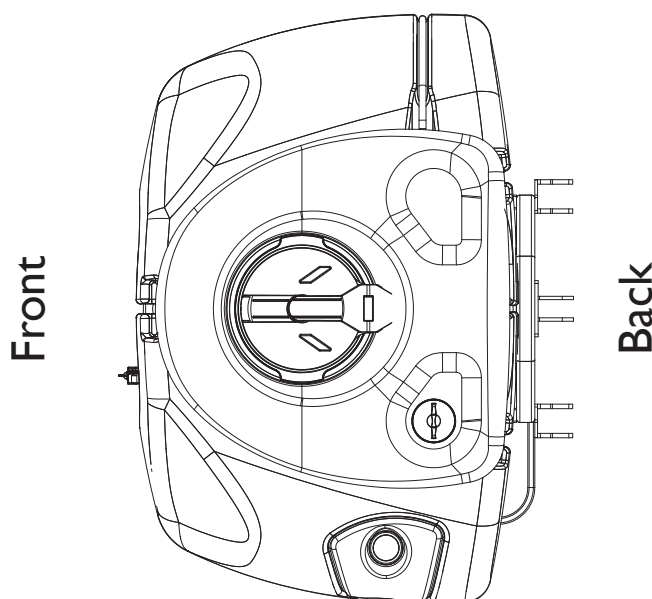
IDENTIFICATION

When ordering parts or requesting service information for your sprayer it is important to quote the serial number of your machine, and the purchase date, in order to receive accurate information. The location of the serial number plate on your machine is shown in the picture.



ORIENTATION

Right Hand
Side



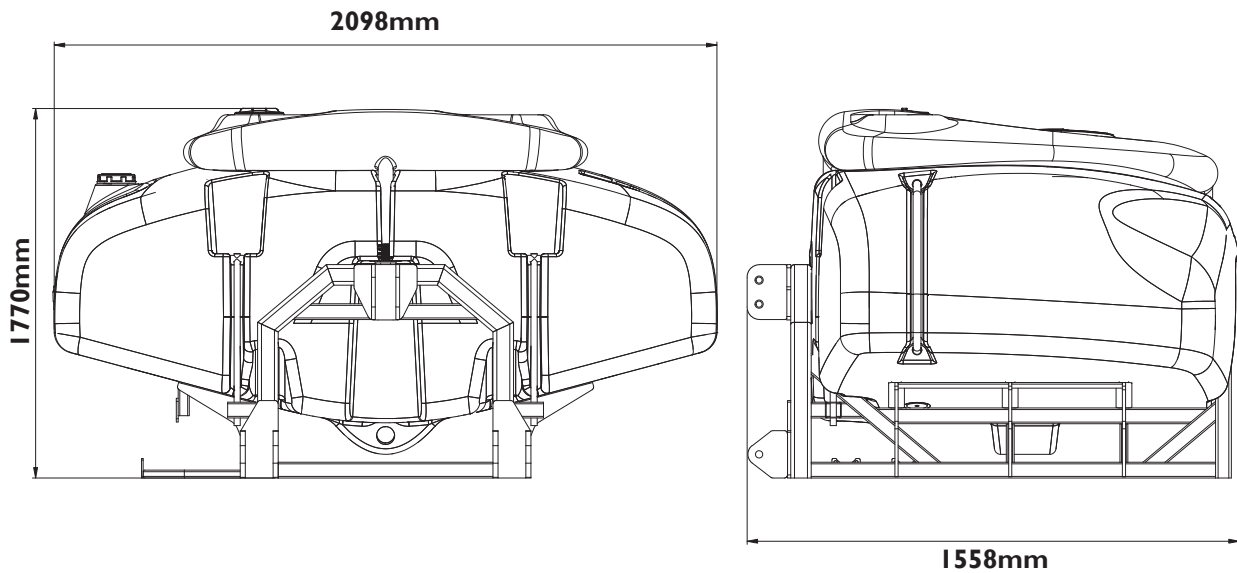
Left hand
side

DIMENSIONS

The following information is provided as a guide only.

Variations in weights and dimensions may occur without notification. To ensure that the weights and dimensions are accurate for

your sprayer it is recommended that you measure and weigh your sprayer individually.



PARTS ORDERING

When ordering parts from your Goldacres dealer, please quote:

- Serial No.
- Part No. required
- Part Description
- Quantity Required

The parts manual supplied with this machine includes all the relevant information that you need when ordering parts from your dealer or Goldacres. When returning parts to Goldacres, or to a Goldacres dealer, for service or repair all parts **MUST** be cleaned thoroughly before sending them. Goldacres cannot expose technicians to the

many potentially hazardous pesticides and substances that are in use.

NOTE: Please ensure that all parts are clearly labelled with the owner's details, and a brief description of the fault. Goldacres are not liable for the return of any goods to Goldacres or a Goldacres Dealer. The goods must be returned to the point of sale. The customer will be responsible for any cost incurred by a Goldacres appointed person travelling to any site outside the point of sale.

Genuine Goldacres parts only should be used on Goldacres equipment.

DECALS

Machine decals are fitted to advise of safety hazards and assist in machine identification. Specific information regarding the decals fitted to your machine are included in the supplied parts manual.

Each decal has a part number printed onto the decal which also assists with ordering replacement decals.

Understanding safety decals and their

purpose assists in the safe operation of your sprayer. Safety decals are there for your protection and it is the responsibility of the operator to replace damaged and/or missing safety decals. Operators should regularly review decals.

Replacement decals can be ordered through your Goldacres dealer.

FRONT MOUNT DECAL KIT



CHAPTER 5

PRE-OPERATION

Connecting to the tractor	5-2
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Connecting the consoles	5-5

CONNECTING TO THE TRACTOR

Prior to connecting your tractor to the sprayer, it is important that the operator has read and fully understands this operator's manual.

NOTE: These instructions may differ depending on the frame that has been fabricated for fitting to tractor.

Step 1: Ensure that the tractor is suitably rated to safely carry the front mount module - then fabricate a steel frame to carry the front mount. This should be mounted to the tractor chassis and be engineered to carry the front mount module safely.

Step 2: With the front mount module parked on a level surface, use a suitably rated lifting device to raise the front mount module in line with the frame.

Step 3: Secure front mount module to frame on tractor.

Step 4: Connect hydraulic hoses for pump to tractor remote outlets.

Step 5: Fit the spray controller and any other switch boxes supplied in tractor cabin. Make sure that all controllers and switch boxes are securely mounted.

Step 6: Connect any power leads from controller or switch boxes directly to battery.

Step 7: Connect any other connections (hydraulic hoses, wiring loom, speed sensor cable, tail light plug etc) between the tractor and the front mount module.

Disconnection of the front mount module from the tractor is the reverse of the above instructions.

HYDRAULIC DRIVE PUMPS

Diaphragm and centrifugal pumps on front mount modules are driven by a hydraulic motor which is bolted directly to the front of the pump.

540 rpm.

The oil line to the hydraulic pump is fitted with a needle valve that regulates oil flow to the pump. Many tractors feature hydraulic oil flow regulation in the cabin, however this needle valve can be used to control the flow on tractors that are not fitted with hydraulic oil flow regulation.

Where the tractor has the capability to regulate flow from the cabin, it is recommended to close the needle valve and adjust the hydraulic oil flow from the tractor to set the pump running at 400 -

CONNECTIONS

The connections between the front mount module and the tractor are as shown in the pictures below:

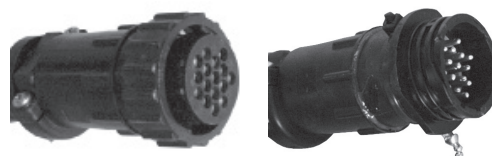


Hydraulic hose connections

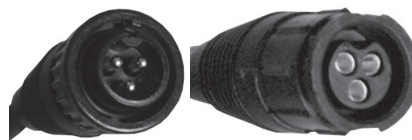


Power supply connection

Rate controller connections (where applicable)



Raven SCS440/450 male & female connectors



Raven male and female speed sensor connections

MOUNTING THE CONSOLE/S

The mounting of the consoles within the cabin of your tractor is a critical part of the set up process. It is important that the consoles are mounted in the cabin in such a way that it cannot cause harm to the operator under any circumstance while also being mounted in a user friendly way.

When the sprayer is removed from the tractor, and the consoles are to remain fitted, please ensure that all console's remain firmly mounted and cannot become a projectile.

For specific information on mounting the consoles, please refer to the Raven installation and service manual supplied.



Example of consoles securely mounted in cabin

CONNECTING THE CONSOLES

The consoles should be connected directly to the battery.

To connect to the battery:

With the consoles mounted in the cabin, turn the power switch to OFF and route the red and white battery wires to a 12v battery. Attach the white battery wire to a negative terminal and the red battery wire to a positive terminal.

CHAPTER 6

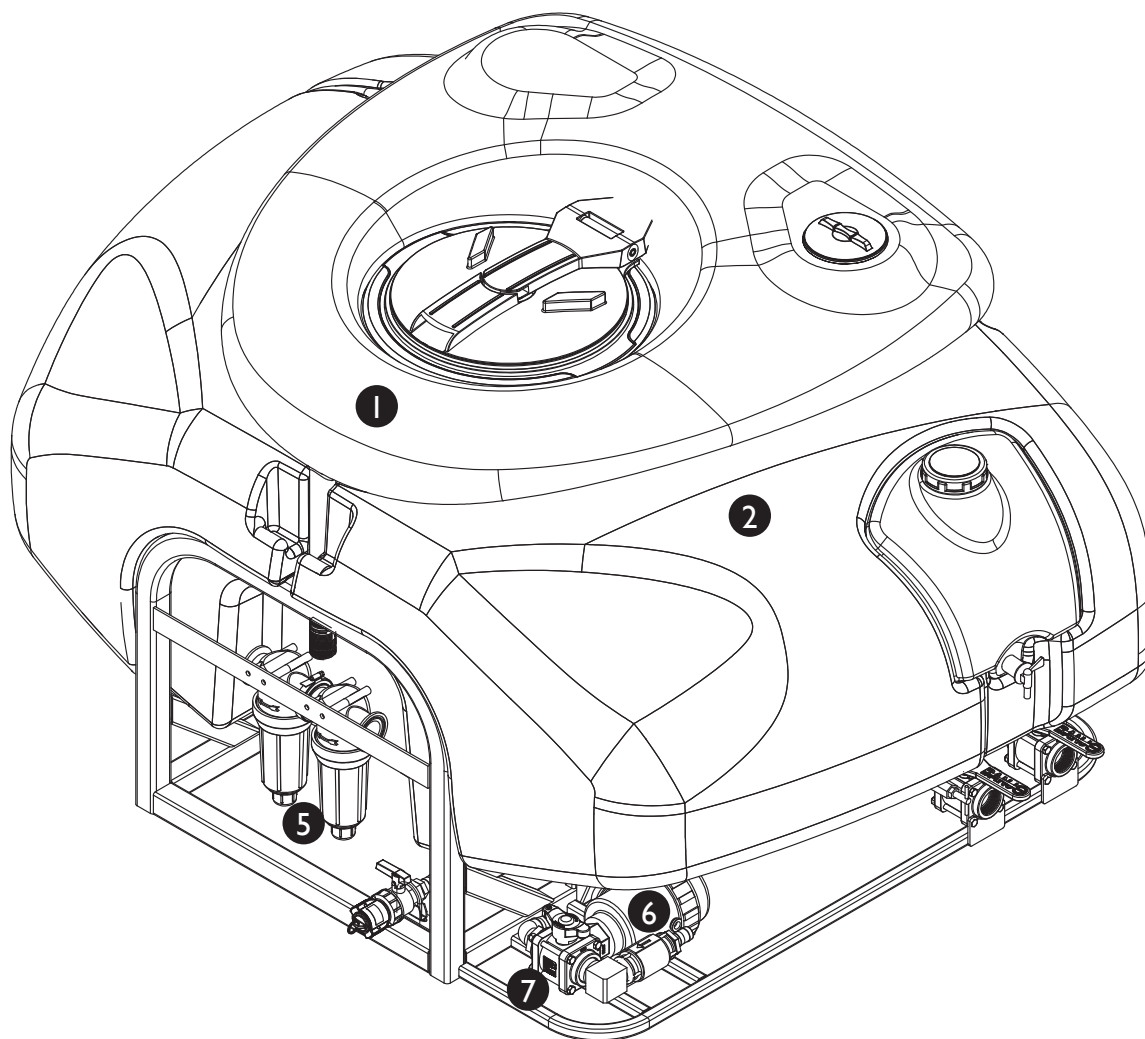
OPERATION

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CONTROLS

Pressure Manifold <i>These functions only available when the main spray pump is operating - pressurising the system.</i>	
Hopper	Turn ON to use induction hopper
Venturi	Turn ON to use transcal or chemical probe
Agitator	Turn ON to activate agitator
Bypass	Turn ON bypass when in spray mode
Pressure relief	Used to adjust manifold pressure
Other	
I: Main tank fill	Used to direct external water delivery to main tank.

MACHINE KEY FEATURES



Number	Feature
1.	Rinse water tank -
2.	Main tank
3.	Pressure manifold (Not Shown)
4.	Centrifugal pump (Not Shown)
5.	Pressure filters
6.	Suction filter
7.	3 way ball valve

FILLING

When filling the machine it is necessary to connect to an external water source.

The main tank should always be filled through the quick fill. This line fills through the top of the tank and then through a hose inside the tank so that the water is deposited in the centre of the tank. Water can then be pumped into the system from an external pump.

The following steps should be used as a guide to filling the front mount module:

Main tank fill:

1. Connect the fill hose (not supplied) to quick fill cam lock coupling.
2. Make sure that the “main tank fill” handle is in the OFF position (so that there can be no flow coming out of the tank if it is not already empty).

3. Turn the fresh water pumping system on (make sure the pressure does not exceed 100psi)
4. Turn “main tank fill” handle to ON. The main tank should now filling.
5. When the required amount of water has been transferred into the main tank, stop the flow by turning the “main tank fill” to OFF.

Adding chemical to the main tank:

Where chemical induction equipment (chemical probe, induction hopper, transcal or DCI) has been fitted, please refer to the instructions on operating this equipment at the rear of this manual.

SPRAY APPLICATION

After completing the filling process, you are now ready to start using the front mount module.

While travelling from the fill station to the field, the pump should be running at 450 - 540 rpm with the agitator running in order to ensure that the chemical mix is adequately agitated prior to spraying.

The method of spray application will be determined by the circumstances in which the front mount module is being used.

AGITATION

To achieve satisfactory agitation,

The following guidelines are recommended.

1. Add 20 percent of the tanks volume of fresh water to the main tank.
2. Add all chemicals.
3. Add the remaining quantity of water required.
4. Turn the agitator on with the pump at operating speed.

NOTE: Check to ensure that the agitator is working (there should be a visible circulation of water near the back of the tank near the agitator).

5. If the tank has been filled and the spray mixture has been allowed to settle, agitate for as long as it takes the pump to pump the quantity of water in the tank. For example: with 1000 litres in the tank with a 160l/min pump agitate for $1000/160 = \text{approx } 6\text{-}7 \text{ minutes}$.

To agitate while spraying:

Have the bypass ball valve and agitator ball valves OPEN.

FLUSHING

The following information is provided as a general guide for flushing your front mount module following a spray application.

For more specific information regarding flushing, and decontamination, specific to the products that you are applying, it is recommended that you consult the chemical label or your chemical supplier.

To flush system:

1. Drain the main tank.
2. Connect to external water source (to provide fresh water supply).
3. Close main tank drain.
4. Add a quantity of fresh water (a minimum of approximately twice the pumps

capacity) to the main tank (as per instructions under filling).

5. Turn on pump with agitator and bypass open to allow fresh water to circulate.
6. Turn off all taps to allow the pressure relief valve to blow off and purge the “relief to tank” line.
7. Operate induction equipment (if fitted), with a quantity of fresh water in order to flush venturi system.
8. Once complete drain chemical induction hopper delivery hose externally.
9. You can drain the main tank or send flush water through the boom lines.

DECONTAMINATION

Decontamination of your spraying equipment is important when changing chemicals or application methods.

Information specific to your circumstances, the spraying equipment being used and the chemicals being applied should be provided

by your agronomist or chemical supplier. Follow the flushing instructions above, while using the appropriate decontaminating agent.

END OF DAY

At the end of the spraying day: Follow the flushing and decontamination procedure as per previous instructions.

1. Park the unit in an area convenient to dispose of residual chemical (an area where chemical can not run-off into above ground or sub surface water courses).
2. Clean all filters.
3. Wash down unit
4. Drain main tank

CAUTION If the front mount module is left attached to the tractor when parking the sprayer, make sure the tractor park

END OF PROGRAM

If the front mount module is to be stored for a long period of time without use, there are several tasks that need to be performed.

- Clean the front mount module thoroughly as described under “END OF DAY” tasks.
- With the front mount module attached to the towing vehicle, carry out a thorough observation to determine if there is any damage to the sprayer.
- Park the front mount module in a position where it will not be affected

brake is applied, the engine turned off and the front mount module is securely hitched to the tractor.

NOTE: Store the sprayer in a suitable location to prevent freezing. If the sprayer is to be left where freezing may occur, cover the pump and flow meter with a material bag and empty pump and flow meter of all water (run the pump dry for 15-20 seconds). Make sure any ice has thawed before using sprayer.

by frosts, and preferably out of direct sunlight.

- Ensure the main tank and any other tanks fitted are empty.
- Remove from tractor
- Disconnect all connections between the front mount module and the tractor (i.e. tail lights, foam marker lines, electric controls etc.)
- If necessary, remove consoles from cabin and store in a safe and secure location.
- Protect hydraulic hoses and electrical connections.

TRANSPORTING THE SPRAYER

1. Make sure the tractor has sufficient lifting and braking capacity to carry the front mount module.
2. All relevant transport regulations must be adhered to when transporting. (ie: speed regulations, oversize signs, flashing light, etc.) It is the operator's responsibility to know the relevant regulations.
3. Make sure the front mount module is securely hitched to the tractor.

CAUTION: It is the operator's responsibility to know the tare weight and gross weight of the front mount module. If any alterations are made to the front mount module, it is the operator's responsibility to know the tare weight and the gross weight of the modified front mount module at all times.

CHAPTER 7

LUBRICATION & MAINTENANCE

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MAINTENANCE SCHEDULE

Frequency	Maintenance tasks
8hr	Check pump oil level & condition
300 - 350hrs	Change pump oil
Yearly	Carry out a complete decontamination of the sprayer
Yearly	Check pump air accumulator pressure is 110psi

LUBRICATION

A SAE 30W40 engine oil should be used in the diaphragm pump.

MAINTENANCE

PRESSURE RELIEF VALVE

The pressure relief valve provides relief when the pressure exceeds a pre-determined value. Altering the adjusting stem will affect the setting at which the relief valve will come into operation. Turning the stem clockwise will increase the pressure relief setting. GoldAcres pre-sets the pressure to approximately 110psi and this should not be altered. To check or alter this setting, turn the pump 'OFF' and unwind the relief valve. Turn the solenoids 'OFF', and then close all control manifold ball valves so that all flow passes through the relief valve. Run the pump at maximum operating speed (540 RPM) and slowly screw the relief in until the pressure is achieved. Tighten the nut on the adjusting stem so that this setting is maintained. If the relief setting is too low, too much flow is allowed to bypass back to the tank and it will limit the maximum obtainable pressure.

PUMP

8 Hours

Check pump oil level and condition:



50 Hrs

Pump oil should be changed after the first of operation.

Pump oil level should be between the two level makers on the oil reservoir. If the oil level continually gets low or is turning milky, there is possibly a split in a diaphragm. The oil will need to be drained and all the diaphragms replaced. Use SAE 30W40 oil. Rotate the pump manually (by hand) to remove any air locks while filling. Do not over fill.

Grease pump PTO shaft: Shaft universal nipples and telescope nipple must be

greased every 8 Hrs. The cover must be greased every 40 Hrs to ensure it spins freely on the shaft.

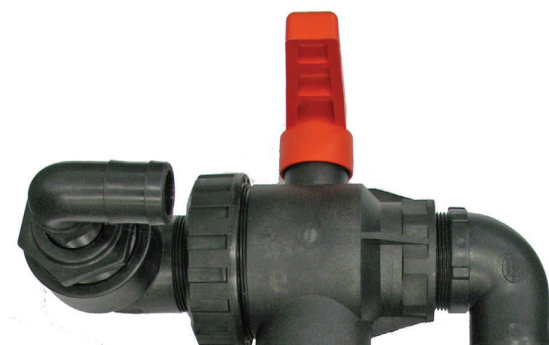
300-350 Hrs

Change Pump oil: Pump oil should be changed every 300-350 Hrs. Use SAE 30W40 oil. On an RO160 pump the drain plug in between the two pump mounts underneath the pump.

Seasonally

Check pump air accumulator pressure (110psi): The air pressure in the air accumulator must be maintained to the correct pressure. If the accumulator constantly loses pressure, the valve or diaphragm may need replacing. To recharge the accumulator, charge it to 690 psi then run the pump at normal operating RPM. Looking at the pressure gauge, release some pressure until there is as little pulsation as possible. This will ensure a very even and constant pressure delivery.

FILTERS:



Suction filter



Pressure filters

WARNING: Always wear gloves if removing or cleaning filters.

If in-line filters have been fitted to replace nozzle filters, always unfold and lower the boom before attempting to unscrew any filter.

It is essential to maintain all filters and filter screens in good condition. Filter screens that are not regularly cleaned can severely impede liquid flow and delivery pressure. If the screens are in anyway damaged, they can allow foreign material into the pumping system which can result in damage to the pump, solenoids, valves and cause blockages in nozzle tips. Also, if the screens are not properly fitted, air can enter the pumping lines which will reduce pump performance. All filter screens should be cleaned after every spraying operation.

Filter screens are best cleaned with a soft brush in clean water or by compressed air

after washing.

WARNING: Read and heed the chemical label regarding protective clothing when cleaning any filter.

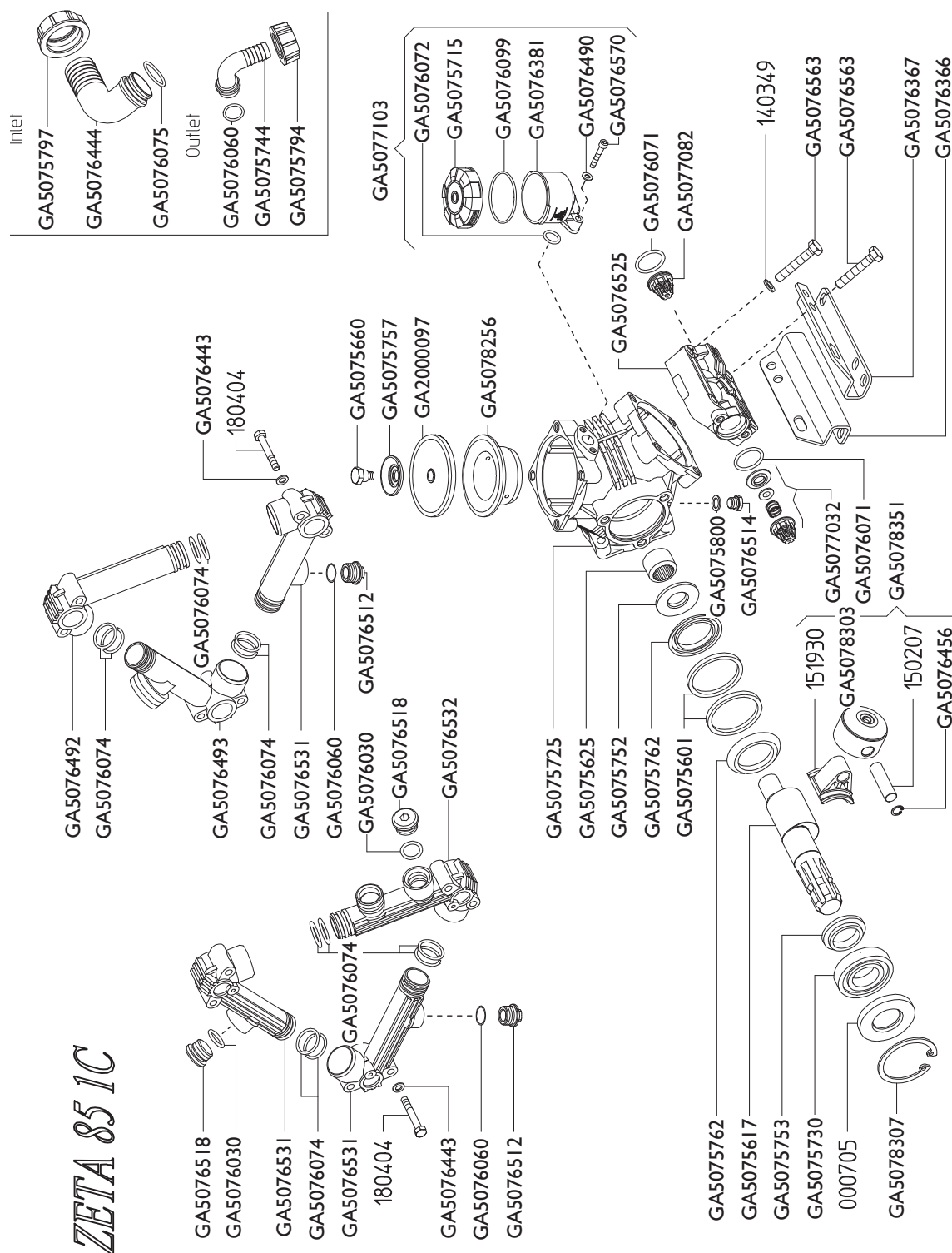
To clean the suction filter:

1. Wear gloves and other recommended protective clothing.
2. Ensure that the pump is turned 'OFF' and the pump three-way ball valve is turned 'OFF' to prevent flow to the filter.
3. Carefully unscrew filter nut and remove bowl.
4. Remove screen and clean.
5. Check for damage to screen, bowl, body and o-ring.
6. Place screen back in position.
7. Make sure o-ring is in position for proper seal.
8. Replace bowl and screw nut on.
9. Do not over-tighten nut.

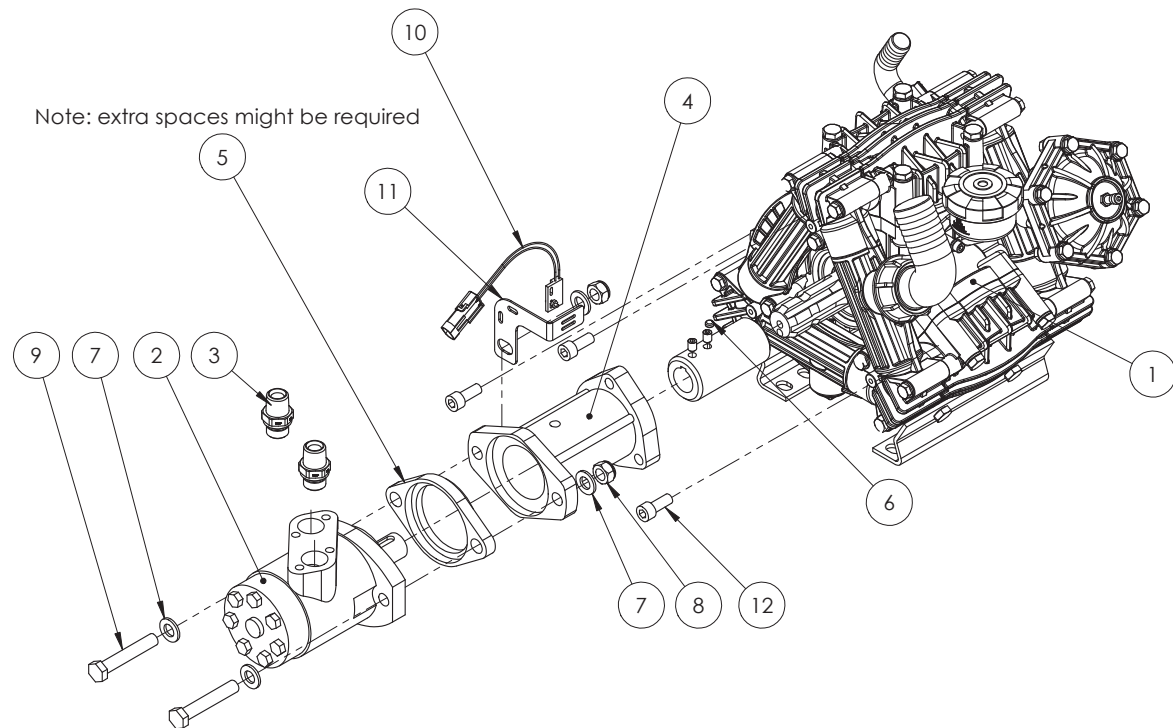
To clean pressure filter:

1. Wear gloves and other recommended protective clothing.
2. Ensure that the pump is turned 'OFF' and the pump 3-way ball valve is turned 'OFF' to prevent flow to the filter and pump.
3. Ensure that the supermix agitator ball valve is 'OPEN' (will release any residual pressure)
4. Carefully unscrew filter nut and remove filter bowl.
5. Remove screen and clean.
6. Check for damage to screen, bowl, body and o-ring.
7. Place screen back in position.
8. Make sure o-ring is in position for proper seal.
9. Replace bowl and screw nut on.

PARTS INFORMATION: PUMP



PARTS INFORMATION: PUMP



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GA5078220	Pump, Diaphragm type, Zeta 85, PTO shaft drive, Udor, Shaft not included, ZETA85 I C	1
2	GA5047515	Motor, hydraulic, 80cc/rev, 25.4mm shaft, Suit spray pump drive	1
3	GA3500310	Hydraulic adaptor, Nipple, 1/2" BSPT male x 1/2" BSPP male	2
4	GA5077663	Adaptor, Hydraulic motor to Udor PTO pump only, kit includes housing, coupler, 2 grub screws, 3 bolts	1
5	GA4552100	Spacer plate, Suit adapter PTO to hydraulic drive, Udor	1
6	GA5016169	Magnet, High strength, 12mm diameter x 1.5mm thick	1
7	GA5000577	Washer 12mm Flat SS HD	4
8	GA5012461	Nut M12 Nyloc ZP	2
9	GA5000347	Bolt M12 x 70 GR8.8 ZP	2
10	GA5076331	Sensor, Spray Pump RPM Suit 440, 450 & G6 MY20, Raven	1
11	GA4525015	RPM sensor mount bracket, suit Udor PTO converted pump	1
12	GA5071085	SHCS M10 x 25 GR12.9 ZP	3

CHAPTER 8

TROUBLESHOOTING

GENERAL

The following troubleshooting information is provided as a reference when your sprayer is not functioning correctly.

To ensure that 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.

DIAPHRAGM PUMP

Problem	Common Causes	Common Solution
Pressure and flow rate are too low	- Excessive bypass on pressure manifold - Supply to pump is restricted - Pump	- Verify console calibration settings. - Check the pressure relief valve setting on pressure manifold. - Close the ball valve labelled bypass, if the pressure increases on the pump gauge there is a problem with the control valve - Measure the flow per minute coming out of one nozzle and check the nozzle chart for the corresponding flow. - Check the fast close valve is rotating the full 90 degrees when the boom valves are switched off. - Suction filter may be blocked - Check tank sump and suction line blockages - Check suction line for air leaks - Check pump speed - Check oil for colour change. If the oil appears milky, a diaphragm will be damaged and needs to be replaced. - Check valves in pump.
Pressure and 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.
The pressure on my gauge is higher than the nozzle flow indicates	- Blocked filters of nozzles - Flow loss due to resistance in lines, valves and filters.	- Check and clean all pressure and nozzle filters - Recalibrate console to allow for pressure loss
The flow rate is correct but my pressure is too low or high.	Nozzles	Check nozzle chart for correct nozzle size.
Pressure fluctuation	- Air leak on suction side of pump - Incorrect pump speed - Faulty pump valves	- Check suction pump for air leaks - Adjust pump speed so it is between 400 -540rpm - Replace pump valves
Pump pressure pulsating	- Air accumulator pressure is incorrect - Air accumulator diaphragm has a leak - Incorrect pump speed - Air leak on suction side of pump	- Reset the pressure in air accumulator - Replace air accumulator diaphragm - Adjust pump speed so it is between 400 - 540rpm - Check pump suction for air leaks

Problem	Common Causes	Common Solution
Pump oil is becoming milky	Cracked diaphragm	Replace all diaphragms
Pump oil is changing colour and becoming black or dark grey	Pump is overheating	Check pump speed and oil level
Pump is noisy	- Low oil level - Air accumulator pressure set incorrectly - Insufficient lubrication on PTO shaft - Damaged pump valves - Pump suction line has air leak or is restricted	- Refill or replace oil - Recharge air accumulator to specified pressure - Grease PTO shaft - Replace all bearings - Replace pump valves - Clean suction filter and check for leaks in suction lines
Pump housing or mountings cracked	- PTO shaft not sliding freely or incorrect length - Extremely cold weather can cause liquid in the pump to freeze	- Check PTO shaft length and lubricate - Check for ice in the pump and let defrost if required
Damaged universal joint	- The shaft is too long - PTO shaft is inadequately lubricated	- Shorten shaft - Lubricate PTO shaft and uni joints
PTO shaft bent or vibrating excessively	PTO shaft is too short	Replace PTO shaft

CHAPTER 9

OPTIONAL EQUIPMENT SUPPLEMENTS

Chemical probe. 14

CHAPTER 10

CHEMICAL PROBE

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Operation	12-3

GENERAL

A simple method of transferring chemical into the sprayer tank is via the chemical probe. The chemical probe enables the chemicals to be transferred with minimal exposure to the operator. The probe is used in conjunction with the Venturi filler (located on the top of the tank) which creates the required suction on the pressure side of the pump.

The viscosity of the chemical being transferred will affect the rate of suction flow and hence the amount of time required to transfer the chemical. Water and air have low viscosities whereas molasses is an example of a highly viscous liquid. The higher the viscosity of the liquid, the longer it takes

to transfer via the chemical probe. If the viscosity of a chemical is such that it takes too long to transfer, dilute the chemical with water, which will reduce the viscosity, and then transfer the solution.

The chemical should be transferred after about 20% to 50% of the required water quantity has been added to the sprayer tank. This will ensure that agitation takes place when the remaining water is added.

The end of the probe is not flat so that the probe, when placed flat against the bottom of the container, will not restrict the flow of chemical.



Chemical Probe



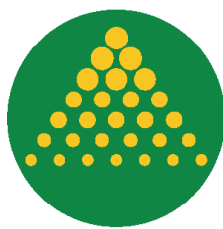
Chemical Probe connection point

OPERATION

WARNING: It is critical that the chemical probe venturi continues to operate for a minimum of 30 seconds following use. This will ensure that no chemical is left in the line prior to the probe being disconnected.

To operate the chemical probe:

1. Add 20 percent of the tank's volume of clean water to the main spray tank. Initially there needs to be a sufficient amount of water in the tank in order for the pump delivery to create the venturi effect via the venturi filler.
2. Ensure that the red handle on the pump 3-way valve is pointing towards the suction hose coming from the main tank sump.
3. Connect probe via cam lever fitting.
4. 'OPEN' the venturi and agitator valves.
5. Close the bypass and induction hopper valves.
6. Operate the pump at the lowest speed necessary to generate at least 85 psi delivery pressure (as displayed on the sprayer pressure gauge). Do not run faster than 540 RPM. The higher the pump delivery pressure, the greater the venturi suction and the quicker the probe will transfer the chemical. The delivery pressure should not exceed 100 psi as determined by the pressure relief valve setting.
7. Place probe in chemical.
8. 'OPEN' the valve on the probe.
9. The chemical should be now transferring to the sprayer tank via the venturi filler.
10. When all of the chemical has been transferred, rinse the chemical container with water and transfer the rinsate to the sprayer tank via the probe. This should ensure that the entire chemical is transferred and that the probe, venturi filler and connecting suction hose are cleaned.
11. When finished, 'CLOSE' the valve on the probe and the venturi valve, 'OPEN' the bypass valve, keep the agitator valve 'OPEN' and disconnect the probe. Once chemical has been transferred into the main spray tank the sprayer should always be agitating until spraying begins.



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