CLEANACRES MACHINERY LTD

HAZLETON CHELTENHAM GLOS. GL54 4DX

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DECLARATION OF CONFORMITY

PRODUCT MODEL	

STANDARDS AND REGULATIONS

This product meets the requirements of the Machinery Directive 89/392/EEC, as amended by directive 91/368/EEC implemented in the UK by the Supply of Machinery (safety) regulations 1992.

The machine has been designed to conform to the Essential Heath and Safety Regulations and General Design Principals contained in EN292 parts 1 and 2.

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YOUR MACHINE (SPECIFICATION)

MODEL	-
CHASSIS NO.	
REGISTRATION NO.	 · •
ENGINE MODEL	
ENGINE SERIAL NO.	<u>.</u>
TRANSMISSION PUMP	-
SPRAYER TANK	_LITRES
BOOM WIDTH	

1

Safety / hazards

Read this manual carefully before using the machine.

Safety Notes

You must understand and follow the instructions in this manual. You must observe all relevant laws and regulations. Remember - never assume always check and if in doubt ask. Yours and others health and safety may be at risk.

MARNING

Warnings call attention to instructions that need to be followed precisely to avoid a hazardous situation.

/ CAUTION

Cautions call attention to instructions that must be followed precisely to avoid damage to the machine.

Safety Check List

In addition to warnings in this chapter, specific warnings are given throughout this handbook. This section is designed to give a safety code for use of the machine generally and for operation and maintenance practices.

Safety Notes

Operating Safety

MARNING

Ensure all guards are kept in their proper condition and are in their correct position. If any safety decals or guards are damaged, they should be replaced immediately.

/ WARNING

Do not permit any person to ride on the machine in addition to the driver.

MARNING

The machine should never be driven at speeds in excess of 40 km/h (25 mph) on the road. The top speed of the machine may be restricted by the choice of wheel equipment Reversing at high speed can cause accidents. Always drive at a safe speed to suit working conditions.

MARNING

Before using the machine always ensure all scheduled maintenance tasks have been carried out in, accordance with this handbook and that any inspections required have been carried out. A defective machine can injure you or others. Do not operate a machine, which is defective or has missing parts.

/ CAUTION

Keep the machine controls clean and dry. Your hands and feet could slide off slippery controls. If that happens you will lose control of the machine.

WARNING

The ATLAS is a high clearance machine so extreme caution should be exercised when cornering and when working on side slopes, especially with narrow track width settings. Never operate the machine beyond its intended design limits as damage may occur to the machine, it can also be highly dangerous. Do not try to upgrade the performance of the machine with unapproved modifications.

MARNING

Working can cause accidents in poor visibility. Keep windows clear, and use your lights to improve visibility. Do not operate the machine if you cannot see properly.

MARNING

Always ensure that your speed is low enough to allow a safe stopping distance in the event of an emergency (allowing for maximum load).

Safety Notes

Maintenance Safety



Always ensure engine is stopped before attempting to undertake any work on the machine. Before carrying out any work on the exterior of the machine ensure it is cleaned of chemical residue. Also inform others you are working on the machine to ensure it is not started or moved whilst work is being carried out. Remove the ignition key and leave a notice in the cab and around the machine to inform others. Follow any safety guidelines laid down in this handbook specific to the operation you carry out as yours and others safety depend on it.

Remember - Never assume always check and if in doubt ask!

/\\ WARNING

Hose the machine down regularly to remove chemical residue especially liquid fertilizer, which will attack any exposed steelwork and may cause a fire hazard.

WARNING

Breathing exhaust gases can harm and possibly kill you. Do not operate the machine in confined areas without ensuring that there is adequate ventilation.

WARNING

A machine can roll off jacks and crush you unless the wheels have been chocked. Always chock the wheels at the opposite end to that which is being lifted. Do not work underneath a machine supported only by jacks. Always support the machine on axle stands prior to commencement of work.

WARNING

Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and damage the machine.

MARNING

Ensure any chemical residue is disposed of in accordance with the guidelines provided by the chemical manufacturer.

MARNING

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic leaks. Do not put your face close to suspected leaks. If hydraulic fluid penetrates your skin seek medical attention immediately. Damaged hydraulic hoses can cause fatal accidents. Inspect the hoses regularly and replace any which are damaged in any way.

/\ CAUTION

MARNING

HAZARDS

The hazards in crop spraying fall into four broad groups. To the operator, the crop, the machine and the environment. These can and do overlap.

Hazards to the Operator

These can arise from careless filling, poor product mixing leading to system blockages and the need to clear these blockages. The disposal of the resultant material. Adjustment to the mechanics of the machine when both in the field and stationary. Spending time in the cab with contaminated overalls and boots. Not determining and wearing the correct P.P.E. for the products in use.

Hazards to the Crop

These can arise from both under and overdose of the material in use. Underdose often means the use of the same or another product again. Overdose sometimes can kill the crop being sprayed; sometimes the next crop in the field is impaired by inaccurate work on headlands and narrow sections. With some products narrow sections would be best not sprayed. This would remove the problem of residue effecting the following crop from the unlawful overdose of the current crop. Headland accuracy in this respect can be improved by spraying the headland with 1 1/2 bouts or 2 1/2 bouts of the boom, leaving a wheel mark indicating the applied edge and shut off mark.

There is a drift hazard to the next crop if it is sensitive to product being used. There is hazard to the crop from not determining the optimum spray quality for the product in use and selecting a water volume and forward speed that are most likely to optimise the product used and it's investment. These can be seen in both crop contamination and resultant yield.

Hazards to the Machine

Hazards to the machine come about frequently from inattention when in work resulting in impact with objects, moving and stationary. The constant use of settings, which are at the top end of the range for the components on the machine, will bring about component failure more quickly than those that do not reach these limits.

Machine breakdowns can often come from high road speeds on poor roads and long distances.

/\ CAUTION

Hazards to the Environment

Hazards to the environment from the spraying operation are well documented in numerous publications from The B.A.A., H.S.E., N.F.U., E.A. and others. The next crop, hedge bottoms, gardens, watercourses etc. are some of the sensitive areas. It must be remembered by all operators and managers that the Airtec system allows for immediate and instant control over driftability by the rapid change from an operational spray quality of fine or medium, to that of coarse and the reduction in drift that this brings. Selecting the suitable spray quality for the job and the conditions will reduce the likelihood of drift.

Always keep a detailed notebook of settings and mixtures, both good and bad. The bad ones are the most important to record.

INTRODUCTION TO THE AIRTEC SYSTEM

The Cleanacres Airtec sprayer has been designed to allow low volume application when applying chemicals, while at the same time dramatically reducing spray drift and blockages.

With the knowledge and advice of your agronomist, we are confident that great benefits will come from the correct operation of this sprayer.

GENERAL LAYOUT

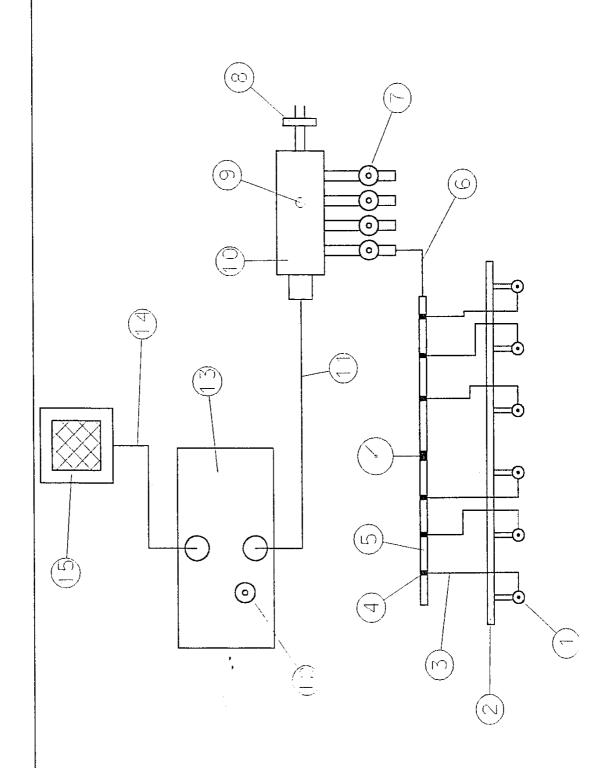
Liquid is drawn from the tank, through a suction filter, to the diaphragm pump. On the pressure side of the pump the liquid is pumped through a flushing pressure filter and into the liquid distribution manifold, on which are mounted the individual boom section ball valves.

When the spray line controls are in the 'on' position, the liquid is passed through the open ball valves to the spray lines, on which are mounted the Airtec nozzle assemblies. The spray lines are fitted with a constant re-circulating system (C.R.S.). This is a return to tank pipe fitted on the outer end of the spray lines that allows agitation to take place within the spray lines, as well as in the tank. The C.R.S. ensures that when low volumes are being used, powders do not settle out in the spray line, thus becoming a potential blockage problem. All liquid from the C.R.S. is returned to the sprayer tank to provide additional agitation. When the spray line controls are in the 'off' position the liquid passes through the opposite side of the ball valves, via throttle valves and back into the tank to provide further agitation. The throttle valves ensure that when individual sections are turned off the liquid pressure in the remaining sections stays constant.

The air system on the sprayer uses a high volume, rotary compressor to supply airflow to the boom sections. Air is fed from the compressor into the air distribution manifold. From here the air passes through electric solenoid valves to the individual boom sections. Air is fed to the Airtec nozzle through a separate set of pipelines, the air and the liquid is then mixed in the nozzle to provide the air included droplet formation. Liquid pressure is controlled by the use of a motorised electric valve. Application rates can be altered by changing the tractor's forward speed and/or using the in-cab controls to vary air and liquid pressure. Spray quality can be altered by changing the ratio between the liquid and air pressure.

PICTURE OF AIRTEC PARTS LAYOUT

1	Airtec nozzle
2	Spray line
3	1/4" air delivery pipe
4	1" band clamp
5	1" air line
6	3/4" flexible hose
7	Air section control valve
8	Air pressure control valve
9	Port for air pressure sensor
10	Air distribution manifold
11	1 1/2" air delivery hose
12	Pressure relief valve
13	Air compressor
14	1 1/2 air suction hose
15	Air intake filter
16	Air pressure gauge



GUIDE TO EFFECTIVE CROP SPRAYING

For effective crop spraying with modern expensive agrochemicals it is very important to spray accurately.

SPRAYING OBJECTIVES

Always aim to spray the recommended chemical rate safely and effectively by ensuring that the correct volume of chemical reaches the intended target and that as little as possible drifts or runs off and consequently fails to reach the target.

Aim to carry out the operation quickly and cost effectively by using the lowest spray volume compatible with chemical and conditions and a forward speed without excessive boom bounce, drift or inefficient application.

There are four key aspects to accurate, trouble free spraying:

Preparation

Airtec setting selection

Calibration

Good field work

<u>Procedure</u>

Read and understand Airtec application charts. Note that at any one flow rate, different spray qualities are achieved by increasing air pressure, giving more atomisation of the selected rate of flow.

Determine settings for different spray qualities on the charts for the 35, 40 and 50 restrictors.

If unfamiliar with the Airtec system run some settings with water, in a clean machine, at flow rates of 350, 550 and 750 mls./min. through the spray quality of coarse, medium and fine.

Observe these settings and their differences.

Select application volume and spray quality for the target identified and the product and dose chosen for the application.

Always part fill the tank before adding any product.

Calculate product required for the area to be treated, measure this out if it cannot be achieved from full packs. Adding some water in a measure jug can be helpful.

Always shake the unopened can.

Add product in the order detailed on the labels.

Prepare the containers for tipping into the input bowl, and do this as quickly as the venturi system will allow.

Check product's labels to see which type of P.P.E. should be used for the filling, and concentrate handling phase. Avoid contaminated covers in the drivers cab, use the protective clothing locker provided.

To spray 5 ha. at 80 Ltr./ha. with 4 Ltr./ha. of product

5 ha. at 80 Ltr. is - 400 Ltr.

5 ha. at 4 Ltr. is - 20 Ltr.

Water needed is - 380 Ltr.

Fill tank to the required mark with sight gauge on level ground or through a Cleanacres Filling Flow Meter.

Avoid frothing when filling and agitating. This can occur from air leaks and splashing in the tank.

After Spraying or when changing chemicals

Flush tank and booms with clean water.

Spray onto an area of the crop which has been designated for this purpose. This area should have been previously sprayed with a dose of the product in use, that is lower than the maximum allowed dose, to prevent this being exceeded.

Leaving the washings on the crop is the way to avoid the difficulty of washings disposal in the farm yard, sprayer filling area. This enables operators to adhere to advisory statements regarding the preservation of water quality.

This should be done on every spraying occasion.

Sprayline rinsing and C.R.S.

Constant re-circulating plumbing, this feature allows for inline momentum of the spray liquid.

Liquid from the end of the spraylines is returned to tank.

Designed to prevent sludge deposit in the line ends and the resulting nozzle blockage.

The C.R.S. can be diverted to allow the lines to be flushed out with clean water if the tank is left with chemical in it.

GENERAL GUIDELINES FOR THE SELECTION OF SPRAY QUALITY

ACAUTION

The following guidelines are designed to help operators select Airtec settings. However, reference should be made to your agronomist for guidance on tank mix compatibility, spray quality selection and volume requirements.

SOIL APPLIED HERBICIDES

For overall application to bare soil, the target is clear and the spray quality setting is not highly critical, provided the chemical is deposited on the ground evenly without too much gap between spray drops, at the required dose, and with minimum drift.

FOLIAR APPLIED PRODUCTS

Application to plant foliage are more complex. The target for foliage herbicides is the weed and not the crop, whereas fungicides, insecticides, and crop growth regulators are aimed at the crop. In many instances a tank mix of the above products requires an application system to compromise between the requirements for different droplet sizes.

With conventional sprayers, herbicides, systemic fungicides, insecticides, and growth regulators are generally applied at a pressure of 3 bars (45 p.s.i.) through fan nozzles, at volumes of 100-200 Ltr. ha. (10-20 G.P.A.). At these pressures and volumes, there is a tendency towards producing a wide range of drop sizes from 1 – 600 um. in diameter within which are a very large number of small drops of less than 100 um. which are liable to drift over long distances. Although the total amount of active ingredient falling outside the target area may be very small, the environmental effects could be undesirable. The very large drop fraction (350 um. upwards) is also undesirable due to run off from foliage leading to a relatively small proportion of the spray drops being retained by the foliage. Manufacturers application rates tend to allow for a relatively high proportion of waste to cope with the inefficiency of the hydraulic nozzle.

Airtec sprayers emit a significantly smaller fraction of large droplets, and those which it does are air included and consequently retain on the target, which leads to less wastage and a commensurate reduction of the amount of water required to treat a unit area. In addition the fine droplets (1 - 100 um.) are entrained in the curtain of air

emitted from the nozzle and are consequently carried into the crop canopy rather than drifting outside the target area.

All the required spray quality categories can be achieved with Airtec, not by changing nozzles as with conventional sprayers, but merely by altering the combination of air and water pressures. One can also change spray quality category in the middle of an application without altering the application rate – particularly useful if spraying is not to be interrupted due an increase in wind speed.

SPRAY QUALITY GUIDE

If a chemical is applied at the correct application rate, at the correct time, and with the correct spray quality for the target, you will get the best possible results from your chemicals with minimum risk of drift.

The British Crop Protection Council has divided spray qualities into five categories, very fine, fine, medium, coarse, very coarse. The very fine and very coarse categories are not commonly used.

Your chemical label recommendations may well refer to a preferred spray quality to give best effectiveness and safety, so you should select a setting to give this quality. If no spray quality is recommended by the chemical manufacturer, use a medium spray quality. The spray quality for each setting is indicated in the jet chart (appendix 1).

SPRAY	USED FOR	LEAF	DRIFT RISK
QUALITY		RETENTION	
Fine	Good cover	Good	Medium/high
	e.g. some		WARNING - do
	fungicides &		not use for very
·	insecticides		toxic products or
			where drift may
			cause problems.
Medium	Most products,	Good	Medium
	general herbicides		
Coarse	Soil-applied	Poor	Low
	herbicides		

<u>APPLICATION</u>

Pre-emergence Soil Applied Products

In the main these can be applied in between 80 and 120 Ltr. water with a coarse or medium spray quality.

Some mixtures containing components with low soil solubility would be better applied with a medium spray quality, to increase the droplet numbers (for example, products containing Pendimethalin).

When soil conditions are poor for the performance of this group of products, additional water volume may be helpful so a change to a 50 restrictor could overcome some poor conditions. In very dry, rough and lumpy conditions a change to a latter applied post emergence product choice should be encouraged.

Potato Ridges

Boom height as measured from the line of the top of the ridge is important. Forward speed and boom stability must be optimum for application performance.

The application to ridges is influenced by side winds, head winds, incorrect boom height and travelling at speeds above 7 or 8 k.p.h.

Post Emergence

These products, herbicides, fungicides, growth regulators, insecticides and plant nutrients are often applied in multi-combination mixtures. Care needs to be taken to ensure the correct filling procedure.

A spray quality choice of medium or fine for the intended volume should suffice. Applications in 65-125 Ltr. ha. are adequate with the finer spray quality coming from the lower volume.

Mixtures dominated by herbicides and growth regulators and often with plant nutrients may need 90-125 ltr. ha. medium spray quality where the foliage is thick and some of the target area is at the bottom of the canopy.

Sugar Beet Weed Control

Weed control evaluations from independent trials, over the period 1991-95 confirmed that spray quality was a significant factor of product performance. Control was consistently superior with Airtec settings giving a fine spray quality. (80 Ltr. ha. from 525 mls./min. at 8 k.p.h. with p.s.i. 25 air/45 liquid, Morley 1991-95)

Grass Weed

Mixtures targeting grass weed control in cereals and B.L.C. should perform well in the volume range of 65-90 Ltr. ha. with a fine spray quality.

Use the higher volume when the crop canopy is well established, otherwise volumes of 50-65 Ltr. ha. would be efficient.

Aspects of grass weed and wild oat herbicide performance can be adversely effected if boom height, speed, nozzle, performance, spray quality selection and volume selection are not carefully considered. A poor product performance will enhance the opportunities for the build-up of the varying types of herbicide resistance.

Fungicide Mixtures

These products can be powders, suspensions and E.C. solutions. Pay attention to the filling procedure and the adequate wetting of powders before adding to the tank and agitating. Fine spray qualities in volumes from 65-90 Ltr. ha. should give good product performance with the chosen product dose.

Independent trials work has showed that 80 Ltr. ha. fine spray quality, applied at 8 k.p.h. was superior in evaluations where Chlorothalonil was included in the mixture on a 10 tonne/ha. crop. (35 restrictor, 8 k.p.h., 525 mls./min., 20 p.s.i. air, 36 p.s.i. liquid, Morley 1993)

Potato Fungicides

This procedure is largely dominated by systemic materials often in mixtures with multisite contact inhibitors.

It is important not to waste product from the plant leaf by run off.

A spray plan starting with 50-60 Ltr. ha. fine spray quality at the first time through and then increasing the volume as the plant gets larger, up to 120 Ltr. ha. at full canopy should give efficient product utilisation.

Some very strong foliage types of potato, in fertile conditions with irrigation, may need to be sprayed with volumes to 150/160 Ltr. ha. to cover the greater foliage mass.

Use the highest air setting that can be achieved with the chosen volume.

Forward speed should be 7-8 k.p.h. when the canopy has developed. Boom height and stability are important.

DESICCATION

Oil Seed Rape

A significant area of oil seed rape has been desiccated with Airtec since the system was introduced in 1985.

The Zeneca product has been successfully used when the plant has reached the correct stage of senescence, with water volumes of 90-120 Ltr. ha.

The 50 restrictor was introduced to give some growers an opportunity to use 250 Ltr. ha. when the conditions for use where adverse, dense flat crop with resurgent weed growth.

Translocated materials have been used effectively in 90-120 Ltr. ha. Attention to the crop condition is important for the correct stage for application.

Use high air settings for the chosen volume.

Linseed

Presents no problems when done at the correct plant stage.

Potatoes 4 8 1

Volume depends on the amount of haulm, the plant stage and the amount of blight in the crop.

Crops with a significant amount of blight should be treated with acid.

Each crop should be assessed for blight and late blight fungicides (containing a fentin product) included in the desiccant wherever there is a risk potential.

100-140 Ltr. ha. is usually a sufficient volume. 250 Ltr. ha. can be used with the 50 restrictor, very strong haulm may respond better to two applications some 2-4 days apart.

The total product dose should not be exceeded.

SPRAYER CONTROL BOX

Cleanacres sprayers are all fitted with in-cab controls for operation of boom section control, pressure adjustment and boom hydraulic functions for your safety and comfort.

See figure 1.

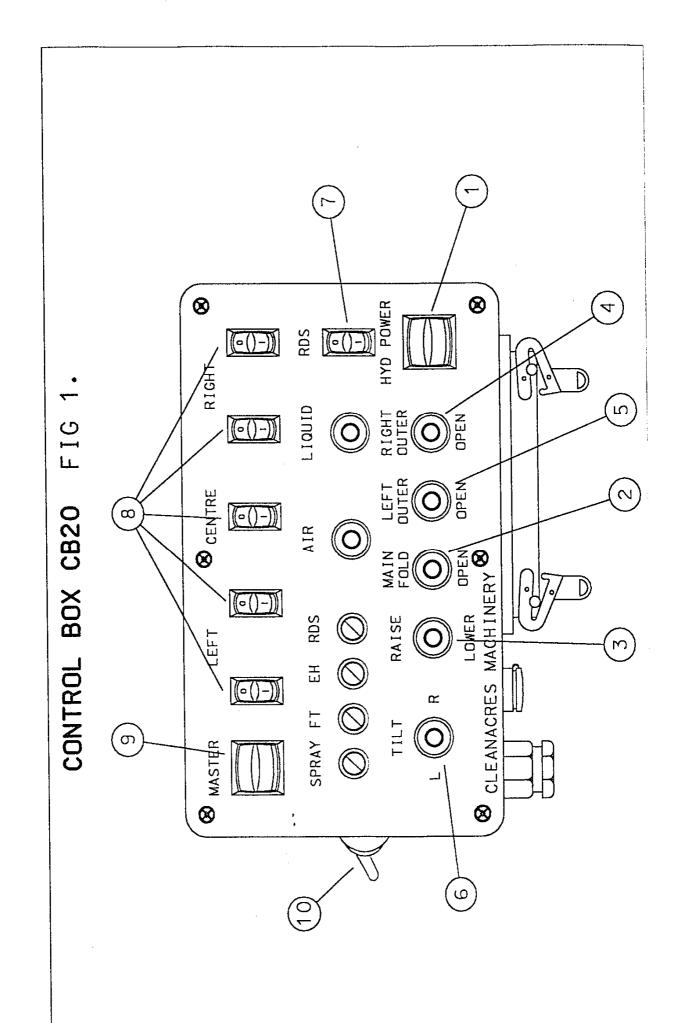
HYDRAULIC CONTROLS

- 1. Hydraulic on/off
- Mainfold switch
- 3. Raise/lower switch
- 4. Right hand outer fold
- 5. Left hand outer fold
- 6. Boom tilt

SPRAYER CONTROLS

- 7. RDS on/off
- 8. Individual section controls
- 9. Boom master control
- 10. Front tank control
- 11. Air pressure control
- 12. Liquid pressure control
- 13. Fuse holders
- 1. Hydraulic on/off: this switch must be on before any of the electro-hydraulic services on the sprayer will work.
- 2. Mainfold switch: this switch controls the folding and unfolding of the main boom sections.
- 3. Raise/lower switch: this switch controls the raising and lowering of the booms on the sprayer.
- 4. Right hand outer fold: this switch controls the folding and unfolding of the outer section of the boom.
- 5. Left hand outer fold
- 6. Boom tilt: this switch controls the boom tilt, which allows the boom to remain parallel to the ground, even when working on sloping ground.
- 7. Power on/off switch for RDS monitor.

- 8. Individual section controls: these are used for operating in short work to isolate individual boom sections. The switches control both the air and liquid lines.
- 9. Boom master control: this switch shuts and opens all boom sections when turning at the headlands etc. Spraylines are on when the red light is glowing, This switch also shuts off the air supply to the air lines.
- 10. Front tank switch: this is used to transfer liquid from the front to the rear tank.
- 11. 11/12. Air and liquid pressure controls: these increase or decrease the air and liquid pressure, push the switch to the right and pressure will increase, to the left and it will decrease. These switches operate butterfly valves on the air and liquid manifolds.



PROCEDURE FOR FOLDING AND UNFOLDING

FROM TRANSPORT POSITION

- 1. Fully raise boom.
- 2. Unfold inner sections (12 metre working width).
- 3. Fully lower boom.
- 4. Unfold outer sections to either 18 or 24 metre working width.
- 5. Raise boom to correct working height.

FROM WORKING POSITION

- 1. Fully lower boom.
- 2. Fold outer section to 12 metre working width.
- 3. Fully raise boom.
- 4. Fold inner sections.
- 5. Lower boom into the transport rest.

NOTE:

- 1. Never drive with the boom partly folded or unfolded.
- 2. Left hand and right hand outers can be folded at the same time.
- 3. Outer sections can only be folded or unfolded with the boom fully lowered.
- 4. When folding the boom it is more than 4 metres high. Beware of any over head obstructions such as cables and trees.

BOOM UNFOLDING AND FOLDING

Electro hydraulic controls may be used on all of the boom functions. This means that all boom functions can be controlled from the cab using the control box and one spool valve. In order to unfold the booms, follow the following procedure referring to figure 1.

MARNING

Ensure that sprayer is well away from over head power cables.

Turn on the hydraulic on/off switch (number 1) on the control box.

Place the appropriate spool valve in the constant flow position.

Using the raise/lower switch (number 3) raise the booms out of the boom rests until the booms are in the fully raised position.

Using the manifold switch (number 2) open out the booms until both sides are in the fully unfolded position.

Using the outer section, fold/unfold switche/s (numbers 4 & 5). Always ensure that both outer sections are fully unfolded. (The two outer sections can be unfolded simultaneously by operating both switches at the same time if individual switching is fitted.).

/\ WARNING

Always beware of overhead power cables and never unfold or fold the sprayer booms when parked beneath these cables.

Level the boom parallel to the ground, using the boom tilt switch number 6.

Lower the booms to the required working height. (See jet chart). If the working height is such that the booms are at the bottom of their travel it is required to raise them 50 mm., so that the boom suspension has room to work.

Folding the booms is the reverse of the above procedure.

↑ CAUTION

Never travel with the booms in a partially folded position, always ensure that the booms are parked securely in the rests.

OPERATION OF TILT FOR BOOM INCLINATION

The boom on the Cleanacres Airtec sprayer, pivots on a single, central bearing. The boom is provided with a float facility by means of springs and shock absorbers. Under normal conditions these will account for undulations in terrain. If however, the

field is drilled along the side of a bank, it may be necessary to incline the boom to the left or right to follow the contour of the ground.

/\ CAUTION

Always ensure that the booms are level before folding. If this is not done, damage to the booms may result.

BALL VALVES

Airtec and conventional sprayers are fitted with electric ball valves. The ball valves are designed to direct liquid from the manifold out to the spraylines when the boom master or boom section switch is turned on. When switched off liquid is directed back to tank via the throttle valves.

THROTTLE VALVES

Throttle valves are fitted to all Airtec and conventional sprayers. The throttle valve is designed to give a metered flow return back to tank when a boom section is turned off. These valves are set at the factory but require adjustment if large variations of application rate are used.

To adjust throttle valves:

- 1. Set sprayer running (in manual mode if fitted with a R.D.S. monitor).
- 2. Set a liquid pressure (spray pressure) of an application rate you intend to use with all boom sections on.
- 3. Shut off one section, if the pressure alters up or down from the above then adjust the throttle valve on that particular section until the same pressure is achieved.
- 4. When the adjustment is complete, turn the section back on.
- 5. Shut off the next section and adjust as above.

Always adjust one section at a time. Adjustment will be necessary when using high volumes on a secondary spray line, e.g. liquid fertiliser.

CHEMICAL INCORPORATOR STAINLESS STEEL TYPE

This unit has a spray bar around the inside edge for washing the sides of the bowl. There is also a T-bar can wash in the centre of the incorporator when the can wash is activated liquid will be directed out of the bottom tube. When a can is placed on the T-bar and pushed down it directs liquid through a small jet into the can under pressure. Removal of liquid from the bowl takes place through the use of a venturi

system. Liquid under pressure from the pump is forced through a small port under the incorporator. This causes a suction effect drawing the liquid from the incorporator via a shut off tap.

/ CAUTION

- The more pressure from the pump the better the venturi will draw. Do not exceed 8 bar.

FILTRATION SYSTEM

PRESSURE FILTRATION

Cleanacres sprayers are fitted with a self flushing pressure filter. This should be flushed daily after washing the sprayer out.

SUCTION FILTRATION

Cleanacres sprayers are fitted with a suction filter. The screen should be removed and cleaned daily after washing the sprayer out. Care should be taken not to loose or pinch the bowl seal.

USE OF CONSTANT RECIRCULATING SYSTEM (C.R.S.)

The liquid lines on the boom are fitted with a constant recirculating system. This ensures that when low volumes are being used, powdered formulation will not start to settle out in the line.

The spray line is fed from the end nearest to the spray tank. At the other end of the spray line there is a return pipe routed back down the boom and back to the tank. Inside the tank there are drop pipes which return the excess liquid not sprayed through the line.

FLUSHING SPRAYER THROUGH WITH FRESH WATER

WHEN SPRAY TANK IS EMPTY

The sprayer should always be flushed through every day after spraying and before a change of chemicals. This is critical to avoid damage to rubber components such as pump diaphragms, cross contamination of products and possible crop damage.

Please carry out the following procedure:

Turn off the P.T.O.

Turn the suction valve to 'self fill' and connect the self fill hose. Place the filter end of the self fill hose in a clean water source or set suction valve to 'from clean water'.

Set the pressure valve to 'spray' and engage the P.T.O. with all of the boom sections in the 'on' position and turn the C.R.S. taps to flush. Flush water through the boom for approximately five minutes.

Turn off the P.T.O. Then repeat the process and whilst carrying this out turn on the flushing filter, and pressure gauge drain valves individually for approximately 10 seconds each.

If it is likely to freeze either add antifreeze through the chemical induction bowl, or park the sprayer in a suitably insulated barn (see Frost Protection).

Thoroughly wash down the exterior of the sprayer, using a suitable detergent.

Open all drain taps as listed below:

Sprayer Tank

Cleanwater Tank

Sight gauge

Flushing filter

Pressure gauge

Clean the suction filter and replace.

CAUTION

Ensure that washing out of the sprayer is carried out where spray residue will cause no harm to livestock or the environment in accordance with the guidelines set out in the Food and Environment Protection Act, 1985.

FROST PROTECTION

There is no way to drain your sprayer completely without taking a lot of time. The most effective protection is to run a 50% concentration of antifreeze through the entire sprayer. This mixture can be saved and used for the duration of the winter season. At the first sign of low temperatures it is important to flush the machine.. It is NOT recommended to use liquid fertiliser for this purpose.

FLUSHING SPRAYLINES ONLY

Flushing of the spraylines can be achieved without contaminating the remaining chemical in the tank.

- 1. Open C.R.S. taps on boom.
- 2. Shut off return tap after liquid pressure control valve situated on the liquid manifold on the back frame.
- 3. Shut off tap after pressure relief valve.
- 4. Select a clean water supply either from on board tank on via the self fill point.
- 5. Switch boom master and all section switches on.
- 6. Engage P.T.O. and run only at tractor idle.

Important - do not engage pump until procedures one to four have been actioned. To stop flushing, disengage pump before shutting off boom sections.

TANK WASH SYSTEM

This system uses jetted spheres mounted inside the roof of the tank. Clean water is pumped through the spheres spraying the inside of the tank. Tank wash can be used drawing water from the internal clean water supply if fitted or from your external water supply. Set pressure tap to tank wash and suction tap to either internal clean water or self fill position. Engage liquid pump and set liquid pressure to minimum. Do not run pump over 540 r.p.m. Once a small quantity of water is in the system, e.g. 100 litre spray out and repeat (possibly with the use of a tank cleaning agent). Always clean out the sprayer straight after use.

CALIBRATION PROCEDURE MANUAL SPRAYER

/ CAUTION

Read label on chemical pack (or accompanying leaflet). For recommended spray quality and application rate. The label will also advise you on the safety equipment that you are obliged to wear.

Carry out a trial run to establish a forward speed which gives an acceptable level of boom stability and a gear which gives a P.T.O. speed of 540 r.p.m. This is important to maintain the correct air volume to liquid ratio.

Carry out speed check over 100 metres, using gear and P.T.O. r.p.m. as above. Take the time in seconds to cover the distance. To establish the forward speed from the formula:

360 ÷ time (in seconds) = speed (in kilometres per hour)

Select required Airtec setting by referring to the jet chart for the restrictors fitted (appendix 1). Establish the desired air and liquid pressure to give the correct application rate at the desired forward speed and spray quality. Make a note of the required pressures and nozzle output. Also note the other settings that give different spray qualities within the same application rate should you need to alter the settings to allow for a change in the weather conditions.

Turn boom sections on and set pressures.

Check nozzle spray patterns and alignment visually. Replace any rogue nozzles.

Re-check pressures.

Compare the output of individual nozzles by use of the calibration beaker provided. Check at least two nozzles on each boom section and compare the output over one minute. If the output differs by a large amount, re-check calibration pressure and calculations.

CHANGING TO SECOND SPRAY LINE

Ensure that the sprayer has been thoroughly flushed out.

Turn change over valves to the second line position and swap the pressure gauge take off to the spray line which is now to be used. The change over valves are fitted to each section either on the back frame or boom sections.

The second line is not fitted with C.R.S. as it is used for high volume spraying such as liquid fertiliser. The sprayer is now ready to spray through the second line.

NOTE: the air system will have no effect on the second line and the sprayer will be operating as a conventional sprayer. For calibration refer to the liquid fertiliser or hydraulic nozzle, calibration chart.

LIQUID FERTILISER

All Cleanacres Airtec sprayers are suitable for applying liquid fertiliser solution if a second fertiliser line is fitted. The Airtec nozzle is not suitable for the application of liquid fertiliser. It is important to realise that fertiliser solution in this case is considered only as nitrogen, as either a compound or straight, in a fully aqueous solution. Fertiliser of the suspension type cannot be applied using standard Cleanacres sprayers. To avoid plant scorch the use of Agroco nozzles is recommended as these produce very large droplets which roll off the plant leaves.

LIQUID FERTILISER CALIBRATION

Calibration must be carried out using clean water. Using the chart provided select an application rate within the desired speed range. Then move across the chart to find the flow rate and pressure to achieve this application rate.

E.G.: 260 Ltr./ha. at 10 k.p.h. blue nozzle, red disc. The flow rate per minute will be 2.170 mls. per minute at a pressure of 3 bar.

IMPORTANT - check that you have the correct patiern from your nozzles as per the diagram on the back of the Agroco chart.

Please note - liquid fertiliser is a very corrosive liquid. It is most important to wash down your sprayer thoroughly as this will prolong it's life.

HYDRO FILL

The ATLAS sprayer is fitted with hydro fill, which allows the operator to fill the spray tank at the full rate without running the engine at high speed. To fill the spray tank the following sequence should be observed:

- 1. Connect the self fill hose and place the foot strainer in a clean water supply.
- 2. Set the suction valve to self fill and the pressure valve to bowl wash.
- 3. Lower the chemical incorporator.
- 4. Start the engine and engage the P.T.O. (leaving the engine at tick over).
- 5. Move the hydro fill control to '12'.

This runs the liquid pump at 540 r.p.m. Water is now being added to the tank and the chemical incorporator is ready to take chemical. Chemicals should never be added to an empty tank. When the desired quantity of water is in the spray tank the following procedure readies the machine for spraying:

- 1. Set the suction valve to the spray position.
- 2. When the required chemical has been added turn off the bowl rinse can wash valve and the chemical bowl isolation valve. Set the pressure valve to the spray position. (Note steps 1 and 2 can be performed in reverse order.)
- 3. Move the hydro fill control to 5 (this setting varies between 4 and 6).
- 4. Stow the chemical incorporator.
- 5. Allow the chemical mix to agitate for at least 5 minutes before spraying. (Please note this may need to be repeated in the field as the P.T.O. should not be running when travelling on public roads.)

The liquid pump is fitted with a shaft speed sensor so that the operator can monitor the pump speed. If the hydro fill control is in the wrong position and the pump over speeds the alarm will sound in the R.D.S. monitor to alert the operator.

NEOPRENE BLOCKS

These are located at the centre of the back frame and cushion the yaw on the booms. The blocks will wear and therefore should be inspected on a weekly basis. If they show signs of wear deformation or damage they should be replaced immediately. When fitting new blocks they should not be greased as this will cause them to distort and will seriously reduce their service life.

Expensive damage can occur to the fold rams and the centre section if the sprayer is used with worn or damaged neoprene blocks. whilst checking blocks ensure that all nuts and bolts in the block housing assembly are tight and that the ram ends are properly secured.

Damage to the sprayer resulting from worn blocks will not be covered under warranty.

SELF FILLING PROCEDURE

With the liquid pump disengaged connect the filling hose to the sprayer and water supply ensuring that both connections are perfectly sealed. Set taps to filling positions and engage pump drive - do not run pump over 540 r.p.m. Decrease liquid and air pressures while filling to a minimum setting to relieve system of unnecessary strain. When the required amount has entered the tank, disengage the pump. Turn taps to spray position and disconnect the suction hose.

PRESSURE GAUGES

IMPORTANT: at the start of each day's spraying, partially fill the spray tank with water, set the machine to spray and open the tap on the bottom of the liquid pressure gauge. Wait for all of the air to be expelled (water will flow under pressure from the drain pipe) and then close the tap. This will ensure no air is trapped and that the correct liquid pressure reading is given. This tap must also be opened when flushing out to prevent residue build up and when protecting from frost.

PRE AND POST SPRAYING CHECKS

PERIOD	ITEM/AREA	CHECK

MARNING

Disengage P.T.O. and switch off tractor engine.

Daily pre-spraying	Liquid suction filter	Clean and replace.
See Warning	Compressor air filter	Check not clogged with dust, replace
		if necessary.
		See Caution

ACAUTION

When conditions are dusty it can become clogged and damage to the compressor could result.

Daily pre-spraying		Examine pipe to compressor for air
		leaks or damage. check for any
		water contamination.
Daily pre-spraying	Pump oil	Check level – only use specified oil.
Daily pre-spraying	P.T.O. shaft	Grease universal joints and guard.
Daily pre-spraying	Tank/plumbing	Ensure that absolutely no residue has
		been left over from the last spray
		application.
Daily pre-spraying	Pump	Check oil is not overflowing from cap.
Checks with sprayer		See Caution. Check oil for
running with water in		discolouration or loss.
tank		

ACAUTION

Switch off immediately if this is occurring.

Daily pre-spraying	C.R.S.	Check restrictors for blockages.
	•	(Flush valves.)
Daily pre-spraying	Agitation	Visually check for flow.
Daily pre-spraying	Boom solenoids	Check for operation.
Daily pre-spraying	Nozzles	Check for alignment and pattern and
		that nozzle is correct for desired

		application rate.
Daily pre-spraying	General	Walk around machine to observe any leaks or chafing hoses.
Daily pre-spraying	Compressor pressure relief valve	Should be blowing off at 2-2.5 bar.
Daily pre-spraying	Pressure adjustment	Check full range of both liquid and air pressures is available.
Daily pre-spraying	Boom height	Adjust to 60 cm. above desired target or top of crop which ever is taller.
Daily pre-spraying	Calibrate	Always carry this out using clean water.

YOU ARE NOW READY TO ADD THE CHEMICAL

During spraying	Pressure settings	Ensure they remain correct and
		constant. Re-adjust if necessary.
		See Caution

ACAUTION

Flickering of the liquid pressure gauge may indicate a pump problem or an empty tank. Stop immediately.

During spraying	Nozzie blockages	Be aware that a nozzle may only
		partially block showing a smoky
		stream of droplets.
During spraying	Forward speed and	Keep both as constant as possible.
	P.T.O. r.p.m.	
During spraying	Pressures	Keep a constant watch for any
 	,	changes in either liquid or air
	,	pressures and re-adjust as
4		necessary.
During spraying	Height/angle of	Boom must be parallel to ground and
	boom	at correct height. Use boom controls
		to adjust.

During spraying	Tank contents	Do not start another pass if you do
		not have enough in the tank to
		complete that pass.
During spraying	Weather conditions	If wind increases and yet there is an
		over-riding urgency to finish the job,
		select a coarser droplet pressure
		setting for the same application rate.
		See Caution

ACAUTION

Consult your agronomist if in doubt about spray quality range.

After spraying	Surplus chemical in	Either pump into a storage tank or if
	the tank	small amount dispose of safely in
		accordance with Codes of Practice.
After spraying	Flushing out	Flush out and wash down.
		See Caution

ACAUTION

If flushing out is not done on a daily basis damage may occur.

After spraying	Frost protection	Anti-freeze or store in a frost free
		building.
Weekly or more	Boom break-back	Check full break-back is unrestricted
frequently if large		and returns quickly when released.
acreage being		
covered		
Weekly or more	All grease points	Grease.
frequently if large		
acreage being	•	
covered	,	
Weekly or more	Gear box oil	Check level.
frequently if large		
acreage being		
covered		

Monthly	Nozzle wear	Calibrate and check flood tips for	
		wear. Also check visual pattern and	
		alignment.	
Monthly	Electrical	Clean and spray with a water	
	connections	dispersing oil.	
Monthly	Plumbing	Check for any signs of hoses chafing.	
Seasonally	Flood tips	Remove and thoroughly clean.	
Seasonally	Gearbox	Change oil.	

ROUTINE MAINTENANCE

Guidelines for replacement components are as follows:

COMPONENT	PERIOD	
Compressor air filter	Check frequently particularly in dusty	
	conditions - replace monthly.	
Pump diaphragms		
D.C.V. rubbers		
C.R.S. returns restrictors	Annually or every 5,000 hectares	
Pressure set diaphragm & gaskets	which ever is sooner.	
Polo mint washers		
Filter 'O' rings		
Pump valves	Bi-annually or every 10,000 hectares,	
	whichever is sooner.	
Floodtips	When they show signs of wear. This	
	is caused by hard quality water and	
	the abrasiveness of chemicals. A	
	simple check is to rub the end of a	
	match stick along the flood tip face	
	and if you feel a dimple they need	
	replacing.	
Restrictors	When the flow rate varies by more	
	than 5% from chart.	

FAULT FINDING WHILST FILLING

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
Water not self filling or	Lift from water source	Reduce lift
filling slowly	too long, (over 3.7 m.)	
	Suction valve not set to	Set to self fill
	self fill	
	Blocked filter on self fill	Clean
	hose	
	Blocked suction filter	Clean
	Suction filter/self fill	Tighten, check seals,
	hose drawing in	replace diaphragms
	air/faulty or worn pump	and/or valve.
	Air lock in pump	Prime pump
No spray pressure	Electric's not connected	Connect up and switch
		on
	No water in tank	Check sight gauge and
		fill if necessary
	Pressure valve set to	Set to spray
	self fill	
	Blocked suction filter	Clean
1	Air leak around suction	Check filter bowl is
	filter	seating correctly on
		sealing ring
	Air leak at suction valve	Tighten and check seals
	Air leak on suction pipe	Check joints for leaks
		and tighten if necessary
	Blocked pressure filter	Check and clean, change
	•	to coarser mesh if
		frequent blockages
	Faulty or worn pump	Replace diaphragms
		and/or valves

No spray pressure	Blocked breather hole in	Clear obstruction
	tank lid	
No spray pressure	Blockage in suction pipe	If machine will self fill
	pump not turning	with water, blockage is in
		suction pipe from tank
Cannot attain required	Worn or wrong jets	Fit new or correct jets
nozzle output	P.T.O. not running at	check speed
	540 R.P.M.	
	Application rate or	Contact dealer
	pressure excessive for	
	pump	
Spray pressure not	Faulty diaphragm in	Replace diaphragm
constant	pump (diaphragm	
	pumps only)	
Spray pressure too high	Faulty pressure	Contact dealer
	regulation valve	
	Isolation valve in off	Re-set valve
	position	
Sudden pressure loss	No liquid in tank	Check sight gauge
	Liquid pipe burst	Check for leaks
	Blocked breather hole in	Clean obstruction
	tank	
Cannot stop spraying	Electrical fault on	Stop P.T.O., effect repair
	master ON/OFF spray	if possible
	switch or valves	
Nozzle drip when spray	Worn or faulty	Replace
switched off	diaphragm check valves	
	on nozzle body	
	Blocked C.R.S. debris	Clean
	in units	
Spray pattern incorrect	Incorrect boom height	Check height
	for jets selected	
	Worn flood tips	Replace

Damaged or incorrectly Replace	
fitted pressure filter	
Machine not flushed out Flush system thorou	
after use	using approved
	detergent
Pressure filter too	Select finer pressure
coarse	filter mesh
If pressure filter then	Check and replace
suction filter inoperative	
Filter mesh too fine	Fit coarser mesh
	fitted pressure filter Machine not flushed out after use Pressure filter too coarse If pressure filter then suction filter inoperative

FAULT FINDING ON ELECTRICS

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
No electric control	Electric's not connected	Connect up
	Blown line fuse	Check and replace

FAULT FINDING ON BOOM OPERATION

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
No hydraulic function	Faulty dump slice, faulty	Check operation inspect
	flow control	for debris, replace
Booms will not raise	Hydraulic pipe not	Connect with spool valve
	connected	·
	Hydraulic connections	Check and fully tighten
	not fully inserted or	clean
	blocked restrictors	
Boom will not open	Blocked restrictors	Check
		clean
	Hydraulic pipe trapped	Check
Booms will not close	Hydraulic pipe trapped	Check
	Restrictor on hydraulics	Check and clean, raise to
	blocked, booms not	maximum height
	raised sufficiently	

Boom will not maintain	Hydraulic leak /faulty	Check unions and tighten
height	seals	if necessary
	Spool valve faulty	Contact dealer
	Damaged accumulator	Contact dealer
Boom will not maintain	Worn or damaged	Adjust spring tension or
incline	centre springs	replace
Too much boom	Worn or damaged pivot	Replace
movement	worn dampers	
Boom sag	Badly adjusted stay	Adjust
	bars/eyebolts	

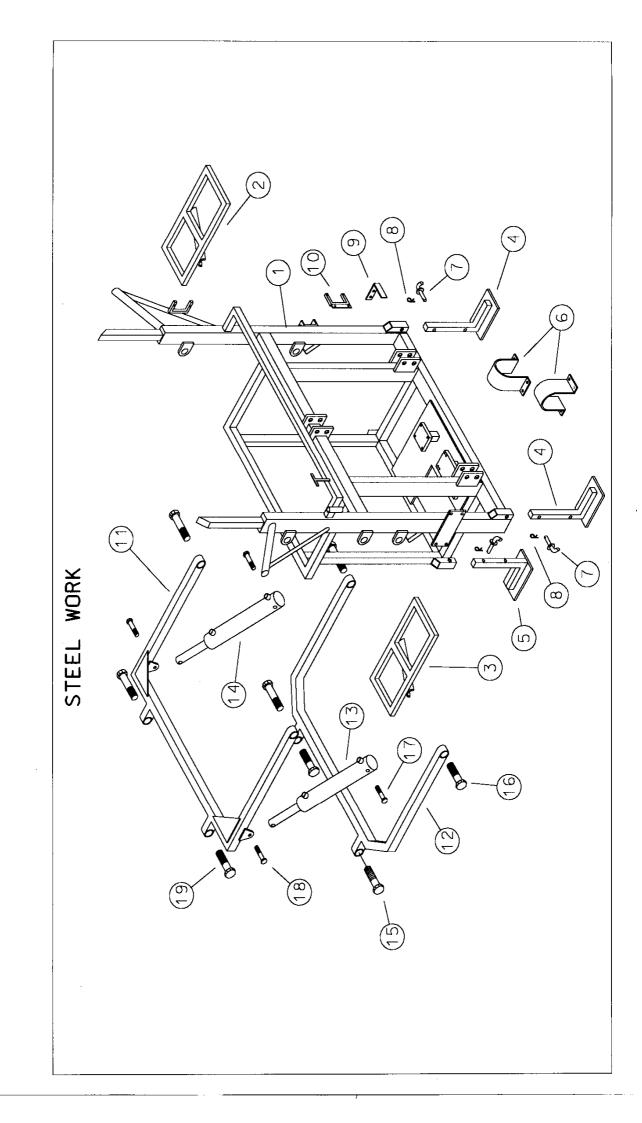
FAULT FINDING ON DRAINING

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
Tank will not drain	Blocked breather hole in	Remove lid and clear
	tank lid	hole
	Blocked sump drain	Check and clear

FAULT FINDING ON AIR SYSTEM

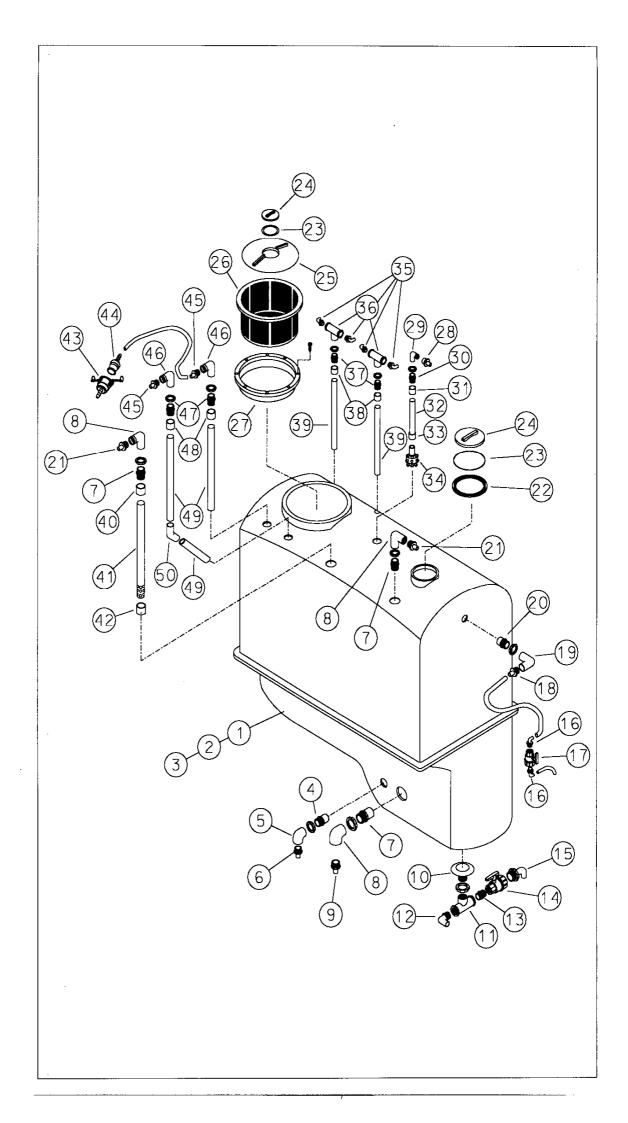
FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
Cannot obtain air	Air filter blocked	Change filter dry out
pressure	VANES WET (DRUM)	
	Air pressure gauge	Reconnect pipe
	disconnected	
	P.T.O. not at 540 r.p.m.	Set P.T.O. speed
	Pressure relief valve not	Replace
	working correctly	
	Air solenoids faulty	Check electrical
		connections and
		solenoids
	Coupling damaged	Fit new coupling
	between gear box and	
	compressor	
	Compressor damaged	Contact dealer
	Pressure gauge faulty	Change gauge
	Electric's not connected	Connect
Compressor over	P.T.O. speed too fast	Adjust to 540 r.p.m.
heating		
	Filter blocked	Replace
Air pressure too high	P.T.O. running too fast	Adjust to 540 r.p.m.
	Blocked silencer	Clean
	Faulty butterfly valve	Replace valve

MOUNTED SPRAYER LAYOUT



MOUNTED STEEL WORK

ITEM	PART No.	QTY.	DESCRIPTION
	BMF400	1	C/S mounted frame complete
1	BMF405	1	Tank frame
2		11	Left hand boom rest
3		1	Right hand boom rest
4	BMF411	2	Front de mount leg
5	BMF410	2	Rear de mount leg
6			Gaurde plates
7	BMF412	4	De mount leg pin
8	S10	4	R' clip
9			
10			Polmac mounting bracket
11	BMF409	1	Upper pantograph arm
12	BMF410	1	Lower pantograph arm
13	RM4705A	1	Left hand lift frame
13a	RSK4703	1	Lift ram seal kit
14	RM4705B	1	Right hand lift frame
15			Bolt & lock nut
16	,		Bolt & lock nut
17			Bolt & lock nut
18	· · · · · · · · · · · · · · · · · · ·		Bolt & lock nut
19			Bolt & lock nut



MOUNTED SPRAY TANK

ITEM	PART No.	QTY.	DESCRIPTION
1	TA1200CS	1	1200L tank
2	TA1000CS	1	1000L tank
3	TA800CS	1	800L tank
4	PF075TU	1	3/4" tank union
5	PF075TU	1	3/4" elbow
6	NFWA3434	1	3/4" hose tail
7	PF125TU	3	11/4" tank union
8	PF125TT90	3	11/4" elbow
. 9	NFWA1141	1	11/4" - 1" hose tail
10	TA200BH	1	2" anti vortex tank entry
11	NFWTT200	1	2" tee
12	NFWEL200	1	2" elbow hose tail
13	NFWM200112	1	2" - 11/2" reducing nipple
14	VE112	1	11/2" 2 way tap
15	NFWEL112	1	11/2" elbow hose tail
16	NFWEL1212	2	1/2" elbow hose tail
17	VE12	1	1/2" 2 way tap
18	NFWA1212	1	1/2" hose tail
19	PF050TT90	1	1/2" elbow
20	PF050TU	1	1/2" tank entry
21	NFWA114	2	11/4" hose tail
22	TL063-057	1	Neck ring
23	TL01352000-020	2	Seal
24	TL063-059	2	Tanklid breather
25	TL063-058	1	Tank lid
26	TF-5300A649	1	Basket
27	TL01350401	1	Neck ring
28	NFWA3410	1	3/4" - 1" hose tail
29	PF075TT90	1	3/4" eibow
30	PF075TU	1	3/4" elbow
31	PF075SPP	1	3/4" socket
32.	РНТ075	1	3/4" pvc pipe

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33	PF075SPT	1	3/4" socket
34	LUTS1	1	Tank wash nozzle
35	NFWEL1214	4	1/2" - 1/4" elbow hosetail
36	NFWTT12	2	1/2" tee
37	PF050TU	2	1/2" tank union
38	PF050SPP	2	1/2" socket
39	PHT050	2	1/2" pvc pipe
40	PF125SPP	1	11/4" socket
41	PHT125	1	11/4" pvc pipe
42	PF125CP	1	11/4" cap
43	CL100CH	l	Cam lock
44	CL100AH	1	Cam lock
45	NFWA1010	2	1" hose tail
46	PF100TT90	2	1" elbow
47	PF100TU	2	1" tank union
48	PF100SPP	2	I" socket
49	PHT100	3	I" pvc pipe
50	PF100PP45	1	1" 45deg. Elbow

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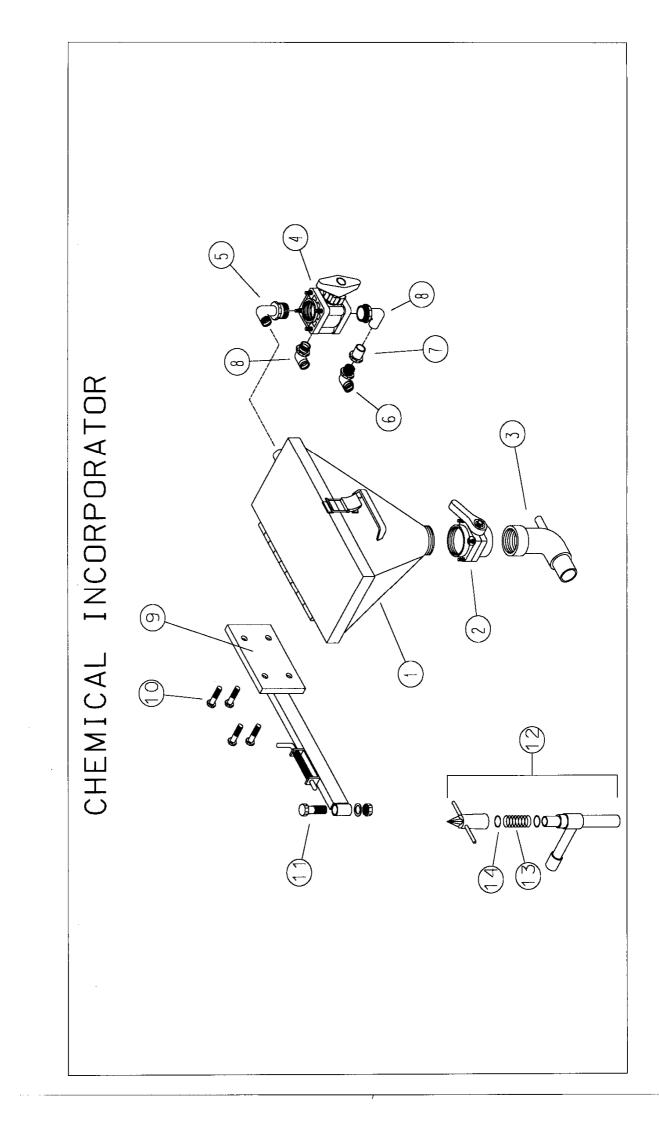
SUCTION LAYOUT (6 DIA. PUMP)

SUCTION LAYOUT (6 DIA. PUMP)

ITEM	PART No.	QTY.	DESCRIPTION
1	PV5W	1	5 way polmac valve
2	FS200-50	1	2" suction filter
3	PV1PR	1	Safety valve
4	VCT3W114	1	3 way valve
5	NFWEL200	1	2" elbow hose tail
6	NFWEL114	1	11/4" elbow hose tail
7	NFWSE200-45	1	2" street elbow
8	CL200AM	1	2" cam lock
9	NFWM200	1	2" nipple
10	NFWTT200	1	2" tee
11	NFWSE200	1	2" street elbow
12	PF200TT90	1	2" elbow
13	NFWM200114	1	Reducing nipple
14	NFWEL1141	1	11/4" - 1" elbow hosetail
15	PF100TT90	1	1" elbow
16	NFWA1034_	1	1" - 3/4" hose tail
17	CL200CAP	1	2" cam lock cap

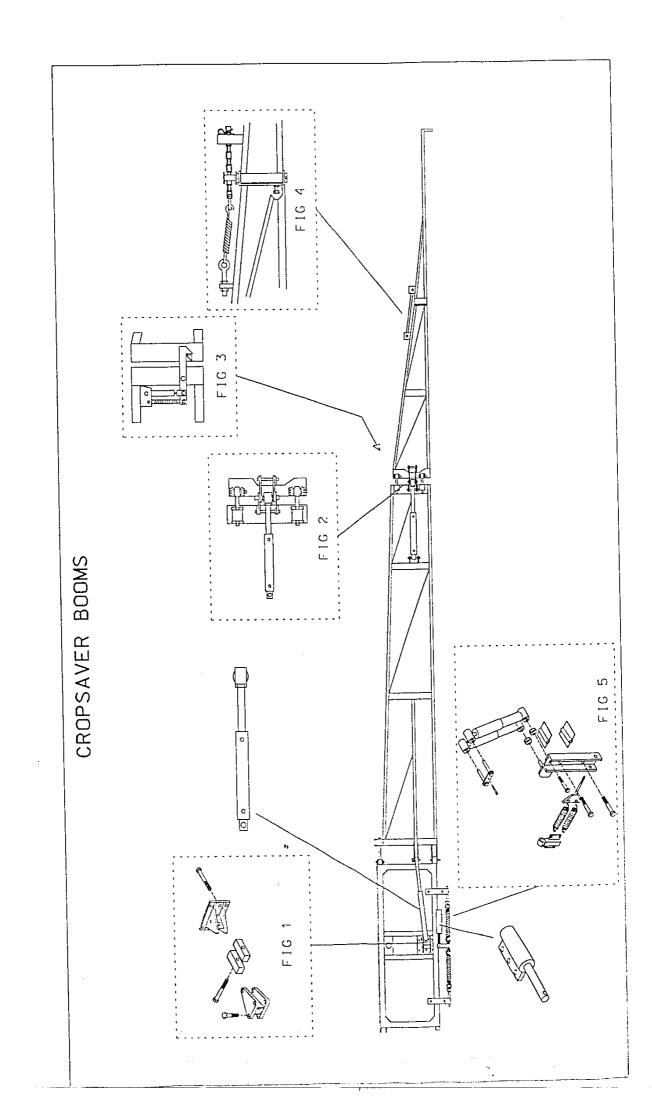
PRESSURE LAYOUT (6 DIA. PUMP)

ITEM	PART No.	QTY.	DESCRIPTION
1	PV5W	1	5 way polmac valve
2	FL150-50	1	11/2" flushing filter
3	VE34	1	3/4" tap
4	NFWM1034	1	Reducing nipple
5	NFUA3410	1	3/4" - 1" hosetail
6	NFWEL114	1	11/4" elbow hose tail
7	CL200CM	1	2 " camlock
8	CL200AF	1	2" plug
9	NFWA3434	1	3/4" hose tail
10	NFWTT34	1	3/4" tee
11	NFWEL3412	1	3/4" - 1/2" elbow hose tail
12	NFWSE34	1	3/4" street elbow
13	NFWM11434	1	11/4" - 3/4" reducing nipple
14	NFWRB200114	1	2" - 11/4" reducing bush
15	NFWEL112	2	11/2" elbow hose tail
16	NFWRB200112	11	2" - 11/2" reducing bush
17	NFWM112	1	11/2" nipple

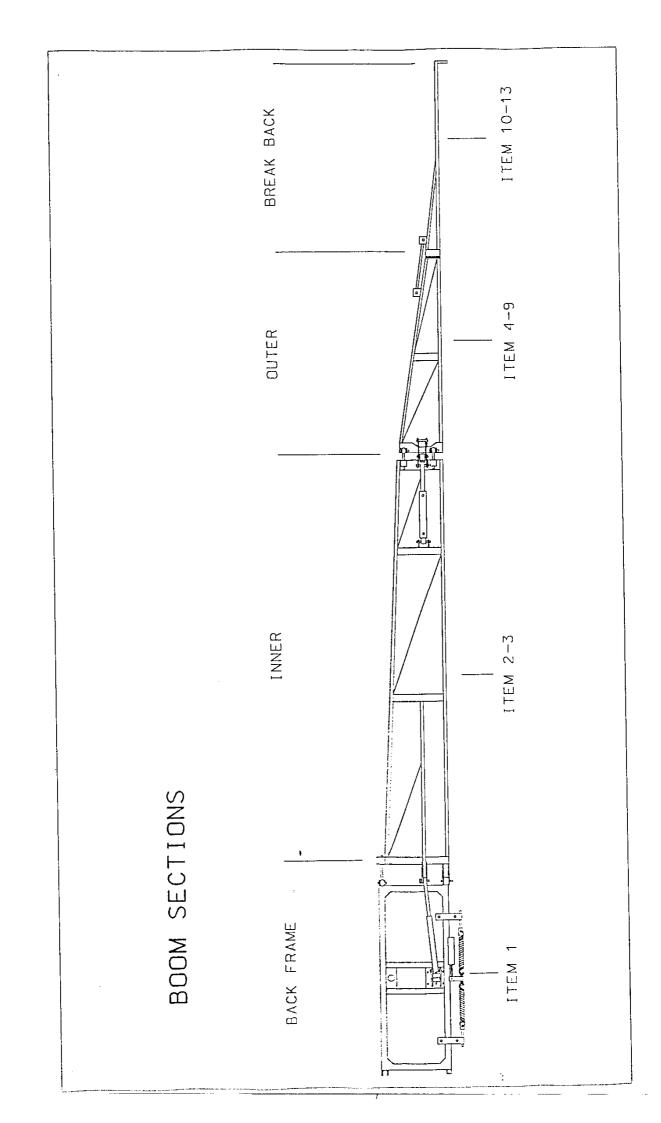


CHEMICAL INCORPORATOR

ITEM	PART No.	QTY.	DESCRIPTION
1	ACC112	1	15L SS incorporator bowl
2	ACC107	1	25L SS incorporator bowl
3	VE200	1	2" banjo stubby valve
4	ACC1077	1	SS venturi
5	NFWSE12	1	1/2" 3 way safi valve
6	PF050TT90	1	1/2" street elbow
7	NFWA1212	1	1/2" PVC elbow
8	NFWEL1212	2	1/2" hose tail elbow
9	BMF406	1	Incorporator arm
10	M8X25HB	4	Bolt & locknut
11	M12X100HB	. 1	Bolt & locknut
12	ACC107A	1	Plunger assembly complete
12a	ACC107B	1	Plunger assembly less spigot
13	ACC107C	1	SS spring
15	ACC107D	2	O' ring



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BOOM SECTIONS

LOW INCLINE

ITEM	PART No.	QTY.	DESCRIPTION
1	BMF356	1	Outer back frame low incline
2	BMF352	1	Left hand inner
3	BMF351	1	Right hand inner
4	BMF337	1	18m left hand outer
5	BMF336	1	18m right hand outer
6	BMF321	1	20m & 21m left hand outer
7	BMF320	11	20m & 21m right hand outer
8	BMF354	1	24m left hand outer
9	BMF353	ı	24m right hand outer
10	BMF323	1	Standard left hand break back
11	BMF322	1	Standard right hand break back
12	BMF329	1	21m left hand break back
13	BMF326	1	21m right hand break back

NORMAL INCLINE

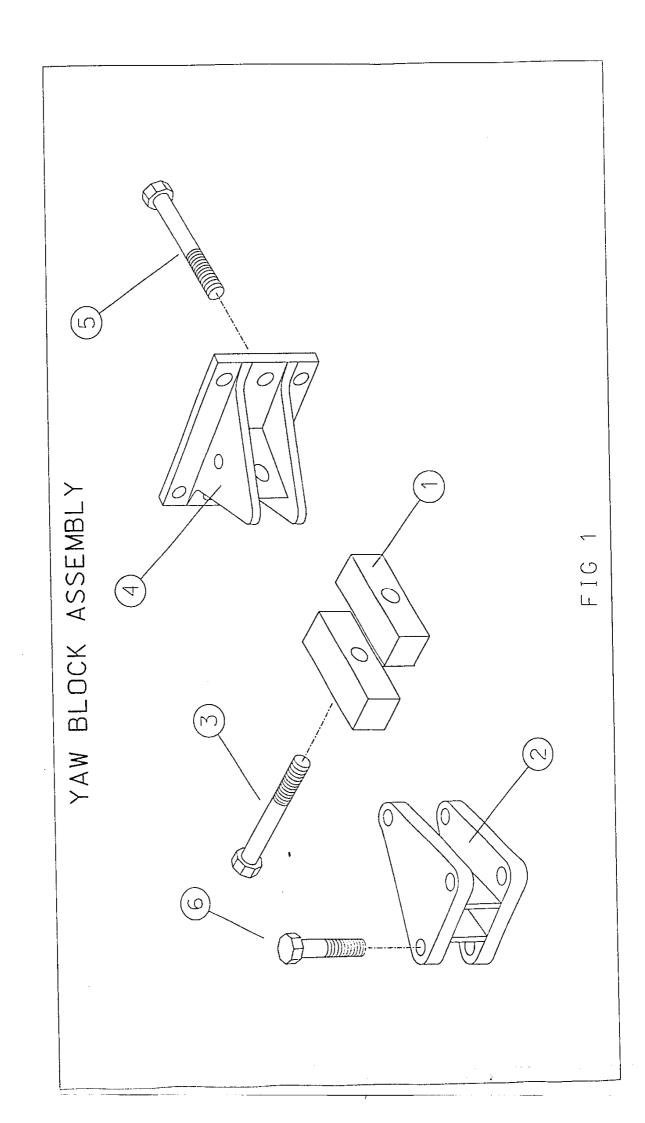
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ITEM	PART No.	QTY.	DESCRIPTION
1	BMF312	1	Outer back frame normal incline
2	BMF319	1	Left hand inner
. 3	BMF318	11	Right hand inner
4	BMF321	1	20m & 21m left hand cuter
5	BMF320	1	20m & 21m right hand outer
6	BMF337	ı	18m left hand outer
7	BMF336	1	18m right hand outer
10	BMF323	1	Standard left hand break back
11	BMF322	ı	Standard right hand break back
12	BMF326	1	21m right hand break tack
13	BMF329	1	21m left hand break back

INNER BACKFRAME

ITEM	PART No.	QTY.	DESCRIPTION
1	BMF355	1	Inner back frame
2	M20X120HB	4	Bolt & lock nut
3	S6845	1	30mm washer
4	LPS40	1	Lynch pin
5	M4X40HB	1	Bolt & lock nut
6	BMF311	1	Inner back frame



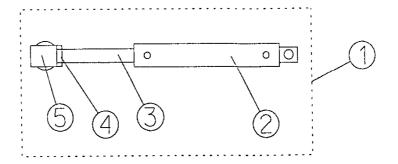
YAW BLOCK ASSEMBLY

ITEM	PART No.	QTY.	DESCRIPTION
1	BS01	2	Poly yaw block
2	BMF004/4	1	Poly block housing
3	M10X130HB	1	Bolt & nut
4	BMF004	1	Centre mount
5	M12X55HB	6	Bolt & nut
6	M20X110HB	3	Bolt & nut

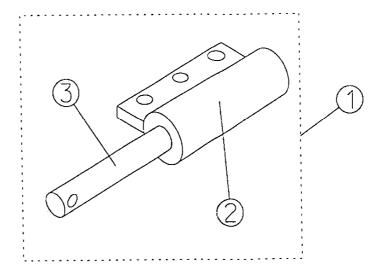
TILT MECHANISM

ITEM	PART No.	QTY.	DESCRIPTION
1	BMF359	2	Giude channel
2	BMF316	2	Spring tension adjuster
3	M16X100HB	4	Clamp retaining bolt & lock nut
4	BMF317	2	Clamp spacer
5	SPT10	4	Tilt spring
6	BMF314	1	Tilt ram spring mount
7	M12X100HB	2	Bolt & locknut
8	M8X20	2	Bolt & locknut
9	BMF360	2	Shock absorber bracket
10	M16	4	Spacer nut
11	SAR3202	4	Shock absorber
12	BMF361	1	Tilt ram bracket
13	BMF358	1	Spring tension adjuster
14	BMF315	2	Centre section back frame clamp

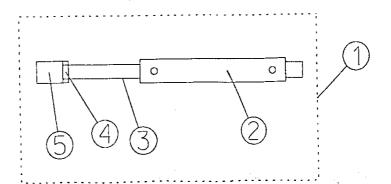
MAIN FOLD RAM



TILT RAM



OUTER, FOLD RAM



MAIN FOLD RAM

ITEM	PART No.	QTY.	DESCRIPTION
1	RM4703	2	Complete ram assembly
2	RSK4703	2	Seal kit
3	RM4703P	2	Piston
4	M20X1.5LN	2	Locking nut
5	BR1027	2	Rod eye

TILT RAM

ITEM	PART No.	QTY.	DESCRIPTION
1	RM5849	1	Complete ram assembly
2	RSK5849	1	Seal kit
3	RM5849P	1	Piston

OUTER FOLD RAM

ITEM	PART No.	QTY.	DESCRIPTION
1	RM5656	2	Complete ram assembly
2	RSK5656	2	Seal kit
3	RM5656P	2	Piston
4	M20X1.5LN	2	Locking nut
5	RM5656-E	2	Rod eye

FOLD HINGE ASSEMBLY

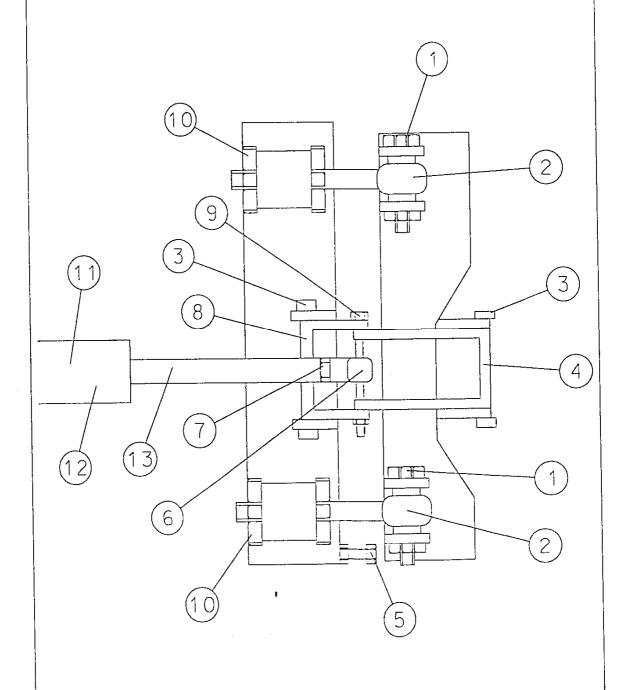


FIG 2

FOLD HINGE ASSEMBLY

ITEM	PART No.	QTY.	DESCRIPTION
1	3/4"X4"UNC	4	Bolt & nut
2	S291	4	Top link end
3	M16X180HB	4	Bolt & nut
4	BMF334	2	Outer scissor
5	M16X60HB	2	Bolt & nut
6	RM5656-E	2	Rod end
7	M20X1-SLN	2	Lock nut
8	BMF333	2	Inner scissor
9	M16X160HB	2	Bolt & nut
10	11/8"UNC	12	Nut
11	RM5656	2	Ram assembly complete
12	RSK5656	2	Seal kit
13	RM5656P	2	Piston assembly

lock catch

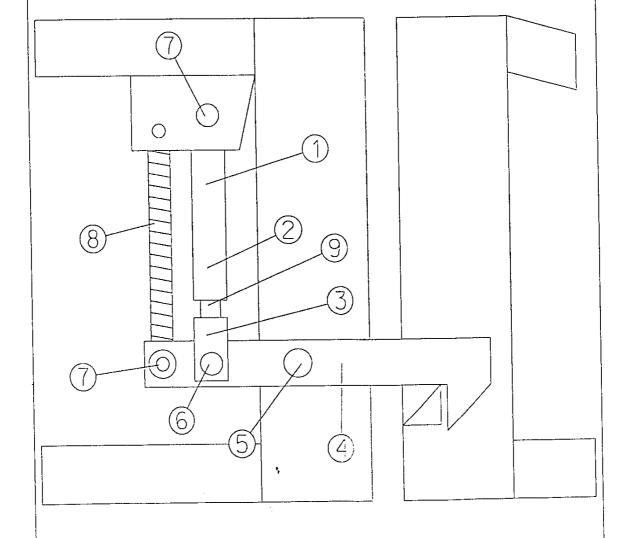
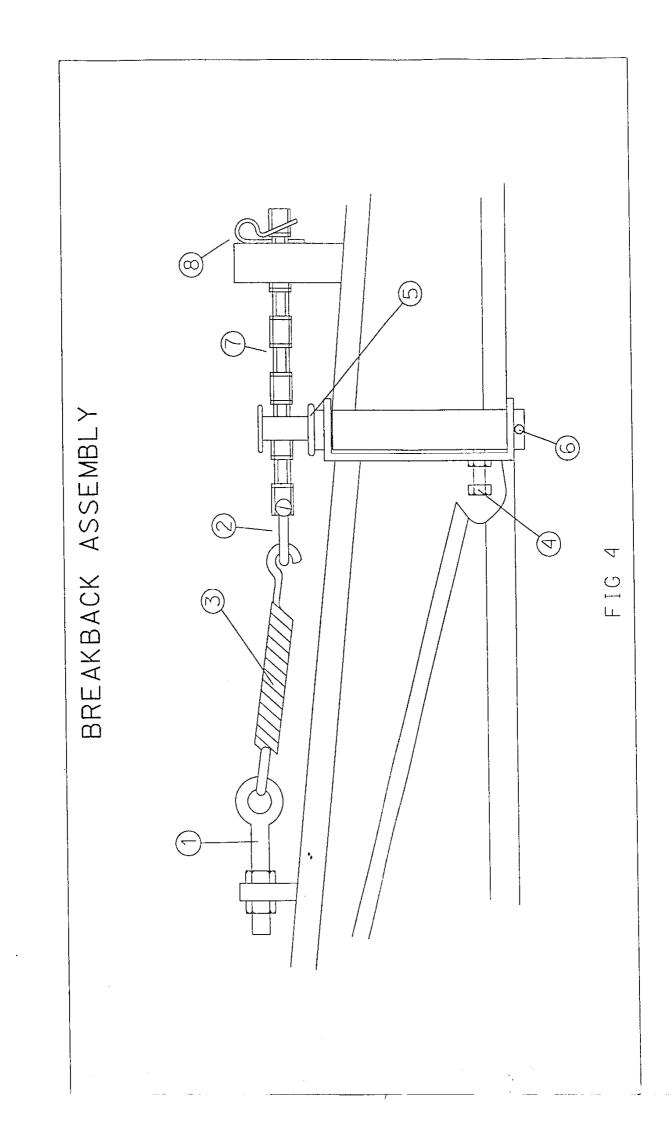


FIG 3

LOCKING CATCH ASSEMBLY

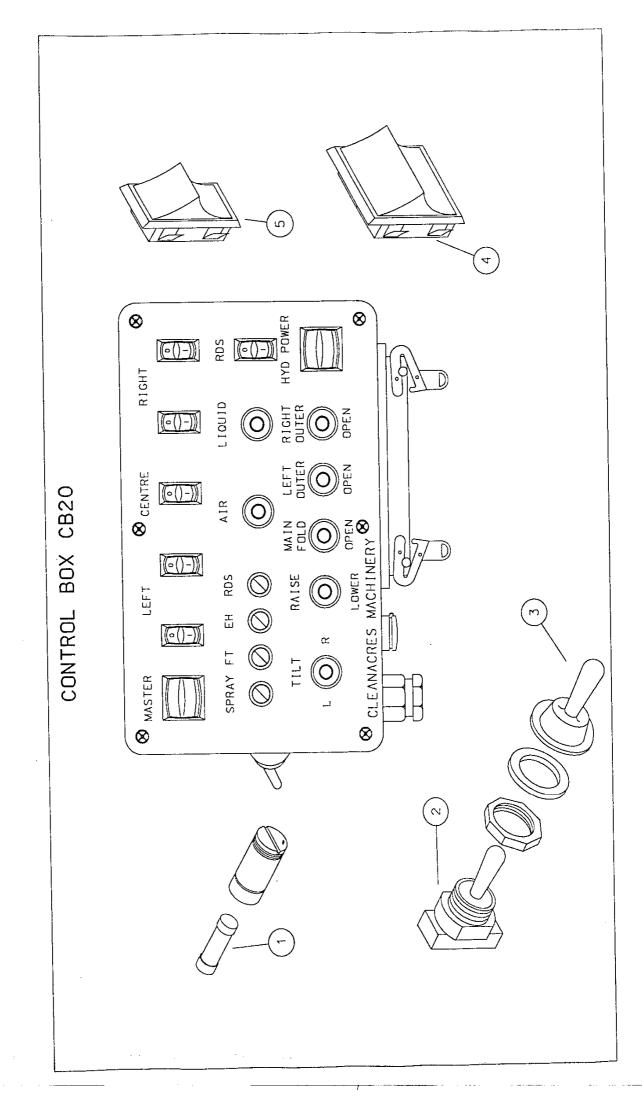
ITEM	PART No.	QTY.	DESCRIPTION
1	RM6133	2	Double acting locking ram
2	RSK4867	2	Seal kit
3	RM6133-G	2	Piston socket
4	BMF335	2	Locking hook
5	M16X75HB	2	Bolt & nut
6	MI2X55HB	2	Bolt & nut
7	M10X75HB	2_	Bolt & nut
8	SP14501	2	Spring
9	RM6133P	2	Piston

}



BREAKBACK ASSEMBLY

ITEM	PART No.	QTY.	DESCRIPTION
1	WS12	ı	12mm rigging screw
2	DS2764	4	D' shackle
3	SPT8	2	Tension spring
4	M16X60HB	2	Set bolt & lock nut
5	M20X230	2	Retaining pin
6	M6X40HB	2	Pin retaining bolt
7	BR1037	2	400mm roller chain
8	S14	2	R' clip



CB 20 ELECTRIC HYDRAULICS 24 PIN

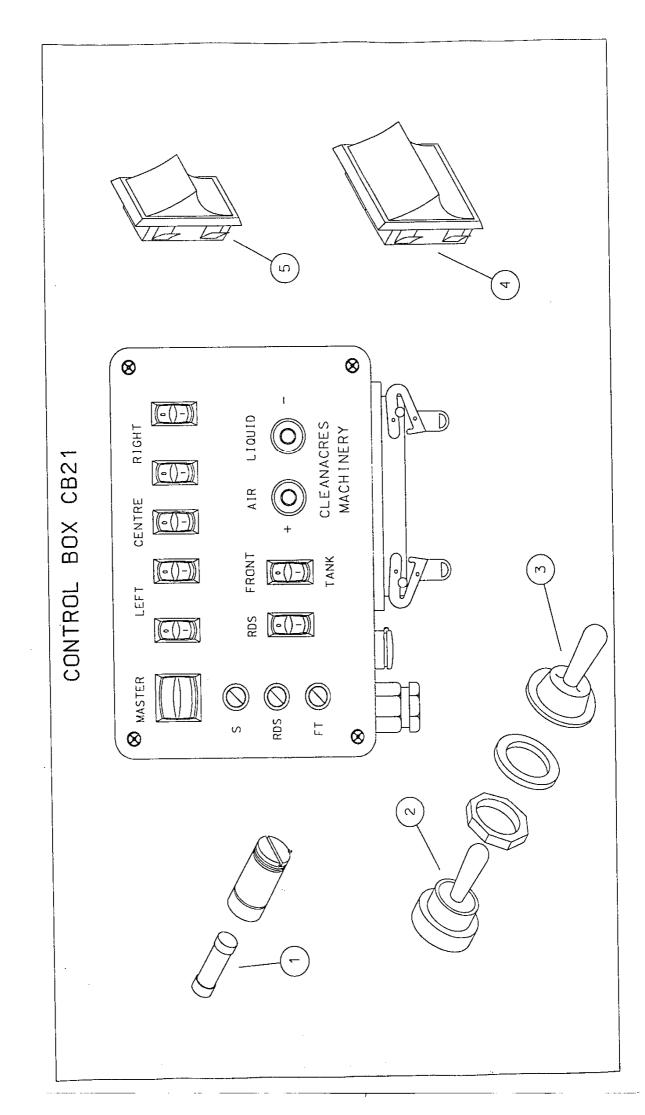
WIRES		COLOUR	PIN No.
1 & 24	BALL VALVE LIVE		1
2, 23, & GREEN/YELLOW	EARTH		2
3	LEFT OUTER	BROWN	3
4	LEFT INNER	BLUE	4
5	CENTER	YELLOW	5
6	RIGHT INNER	GREEN	6
7	RIGHT OUTER	RED	7
8 *	AIR VALVE+	YELLOW/RED	8
9 *	AIR VALVE -	WHITE/RED	9
10	LIQUID VALVE +	PINK	10
11	LIQUID VALVE -	PURPLE	11
12	BOOM RAISE	YELLOW/GREEN	12
13	BOOM LOWER	WHITE/GREEN	13
14	MAIN FOLD OPEN	GREEN/BLUE	14
15	MAIN FOLD CLOSE	GREY/BLUE	15
16	LEFT FLIP OPEN	ORANGE/GREEN	16
17	LEFT FLIP CLOSE	GREY/GREEN	17
18	RIGHT FLIP OPEN	YELLOW/BROWN	18
19	RIGHT FLIP CLOSE	WHITE/BROWN	19
20	TILT LEFT	WHITE	20
21	TILT RIGHT	GREY	21
22	DUMP VALVE	TURQOISE	22
23	SEE PIN 2		
24	SEE PIN 1		

- * IF RDS USE WIRE 8 AND PIN 8 FOR WHEEL SPEED SENSOR +
- WIRE 9 AND PIN 9 FOR WHEEL SPEED SENSOR –
- DISCONNECT / INSULATE 12v + FEED WIRE TO AIR AND LIQUID VALVE SWITCHES.

NOTE: CHECK SPRAY FUSE - MUST BE 5 amp

4 SECTION BOXES – BLANK OFF CENTRE Sw. 3 SECTION BOXES – BLANK OFF LEFT AND RIGHT OUTER SWITCHES

ALSO DISCONNECT / INSULATE 12v FEED WIRE TO SWITCHES THAT HAVE BEEN BLANKED OFF.



CB 21 MANUAL HYDRAULICS 16 PIN

WIRES			COLOUR	PIN No.
1 & 16		BALL VALVE LIVE		1
2 & GREEN/YELLOW		BALL VALVE EARTH		2
3		LEFT OUTER	BROWN	3
4		LEFT INNER	BLUE	4
5		CENTER	YELLOW	5
6		RIGHT INNER	GREEN	6
7		RIGHT OUTER	RED	7
8	*	AIR VALVE +	GREY	8
9	*	AIR VALVE -	GREY	9
10		LIQUID VALVE +	PURPLE	10
11		LIQUID VALVE -	PURPLE	11
12		EARTH		12
13		EARTH		12

WIRES 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, ARE NOT USED.

- * IF RDS USE WIRE 8 AND PIN 8 FOR WHEEL SPEED SENSOR +
- WIRE 9 AND PIN 9 FOR WHEEL SPEED SENSOR –
- DISCONNECT / INSULATE 12v + FEED WIRE TO AIR AND LIQUID VALVE SWITCHES.

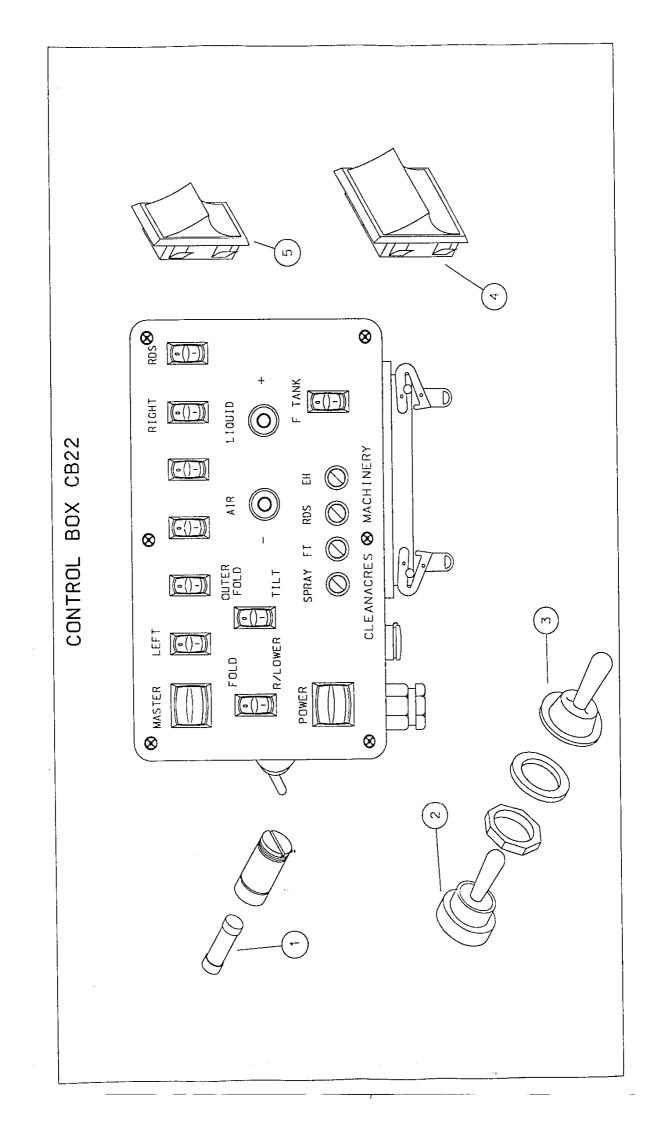
NOTE: CHECK SPRAY FUSE - MUST BE 5 amp

4 SECTION BOXES – BLANK OFF CENTER Sw. 3 SECTION BOXES – BLANK OFF LEFT AND RIGHT OUTER SWITCHES

ALSO DISCONECT / INSULATE 12v + FEED WIRE TO SWITCHES THAT HAVE BEEN BLANKED OFF.

IMPORTANT: CHECK 16 PIN SOCKET HAS HAD EARTH WIRE FITTED BETWEEN PIN 12 AND BOX EARTH TERMINAL BLOCK.

IF NOT FIT ONE.



CB 22 MANUAL HYDRAULICS 16 PIN ELECTRIC DIVERTER VALVES

WIRES		COLOUR	PIN No
1 & 16	BALL VALVE LIVE		1
2 & GREEN/YELLOW	BALL VALVE EARTH		2
3	LEFT OUTER	BROWN	3
4	LEFT INNER	BLUE	4
5	CENTER	YELLOW	5
6	RIGHT INNER	GREEN	6
7	RIGHT OUTER	RED	7
8	* AIR VALVE +	GREY	8
9	* AIR VALVE -	GREY	9
10	LIQUID VALVE +	PURPLE	10
11	LIQUID VALVE -	PURPLE	11
12	OUTER FOLD/TILT Sw. 1st DIVERTER VALVE		12
13	EARTH		13
14	MAIN FOLD/RAISE Sw. 2nd DIVERTER VALVE		14
15	EARTH		15
16	SEE PIN 1		
17	EARTH		17
18	EARTH		17
10	EMCIT		

WIRES 19, 20, 21, 22, 23, 24 ARE NOT USED

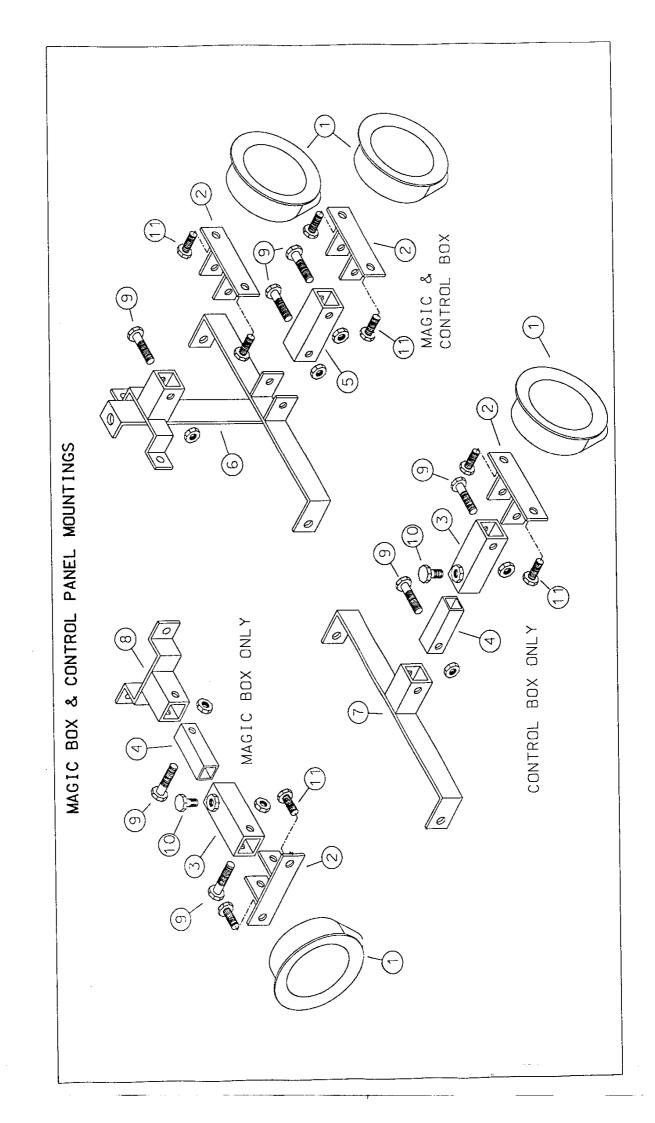
- * IF RDS USE WIRE 8 AND PIN 8 FOR WHEEL SPEED SENSOR +
- WIRE 9 AND PIN 9 FOR WHEEL SPEED SENSOR –
- DISCONNECT / INSULATE 12v + FEED WIRE TO AIR LIQUID VALVE SWITCHES.

NOTE: CHECK SPRAY FUSE MUST BE 5 amp

4 SECTION BOXES – BLANK OFF CENTRE SW 3 SECTION BOXES – BLANK OFF LEFT AND RIGHT OUTER SWITCHES

ALSO DISCONNECT / INSULATE 12v + FEED WIRE TO SWITCHES THAT HAVE BEEN BLANKED OFF.

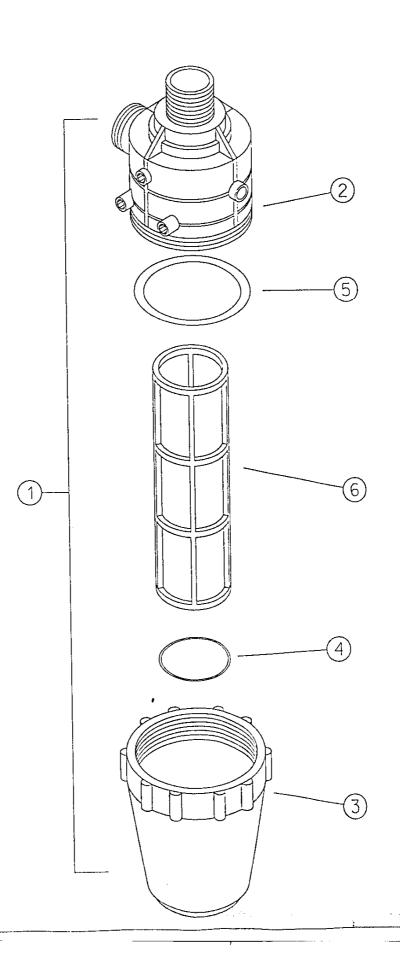
IMPORTANT: CHECK 16 PIN SOCKET HAS HAD EARTH WIRES FITTED BETWEEN PIN 2 AND EARTH TERMINAL BLOCK – AND BETWEEN PIN 17 AND EARTH TERMINAL BLOCK. IF NOT FIT ONE.



MAGIC BOX & CONTROL PANEL MOUNTING

ITEM	PART No.	QTY.	DESCRIPTION
1	RS288-4226	1	Suction pad
2	BMF114	1	Mounting base
3	BMF119	1	Magic box extension bar
4	BMF120	1	Magic box extension bar insert
5	BMF115	1	Mounting extension bar
6	BMF112	11	Magic box & small control box mount
	BMF113	1	Magic box & large control box mount
7	BMF116	1	Small control box mount
	BMF117	1	Large control box mount
8	BMF118	1	Magic box mount
9	M8X35HB	1	Bolt & lock nut
10	M8X20HB	1	Bolt
11	м6Х20НВ	2	Bolt & lock nut

SUCTION FILTER



SUCTION FILTER 1 1/4"

ITEM	PART No.	QTY.	DESCRIPTION
1	FS125/50	1	Complete unit
2	FS125FH	1	Filter hood
3	FS125FB	1	Filter bowl
4	FS125RR	1	Retaining ring
5	FS125OR	1	Bowl seal
6	FS125EW'30	1	Filter mesh

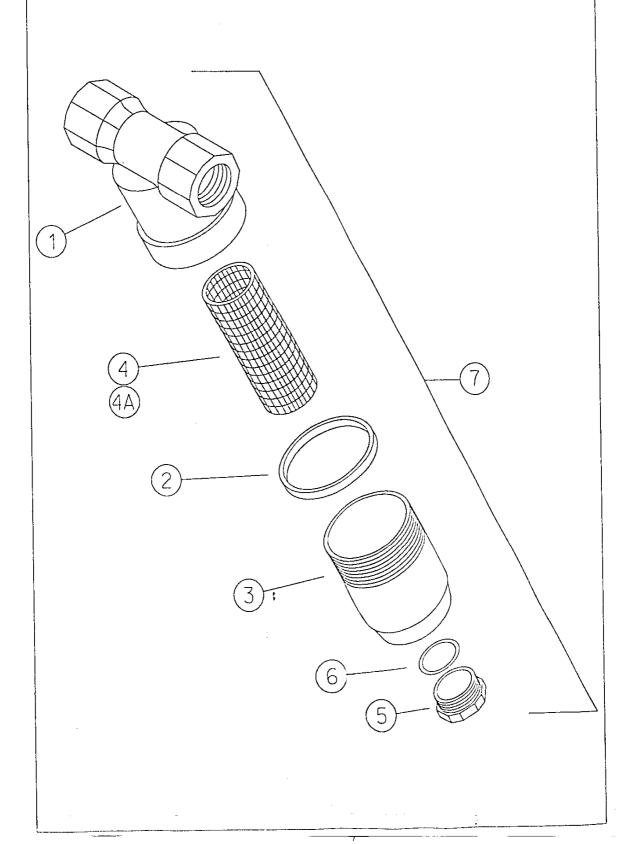
SUCTION FILTER 1 1/2"

1	FS150′50	1_	Complete unit
2	FS150FH	1	Filter hood
3	FS150FB	1	Filter bowl
4	FS150RR	1	Retaining ring
5	FS150OR	1	Bowl seal
6	FS150EW30	1	Filter mesh

SUCTION FILTER 2"

1	FS200′50	1	Complete unit
2	FS200FH	1	Filter hood
3	FS200FB	1_1_	Filter bowl
4	FS200RR	1	Retaining ring
5	FS200OR	i	Bowl seal
6	FS200EW30	1	Filter mesh

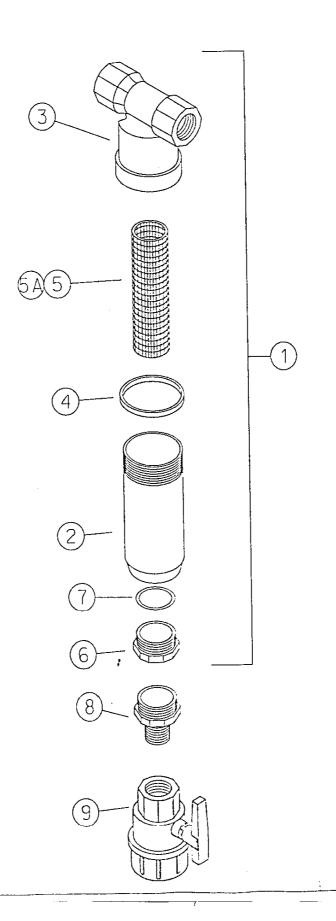
'Y' LINE STRAINER



"Y" LINE STRAINER

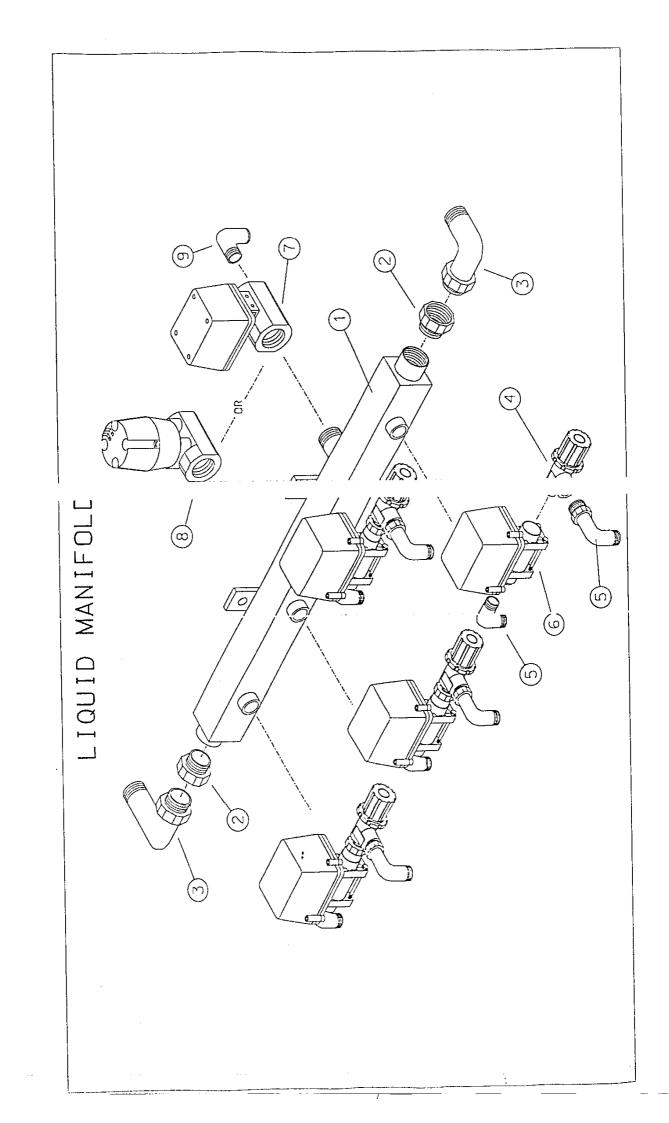
ITEM	PART No.	QTY.	DESCRIPTION
1	BF200NH	1	Body
2	BF150SEAL	1	Gasket
3	BF200NB	l	Bowl
4	BF200-50FL	1	50 mesh screen
4A	BF200-80FL	1	80 mesh screen
5	BF200NP	1	Plug
6	BF200BG	ı	Gasket
7	BF200-50	1	Complete unit

PRESSURE FILTER



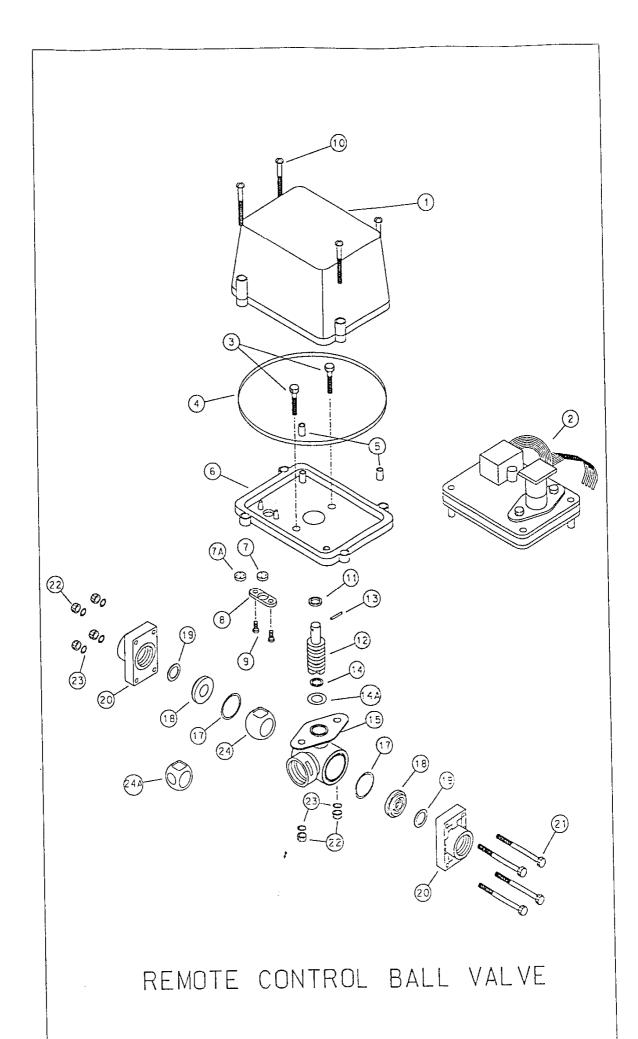
PRESSURE FILTER

ITEM	PART No.	QTY.	DESCRIPTION
1	FL150NY	1	Complete unit
2	FL150NB	1	Bowl
3	FL150NH	1	Hood
4	FL12291	1	Bowl seal
5	FE150-50	1	50 mesh screen
5A	FE150-30	1	30 mesh screen
6	NFWF1000	1	Plug
7	FL7717-2/VI	1	Plug seal
FLUSHIN	NG OPTION		
8	NFWM1034	1	Reducing nipple
9	VE34	1	Valve



LIQUID MANIFOLD

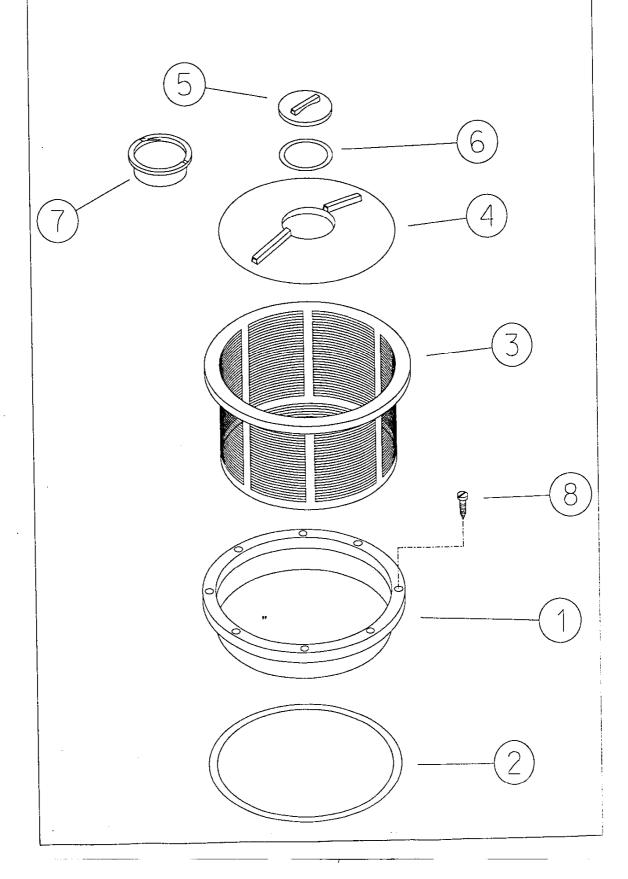
ITEM	PART No.	QTY.	DESCRIPTION
1	MASS003	1	800mm ss. Manifold
2	NFWRB112-114	1	1 1/2" - 1 1/4" reducer
3	NFWEL114	1	1 1/4" elbow
4	VT34	1	3/4" throttle valve
5	NFW3434	2	3/4" elbow
6	V344EC	1	3/4" electrical ball valve (4 wires)
7	RDS018	1	1" pressure control valve
8	VBT100	1	1" butterfly valve
9	NFWEL1010	1	I" elbow



TANK LID / BREATHER / BASKET

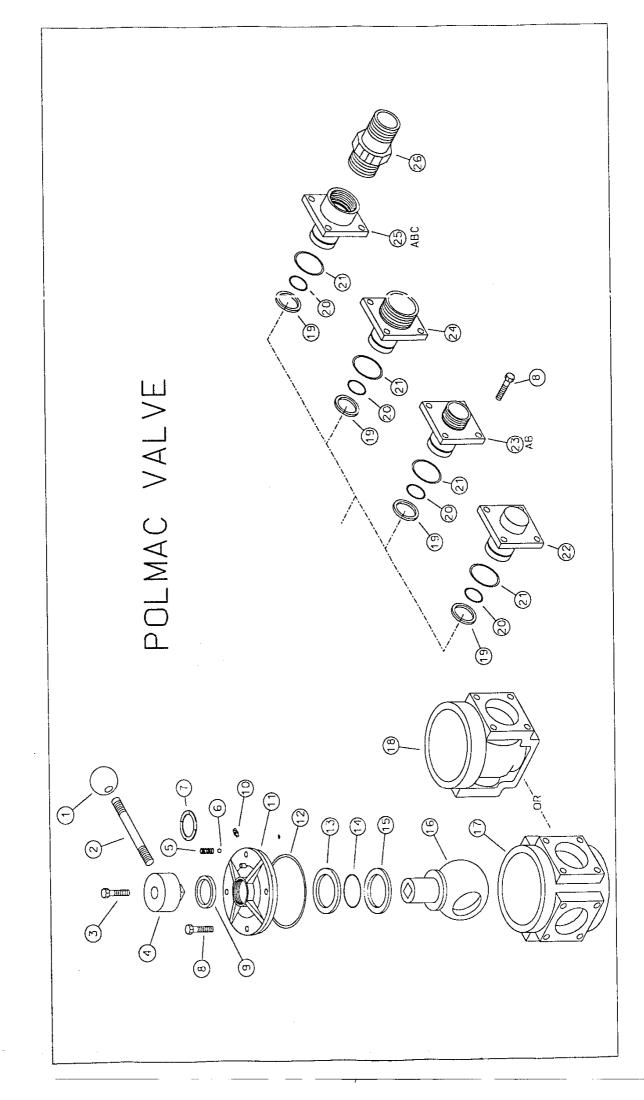
ITEM	PART No.	QTY.	DESCRIPTION
1	TL063-057	1	Rim
2	TL063-037	1	Gasket
3	TF-5300A649	1	Basket
4	TL063-058	1	Lid
5	TL063-059	1	Vent
6	TL01352000-020	1	Vent seal
7	TL01350401	1	Neck ring
8	TL028-388	8	Fixing screws

TANK LID/BREATHER/BASKET



POLMAC VALVE

ITEM	PART No.	QTY.	DESCRIPTION
1	PV82420832		Knob
2	PV10403625	·····	Handle shaft
3	PV86194925		M5 x 80 bolt
4	PV10400932		Handle hub
5	PV72401361		Spring
6	PV80110100		Ball bearing
7	PV10403732		Locating disc
8	PV86321125		M10 x 20 bolt
9	PV80028000		De-tent ring
10	PV81465700		Grease nipple
11	PV10400829		Front cover
12	PV80006500		O' ring
13	PV80028700		Front seal
14	PV80006600		O' ring
15	PV10401332		Teflon disc
16	PV10402232		Ball
17	PV10400529		5 Way body
18	PV10401529		3 Way body
19	PV10400300	ļ	Teflon disc
20	PV10400231		O' ring
21	PV80006400		O' ring
22	PV10401732	<u> </u>	Blank flange
23A	PV10401432		1 1/4"B.S.P. male flange
23B	PV10401432		1 1/2"B.S.P. male flange
24	PV10400132		2"B.S.P. male flange
25A	PV10400132		1 1/4"B.S.P. female flange
25B	PV10400132		1 1/2"B.S.P. female flange
25C	PV10400132		2"B.S.P. female flange
26	PV10400632		60 mm. Hose tail



2 WAY SAFI BALL VALVE

ITEM	PART No.	QTY.	DESCRIPTION
4	VS2W12	1	1/2" Valve
	VS2W34	1	3/4" Valve
	VS2W1	1	1" Vaive
	VS2W114	1	1 1/4" Valve
	VS2112	1	l 1/2" Valve
	VS2W2	1	2" Valve

3 WAY SAFI BALL VALVE

ITEM	PART No.	QTY.	DESCRIPTION
4	VS3W12	1	1/2" Valve
	VS3W34	1	3/4" Valve
	VS3W1	1	1" Valve
	VS3W114_	1	1 1/4" Valve
	VS3W112	1	1 1/2" Valve
	VS3W2	1	2" Valve

2 WAY ECONOMY BALL VALVE

ITEM	PART No.	QTY.	DESCRIPTION
3	VE12	1	1/2" Valve
	VE34	1	3'4" Valve
	VE12	1	I" Valve
	VEI14	1	1 1/4" Valve
	VE112_	1	1 1/2" Valve
	VE2	1	2" Valve
	VE200	1	2" Stubby valve (male to female)

POLMAC SAFETY VALVE

ITEM	PART No.	QTY.	DESCRIPTION
1	PVIPR	1	Safety valve

THROTTLE VALVE

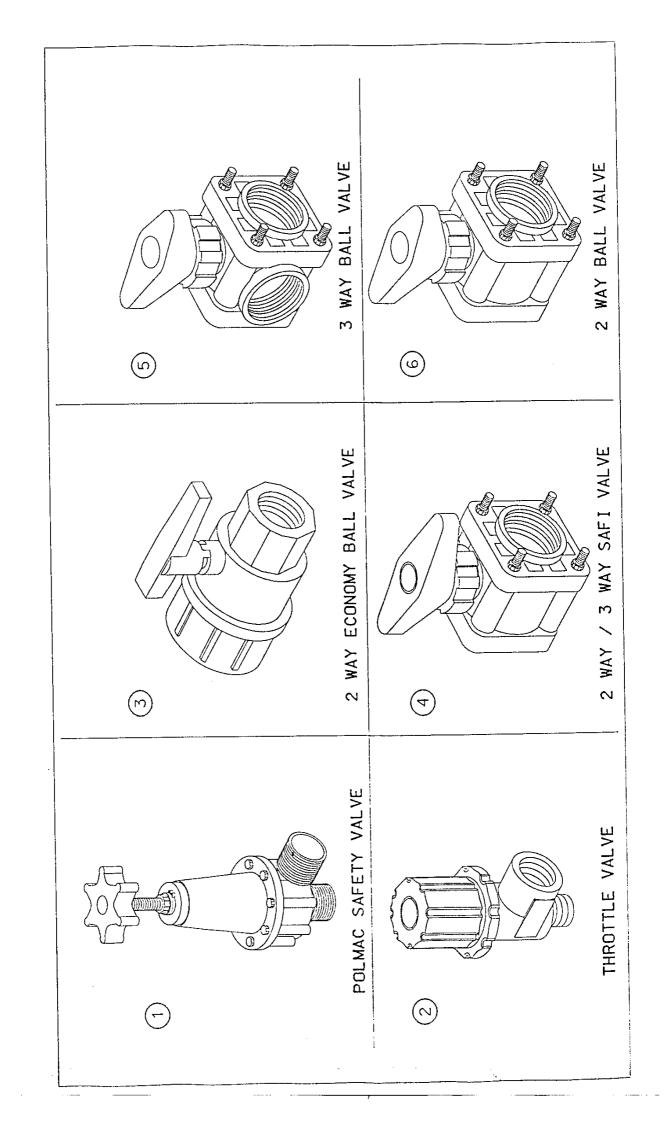
ITEM	PART No.	QTY.	DESCRIPTION
2	VT23520	1	1/2" Throttle valve
	VT34	1	3/4" Throttle valve

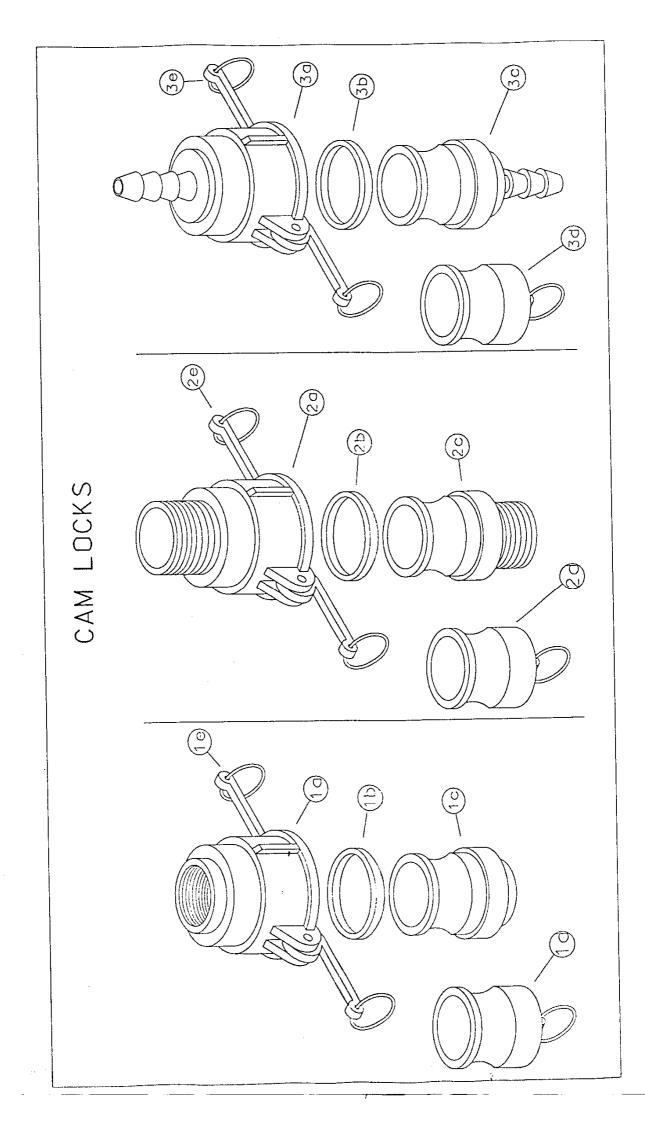
2 WAY BALL VALVE

ITEM	PART No.	QTY.	DESCRIPTION
6	VCT2W12	1	1/2" Valve
	VCT2W34	1	3/4" Valve
	VCT2W1	1	I" Valve
	VCT2W114	1	1 1/4" Valve
	VCT2W112	1	1 1/2" Valve

3 WAY BALL VALVE

ITEM	PART No.	QTY.	DESCRIPTION
5	VCT3W12	1	1/2" Valve
	VCT3W34	1	3/4" Valve
	VCT3W1	1	I" Valve
	VCT3W114	1	1 1/4" Vaive
	VCT3W112	1	1 1/2" Valve





2" CAM LOCK

ITEM	PART No.	QTY.	DESCRIPTION
la	CL200CF	1	2" coupler female
1b	CL200S	1	2" cam lock seal
lc	CL200AF	1	2" female adaptor
1d	CL200AP	1	2" adaptor plug
le l	CL200H	1	2" coupler handle

2a	CL200CM	i	2" coupler male
2b	CL200S	i	2" cam lock seal
2c	CL200AM	1	2" adaptor male
2d	CL200AP	1	2" adaptor plug
2e	CL200H	1	2" coupler handle

3a	CL200CH	1	2" coupler hose tail
3b	CI_200S	ı	2" cam lock seal
3c	CL200AH	1	2" adaptor hose tail
3d	CL200AP	1	2" adaptor plug
3e	CL200H	ı	2" coupler handle

1

11/2" CAM LOCK

ITEM	PART No.	QTY.	DESCRIPTION
la	CL150CF	1	11/2" coupler female
1b	CL150S	1	11/2" cam lock seal
l c	CL150AF	1	11/2" female adaptor
ld	CL150AP	1	11/2" adaptor plug
le	CL150H	1	11/2" coupler handle

2a	CL150CM	1	11/2" coupler male
2b	CL150S	1	11/2" cam lock seal
2c	CL150AM	1	11/2" adaptor male
2d	CL150AP	1	11/2" adaptor plug
2e	CL150H	1	11/2" coupler handle

3a	CL150CH	1	11/2" coupler hose tail
3b	CL150S	ı	11/2" cam lock seal
3c	CL150AH	1	11/2" adaptor hose tail
3d	CL150AP		11/2" adaptor plug
3e	CL150H		11/2" coupler handle

11/4" CAM LOCK

ITEM	PART No.	QTY.	DESCRIPTION
1a	CL125CF	11	11/4" coupler female
16	CL125S	1	11/4" cam lock seal
1 c	CL125AF	1	11/4" female adaptor
ld	CL125AP	1	11/4" adaptor plug
le	CL125H	1	I 1/4" coupler handle
2a	CL125CM	11	11/4" coupler male
2b	CL125S	1	11/4" cam lock seal
2c	CL125AM	1	11/4" adaptor male
2d	CL125AP	1	11/4" adaptor plug
2e	CL125H	1	11/4" coupler handle
3a	CL125CH	1	11/4" coupler hose tail
3b	CL125S	1	11/4" cam lock seal
3c	CL125AH	1	11/4" adaptor hose tail
3d	CL125AP	1	11/4" adaptor plug

11/4" coupler handle

CL125H

1" CAM LOCK

ITEM	PART No.	QTY.	DESCRIPTION
la	CL100CF	1	1" coupler female
lb	CL100S	1	1" cam lock seal
1c	CL100AF	1	1" female adaptor
1d	CL100AP	1	I" adaptor plug
le	CL100H	ı	1" coupler handle

2a	CL100CM	1	I" coupler male
2b	CL100S	1	I" cam lock seal
2c	CL100AM	1	I" adaptor male
2d	CL100AP	1	1" adaptor plug
2e	CL100H	1	1" coupler handle

3a	CL100CH	1	1" coupler hose tail
3b	CL100S	1	1" cam lock seal
3c	CL100AH	i	1" adaptor hose tail
3d	CL100AP	1	1" adaptor plug
3e	CL100H	ı	I" coupler handle

3/4" CAM LOCK

ITEM	PART No.	QTY.	DESCRIPTION
la	CL075CF	1	3/4" coupler female
16	CL075S	1	3/4" cam lock seal
1c	CL075AF	1	3/4" female adaptor
1d	CL075AP	1	3/4" adaptor plug
le	CL075H	1	3/4" coupler handle
2a	CL075CM	1	3/4" coupler male
2b	CL075S	l i	3/4" cam lock seal
2c	CL075AM	1	3/4" adaptor male
2d	CL075AP	1_1_	3/4" adaptor plug
2e	CL075H	1	3/4" coupler handle

3a	CL075CH	1	3/4" coupler hose tail
3b	CL075S	1	3/4" cam lock seal
3c	CL075AH	1	3/4" adaptor hose tail
3d	CL075AP	1	3/4" adaptot plug
3e	CL075H	1	3/4" coupler handle

1/2" CAM LOCK

ITEM	PART No.	QTY.	DESCRIPTION
1a	CL050CF	1	1/2" female cam lock
1b	CL050S	1	1/2" cam lock seal
lc	CL050AF	1	1/2" female adaptor
1d	CL050AP	1	1/2" adaptor plug
le	CL050H	l l	1/2" coupler handle

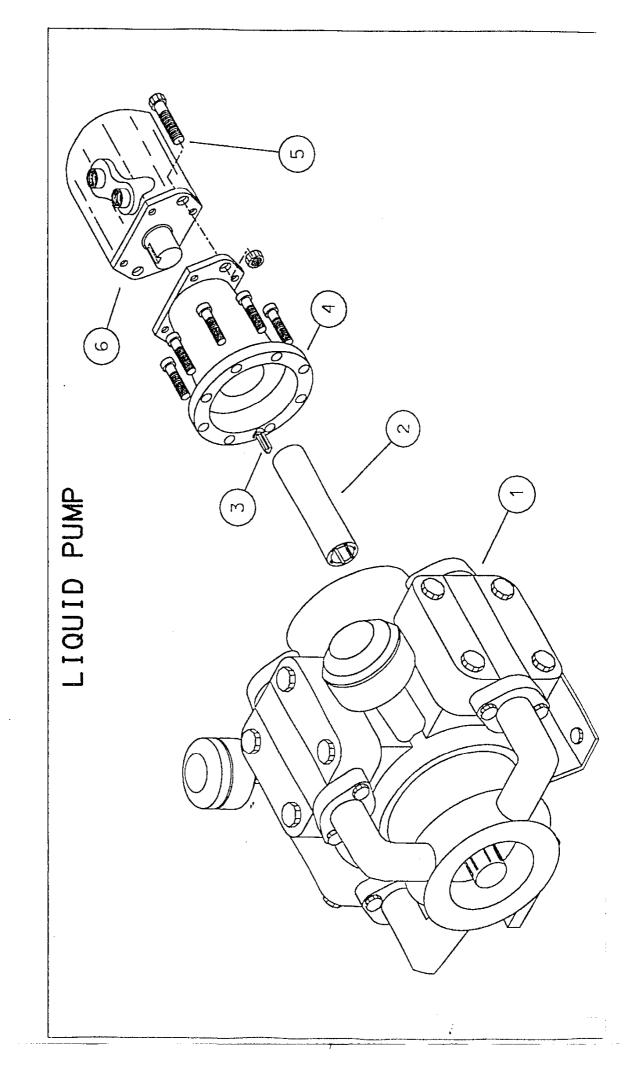
2a	CL050CM	1	1/2" coupler male
2b	CL050S	1	1/2" cam lock seal
2c	CL050AM	1	1/2" adaptor male
2d	CL050AP	1	1/2" adaptor plug
2e	CL050H	1	1/2" coupler handle

3a	CL050CH	1	1/2" coupler hose tail
3b	CL050S	1	1/2" cam lock seal
3c	CL050AH	1	1/2" adaptor hose tail
3d	CL050AP	1	1/2" adaptor plug
3e	CL050H	ı	1/2" coupler handle

REMOTE CONTROL BALL VALVE

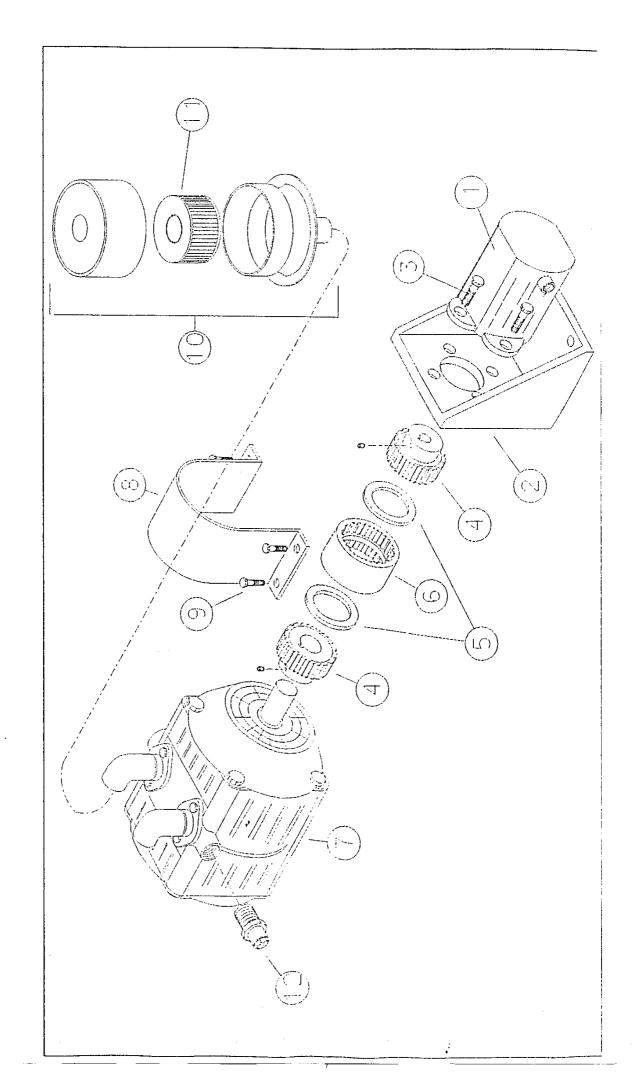
	ITEM	PART No.	QTY.	DESCRIPTION
	1	CP20113-PPB	1	Cover, polypropylene (black)
	2	20122-3-SS	1	Motor sub-assembly for //344AE-(three wire)
	3	CP20127-SS	2	Self-clinching stud, stainless steel
	4	CP7717-2-155/40-EPR	l	O' ring, EPDM rubber
	5	CP20124-NEO	2	Motor mount, neoprene
	6	CP20111-NYB	1	Mounting plate, nylon
	7	CP22158-3-EPR	1	Grommet, EPDM rubber for //344AE
	7A	CP22158-4-EPR	1	Grommet, EPDM rubber for //344AEC
L	8	CP22157-PP	1	Grommet retainer, polypropylene
	9	CP20123-3/4-430SS	2	Slotted hex washer screw
L	10	CP38036-1-1/4-430SS	4	Phillips/square pan head screw
*	11	CP20125-TEF	1	Thrust washer, teflon
* _	12	CP26250-NY	1	Ball valve stem, nylon for //344AE & 344AEC
*	12	CP38442-SS	1	Ball valve stem, stainless steel for //344AEC-2-SS
	13	CP23477-420SS	1	Spring pin, type 420 stainless steel
*	14	CP7717-2/14-VI	1	O' ring, viton
*	14A	CP7717-M12X2.5-VITE	1	O' ring. viton, teflon coated
	15	CP20101-NYB	1_	Body, nylon (black) for #344AE & AEC-2
	15	CP20102-3/4-NYB	1	Body, nylon (black) for //344AE & AEC-3-3/4 (NPT)
	15	CP20102-1-NYB	1	Body, nylon (black) for //344AE & AEC-3-1 (NPT)
	15	CPB20102-3/4-NYB	1	Body, nylon (black) for //B344AE & AEC-3-3/4 (BSPT)
	15	CPB20102-1-NYB	1	Body, nylon (black) for //B344AE & AEC-3-1 (BSPT)
*	. 17_	CP7717-2/031-VI	2	O' ring, viton
*	18	CP20103-TEF	2	Seal, teflon for //344AE & AEC
*	18	CP20103-CTEF	2	Seal, carbon filled teflon for //344AEC-2 SS
*	19	CP7717-2/213-VI	2	O' ring, viton
	20	CP20104-3/4-NYB	2	End cap, nylon (black) for //344AE & AEC (NPT)
	20_	CP20104-1-NYB	2	End cap, nylon (black) for //344AE & AEC (NPT)
	20	CPB20104-3/4-NYB	2	End cap, nylon (black) for //B344AE & AEC (BSPT)
	20_	CPB20104-1-NYB	2	End cap, nylon (black) for #B344AE & AEC (BSPT)
	21	CP20129-SS	4	Hex head cap screw, stainless steel
	22	CP8535-SS	6	Hex nut, stainless steel

CP20128-SS	6	Lock washer, stainless steel				
CP20106-PP	1	Ball, polypropylene for //344AE & AEC-2				
CP19926-SS	1	Ball, stainless steel for //344AE-2SS				
CP20109-PP	1	Ball, polypropylene for //344AE & AEC-3				
CP23496-NY	1	Fuse, holder, nylon (not shown)				
CP21046-1.5-GLASS	1	Fuse, glass (not shown)				
CP22872-PHE	1	Limit switch, phenolic (included with item 3)				
AB344AE-2-KIT, Spare parts kit (includes all items marked with*), except item 24A AB344AE-2-KIT, Spare parts kit (includes all items marked with*). except item 24A AB344AE-3-KIT, Spare parts kit (includes all items marked with*). except item 24A						
	CP20106-PP CP19926-SS CP20109-PP CP23496-NY CP21046-1.5-GLASS CP22872-PHE E-2-KIT, Spare parts kit (in	CP20106-PP 1 CP19926-SS 1 CP20109-PP 1 CP23496-NY 1 CP21046-1.5-GLASS 1 CP22872-PHE 1 E-2-KIT, Spare parts kit (include E-3-KIT, Spare parts kit (include				



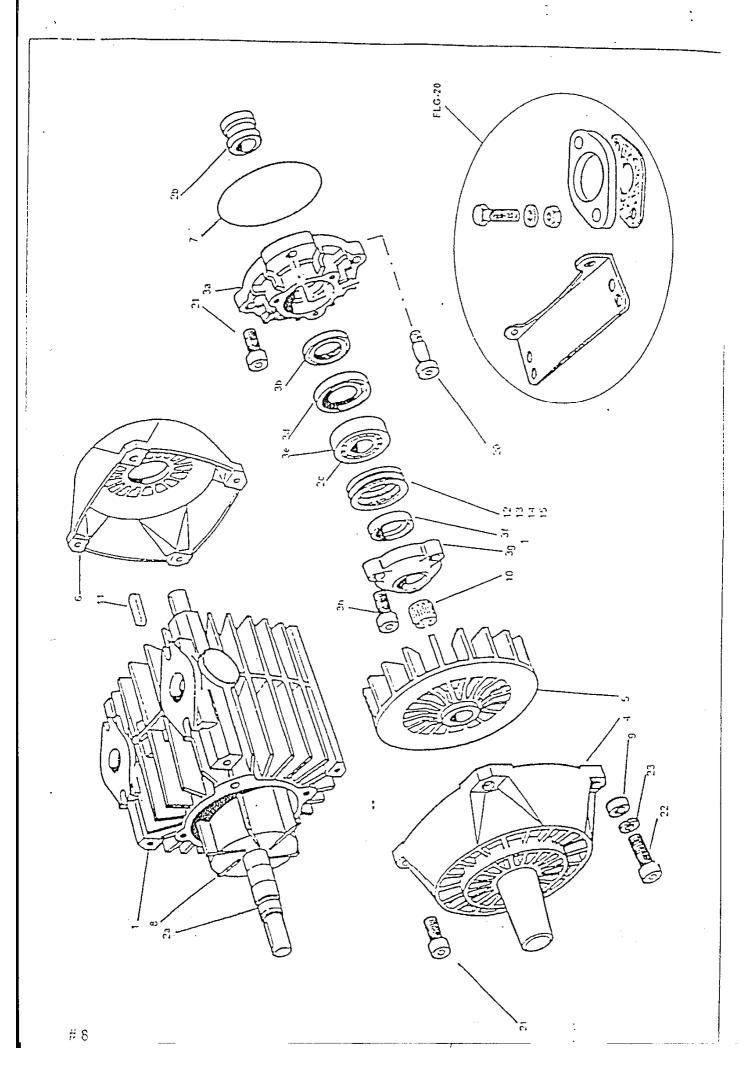
LIQUID PUMP

ITEM	PART No.	QTY.	DESCRIPTION
1	P37ARA230	1	6 dia. Liquid pump
2			
3		1	key
4	P47KT1570	1	Hydraulic coupling
5	M12X65HB	2	Bolt & locknut
6	HY4021	1	Hydraulic motor



COMPRESSOR ASSEMBLY

ITEM	PART No.	QTY.	DESCRIPTION
1	HY4024	1	Hydraulic motor
2	BMF 620	1	Compressor drive motor bracket
3			
4	DC42M35	2	35mm hub
5	DC42W	2	seal 68mm O/D - 48mm I/D
6	DC425	1	Flex coupling
7	DRJ100	1	Drum compressor
8	BMF621	1	Compressor drive coupling gaurde
9			
10	DR100AF	11	Complete drum air filter assembly
11	F-808	1	Drum air filter
12	DRV200-D36	1	Pressure release valve



REPLACEMENT PARTS

If ordering spare parts, please quote the serial number found on the nameplate attached to the mach along with the complete identification of the component from the following spares list.

١								
	Item	Description	Part No	Qty	Item	Description	Part No	Qtj
	1	BODY	3050316461-2	1	13	SHIM (0.075)	7711100635-2	2
	2	ROTORASSEMBLY	RRC 348-0	1	14	SHIM (0.125)	7721100635-2	2
	2a	ROTOR DRUM COATED	3662416849-2	1	15	SHIM (0.250)	7731100635-2	2
	25 -	SLEEVE	3770116051-2	2	16	SEALING DISC	7200300470-2	4
	2c	BEARING INNER RACE	6037000850-2	2	17	DRUMNAMEPLATE	6711000451-2	1
	7	SIDEPLATEASSEMBLY	SC 348-0	2	18	GREASE(AEROSHELLNOS)	6581400000-2	501
	_[3a	SIDEPLATE	3801816469-2	2	19	AVSEALPLUG	6950900841-2	
	35	AIR SEAL	3730700535-2	1	20	SHOULDERSCREW	7050400059-2	-
	30	CIRCLIP362	1.1140620000-8	. 1	21	CAP SCREW M10 X 20	M450107020-9	٤
	33	OIL SEAL-SINGLE LIP	7154500855-2	1	22	DRIVE SCREW 23 X 6	IA510038005-2	4
	3e	BEARING OUTER RACE	6037100850-2	. 1	23	CAP SCREW M10 X 35	M450107035-2	٤
	35	OIL SEAL-DOUBLE LIP	7150700833-2	1	24	RELIEFVALVE	V200-Dxx	1
	3ე	BEARING HSG CAP	3150115455-2	1	25	FLANGEPACK	FLG-20	1
	3h	CAP SOREW M10 X 20	M450107020-9	3	25a	01MTUN	M250107000-2	4
	4	FAN	3301015450-2	2	255	IM10 X 35 SET SOREW	1/470107035-2	4
٠	.1	COWL-NON DRIVE END + .	3210316534-2	1	250	M10 WASHER PLAIN	M500100000-2	,
	5	COWL-DRIVE END	3210416534-2	1	25d	OVAL GASKET	3350416571-2	•
	7	'0' RING@147	6758300600-2	2	25e	MOUNTINGERACKET	3950116843-2	2
	â	BLADE	3090216760-2	6	251	SECURINGFLANGE	6297316240-2	2
	g .	MOUNTING BUSH	3131216848-2	3	25	WARNING LABEL	6717616451-2	1
	10	STAR TOLRING	M750280015-7	; 2	27	LUBRICATIONLABEL	6714100451-2	.1
	11	KEY	M200307040-4		33	LABEL (ROTARROW)	•	:
			7701100635-2					
	12	SHIM (0.050)	1101100000-2	2				

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2.1

31 Stud

Gasket

Body Gasket

Boll IOMA x 25

Hexagen Nipple

35mm 90° Heagtail

Diaph, Retaining Nut-

Diaph, Relaining Plate

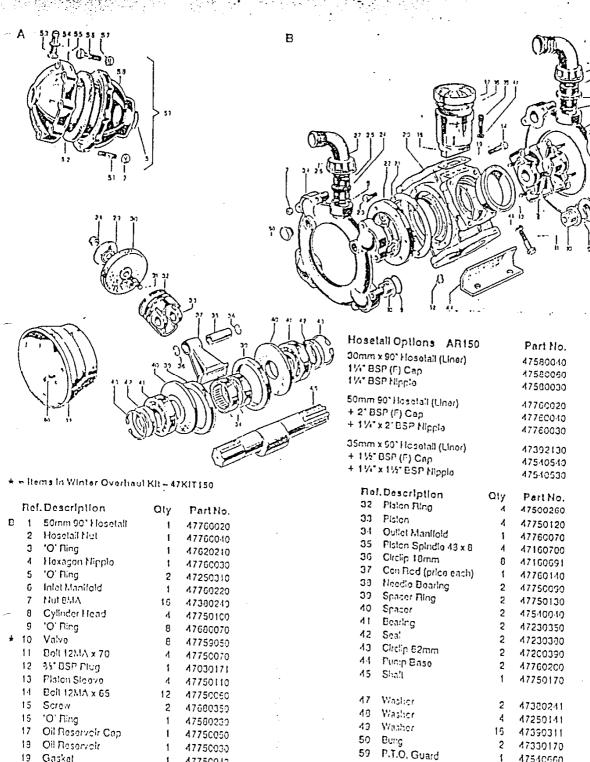
Body Plate

101 Ring

Hoselall Net

Diaphragin

Body



r	•
u	1
•	

37ARARA1

Scrow BM8 x 15

Stod 8MA x 40

Upper Air Chamber

Scrow BMA x 45

58 Lower Air Chamber

59 ' Air Receiver Assy

Diaghragm

'0' Ring

Nut BMA

'O' Ring

Alt Valve

AMSIBN

ELICOMER

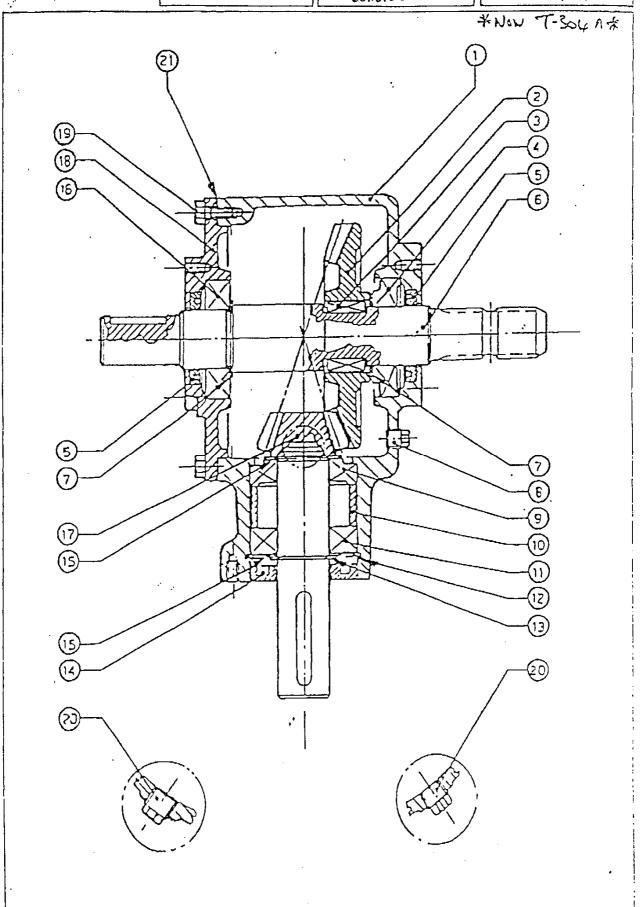
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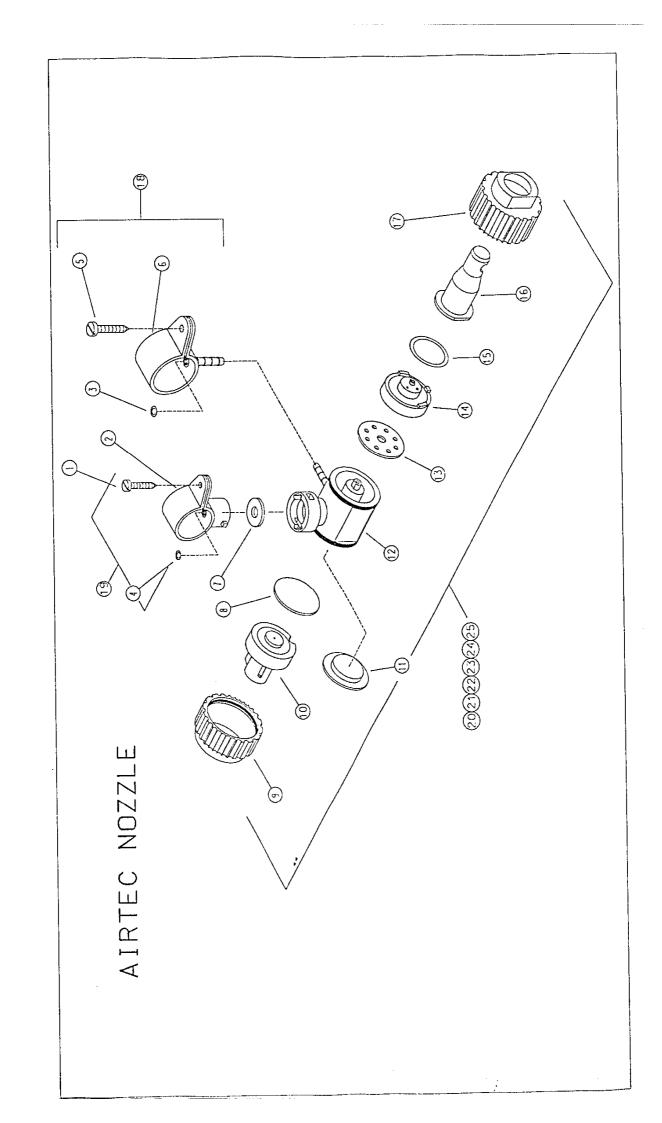
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CODE No 244.373.00/e

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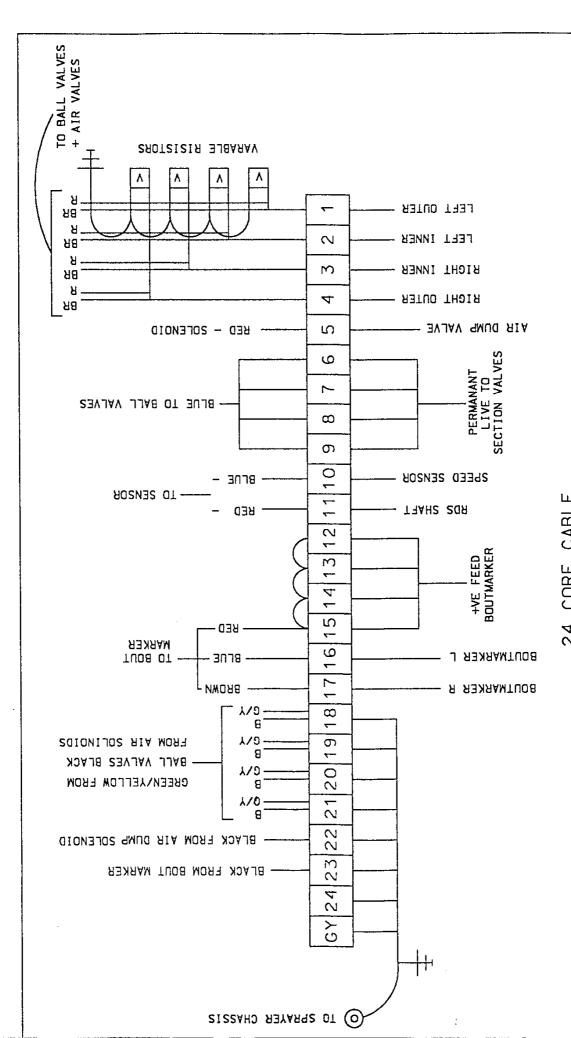
DESIGNATION T-4A





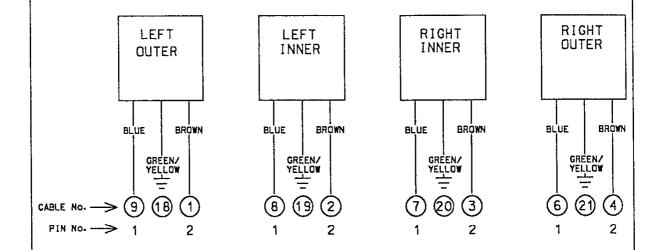
AIRTEC NOZZLE

ITEM	PART No.	QTY.	DESCRIPTION
1	NAP21	l	Pan head screw 14 x .75" self tap
2	NAP16	1	One piece liquid band clamp green
3	N215AQ2706	ı	Seal - air band clamp
4	N215LY2706	1	Seal - liquid band clamp
5	NAP21	1	Pan head screw 14 x .75" self tap
6	NAP13	1_1_	One piece air band clamp
7	CR9438-EPR	1	Teejet body seal
8	NAT0006	1	DCV rubber
9	NAP19	1	Rear ring green
10	NAP058-420	1	New type DCV unit
11	NAP20	1	DCV blanking cap (when fitted to quad jets)
12	NAP17L	1	Airtec body green (left hand)
12A	NAP17R	1	Airtec body green (right hand)
13	NAP10	1	Located fluid cap seal
14	NAP09	1	Size 35 plastic restrictor green
14A	NAP12	1	Size 40 plastic restrictor blue
14B	NAPII	1	Size 50 plastic restrictor yellow
15	NAP08	1	Plastic restrictor o'ring
16	NAP06	1	Located flood tip
17	NAP18	1	Front ring green
18	NAP13C	1	Air band clamp complete
19	NAP16C	1	Liquid band clamp complete
20	NAP2L35	1	Left hand Airtec body complete 35 restrictor
21	NAP2R35	1_	Right hand Airtec body complete 35 restrictor
22	NAP2L40	<u> </u>	Left hand Airtec body complete 40 restrictor
23	NAP2R40	1_	Right hand Airtec body complete 40 restrictor
24_	NAP2L50	1	Left hand Airtec body complete 50 restrictor
25	NAP2R50	1	Right hand Airtec body complete 50 restrictor

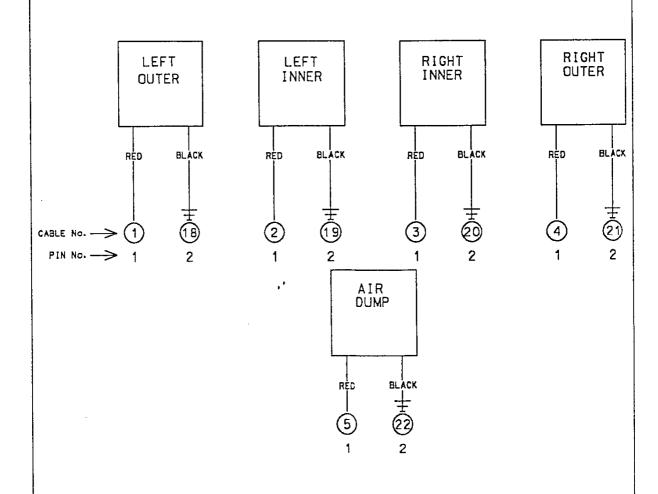


24 CORE CABLE 24 PIN PLUG WIRED CABLE NUMBER TO PIN NUMBER

LIQUID MANIFOLD.



AIR MANIFOLD



<u>CROPSAVER</u> <u>SPRAYLINE / AIRLINE</u>

DESCRIPTION	PART No.
Crop Saver 12/24	
Centre section	BMF356
Right inner	BMF351
Left inner	BMF352
Right outer	BMF353
Left outer	BMF354
Right break back	BMF322
Left break back	BMF323
Crop saver 18/20/21	
Centre section	BMF312
Right inner	BMF318
Left inner	BMF319
Right outer 18m	BMF336
Right outer 20m	BMF320
Left outer 18m	BMF337
Left outer 20m	BMF321
Right break back	BMF322
Right break back 21m	BMF328
Left break back	BMF323
Left break back 21m	BMF329

Suffix No.				
PVC spravline				
Conventional	Airtec			
P12C	P12A			
Stainless spray	C. I. I Par			
Stainless spra	Stainless spray line			
Conventional	Airtec			
S12C	S12A			
A in time				
Air une	Air line			
A10				

For example: Crop saver 12-24 left inner PVC spray line for Aintee system

BMF352 P12A Part No. Suffix No.