! WARNING: IT IS ESSENTIAL THAT BEFORE OPERATING THIS SPRAYER YOU READ THE WHOLE OF THIS MANUAL. TIME TAKEN READING THIS MANUAL AND FOLLOWING THE SUGGESTED STEPS WILL BE TIME WELL SPENT, AND HELP YOU GET THE BEST POSSIBLE RETURN ON YOUR INVESTMENT IN TERMS OF MANPOWER, CHEMICALS AND EQUIPMENT.

CONTENTS.

CONT...

PARTS MANUAL PAGES 1 TO 35

YOUR MACHINE IS:-

TYPE: [illegible] 20 metre

CHASSIS No: ....

BOOM WIDTH: 20 m

TANK CAPACITY: MAIN: 800 lits. FRONT TANK: ....

PUMP TYPE: MAIN: [illegible] FRONT TANK: /
PR 150 BP 4 piston
[illegible]

HYDRAULICS: ....

FILTERS: PRESSURE:............. SUCTION:................

BOOM SECTIONS: .... SOLENOID TYPE:..................

JETS: LINE 1............. SPACING: 0.5 M

JETS: LINE 2............ SPACING:....................

COMPRESSOR: TYPE HAMMOND NO. E.100-A. 758365/8 [illegible]

TRACTOR: JD 3350

DATE DELIVERED: 28.10.91

INTRODUCTION TO THE AIRTEC SPRAYER.

THE CLEANACRES AIRTEC SPRAYER HAS BEEN DESIGNED TO ALLOW LOW VOLUME APPLICATION WHEN APPLYING AGROCHEMICALS, WHILE AT THE SAME TIME DRAMATICALLY REDUCING SPRAY DRIFT AND BLOCKAGES. YOU MAY EXPERIENCE A FEW BLOCKED NOZZLES IN THE FIRST WEEK OF OPERATION, THIS WILL BE DUE TO ENGINEERING SWARTH WITHIN THE SYSTEM THAT IS VERY DIFFICULT TO REMOVE UNTIL CHEMICAL HAS BEEN USED IN THE SPRAYER.

WITH THE KNOWLEDGE AND ADVICE OF YOUR AGRONOMIST, WE ARE SURE THAT GREAT BENEFITS WILL COME FROM THE CORRECT OPERATION OF THIS SPRAYER.

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 PRESSURE REGULATOR WHICH CONTROLS THE WORKING LIQUID PRESSURE OF THE SPRAYER. THE LIQUID TO BE SPRAYED IS THEN PASSED THROUGH A FLUSHING PRESSURE FILTER THAT CAN BE EASILY CLEANED, BEFORE REACHING A DISTRIBUTION MANIFOLD ON WHICH ARE MOUNTED THE INDIVIDUAL BOOM SECTION SOLENOIDS.

WHEN THE CONTROLS ARE IN THE ON POSITION, THE LIQUID IS PASSED THROUGH THE OPEN SOLENOID VALVES TO THE SPRAYLINES ON WHICH ARE MOUNTED THE AIRTEC NOZZLE ASSEMBLIES. THE SPRAYLINE IS FITTED WITH A CONSTANT RECIRCULATION SYSTEM (CRS). THIS IS A RETURN PIPE FITTED ON THE OUTER END OF THE SPRAYLINE THAT ALLOWS

AGITATION TO TAKE PLACE WITHIN THE SPRAYLINE AS WELL AS THE TANK. THE CRS ENSURES THAT WHEN LOW VOLUME IS BEING USED POWDERS DO NOT SETTLE OUT IN THE SPRAYLINE AND THUS BECOME A POTENTIAL BLOCKAGE PROBLEM. ALL LIQUID FROM THE CRS IS RETURNED TO THE SPRAYER TANK TO PROVIDE ADDITIONAL AGITATION.

WHEN THE CONTROLS ARE IN THE OFF POSITION, THE LIQUID PASSES THROUGH THE PRESSURE REGULATOR AND IS RETURNED TO THE TANK. THE PRESSURE REGULATOR ENSURES THAT A CONSTANT PRESSURE IS MAINTAINED IRRESPECTIVE OF THE NUMBER OF BOOM SECTIONS IN OPERATION OR OF THE PTO SPEED.

THE AIR SYSTEM ON THE SPRAYER USES A VERY HIGH VOLUME LIQUID COOLED ROTARY COMPRESSOR TO SUPPLY AIRFLOW TO THE BOOM SECTIONS AIR IS FED INTO THE AIRTEC NOZZLE FROM A SEPARATE SET OF PIPELINES, THE AIR AND LIQUID IS THEN MIXED WITHIN THE NOZZLE TO PROVIDE DROPLET FORMATION.

APPLICATION RATES CAN BE ALTERED BY CHANGING THE TRACTORS FORWARD SPEED AND / OR USING THE IN CAB CONTROLS TO VARY AIR AND LIQUID PRESSURE. SPRAY QUALITY CAN BE ALTERED BY CHANGING THE RATIO

GUIDE TO EFFECTIVE CROP SPRAYING.

FOR EFFECTIVE CROP SPRAYING WITH MODERN EXPENSIVE AGROCHEMICALS IT IS VERY IMPORTANT TO SPRAY ACCURATELY.

SPRAYING OBJECTIVES

YOU SHOULD BE AIMING 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 FAILS TO REACH THE TARGET.

YOU WILL ALSO WANT TO CARRY OUT THE OPERATION QUICKLY AND COST EFFECTIVELY WHICH MEANS USING THE LOWEST SPRAY VOLUME COMPATIBLE WITH CHEMICAL AND CONDITIONS, AND THE HIGHEST 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 FIELDWORK

THE NEXT SECTIONS OF THE SPRAYER MANUAL GIVE FURTHER INFORMATION ON EACH OF THESE STEPS.

YOUR SPRAYER IS ONE OF THE MOST IMPORTANT PIECES OF EQUIPMENT ON THE FARM. THE SHORT AMOUNT OF TIME SPENT CALIBRATING IT, AND MAKING SURE YOU SPRAY EFFECTIVELY IS WELL WORTHWHILE WHEN COMPARED TO THE COST OF CHEMICALS AND THE DANGERS OR COSTS OF UNDER OR OVER APPLICATION.

NEVER WORK UNDER THE BOOM WITHOUT ENSURING THAT IT IS PROPPED IN CASE OF MECHANICAL OR HYDRAULIC FAILURE.

NEVER WORK BETWEEN THE TRACTOR AND THE SPRAYER WITHOUT CHOCKING THE WHEELS TO PREVENT IT MOVING, TURNING THE ENGINE OFF AND DISENGAGING THE P.T.O. AND PROPPING THE SPRAYER TO PREVENT IT SINKING ON HYDRAULIC LINKAGE.

ALWAYS FIRMLY SECURE THE BOOMS BEFORE TRAVELLING.

NEVER ALLOW CHILDREN TO PLAY NEAR THE SPRAYER.

ALWAYS WEAR PROTECTIVE CLOTHING, AS SPECIFIED ON THE CHEMICAL LABEL, WHEN HANDLING CHEMICALS. CALCULATE AND CAREFULLY MEASURE IN THE AMOUNT OF CHEMICAL REQUIRED.

NEVER ADD CHEMICALS TO AN EMPTY SPRAY TANK, ALWAYS TO A HALF-FULL TANK, THEN FILL UP AND AGITATE GENTLY TO MIX. RINSE CHEMICALS CONTAINERS INTO THE SPRAY TANK, THEN DISPOSE OF THEM SAFELY.

WASH DOWN ANY SPILLS AND STORE UNUSED CONTAINERS SAFELY.

DO NOT STORE PROTECTIVE CLOTHING IN THE TRACTOR CAB.

FITTING THE SPRAYER TO THE TRACTOR

1. FITTING SPRAYER TO THE THREE POINT LINKAGE.

FIT THE SPRAYER TO THE TRACTORS THREE POINT LINKAGE IN THE CONVENTIONAL WAY. WHEREVER POSSIBLE LOWER LINK CHECK CHAINS OR STABILISERS SHOULD BE FITTED TO IMPROVE THE SPRAYERS HANDLING UNDER ROUGH CONDITIONS.

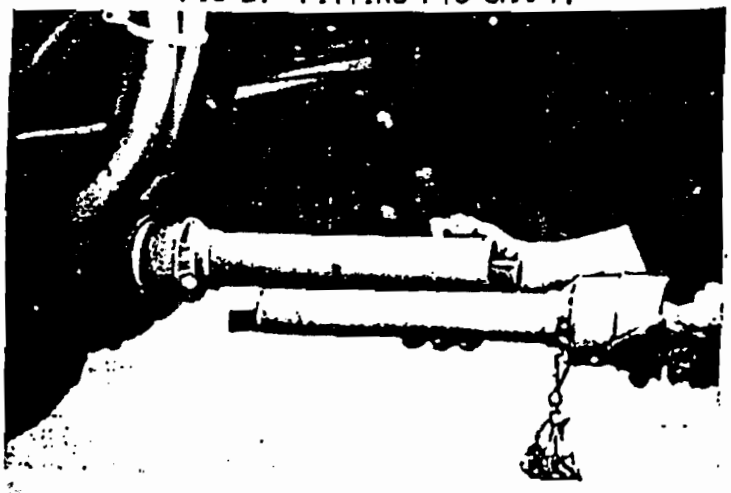
⚠WARNING: NEVER WORK BETWEEN THE TRACTOR AND THE SPRAYER WITHOUT FIRST PROPPING THE SPRAYER AND CHOCKING THE TRACTOR WHEELS.

2. POWER TAKE-OFF ADJUSTMENTS.

BEFORE FITTING THE PTO SHAFT ONTO THE TRACTOR, ENSURE THAT THE PUMP ROTATES FREELY. WITHDRAW THE TRACTOR HALF OF THE P.T.O. FROM THE HALF OF THE SHAFT CONNECTED TO THE PUMP. THE TRACTOR HALF SHOULD NOW BE FITTED TO THE 540 R.P.M. P.T.O. SPLINE (ON THE TRACTOR.) THE CLEARANCE BETWEEN THE END OF THE PTO SHAFT AND THE BACK OF THE UNIVERSAL JOINT SHOULD NOW BE MEASURED. THIS PROCESS SHOULD BE REPEATED WITH THE SPRAYER IN THE LOWERED, RAISED, AND MIDWAY POSITION ON THE THREE POINT LINKAGE. IF NECESSARY THE SHAFT SHOULD BE SHORTENED USING A HACKSAW.

⚠CAUTION: MAKE SURE THERE IS NEVER LESS THAN 1" OF CLEARANCE BETWEEN THE SHAFT END AND THE UNIVERSAL JOINT OF THE OTHER HALF AS SHOWN IN FIG 1., OTHERWISE DAMAGE MAY OCCUR.

FIG 1: FITTING PTO SHAFT.



⚠WARNING:

EXTREME CAUTION SHOULD BE TAKEN CARRYING OUT THIS OPERATION. WHENEVER YOU ARE WORKING BETWEEN THE SPRAYER AND THE TRACTOR ENSURE THAT THE TRACTOR WHEELS ARE CHOCKED AND THAT PROPS ARE PLACED UNDER THE SPRAYER TO PREVENT IT DROPPING.

3. CONNECTION TO TRACTOR OF HYDRAULIC SERVICES.

CONNECT THE HYDRAULIC PIPES FROM THE SPRAYERS HYDRAULIC VALVE TO THE TRACTORS HYDRAULIC SERVICES AS FOLLOWS:-

RED - PRESSURE FROM TRACTOR SPOOL.
GREEN - RETURN THROUGH TRACTOR SPOOL.

⚠ CAUTION: IF THE HYDRAULIC PIPES ARE INCORRECTLY FITTED DAMAGE MAY OCCUR.

THE MINIMUM TRACTOR SPOOL REQUIREMENT IS ONE SINGLE ACTING, HOWEVER IF A FRONT TANK IS FITTED WITH A HYDRAULICALLY DRIVEN CENTRIFUGAL PUMP YOU WILL REQUIRE TWO SINGLE ACTING VALVES AND AN UNRESTRICTED RETURN TO TANK FOR THE FRONT TANK RETURN PIPE. FRONT TANK HYDRAULIC PIPES WILL BE COLOUR CODED IN THE SAME MANNER AS THE SPRAYER.

⚠ NOTE: JOHN DEERE TRACTORS REQUIRE DIFFERENT HYDRAULIC VALVE CHESTS TO BE FITTED TO THE SPRAYER AS THESE TRACTORS OPERATE ON A CLOSED CENTRE SYSTEM. PLEASE SEEK ADVICE FROM CLEANACRES MACHINERY IF YOU ARE NOT SURE WHICH VALVE CHEST HAS BEEN FITTED.

4. FITTING REMOTE CABLE TO SPRAYER VALVECHEST:

AVAILABLE AS AN OPTIONAL EXTRA CLEANACRES SPRAYERS MAY BE FITTED WITH REMOTE CABLE FOR THE OPERATION OF HYDRAULIC BOOM CONTROLS FROM WITHIN THE TRACTOR CAB. PLEASE FOLLOW THE FOLLOWING PROCEDURE WHEN FITTING THESE CABLES:

A. THE HANDLE UNIT SHOULD BE FIXED FIRMLY WITHIN THE CAB, IN A POSITION WHERE IT IS EASY TO OPERATE FROM THE TRACTOR SEAT, AND DOES NOT INTERFERE WITH ANY EXISTING CONTROLS WITHIN THE CAB. PARTICULAR ATTENTION MUST BE PAID TO ENSURING THAT THE CABLE HAS A CLEAN SWEEP, AVOID ANY SHARP BENDS.

B. ALL CABLE ADJUSTMENTS ARE CARRIED OUT AT THE SPRAYER END (SPOOL BLOCK) OF THE CABLE AND NOT IN THE CENTER. TO ADJUST THE CABLE SLACKEN THE LOCK NUTS ON THE CABLE ADJUSTER. ADJUST LOCKNUTS UNTIL ALL THE SLACK ON THE INNER CABLE IS TAKEN UP AND THE INNER CABLE COUPLER (SITUATED HALFWAY ALONG THE CABLE) JUST TOUCHES THE END OF THE OUTER CABLE. THIS ENSURES THAT THE SPRAYER VALVE CHEST CABLE IS FIRMLY ON ITS SEAT.

CABLE CONNECTIONS FIG 2

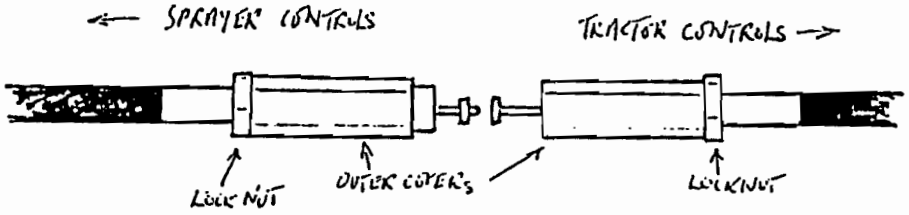
JOIN TOGETHER BOTH INNER CABLES.

SCREW TOGETHER BOTH OUTER COVERS.

ADJUST CABLES SO THAT LEVERS ARE IN MID POSITION.

SCREW UP AND TIGHTEN LOCK NUTS.

FIG 2 CABLE CONNECTIONS



C.- ONCE CABLES HAVE BEEN FITTED CHECK FOR FREE AND EASY MOVEMENT, IF CABLES ARE STIFF, CHECK ROUTING IS SMOOTH (NO SHARP BENDS) AND CHECK CABLE ADJUSTMENT AND LUBRICATION.

⚠CAUTION: WHERE REMOTE CABLES ARE FITTED PLEASE ENSURE THAT THEY ARE DISCONNECTED BEFORE LOWERING THE SPRAYER ON LINKAGE ARMS, OR THAT THERE IS SUFFICIENT LENGTH OF CABLE TO ALLOW SPRAYER TO BE LOWERED. (IF THIS IS NOT DONE SERIOUS DAMAGE TO CABLES AND SPOOL BLOCK COULD OCCUR).

5. INSTALLATION OF SPRAYER CONTROL BOX.

CLEANACRES AIRTEC SPRAYERS ARE ALL FITTED WITH IN CAB CONTROLS FOR OPERATION OF BOOM SECTION CONTROL AND PRESSURE ADJUSTMENT FOR YOUR SAFETY AND COMFORT. THE FOLLOWING STEPS SHOULD BE FOLLOWED WHEN INSTALLING CONTROLS IN THE CAB.

A. MOUNT THE CONTROL BOX WITHIN EASY REACH AND VISION FROM THE TRACTOR SEAT, IDEALLY TO THE RIGHT OF THE STEERING WHEEL. ENSURE THAT ELECTRIC CABLES AND PIPES HAVE AN UNRESTRICTED RUN THROUGH THE REAR OF THE CAB, PREFERABLY THROUGH THE FLOOR TO ALLOW WINDOWS TO BE CLOSED WHEN SPRAYING. MAKE SURE THERE IS ENOUGH SLACK ON SPRAYER END OF CABLES TO ALLOW FREE MOVEMENT ON LINKARMS OF MOUNTED MACHINES.

B. TAKE ELECTRICAL SUPPLY TO THE CONTROL BOX FROM THE TRACTORS FUSE BOX OR DIRECTLY FROM THE BATTERY. MAKE SURE THAT THE SUPPLY CABLE IS ROUTED SO THAT IT WILL NOT BECOME PINCHED AT ANY TIME OR GET CAUGHT UP IN ANY MOVING PARTS.

USE OF IN CAB CONTROLS:

1. LIQUID PRESSURE INCREASE AND DECREASE.
2. BOOM: MASTER SHUTOFF SWITCH.
3. AIR PRESSURE INCREASE AND DECREASE.
4. INDIVIDUAL BOOM SECTION SHUTOFF'S.
5. FRONT TANK SWITCH

FIG 3 :

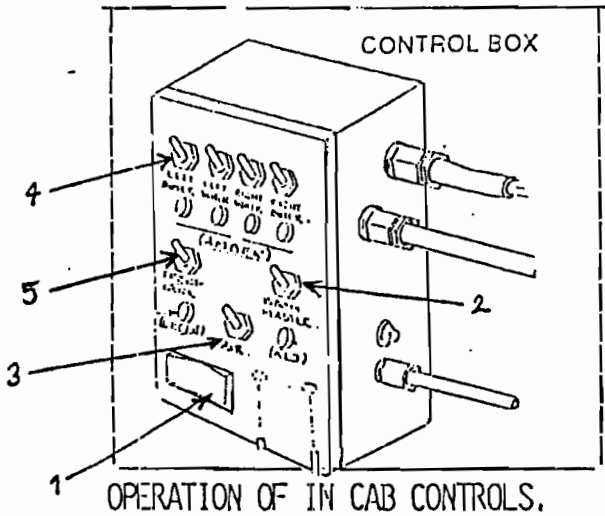
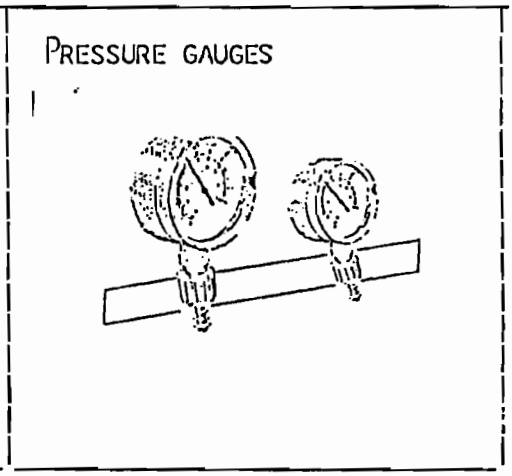


FIG 4 :



OPERATION OF IN CAB CONTROLS.

1. LIQUID PRESSURE: WHEN CALIBRATING THIS SWITCH IS FOR INCREASING OR DECREASING LIQUID PRESSURE, PRESSURE CAN BE READ FROM THE LIQUID PRESSURE GAUGE, PRESSURE WILL NOT SHOW UNTIL YOU ARE SPRAYING.

2. BOOM MASTER SWITCH: THIS SWITCH SHUTS AND OPENS ALL BOOM SECTIONS WHEN TURNING AT HEADLANDS ETC, SPRAYLINES ARE ON WHEN THE WARNING LIGHT IS ON. THIS SWITCH ALSO SHUTS OFF THE AIR SUPPLY TO THE AIR LINE.

3. BOOM AIR PRESSURE INCREASE AND DECREASE: THIS INCREASES OR DECREASES THE AIR PRESSURE, PUSH THE SWITCH TO THE RIGHT, AND PRESSURE WILL INCREASE, TO THE LEFT IT WILL DECREASE. THIS SWITCH

OPERATES A BUTTERFLY VALVE ON THE AIR MANIFOLD. BECAUSE THE VALVE CAN OPERATE THROUGH 360°, IT CAN GO OVER CENTER, IF THIS HAPPENS THE PRESSURE WILL DROP WHEN IT SHOULD BE RISING AND VICE VERSA. SHOULD THIS HAPPEN SIMPLY PUSH SWITCH IN THE DIRECTION REQUIRED, WAIT A FEW MOMENTS AND YOU WILL SEE THE PRESSURE INCREASE TO ITS MAXIMUM AND THEN SUDDENLY DROP TO ZERO, THE VALVE WILL NOW BE OPERATING IN ITS CORRECT POSITION.

4. INDIVIDUAL BOOM SECTION CONTROLS: THESE ARE USED FOR OPERATING IN SHORT WORK TO ISOLATE INDIVIDUAL BOOM SECTIONS. ON A THREE SECTION BOOM LEFT CONTROLS LEFT HAND BOOM SPAR, CENTRE CONTROLS THE FOUR JETS BEHIND THE SPRAYER, AND RIGHT CONTROLS THE RIGHT HAND BOOM SPAR. WHEN THE AMBER LIGHTS ARE GLOWING THE SPRAYLINES ARE IN OPERATION. THESE SWITCHES CONTROL BOTH AIR AND LIQUID LINES.

5. FRONT TANK SWITCH. THIS IS USED TO TRANSFER LIQUID FROM THE FRONT TO THE REAR TANK. WHEN THE BLUE LIGHT IS GLOWING LIQUID IS BEING TRANSFERRED. WHEN THE BLUE LIGHT IS OFF LIQUID IS AGITATING.

FILLING PROCEDURE.

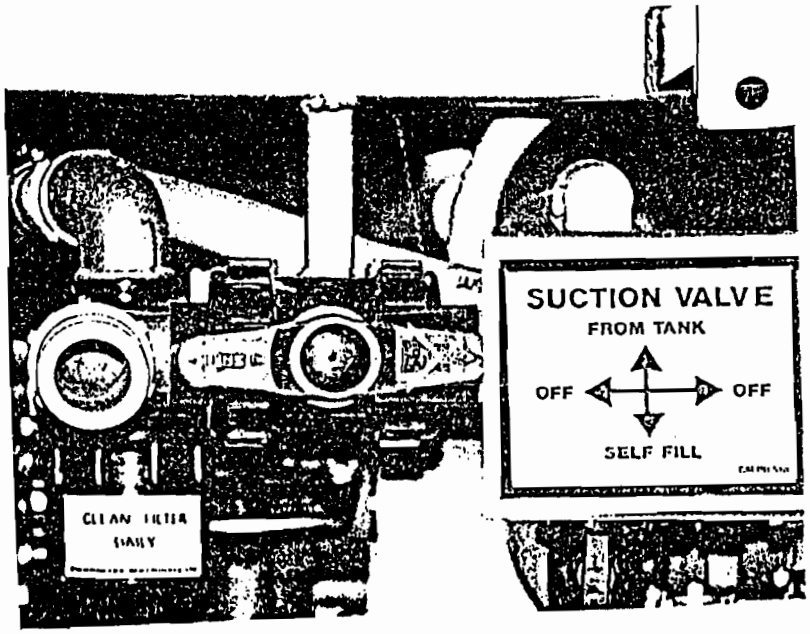
THE AIRTEC SPRAYER IS FITTED WITH A SPRAYER SELF FILL, AND A CHEMICAL INDUCTION BOWL. THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED WHEN FILLING YOUR SPRAYER.

A. DISENGAGE P.T.O.

B. USING A CLEAN WATER SOURCE, CONNECT THE SELF FILL HOSE TO THE MALE CAMLOCK COUPLING (SEE FIG 5 BELOW) CHECKING FIRST THAT THE RUBBER SEAL IS FITTED IN THE FEMALE CAMLOCK COUPLING ON THE END OF THE SELF FILL HOSE. ROTATE THE SUCTION VALVE AT THE BASE OF THE RIGHT HAND SIDE OF THE SPRAYER TO THE "SELF FILL" POSITION (FIG 5).

C. IMMERSE THE FILTER END OF THE SELF FILL PIPE INTO WATER SOURCE.

FIG 5: SPRAYER SUCTION VALVE.



D. CHECK THAT THE SPRAYER CONTROLS ON CONTROL BOX ARE SWITCHED OFF (FIG 3) AND ENGAGE THE P.T.O. GRADUALLY INCREASE THE P.T.O SPEED TO 540 RPM. ⚠ CAUTION: DO NOT ENGAGE P.T.O. IMMEDIATELY AT FULL SPEED OTHERWISE EXPENSIVE DAMAGE MAY OCCUR. THE SPRAYER WILL NOW BE SELF FILLING.

E. ALLOW THE SPRAYER TO FILL TO HALF ITS CAPACITY, OR HALF THE AMOUNT OF WATER REQUIRED, AND THEN IMMEDIATELY TURN THE SELF FILL VALVE BACK TO THE "FROM TANK" POSITION.

NOTE: IF SPRAYER REQUIRES CALIBRATING, THIS MUST BE DONE WITH CLEAN WATER SO FOLLOW THIS SECTION OMITTING ALL INSTRUCTIONS TO ADD CHEMICAL.

YOU ARE NOW READY TO ADD CHEMICAL TO THE WATER, REFER TO THE NEXT SECTION FOR THIS PROCEDURE.

⚠ WARNING: BEFORE HANDLING ANY PESTICIDE CONTAINER ENSURE THAT YOU ARE WEARING THE CORRECT PROTECTIVE CLOTHING.

USE OF CHEMICAL INDUCTION BOWL

THIS UNIT IS USED TO PUT THE CHEMICAL INTO THE SPRAYER TANK FROM GROUND LEVEL.

IT IS POSSIBLE TO USE THE UNIT EITHER WHILST FILLING WITH CLEAN WATER OR WHEN CIRCULATING THE TANK CONTENTS.

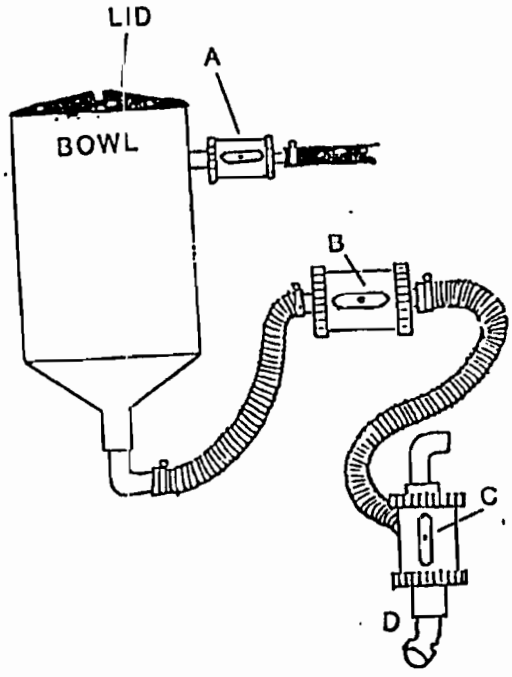
CARE SHOULD BE TAKEN WHEN USING THE CHEMICAL INCORPORATOR THAT:

A. THERE IS ENOUGH ROOM IN THE TANK FOR THE CHEMICAL AND

B. AIR IS NOT SUCKED IN DURING THE OPERATION AS THIS WILL CAUSE FOAMING IN THE TANK.

IT IS RECOMMENDED THAT OPERATORS FAMILIARISE THEMSELVES WITH THE SYSTEM AND SPRAYER, USING WATER, BEFORE USE.

FIG 6



VALVE A IS USED FOR WASHING THE BOWL.

VALVE B IS USED TO EMPTY THE BOWL.

VALVE C IS USED TO CONTROL SPEED EMPTYING.

D IS SELF-FILLING HOSE CONNECTING POINT.

NOTE: IF SPRAYER REQUIRES CALIBRATING THIS MUST BE DONE FIRST USING CLEAN WATER (REFER TO SECTION 15).

⚠ WARNING: BEFORE HANDLING ANY PESTICIDE CONTAINER, ENSURE THAT THE CORRECT PROTECTIVE CLOTHING IS WORN, AS SPECIFIED ON THE CHEMICAL CONTAINER LABEL.

IT IS RECOMMENDED THAT YOU FAMILIARIZE YOURSELF WITH THE SYSTEM USING WATER BEFORE USING CHEMICAL.

THE CHEMICAL INDUCTION BOWL IS FITTED TO THE SUCTION SIDE OF THE SELF FILLING SYSTEM. CHEMICAL IS DRAWN FROM THE INDUCTION BOWL AND IS MIXED WITH WATER DRAWN FROM THE TANK BEFORE PASSING THROUGH THE PUMP. THIS PREVENTS NEAT CHEMICAL FROM COMING INTO CONTACT WITH THE PUMP DIAPHRAGMS.

IT IS POSSIBLE TO INDUCT CHEMICAL BOTH WHEN THE SPRAYER IS SELF FILLING WITH WATER, AND WHEN THE CONTENTS OF THE TANK ARE BEING AGITATED. CARE SHOULD BE TAKEN TO ENSURE THAT THERE IS ENOUGH SPACE REMAINING IN THE TANK TO ACCEPT THE CHEMICAL.

OPEN VALVES A & B FULLY, AND SET VALVE C SO THE RATE AT WHICH THE LIQUID ENTERS THE BOWL IS EQUIVALENT TO THE RATE AT WHICH THE BOWL EMPTIES, ENSURE THAT THERE IS NO CAVITATION WITHIN THE INDUCTION BOWL, AS THIS MAY CAUSE FOAMING WHEN LIQUID CHEMICAL IS ADDED. ONCE THE FLOW RATES THROUGH THE BOWL ARE SET, YOU MAY NOW ADD CHEMICAL.

NOTE: OPERATORS MAY FIND THAT THERE IS INSUFFICIENT SUCTION TO EMPTY THE INDUCTION BOWL. IF THIS IS THE CASE THEN PARTIALLY CLOSE THE SUCTION VALVE C. NEVER CLOSE THIS VALVE FULLY, AS DAMAGE TO THE PUMP MAY OCCUR.

ONCE YOU HAVE COMPLETED ADDING CHEMICAL, TURN VALVE C. TO SELF FILL SO THE INDUCTION BOWL CAN BE RINSED OUT WITH CLEAN WATER.

⚠ IMPORTANT: THE SIGHT GAUGE FEEDS WILL NOT BE ACCURATE UNLESS THE SPRAYER IS PARKED ON LEVEL GROUND. FOR GREATER ACCURACY CLEANACRES MACHINERY OFFER A HIGH OUTPUT FLOW METER FOR INSTALLATION IN THE SUCTION PIPE.

POWDER FORMULATIONS

THE INDUCTION BOWL MAY BE USED AS A CONTAINER TO CREAM POWDERS AS FOLLOWS:-

TURN VALVE B OFF AND OPEN VALVE A TO ADD WATER TO THE INDUCTION BOWL. CLOSE VALVE A WHEN THERE IS SUFFICIENT WATER IN THE INDUCTION BOWL TO MIX THE POWDERS. AFTER MIXING OPEN VALVE B TO EMPTY THE INDUCTION BOWL - REPEAT AS NECESSARY.

ALTERNATIVE METHOD FOR POWDERS.

PART FILL THE INDUCTION BOWL WITH WATER. NEXT PARTLY OPEN VALVE B SO THAT THE WATER LEVEL IN THE INDUCTION BOWL REMAINS CONSTANT I.E. THE RINSING JETS ARE ADDING WATER AS FAST AS IT IS BEING REMOVED. POWDERS MAY NOW BE ADDED DIRECTLY TO THE BOWL. MOST CHEMICALS WILL BE MIXED WITH THE WATER AS THEY ARE SUCKED INTO THE SPRAYER TANK. A PERIOD OF AGITATION IN THE MAIN TANK AS THE REST OF THE WATER IS BEING ADDED WILL COMPLETE THE MIXING PROCESS. ALWAYS READ THE LABEL BEFORE ADDING POWDER TO THE TANK, AS SOME PRODUCTS SHOULD NOT BE PRE-CREAMED, AND SHOULD BE ADDED DIRECT INTO THE SPRAYER TANK.

OPERATING TIPS.

1. IF IT IS NECESSARY TO STOP THE PUMP WHILE USING THE CHEMICAL INDUCTION BOWL ENSURE VALVE B IS CLOSED FIRST. THIS PREVENTS WATER RUNNING BACK INTO THE INDUCTION BOWL FROM THE TANK.

2. IF CHEMICAL IS PRONE TO FOAM USE THE CHEMICAL BOWL AT THE MINIMUM P.T.O. SPEED POSSIBLE.

OPERATION OF PRESSURE BALANCING VALVES.

CLEANACRES SPRAYERS ARE FITTED WITH DIRECTO VALVES FOR THE CONTROL OF LIQUID TO INDIVIDUAL SPRAYLINE SECTIONS. WHEN IN THE 'ON' SPRAYING POSITION THE LIQUID IS DIRECTED TO THE SPRAYLINE.

WHEN IN THE 'OFF' POSITION THE LIQUID IS DIRECTED BACK TO THE SPRAY TANK VIA A THROTTLE VALVE. THE PURPOSE OF WHICH IS TO BALANCE THE SPRAY PRESSURE WHEN SHUTTING OFF INDIVIDUAL SECTIONS.

SETTING UP OPERATIONS

1. SWITCH ON THE FULL WIDTH OF THE SPRAYER.
2. SET LIQUID PRESSURE, E.G. 40 P.S.I.
3. SWITCH 'OFF' RIGHT HAND SECTION.
4. OBSERVE PRESSURE GAUGE IF NOT READING 40 P.S.I.
5. ALTER THROTTLE VALVE BY TURNING KNURLED KNOB UNTIL PRESSURE READS 40 P.S.I.
6. LOCK THROTTLE VALVE BY MEANS OF TIGHTENING OF KNURLED LOCKING RING AGAINST KNURLED KNOB.
7. TURN RIGHT HAND SECTION 'ON'.
8. REPEAT FOR ALL OTHER SECTIONS, E.G. SO THAT ONLY ONE SECTION IS TURNED 'OFF' AT ANY TIME.
9. WHEN SETTING SECTION WITH PRESSURE TAKE-OFF LINE (1/4 HOSE) FIX LINE TO ANOTHER SECTION BY USE OF RED TAKE-OFF POINT.

FAULT FINDING FOR LIQUID VALVE.

THE DIRECTO VALVE IS ELECTRICALLY OPERATED AND THEREFORE CAN BE HEARD WORKING WHEN OPERATING THE CONTROL BOX SWITCHES.

IF NOT HEARD TO OPERATE:

1 CHECK ELECTRICAL CONNECTIONS.

2 CHECK FREE MOVEMENT OF SOLENOID PLUNGER: SITUATED AT THE BOTTOM OF THE UNIT COVERED WITH RUBBER - PUSH UP AND DOWN CHECK FOR FREE MOVEMENT.

IF NO MOVEMENT: CHECK PLUNGER SETTING:

1 DISCONNECT POWER.

2 LOOSEN LOCKNUT ON TOP OF UNIT.

3 SCREW PLUNGER FULLY DOWN JUST UNTIL RESISTANCE IS FELT.

4 UNSCREW 3 COMPLETE TURNS AND TIGHTEN LOCKNUT.

5 CHECK MOVEMENT AT RUBBER BUTTON.

6 RE-CONNECT POWER SUPPLY AND TEST.

HAVING DONE THE ABOVE CHECKS IF THE VALVE DOES NOT TURN OFF FULLY NEW VALVE SEALS ARE REQUIRED.

FIG 7 AIR SOLENOID ASSEMBLY

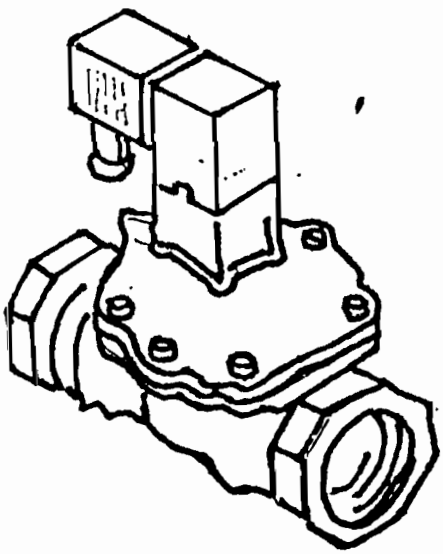
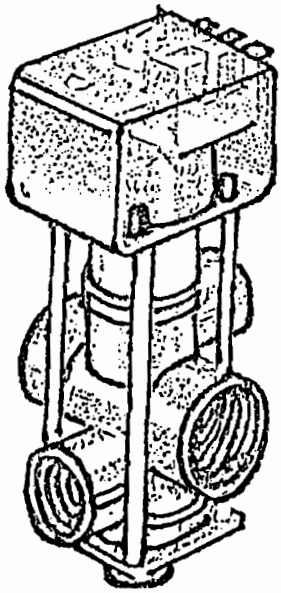


FIG 8 LIQUID SOLENOID ASSEMBLY.



FILTRATION SYSTEM.

FIG 9. PRESSURE FILTER.

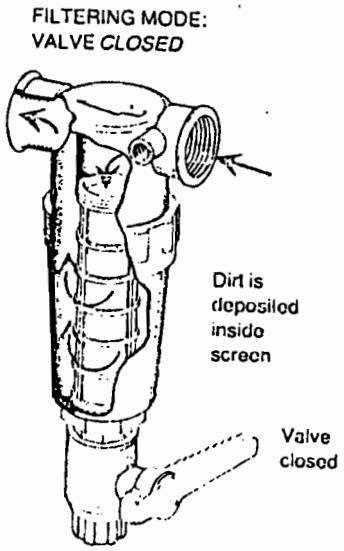


FIGURE 10. SUCTION FILTER

PRESSURE FILTRATION:-

CLEANACRES SPRAYERS ARE ALL FITTED WITH A MAIN IN-LINE SELF FLUSHING PRESSURE FILTER. THE FILTER IS MOUNTED ON THE FRONT OF THE SPRAYER. THE SELF FLUSHING FILTER OBVIATES REMOVING THE FILTER ELEMENT FOR DAILY CLEANING. REFER TO FIGURE 9 FOR THE FOLLOWING PROCEDURES:-

FILTERING MODE VALVE CLOSED DIRT IS DEPOSITED INSIDE THE SCREEN.

FLUSHING MODE VALVE OPEN. FLUSH DIRT THROUGH OPEN VALVE.

WE ADVISE THAT YOU FLUSH THROUGH THE FILTER BETWEEN LOADS.

THERE IS A CHOICE OF FILTER SCREENS AVAILABLE FOR THIS FILTER, THESE ARE COLOUR CODED, 50 MESH MEDIUM (BLUE), 80 MESH FINE (RED), 100 MESH EXTRA FINE (GREEN), THE SPRAYER IS FITTED WITH 80 MESH (RED) STRAINERS AS STANDARD.

SUCTION FILTRATION:-

FILTRATION ON THE SUCTION SIDE OF THE SPRAYER IS PROVIDED BY MEANS OF A FILTER THAT ENSURES ALL LIQUID IS FILTERED WHEN SPRAYING OR FILLING.

1. THE FILTER IS LOCATED TO THE REAR OF THE SELF FILL ASSEMBLY SEE FIG 10.

2. WASH OUT THE FILTER DAILY, BY UNSCREWING THE FILTER BOWL (FIG. 10) AND REMOVING THE FILTER ELEMENT. WHEN RE-ASSEMBLING SMEAR WATER PUMP GREASE ON SEAL TO PREVENT PINCHING AND LEAKS.

3. THERE ARE A RANGE OF COLOUR CODED ELEMENTS AS WITH THE PRESSURE FILTER 20 MESH COARSE (BLACK) 30 MESH COARSE (WHITE) AND 50 MESH MEDIUM (BLUE). THE SPRAYER IS FITTED AS STANDARD WITH 50 MESH.

⚠ CAUTION: WHEN RE-ASSEMBLING FILTERS IT IS IMPORTANT NOT TO OVER TIGHTEN AS THIS WILL CRUSH THE O RINGS AND CAUSE LEAKING OR AIR TO BE DRAWN INTO THE SYSTEM. AIR LEAKING THROUGH THE SUCTION FILTER IS A COMMON FAULT WHICH CAN STOP THE SPRAYER FUNCTIONING CORRECTLY DUE TO LOSS OF SPRAYING PRESSURE.

BOOM OPERATION

1. MANUAL BOOM FOLDING AND UNFOLDING.

FIG 11 SPOOL BLOCK FOR MANUAL FOLD BOOMS.

CLEANACRES AIRTEC SPRAYERS ARE FITTED AS STANDARD WITH HYDRAULIC RAISE AND LOWER AND BOOM INCLINATION. REFER TO FIGS 11 & 12 FOR FOLDING AND UNFOLDING MANUAL BOOMS.

A. PULL HYDRAULIC LIFT LEVER ON VALVE CHEST TOWARDS YOU (MARKED A ON FIG 15) UNTIL BOOMS ARE NEARLY OUT OF SUPPORT CUPS.

B. DISCONNECT SAFETY CHAINS ATTACHING BOOM TO SPRAYER CHASSIS.

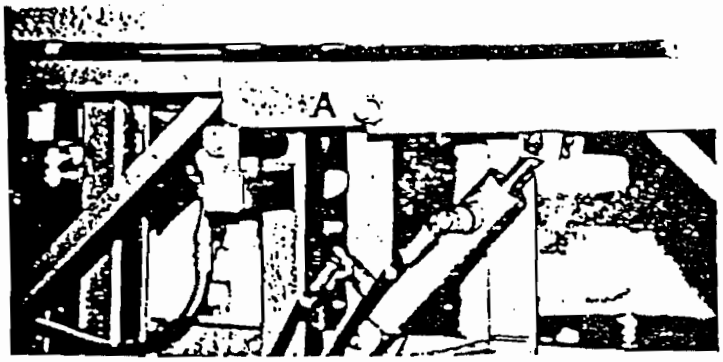
C. MANUALLY LIFT BOOM SPARS OUT OF SUPPORT CUPS AND SLOWLY OPEN OUT TO SPRAYING POSITION.

D. RAISE BOOMS TO THE HIGHEST POSITION ON THE BACK FRAME.

E. PUSH THE HYDRAULIC LEVER ON THE VALVE CHEST AWAY FROM YOU. (MARKED B ON FIG 11.) UNTIL THE RADIUS (MARKED A ON FIG 12.) IS PARALLEL. SEE SECTION 11 PAGE 3 FOR DETAILED OPERATION OF PIVOT SYSTEM.

F. LOWER BOOMS TO THE REQUIRED WORKING HEIGHT.

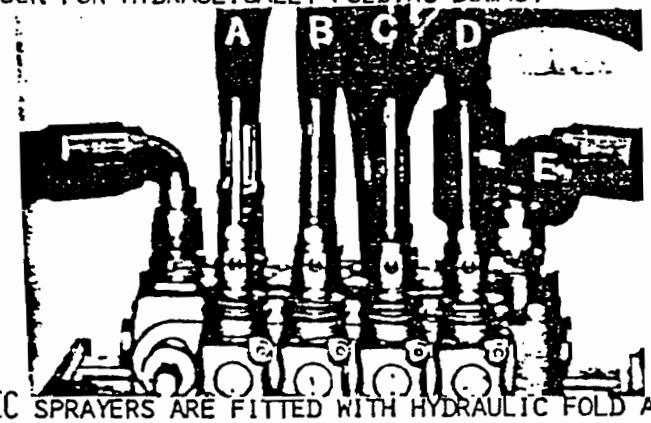
FIG 12: PIVOT POSITION FOR SPRAYING.



6. TO FOLD MANUAL BOOMS BACK FOR TRANSPORT REVERSE UNFOLDING PROCEDURE. ENSURE THAT THE RADIUS IS LOCKED BEFORE RETURNING BOOMS TO THE BOOM RESTS.

11. FOLDING AND UNFOLDING HYDRAULIC BOOMS.

FIG 13. SPOOL BLOCK FOR HYDRAULICALLY FOLDING BOOMS.



CLEANACRES AIRTEC SPRAYERS ARE FITTED WITH HYDRAULIC FOLD AS AN OPTIONAL EXTRA FOLDING PROCEDURE AS FOLLOWS.(REFER TO FIG 13)

A. PULL HYDRAULIC LIFT LEVER ON VALVE CHEST TOWARDS YOU (MARKED A ON FIG 13) UNTIL BOOMS ARE AT THEIR HIGHEST POINT.

B. PUSH HYDRAULIC FOLD / UNFOLD LEVERS (MARKED B & C ON FIG 13) UNTIL BOOMS HAVE EXTENDED TO THE SPRAYING POSITION.

C. PUSH THE HYDRAULIC LEVER ON THE VALVE CHEST AWAY FROM YOU (MARKED D ON FIG 13) UNTIL THE RADIUS (MARKED A ON FIG 12) IS PARALLEL AS IN THE PHOTOGRAPH.

D. LOWER BOOMS TO THE REQUIRED WORKING HEIGHT BY PUSHING LEVER A ON FIG 13 AWAY FROM YOU.

E. TO FOLD BOOMS FOR TRANSPORT REVERSE THE ABOVE PROCEDURE. PLEASE ENSURE THAT THE RADIUS IS LOCKED BEFORE RETURNING THE BOOMS TO THE BOOM RESTS.

12. OPERATION OF PIVOT FOR BOOM INCLINATION.

IN THE PREVIOUS SECTION IT HAS BEEN EXPLAINED HOW THE PIVOT SYSTEM IS USED TO LOCK THE BOOM FOR TRANSPORT, AND HOW IT ALLOWS THE BOOM TO "FLOAT" WHEN IN WORK. THE PIVOT CAN BE USED TO INCLINE THE BOOM TO THE LEFT OR RIGHT. UNDER NORMAL CONDITIONS THE PIVOT 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 FOLLOW THE CONTOUR OF THE GROUND. -

A. TO INCLINE THE BOOM OPERATE LEVER MARKED D IN FIG 13. ONCE THE DESIRED ANGLE HAS BEEN ACHIEVED YOU MAY CONTINUE SPRAYING AND THE BOOM WILL ALIGN TO THE HILL EVEN THOUGH IT HAS BEEN INCLINED.

USE OF CONSTANT RECIRCULATING SYSTEM. (CRS)

THE LIQUID LINES ON THE BOOM ARE FITTED WITH A CONSTANT RECIRCULATING SYSTEM. THIS ENSURES THAT WHEN LOW VOLUMES ARE BEING USED POWDERED FORMULATIONS WILL NOT START TO SETTLE OUT IN THE LINE DUE TO THE VERY SLOW MOVEMENT OF SPRAY ALONG THESE LINES AND LACK OF AGITATION. THE SPRAYLINE IS FED FROM THE END NEAREST THE SPRAYTANK, AT THE OTHER END THE LINE IS FITTED WITH A RETURN PIPE THAT IS ROUTED BACK ALONG THE BOOM TUBE AND RETURNS BACK TO TANK. INSIDE THE TANK THERE ARE DROP PIPES THAT RETURN THE EXCESS LIQUID NOT SPRAYED THROUGH THE LINE.

FIG 14.: MAIN TANK RETURN PIPE.

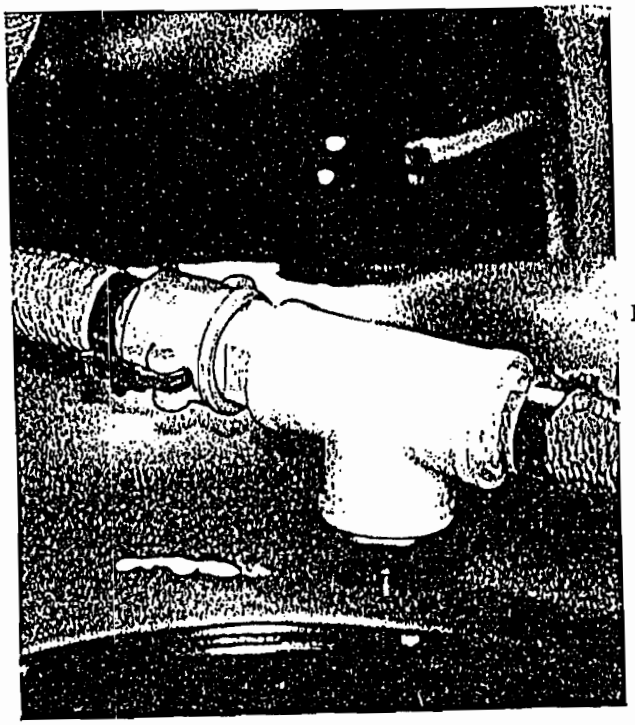
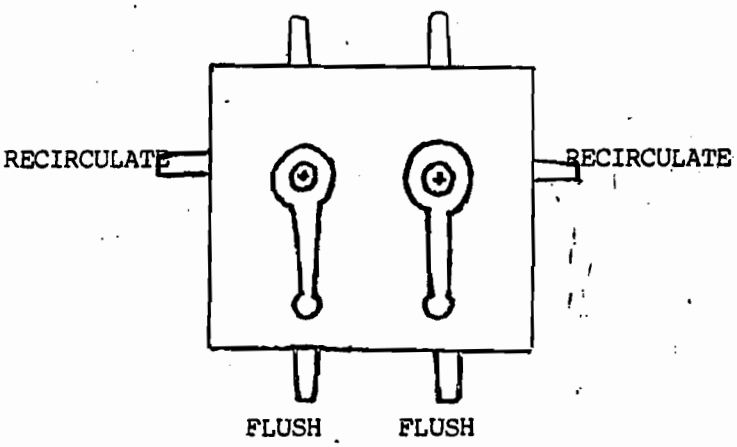


FIG 15 : CRS MANIFOLD.



CHANGING TO SECOND SPRAY LINE.

If your sprayer is fitted with dual line, before changing take the following steps.

1. Ensure the sprayer has been thoroughly washed out (see section 16)
2. Disconnect the camlock couplers from the line not required and attach to the line to be used, ensuring that caps are put on the unused lines to keep them clean.

Note

The air system will not affect the non Airtec line

GENERAL GUIDELINES FOR THE SELECTION OF SPRAY QUALITY

⚠ CAUTION: 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 SETTING OF THE AIRTEC IS NOT HIGHLY CRITICAL, PROVIDED THE CHEMICAL IS DEPOSITED ON THE GROUND EVENLY WITHOUT TOO MUCH GAP BETWEEN SPRAY DROPS, AND AT THE REQUIRED DOSE.

FOLIAR APPLIED PRODUCTS

APPLICATIONS 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 CONFLICTING DROPLET SIZES.

WITH CONVENTIONAL SPRAYERS, HERBICIDES, SYSTEMIC FUNGICIDES, INSECTICIDES, AND GROWTH REGULATORS ARE GENERALLY APPLIED AT PRESSURES OF 2 - 3 BARS (30-45 PSI) THROUGH FAN NOZZLES, AT VOLUMES OF 100-200 L/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 - 600UM IN DIAMETER WITHIN WHICH ARE A VERY LARGE NUMBER OF SMALL DROPS OF LESS THAN 100UM 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 (350UM UPWARDS) ON THE OTHER HAND, MAY BE INEFFECTIVE 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 INEFFICIENCIES OF THE HYDRAULIC NOZZLE.

AIRTEC SPRAYERS EMIT A SIGNIFICANTLY SMALLER FRACTION OF LARGE DROPLETS, 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 - 100UM) 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 THE AIRTEC BY ALTERING THE COMBINATION OF AIR AND WATER PRESSURES. ONE CAN ALSO CHANGE THE SPRAY QUALITY CATEGORY WITHOUT ALTERING THE APPLICATION RATE - PARTICULARLY USEFUL IF SPRAYING IS NOT TO BE INTERRUPTED BY 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 IS INDICATED IN THE JET CHART (APPENDIX 1), AND WITH THE AIRTEC YOU SHOULD HAVE NO PROBLEM IN SELECTING A SUITABLE SETTING.

SPRAY QUALITY	USED FOR	LEAF RETENTION	DRIFT RISK
FINE	GOOD COVER, E.G., SOME FUNGICIDES AND INSECTICIDES	GOOD	MEDIUM/HIGH. ⚠ WARNING: DO NOT USE FOR VERY TOXIC PRODUCTS OR WHERE DRIFT MAY CAUSE PROBLEMS.
MEDIUM	MOST PRODUCTS. GENERAL HERBICIDES	GOOD	MEDIUM
COARSE	SOIL-APPLIED HERBICIDES	POOR	LOW

CALIBRATION PROCEDURE.

ONCE YOU HAVE DECIDED ON THE AIRTEC SETTING, IT IS STRONGLY RECOMMENDED THAT YOU CALIBRATE YOUR SPRAYER.

1. READ LABEL ON THE 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.

2A. CARRY OUT A TRIAL RUN TO ESTABLISH A FORWARD SPEED WHICH GIVES AN ACCEPTABLE LEVEL OF BOOM STABILITY AND A GEAR WHICH GIVES A PTO SPEED OF 540 RPM.

B CARRY OUT SPEED CHECK OVER 100 METRES, USING GEAR AND P.T.O. RPM AS ABOVE. TAKE THE TIME IN SECONDS, TO COVER THE DISTANCE. = TIME.

C ESTABLISH THE FORWARD SPEED FROM THE FORMULA:

$$360 \div \text{TIME (IN SECONDS)} = \text{SPEED (IN KILOMETRES PER HOUR)}$$

3.. 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 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.

4. TURN BOOM SECTIONS ON AND SET PRESSURES.

5. CHECK NOZZLE SPRAY PATTERNS AND ALIGNMENT VISUALLY. REPLACE ANY ROGUE NOZZLES.

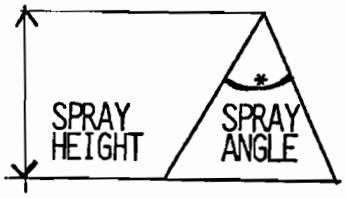
6. RE-CHECK PRESSURES

7. COMPARE THE OUTPUT OF INDIVIDUAL NOZZLES BY USE OF THE CALIBRATION BEAKER PROVIDED. CHECK AT LEAST ONE NOZZLE ON EACH BOOM SECTION AND COMPARE THE OUTPUT OVER ONE MINUTE. RE-ADJUST LIQUID PRESSURE IF NECESSARY TO ACHIEVE DESIRED OUTPUT. NOTE: LIQUID PRESSURE WILL ONLY NEED ALTERING BY A SMALL AMOUNT TO ACHIEVE A RELATIVELY LARGE DIFFERENCE IN FLOW.

8. IF THE OUTPUT DIFFERS BY A LARGE AMOUNT, RE-CHECK CALIBRATION AND CALCULATIONS AND CHANGE SETTINGS IF NECESSARY.

SUGGESTED MINIMUM NOZZLE HEIGHT

SPRAY ANGLE	SPRAY HEIGHT
110°	50cm



MISCELLANEOUS CONVERSION FACTORS

One Gallon Per Acre = 11.23 Litres per hectare.

One Mile = 5,280 feet = 1610 Metres = 1.61 Kilometres.

One Gallon = 4.55 Litres.

One Pound Per Square Inch (PSI) = 0.070 Bars = 6.895 Kilopascal.

One bar = 14.5 PSI.

TRACTOR SPEEDS

Speed in MPH (Miles per Hour)	Time Required in SECONDS To travel a Distance of: 200 feet.
3.0	45
3.5	39
4.0	34
4.5	30
5.0	27
6.0	23
7.0	19
8.0	17

FLUSHING OUT SPRAYER

FLUSHING SPRAYER THROUGH WITH TANK FULL OR PART FULL

It is likely that at some stage you will be forced to stop spraying whilst the tank is still full of chemical. On the Airtec there is the facility to clean all the sprayers working parts without diluting the spray in the tank. This is particularly important as the concentration of spray can be higher than in normal sprayers, and if left standing in the working parts could damage sprayer components, to avoid this take the following steps:

A. Turn the suction valve to self fill (see fig 5) and connect the self fill hose, place in a clean water source and ensure that the chemical bowl is turned off.

B. Disconnect the two tank return pipes (fig 14)
Turn the tap on the compressor to drain.
Turn C.R.S. taps (fig 20) to FLUSH.
Turn the CONTROL BOX to SPRAY.

C. Engage the P.T.O. and run at spray speed for at least 5 mins. This enables the spraying system to be flushed out.

D. STOP the P.T.O.

DO NOT TURN THE SPRAYER CONTROLS "OFF" with the P.T.O. running as the chemical in the tank will then become diluted.

E. Open all the DRAIN taps except "Tank Drain"

F. If it is likely to freeze park sprayer in FROST FREE area. Remember there is still chemical in the tank.

G. In frosty weather don't forget to take precautions and put ANTIFREEZE through the sprayer and both sets of spraylines (if fitted)

FLUSHING SPRAYER THROUGH WHEN EMPTY.

FOLLOW THE PROCEDURE AS EXPLAINED ON THE PREVIOUS PAGE, HOWEVER THERE IS NO NEED TO DISCONNECT EITHER THE MAIN RETURN HOSE OR THE CRS. IT WILL NOW BE POSSIBLE TO FLUSH THROUGH THE CHEMICAL INCORPORATOR AND THE TANK.

THOROUGHLY WASH DOWN EXTERIOR OF SPRAYER USING A DETERGENT.

OPEN ALL DRAIN TAPS LISTED BELOW:-

COMPRESSOR DRAIN

TANK DRAIN

SIGHT GAUGE DRAIN

FLUSHING FILTER DRAIN

CRS TAPS

FLUSH THROUGH WITH ANTIFREEZE IN FROSTY WEATHER (SEE FROST PRECAUTIONS).

ENSURE THAT WASHING OUT OF SPRAYER IS CARRIED OUT WHERE SPRAY RESIDUE WILL CAUSE NO HARM TO LIVESTOCK OR THE ENVIRONMENT IN ACCORDANCE WITH THE GUIDE LINES SET OUT IN THE FOOD AND ENVIRONMENT PROTECTION ACT 1985.

LIQUID FERTILIZER

ALL CLEANACRES AIRTEC SPRAYERS ARE SUITABLE FOR APPLYING LIQUID FERTILIZER SOLUTION PROVIDING A SECOND SPRAY LINE FOR FERTILIZER IS FITTED. IT IS IMPORTANT TO REALISE THAT FERTILIZER SOLUTION IN THIS CASE IS CONSIDERED ONLY AS NITROGEN, AS EITHER A COMPOUND OR STRAIGHT IN A FULLY AQUEOUS SOLUTION. FERTILIZER OF THE SUSPENSION TYPE CANNOT BE APPLIED USING STANDARD CLEANACRES SPRAYERS.

TO AVOID PLANT SCORCH WE RECOMMEND THE USE OF DRIBBLE BARS THAT PRODUCE VERY LARGE DROPLETS WHICH ROLL OFF PLANTS AND PREVENT SCORCH.

PRE-SPRAYING CHECKS

PERIOD	ITEM/AREA	CHECK
DAILY PRE-SPRAYING ⚠WARNING: DIS-ENGAGE P.T.O. AND SWITCH OFF TRACTOR ENGINE.	LIQUID SUCTION FILTER	CLEAN AND REPLACE.
	COMPRESSOR AIR FILTER	CHECK NOT CLOGGED WITH DUST, REPLACE IF NECESSARY. ⚠CAUTION: WHEN CONDITIONS ARE DUSTY IT CAN BECOME CLOGGED AND DAMAGE TO THE COMPRESSOR COULD RESULT.
	COMPRESSOR OIL RESERVOIR.	CHECK LEVEL. ONLY USE SPECIFIED OIL. EXAMINE PIPE TO COMPRESSOR FOR AIR LOCKS OR DAMAGE.
	PUMP OIL	CHECK LEVEL. ONLY USE SPECIFIED OIL.
	P.T.O. SHAFT	GREASE UNIVERSAL JOINTS AND GUARD.
	TANK/PLUMBING	ENSURE THAT ABSOLUTELY NO RESIDUE HAS BEEN LEFT OVER FROM THE LAST SPRAY APPLICATION.
DAILY PRE-SPRAYING CHECKS WITH SPRAYER RUNNING WITH WATER IN TANK.	COMPRESSOR	CHECK THE REQUIRED NO. OF OIL DROPS PER MINUTE. ⚠CAUTION: SWITCH OFF IMMEDIATELY IF NOT OBTAINED. CHECK WATER IS CIRCULATING IN COMPRESSOR BY OPENING COMPRESSOR DRAIN TAP.
	PUMP	CHECK OIL IS NOT OVERFLOWING FROM CAP. ⚠CAUTION: SWITCH OFF IMMEDIATELY IF THIS IS OCCURING.

PERIOD	ITEM/AREA	CHECK
DAILY PRE-SPRAYING CHECK CONTINUED		
	AGITATION	VISUALLY CHECK FOR FLOW.
	BOOM SOLENOIDS	CHECK FOR OPERATION
	NOZZLES	CHECK FOR ALIGNMENT & PATTERN, AND THAT NOZZLE IS CORRECT FOR DESIRED APPLICATION RATE.
	GENERAL	WALK AROUND MACHINE TO OBSERVE ANY LEAKS OR CHAFING HOSES.
	COMPRESSOR PRESSURE RELIEF VALVE	SHOULD BE BLOWING OFF WHEN SOLENOIDS ARE SWITCHED OFF.
	PRESSURE ADJUSTMENT	CHECK FULL RANGE OF BOTH LIQUID AND AIR PRESSURES IS AVAILABLE.
	BOOM HEIGHT	ADJUST TO 50CM ABOVE DESIRED TARGET
	CALIBRATE	ALWAYS CARRY THIS OUT USING CLEAN WATER.

YOU ARE NOW READY TO ADD THE CHEMICAL.

PERIOD	ITEM / AREA	CHECK
DURING SPRAYING	PRESSURE SETTINGS	ENSURE THEY REMAIN CORRECT & CONSTANT. RE-ADJUST IF NECESSARY. ⚠ CAUTION: FLICKERING OF THE LIQUID PRESSURE GAUGE WILL INDICATE A PUMP PROBLEM OR AN EMPTY TANK. STOP IMMEDIATELY.

PERIOD	ITEM / AREA	CHECK
DURING SPRAYING	NOZZLE BLOCKAGES	BE AWARE THAT A NOZZLE MAY ONLY PARTIALLY BLOCK SHOWING AN UNEVEN STREAM OF DROPLETS.
	FORWARD SPEED & P.T.O R.P.M.	KEEP BOTH AS CONSTANT AS POSSIBLE.
	BOOM SHUT OFF RESPONDING SLOWLY	WILL BE DUE TO FAULTY SOLENOID
	HEIGHT/ANGLE OF BOOM	BOOM MUST BE PARALLEL TO GROUND AND AT CORRECT HEIGHT. USE BOOM CONTROLS TO ADJUST.
	TANK CONTENTS	DO NOT START ANOTHER PASS IF YOU DO NOT HAVE ENOUGH IN THE TANK TO COMPLETE THAT PASS.
	WEATHER CONDITIONS	IF WIND INCREASES AND YET THERE IS AN OVERRIDING URGENCY TO FINISH THE JOB, SELECT A COARSER DROPLET PRESSURE SETTING FOR THE SAME APPLICATION RATE. ⚠CAUTION: CONSULT YOUR AGRONOMIST IF IN DOUBT ABOUT SPRAY QUALITY RANGE
AFTER SPRAYING	SURPLUS CHEMICAL IN THE TANK.	EITHER PUMP INTO A STORAGE TANK OR IF SMALL AMOUNT DISPOSE OF SAFELY IN ACCORDANCE WITH CODES OF PRACTICE.
	FLUSHING OUT WITH CHEMICAL IN THE TANK	FLUSH OUT AND WASH DOWN.

PERIOD	ITEM / AREA	CHECK
AFTER SPRAYING	FLUSHING OUT	FLUSH OUT AND WASH DOWN. ⚠ CAUTION: IF FLUSHING OUT IS NOT DONE ON A DAILY BASIS, DAMAGE MAY OCCUR TO THE PUMP AND PLUMBING.
	FROST PROTECTION	ANTI-FREEZE OR STORE IN A FROST FREE BUILDING.
WEEKLY	BOOM BREAKBACK	CHECK FULL BREAKBACK IS UNRESTRICTED.
	ALL GREASE POINTS	GREASE.
	CABLE CONTROLS FOR HYDRAULICS	ADJUST TO TAKE UP ANY SLACK.
	GEARBOX OIL	CHECK LEVEL.
MONTHLY	NOZZLE WEAR	CALIBRATE AND CHECK FLOOD TIPS FOR WEAR ALSO CHECK VISUAL PATTERN AND ALIGNMENT.
	ELECTRICAL CONNECTIONS	CLEAN AND SPRAY WITH A WATER DISPERSING OIL.
	PLUMBING	CHECK FOR ANY SIGNS OF HOSES CHAFING.
	AIR CONNECTIONS	CHECK FOR LEAKS
SEASONALLY	FLOOD TIPS	REMOVE AND THOROUGHLY CLEAN.
	COMPRESSOR	FLUSH OUT OIL RESERVOIR AND PUMP.
	GEARBOX	CHANGE OIL.
	PUMP	CHANGE OIL.

ROUTINE MAINTENANCE

GUIDELINES FOR REPLACEMENT COMPONENTS ARE AS FOLLOWS:-

COMPONENT	PERIOD
COMPRESSOR AIR FILTER	CHECK FREQUENTLY PARTICULARILY IN DUSTY CONDITIONS - REPLACE MONTHLY
PUMP DIAPHRAGMS D.C.V. RUBBERS	ANNUALLY OR EVERY 10,000 ACRES WHICHEVER IS SOONER.
POLO MINT WASHERS FILTER O-RINGS	AS ABOVE WE RECOMMEND THAT A COMPLETE SET OF SEALS ARE KEPT AS SPARES.
SOLENOID DIAPHRAGMS PUMP VALVES	BI-ANNUALLY OR EVERY 10,000 HECTARES, WHICHEVER IS SOONER.
FLOODTIPS	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.

⚠ CAUTION: COMPONENTS, PARTICULARLY THOSE MADE OF RUBBER, WILL LAST LONGER IF THE SPRAYER IS FLUSHED OUT AFTER USE EVERY DAY. (SEE SECTION 16).

SERVICE INSTRUCTIONS FOR MODEL MDC 72 AND 124 ROTARY WATERCOOLED COMPRESSOR.

CHECKS BEFORE USE

BEFORE RUNNING THE FIRST TIME AFTER INSTALLATION OR MAINTENANCE MAKE THE FOLLOWING CHECKS:-

FILL OIL BOTTLE WITH SHELL CORENA H 150 OIL OR EQUIVALENT.

WHEN STARTING UP CHECK DAILY THE TWO OIL DRIP INDICATORS MOUNTED ON THE PUMP END OF THE COMPRESSOR.

THE MINIMUM FLOW RATES FOR EACH INDICATOR ARE:-

MDC 72 .....,4 DROPS PER MINUTE

MDC124 .....,6 DROPS PER MINUTE

IF ADJUSTMENT OF THE OIL PUMP IS NECESSARY REFER TO SECTION 20 PAGE 4

OPERATING INSTRUCTIONS

REGULARLY INSPECT FILTER FITTED TO THE INTAKE PIPELINE. FAILURE TO CARRY OUT THIS MAINTENANCE WILL RESULT IN LOSS OF PERFORMANCE AND OVERHEATING.

CHECK THE BLADES FOR WEAR EVERY 2000 RUNNING HOURS AND RENEW IF THE RUBBING TIPS HAVE WORN REDUCING THE DEPTH TO 1 5/16" - REFER TO CLEANACRES MACHINERY TO HAVE THIS CHECK CARRIED OUT.

⚠ CAUTION: THE COMPRESSOR DEPENDS UPON THE SPRAY LIQUID FOR COOLING THE CYLINDER AND MUST NOT BE RUN WITHOUT LIQUID IN THE SPRAY TANK, OTHERWISE THE COMPRESSOR WILL OVERHEAT AND SEIZURE WILL OCCUR.

IT IS ESSENTIAL THAT THE WATER JACKET IS DRAINED OF ALL LIQUID DURING FROSTY WEATHER.

MAINTENANCE OF COMPRESSOR OIL RESERVOIR.

REFILL THE OIL TANK REGULARLY TO ENSURE THAT THE LEVEL IS NOT ALLOWED TO FALL TO THE POINT WHERE AIR CAN BE DRAWN INTO THE OIL PUMP. USE ONLY CLEAN NEW OIL OF THE GRADE RECOMMENDED IN THE INSTRUCTIONS FOR THE MACHINE.

AT LEAST EVERY YEAR, OR IF THE MACHINE HAS BEEN OUT OF USE FOR A LONG PERIOD, OR IF THE OIL BOTTLE HAS BECOME CONTAMINATED, THE PUMP MUST BE THOROUGHLY FLUSHED WITH PARAFFIN TO CLEAR ANY OIL RESIDUES WHICH MAY HAVE SOLIDIFIED IN THE CONTROL DUCTS. TO CARRY OUT THIS OPERATION WE RECOMMEND THE FOLLOWING PROCEDURE.

1) STOP MACHINE AND DISCONNECT OIL FEED PIPE FROM TANK.

2) REMOVE OIL TANK FROM CRADLE, DRAIN OIL, WASH OUT WITH PARAFFIN AGAIN ENSURING THAT ALL RESIDUES ARE REMOVED, AND REPLACE. RECONNECT FEED PIPE TO PUMP.

3) FILL TANK WITH SUFFICIENT PARAFFIN TO COVER THE FILTER ELEMENT. LOOSEN FEED PIPE CONNECTION AT PUMP END UNTIL ALL AIR HAS BEEN DISPELLED. RETIGHTEN PIPE CONNECTION.

4) START MACHINE UNDER NO LOAD CONDITIONS AND RUN UNTIL PARAFFIN BEGINS TO FLOW FROM OIL PUMP DISCHARGE POINTS. THIS OPERATION WILL TAKE APPROXIMATELY 15 MINUTES AND PROVIDING THAT THE MACHINE IS NOT ON LOAD NO DAMAGE WILL OCCUR.

5) STOP MACHINE, DRAIN OIL TANK AND FILL WITH RECOMMENDED GRADE OF OIL. ENSURE THAT OIL PUMP FEED PIPE IS PRIMED, AND THAT THERE ARE NO AIR LOCKS.

WHEN ORDERING SPARE PARTS ALWAYS QUOTE THE COMPRESSOR NO.

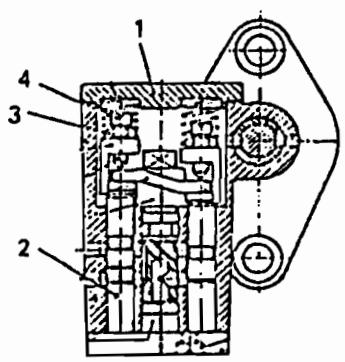
OIL PUMP ADJUSTMENT.

The oil pump is adjusted to the correct flow rate when despatched from our works. If it is found necessary to alter the oil feed, proceed as follows:—

Remove the cover (1) to expose the 2 pistons (2).

Slacken off the locknuts (3) and adjust the feed as required.

To increase the flow, turn the adjusting screws (4) clockwise or anti-clockwise to decrease.



PUMP MAINTENANCE

The pumps fitted as standard to CLEANACRES sprayers are known as PISTON DIAPHRAGM. That is to say that there is a soft diaphragm mounted in each cylinder. The operation of the pump being similar to a car engine, having Inlet (suction) and Outlet (pressure) valves.

USE.

It is important to make sure that the pump is free to turn before connecting the P.T.O. otherwise expensive damage may result.

Always make sure that the suction valve is in either SPRAY or SELF FILL position. Or serious damage can be done to the diaphragms.

Always check the level of oil in the reservoir located on the side of the pump. The oil to use is 20/30 or as indicated on the name plate of the pump.

Keep the SUCTION filter clean by daily or more frequent inspections. This protects the pump from damage caused by grit, stones or foreign objects getting into the valves and thereby lowering the performance.

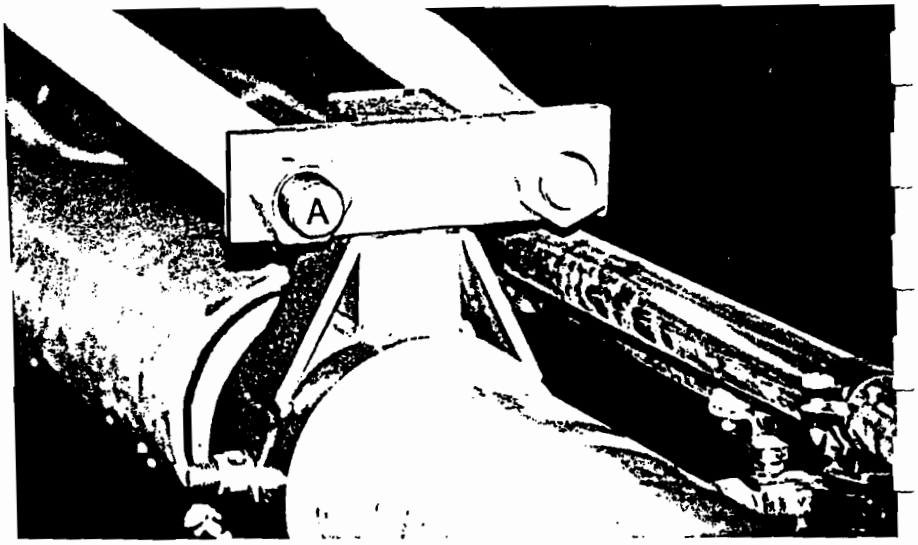
SERVICING THE PUMP

a. Wash out the sprayer and drain.
b. Disconnect both suction and pressure hoses from the pump.
c. Unbolt and remove the pump from the sprayer.
d. Place on a clean bench or area.
e. Dismantle by removing the manifold(s) before the cylinder heads,being careful not to lose any of the sealing '0' rings or valves.
f. Remove and replace the diaphragms noting how they are fitted, refit the cylinder heads as each diaphragm is replaced. Remember where the mounting bracket(s) were located.
g. Fill up with oil and allow time for the air to be expelled from the casing.
h. Refit to the sprayer and test.

BOOM MAINTENANCE AND SETTING.

THE CLEANACRES BOOM REQUIRES VERY LITTLE ADJUSTMENT. THE FOLLOWING INSTRUCTIONS WILL ENSURE THAT THE BOOM WILL GIVE MANY YEARS OF TROUBLE FREE SERVICE.

FIG 17 BOOM T CASTING.



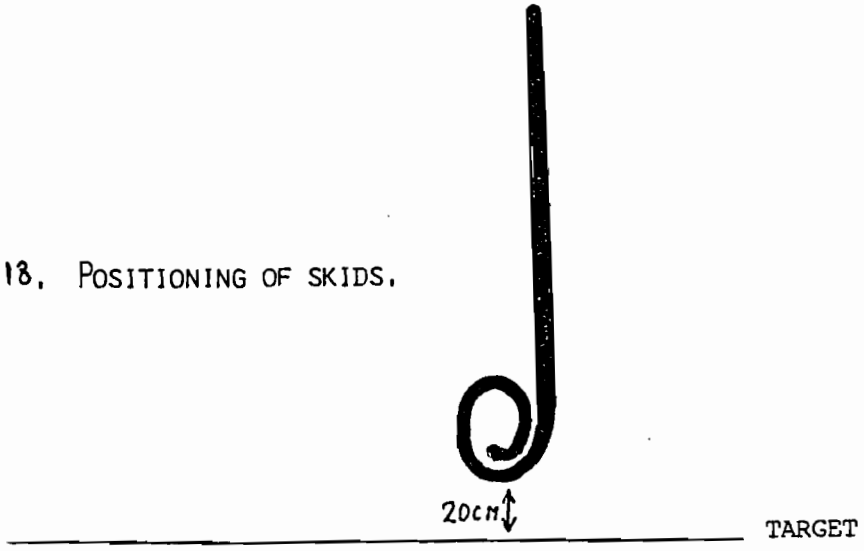
1. REFER TO FIG 17. WHEN YOUR NEW SPRAYER IS SUPPLIED TO YOU THE BOOM ALIGNMENT WILL HAVE BEEN SET AND CHECKED. IN THE COURSE OF TIME THE BOOMS MAY COME OUT OF THEIR PARALLEL POSITION.

A. IF BOOMS ARE LEANING TO THE REAR IN THE SPRAYING POSITION PULL THE BOOM FORWARD BY HAND AND TIGHTEN NUT A ON FIG 17.

B. IF BOOMS ARE LEANING FORWARD SLACKEN OFF NUT A TILL BOOMS ARE LEVEL.

C. ONCE BOOMS HAVE BEEN RE-ALIGNED CHECK THAT THEY ARE HORIZONTAL WITH A SPIRIT LEVEL, AND IF NECESSARY RE-ADJUST.

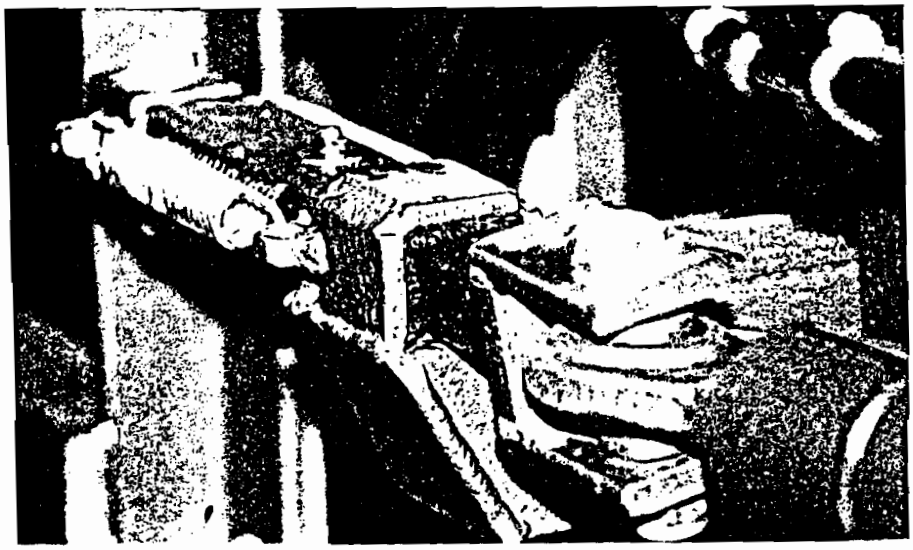
FIG 18. POSITIONING OF SKIDS.



2. CLEANACRES BOOMS ARE FITTED WITH SKIDS TO PROTECT THE NOZZLES, THESE SHOULD BE POSITIONED 20 CMS ABOVE THE TARGET. SKIDS CAN BE REMOVED LATER IN THE SEASON WHEN THE BOOM IS OPERATING IN TALLER CROPS.

3. ON HYDRAULICALLY FOLDING BOOMS, THE FOLD SLIDE IN FIG 19 SHOULD BE GREASED WEEKLY.

FIG 19 HYDRAULIC BOOM FOLD SLIDE.

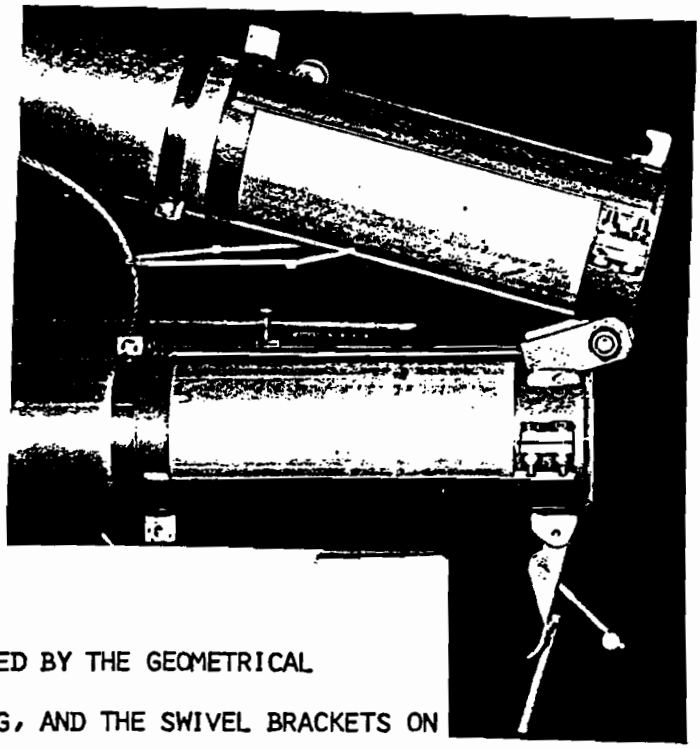


4. BOOMS OF OVER 12 METRES ARE FITTED ON OCCASIONS WITH MANUAL HINGES AT 12M. SEE FIG 20 OVERLEAF. FROM THE HINGE SUPPORT POST A A RIGGING WIRE IS FITTED AND ATTACHED TO THE SKID CASTING.

THIS WIRE IS FITTED WITH A THREADED ADJUSTER. THE CABLE SUPPORTING THE END SECTION SHOULD BE TAUT WHEN THE BOOMS ARE UNFOLDED.

5. ON THE UNDER SIDE OF THE HINGE THERE IS AN OVER CENTRE CATCH WITH A TENSION ADJUSTER (FIG 20). THIS SHOULD BE ADJUSTED SO THAT THERE IS NO SLACK AT THE HINGE WHEN THE CATCH IS FASTENED.

FIG 20 HINGE AND CATCH ASSEMBLY.



6.A BOOM BREAK BACK IS FACILITATED BY THE GEOMETRICAL RELATIONSHIP BETWEEN THE T CASTING, AND THE SWIVEL BRACKETS ON THE CENTRE SECTION. THE BOOM WILL BREAK BACK UP TO FIVE FEET FROM THE HORIZONTAL AND THEN RETURN TO THE SPRAYING POSITION. THE BOOM MUST NOT BE BROKEN BACK FURTHER THAN THIS POINT OR DAMAGE MAY OCCUR.

* NOTE: BREAKBACK SYSTEM IS DESIGNED TO PREVENT DAMAGE TO THE BOOM IN THE EVENT OF ACCIDENTALLY CATCHING THE BOOM IN A HEDGE OR ON OTHER OBJECTS. IT IS NOT DESIGNED TO DRIVE INTO TREES OR TELEGRAPH POLES WHILST SPRAYING.

FROST PROTECTION PRECAUTION.

FROST DAMAGE TO SPRAYERS CAN BE VERY COSTLY AND TIME CONSUMING, IF THE FOLLOWING STEPS ARE FOLLOWED DAMAGE WILL BE PREVENTED.

1. DRAIN TANK.
2. OPEN ALL DIAPHRAGM CHECK VALVES AND CRS TAPS AND DISCONNECT SPRAYLINE FEEDS.
3. REMOVE ALL FILTER BOWLS AND DRAIN OFF LIQUID.
4. DISCONNECT PUMP FEED AND SUCTION LINE AND DRAIN.
5. AWAYS FLUSH THROUGH WITH ANTIFREEZE.
6. DRAIN COMPRESSOR. SEE FIG 21

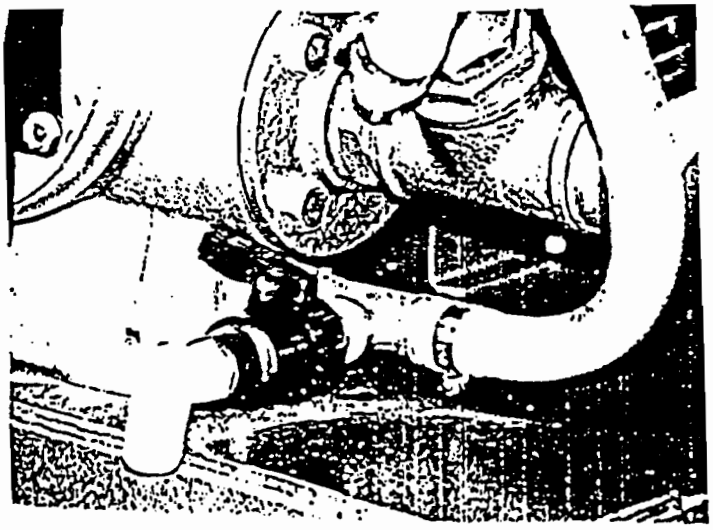


FIG 21 Compressor drain tap

BEFORE ANY REPAIR WORK IS UNDERTAKEN ENSURE EQUIPMENT IS THROUGHLY CLEANED.

FAULTS WHILE FILLING

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
WATER NOT SELF-FILLING OR FILLING SLOWLY.	1.1 LIFT FROM WATER SOURCE TOO LONG (OVER 3.7M).	REDUCE LIFT.
	1.2 CHEMICAL SELF-FILL VALVE LEFT OPEN.	CLOSE VALVE
	1.3 BLOCKED FILTER ON SELF-FILL HOSE.	CLEAN.
	1.4 BLOCKED MAIN FILTER.	CLEAN.
	1.5 AIR LEAK ON FILLING HOSE.	TIGHTEN CONNECTIONS, REPAIR HOLE IN PIPE OR REPLACE PIPE.
	1.6 SELF-FILL VALVE DRAWING IN AIR.	TIGHTEN. CHECK SEALS.
	1.7 FAULTY OR WORN PUMP.	REPLACE DIAPHRAGMS OR PUMP.
	1.8 AIR LOCK IN PUMP.	PRIME PUMP.
CHEMICAL NOT SELF-FILLING OR FILLING SLOWLY.	1.10 THREE WAY VALVE INCORRECTLY POSITIONED ALLOWING AIR TO ENTER.	EITHER POSITION VALVE TO SPRAY SETTING OR ENSURE WATER SELF-FILL HOSE IS IN WATER.

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
	1.11 SEE CAUSE No. 1.5 ABOVE.	
	1.12 SEE CAUSE No. 1.7 ABOVE.	
	1.13 NO WATER IN TANK.	FILL.
	FAULTS WHILE SPRAYING	
NO SPRAY AT ALL.	IF NO SPRAY PRESSURE:-	
	2.1 ELECTRICS NOT CONNECTED.	CONNECT UP & SWITCH ON.
	2.2 NO WATER IN TANK.	CHECK SIGHT GAUGE AND FILL IF NECESSARY.
	2.3 SEE CAUSE No. 1.2	
	2.4 SEE CAUSE No. 1.4	
	2.5 BLOCKAGE IN SUCTION PIPE.	IF MACHINE WILL SELF-FILL WITH WATER, BLOCKAGE IS IN SUCTION PIPE IN TANK.
	2.6 AIR LEAK AROUND MAIN SUCTION FILTER.	CHECK FILTER IS CORRECTLY SEATED ON SEALING RING.
	2.7 AIR LEAK AT SELF-FILL VALVE.	TIGHTEN. CHECK SEALS.

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
	2.8 AIR LEAK ON SUCTION PIPE.	CHECK JOINTS FOR LEAKS AND TIGHTEN AS NECESSARY. IF SPRAY COMMENCES AT HIGH LIQUID LEVELS BUT CEASES WHEN LOW, THE AIR LEAK IS AT SUCTION PIPE ON TANK. REPLACE.
	2.9 SUCTION PIPE FOULING TANK SUMP.	CHECK, REALIGN AND TIGHTEN.
	2.10 SEE CAUSE No. 1.7.	
NO OUTPUT BUT SPRAY PRESSURE PRESENT.		
	2.11 SPRAY LINE SELECTION HAND VALVES ON BOOM IN CLOSED POSITION.	SELECT LINE AND OPEN.
	2.12 IF SPRAY PRESSURE LOWER THAN 10 PSI, DIAPHRAGM CHECK VALVES NOT OPENING.	RAISE SPRAY PRESSURE.
	2.13 BLOCKED PRESSURE FILTER.	CHECK AND CLEAN, CHANGE TO COARSER MESH IF FREQUENT.
	2.14 BLOCKED BREATHER HOLE IN TANK LID.	CLEAR OBSTRUCTION.

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
CANNOT ATTAIN REQUIRED SPRAY PRESSURE.	2.15 SEE CAUSES 2.1 TO 2.12	
	2.16 WORN OR WRONG JETS.	FIT NEW OR CORRECT JETS.
	2.17 SUCTION PIPE FOULING TANK SUMP.	CHECK, REALIGN AND TIGHTEN.
	2.18 FLUID VORTEXING (DRAWING IN AIR) INSIDE TANK.	MOVE AGITATION PIPE.
	2.19 HIGH APPLICATION RATE OR SPRAY PRESSURE REQUIRES CLOSURE OF CONTINUOUS AGITATION VALVE WHERE FITTED.	CLOSE.
	2.20 APPLICATION RATE OR PRESSURE EXCESSIVE FOR PUMP.	CONTACT DEALER.
SPRAY PRESSURE NOT CONSTANT.	2.21 FAULTY DIAPHRAGM IN PUMP. (DIAPHRAGM PUMPS ONLY).	REPLACE DIAPHRAGM.
	2.22 SEE CAUSE 1.7	
SPRAY PRESSURE TOO HIGH.	2.23 SEE CAUSE No. 2.11	

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
	2.25 SEE CAUSE No. 2.20	
	2.26 SEE CAUSE No. 2.13	
SUDDEN PRESSURE LOSS.	2.27 NO LIQUID IN TANK.	CHECK SIGHT GAUGE.
	2.28 LIQUID PIPE BURST.	CHECK FOR LEAKS.
	2.29 BLOCKED BREATHER HOLE IN TANK.	CLEAR OBSTRUCTION.
CANNOT STOP SPRAYING	2.30 ELECTRICAL FAULT ON MASTER ON/OFF SPRAY SWITCH OR VALVE.	STOP PTO, EFFECT REPAIR IF POSSIBLE.
NOZZLE DRIP WHEN SPRAY SWITCHED OFF.	2.31 WORN OR FAULTY CHECK VALVE DIAPHRAGMS ON NOZZLE BODY.	REPLACE.
SPRAY SPURTS.	2.32 SEE CAUSE 2.30	
	2.33 SEE CAUSE No.1.7	
	2.34 TANK NEARLY EMPTY.	FILL.
SPRAY PATTERN INCORRECT.	2.35 INCORRECT BOOM HEIGHT FOR JETS SELECTED.	CHECK INSTRUCTIONS.
FREQUENT BLOCKED JETS	2.36 DAMAGED OR INCORRECTLY FITTED PRESSURE FILTER.	REPLACE.
	2.37 CHEMICAL DAMAGE TO CHECK VALVE	REPLACE.

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
	2.38 MACHINE NOT WASHED OUT AFTER USE.	FLUSH SYSTEM THOROUGHLY.
	2.39 PRESSURE FILTER TOO COARSE FOR JET SELECTED.	SELECT FINER LINE FILTER MESH.
	2.40 CHEMICAL DAMAGE TO RUBBER HOSE.	COMPLETE OVERHAUL NEEDED- CONTACT CLEANACRES.
FREQUENT BLOCKED FILTERS.	2.41 DIRTY WATER.	FIND DIFFERENT WATER SOURCE.
	2.42 IF LINE FILTER, THEN MAIN SUCTION FILTER INOPERATIVE.	CHECK AND REPLACE.
	2.43 FILTER MESH TOO FINE.	FIT COARSER MESH.

FAULTS ON ELECTRICS

NO ELECTRIC CONTROL AT ALL.	3.1 ELECTRICS NOT CONNECTED.	CONNECT UP.
	3.2 FLAT BATTERY.	CHARGE BATTERY
	3.3 BLOWN LINE FUSE.	CHECK AND REPLACE.
	3.4 SPRAYER PLUGGED INTO TRAILER LIGHTS SOCKET ON TRACTOR.	CONNECT UP WITH SPRAY CONTROL UNIT SOCKET.

FAULTS ON BOOM OPERATION

BOOMS WILL NOT RAISE.	4.1 HYDRAULIC PIPE NOT CONNECTED.	CONNECT WITH TIPPING PIPE OUTLET.

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
	4.2 RESTRICTOR VALVE ON HYDRAULIC PIPES NOT OPEN.	ADJUST.
	4.3 HYDRAULIC CONNECTIONS NOT FULLY INSERTED.	CHECK AND FULLY TIGHTEN.
	4.4 HYDRAULIC PIPES NOT CONNECTED.	CONNECT WITH DOUBLE ACTING SPOOL VALVE OUTLETS.
BOOM WILL NOT OPEN.	4.5 BOOMS ON RESTS.	LIFT CLEAR.
	4.6 SEE CAUSE No 4.2.	
	4.7 HYDRAULIC FEED PIPE TRAPPED.	CHECK.
BOOMS OPEN TOO QUICKLY	4.8 RESTRICTORS NOT SET CORRECTLY.	ADJUST.
	4.9 TRACTOR HYDRAULICS EXCESSIVE FOR SPRAYER SYSTEM WITHOUT ADAPTOR, E.G. FORD 7600	REDUCE ENGINE SPEED OR CONTACT DEALER FOR DIVERTER VALVE TO BE FITTED.
BOOMS WILL NOT CLOSE		
	4.10 HYDRAULIC PIPE TRAPPED.	CHECK.
	4.11 RESTRICTOR ON HYDRAULICS CLOSED.	CHECK AND OPEN.
	4.12 BOOMS NOT RAISED SUFFICIENTLY.	RAISE TO MAXIMUM HEIGHT.

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
BOOM WILL NOT MAINTAIN HEIGHT.	4.13 HYDRAULIC LEAK.	CHECK UNIONS AND TIGHTEN IF NECESSARY.
	4.14 SPOOL VALVE FAULTY.	CONTACT DEALER.
	4.15 DAMAGED ACCUMULATOR.	CHECK.
	4.16 FAULTY TRACTOR HYDRAULICS.	CONTACT YOU TRACTOR DEALER
	4.17 WORN OR DAMAGED CENTRE SPRINGS.	ADJUST SPRING TENSION OR REPLACE.
TOO MUCH BOOM MOVEMENT.	4.18 WORN OR DAMAGED PIVOT.	REPLACE OR PACK WITH GREASE.
	4.19 PIVOT GUIDES TOO TAUT.	CONTACT YOUR DEALER.
BOOM SAG.	4.20 BADLY ADJUSTED STAY BARS.	ADJUST.

FAULT ON DRAINING

TANK WILL NOT DRAIN.	5.1 BLOCKED BREATHER HOLE IN TANK LID.	REMOVE LID AND CLEAR HOLE.
	5.2 BLOCKED SUMP DRAIN.	CHECK AND CLEAR.

FAULTS ON AIR SYSTEM.

CANNOT OBTAIN AIR PRESSURE.	6.1 AIR FILTER BLOCKED.	CHANGE FILTER.
	6.2 AIR PRESSURE GAUGE PIPE DISCONNECTED FROM SPRAYLINE.	RECONNECT PIPE.

FAULTS	POSSIBLE CAUSE	REMEDIAL ACTION.
	6.3 INTAKE HOSE LOOSE OR DISCONNECTED.	REFIT HOSE OR TIGHTEN FITTINGS.
	6.4 PTO NOT AT 540.	SET PTO SPEED.
	6.5 PRESSURE RELIEF VALVE NOT SCREWED IN ENOUGH.	SCREW DOWN VALVE.
	6.6 AIR SOLENOIDS NOT OPENING OR FAULTY.	CHECK ELECTRICAL CONNCECTIONS & SOLENOIDS.
	6.7 COUPLING DAMAGED BETWEEN GEAR BOX AND COMPRESSOR.	FIT NEW COUPLING.
	6.8 COMPRESSOR DAMAGED.	CONTACT YOUR DEALER.
	6.9 NO LIQUID IN TANK.	FILL TANK.
	6.10 PRESSURE GAUGE FAULTY.	CHANGE GAUGE.
	6.11 ELECTRICS NOT CONNECTED.	
COMPRESSOR OVER HEATING	6.12 RETURNS FROM COMPRESSOR BLOCKED.	UNBLOCK FEED & RETURN LINES.
	6.13 COMPRESSOR NOT FLUSHED OUT PROPERLY.	FLUSH THROUGH WITH CLEAN WATER.
	6.14 P.T.O. SPEED TOO FAST.	ADJUST TO 540

FAULT	POSSIBLE CAUSE	REMEDIAL ACTION
AIR PRESSURE TOO HIGH	6.15 P.T.O. RUNNING TOO FAST.	ADJUST TO 540.
	6.16 RELIEF VALVE TOO TIGHT.	ADJUST RELIEF VALVE.
	6.17 FAULTY BUTTERFLY VALVE.	REPLACE VALVE.

2. SAFETY PRECAUTIONS.

A. ALWAYS ENSURE THAT THE MOUNTING PINS ARE LOCKED IN PLACE, AND THAT SUPPORT STAY PINS ARE TIGHT.

B. ALWAYS RETRACT LEGS AND LOCK IN THE RAISED POSITION, SECURING THEM WITH PINS AND SPRING CLIPS BEFORE MOVING OFF.

C. ALWAYS ENSURE THAT HYDRAULIC FEED PIPES ARE CONNECTED CORRECTLY, AND SECURELY TO THE TRACTORS QUICK COUPLINGS AND WILL NOT CHAFE ANYWHERE.

D. ENSURE THAT THE TRANSFER PIPE IS ROUTED CORRECTLY TO THE REAR SPRAYER TANK, AND IS CONNECTED SECURELY AND AGAIN AVOID ANY CHAFING.

E. NEVER RUN THE PUMP DRY. IT MUST ALWAYS BE PRIMED FROM DRY.

F. WHEN THE UNIT IS DETACHED FROM THE TRACTOR ENSURE THAT IT IS ON A FIRM LEVEL SURFACE.

G. WHEN THE UNIT IS DETACHED FROM THE TRACTOR THE OPERATOR MUST REMEMBER TO DISCONNECT THE TRANSFER HOSE AT BOTH ENDS TO AVOID SIPHONING FROM THE REAR TANK ONTO THE GROUND.

H. KEEP ALL NUTS AND BOLTS TIGHT.

I. ALWAYS READ THE INSTRUCTIONS ON CHEMICAL CONTAINERS, IF PROTECTIVE CLOTHING IS RECOMMENDED USE IT.

J. CARE MUST BE TAKEN TO AVOID POLLUTION OF WATER SOURCE WHEN USING SELF FILLER.

K. ALL LIQUID MUST BE REMOVED FROM THE TANK, PUMP, HOSES AND FILTER IN FROSTY WEATHER.

4. OPERATING THE FRONT TANK CHEMICAL PROBE.

A. SET ALL CONTROLS FOR SELF FILLING AS ABOVE AND WHEN THE TANK IS HALF FULL OF WATER, CHECK THAT THE TANK LID HAS BEEN REMOVED AND ADD THE PREDETERMINED AMOUNT OF CHEMICAL THROUGH THE TANK LID FILTER OR:

B. WHEN THE TANK IS PARTIALLY FILLED WITH WATER, REMOVE THE CHEMICAL PROBE "L" FROM ITS CLIPS AND INSERT IT INTO THE RECEPTICLE CONTAINING THE CHEMICAL AND TURN THE VALVE ON THE PROBE "L" TO THE ON POSITION AS IN FIG. 24. IF THE CHEMICAL TO BE ADDED THROUGH THE PROBE IS THICK, THE SELF FILL VALVE "J" MAYBE CLOSED DOWN SLIGHTLY TO INCREASE THE RATE OF CHEMICAL FILL.

C. WHEN THE CHEMICAL HAS BEEN SUCKED INTO THE TANK, TURN THE VALVE PROBE "L" TO THE OFF POSITION, AND CONTINUE FILLING THE TANK.

D. RETURN THE PROBE TO ITS' CLIPS ON THE FRAME.

E. ONCE THE TANK HAS BEEN FILLED WITH WATER TURN THE SELF FILL VALVE "J" TO THE "FROM TANK" POSITION.

F. DURING THE FILLING PROCEDURE THE AGITATION CONTROL VALVE "N" CAN BE DIRECTED INTO THE UPRIGHT POSITION TO INCREASE THE RATE OF BOTH WATER AND CHEMICAL SELF FILL. ONCE FILLING IS COMPLETED RETURN THE HANDLE HALF WAY BETWEEN THE "ON" AND "OFF" POSITIONS. THIS WILL ALLOW AGITATION TO CONTINUE WHILST SPRAY IS BEING TRANSFERED TO THE REAR TANK.

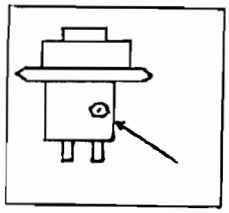


FIG. 23

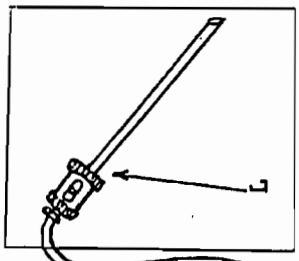
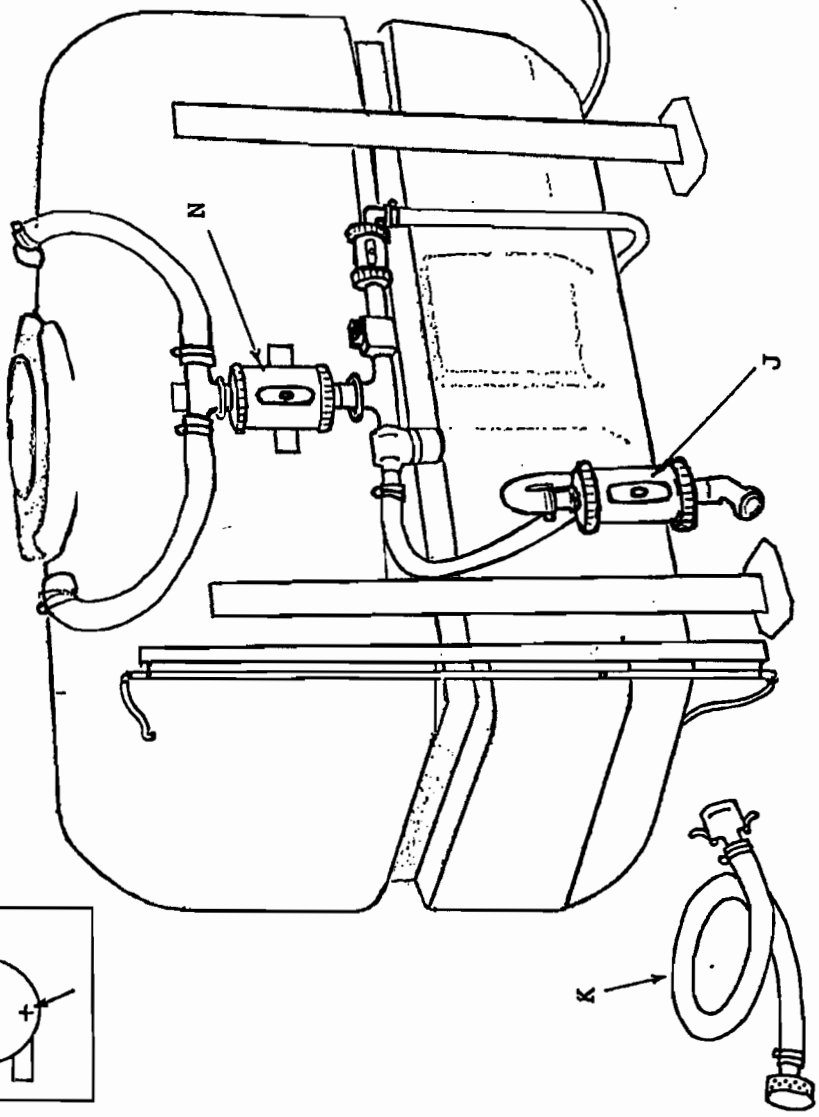


FIG. 24



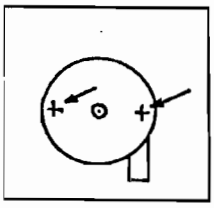


FIG. 22

////////////////////// LEGAL REQUIREMENTS //////////////////////

HEALTH AND SAFETY AT WORK ACT 1974 IMPOSES GENERAL DUTIES ON EMPLOYERS TO ENSURE, SO FAR AS IS REASONABLY PRACTICABLE, THE SAFETY AND ABSENCE OF RISKS TO HEALTH IN THE USE, HANDLING, STORAGE AND TRANSPORT OF SUBSTANCES SUCH AS PESTICIDES.

ALSO THE SELF EMPLOYED AND EMPLOYEES MUST TAKE REASONABLE CARE FOR THE HEALTH AND SAFETY OF THEMSELVES AND EMPLOYEES MUST CO-OPERATE WITH OTHERS CONCERNING ANY DUTY OR REQUIREMENT.

THE POISONOUS SUBSTANCES IN AGRICULTURE REGULATIONS 1984 REQUIRE AN EMPLOYER TO PROVIDE EMPLOYEES WITH PRESCRIBED PROTECTIVE CLOTHING AND NOT TO ALLOW THEM TO PERFORM A SCHEDULED OPERATION UNLESS IT IS WORN.

ALSO EMPLOYERS MUST PROVIDE ACCOMMODATION FOR PROTECTIVE CLOTHING AND EMPLOYEES PERSONAL CLOTHING TOGETHER WITH SUITABLE WATER FOR DRINKING, PERSONAL WASHING, AND WASHING PROTECTIVE CLOTHING PLUS FACILITIES FOR CLEANING SPRAYER EQUIPMENT. SIMILARLY, SELF EMPLOYED PERSONS MUST PROVIDE THEMSELVES WITH PROTECTIVE CLOTHING AND ACCOMMODATION FOR IT. ALL OPERATORS MUST WEAR THE APPROPRIATE PROTECTIVE CLOTHING FOR THE WORK BEING DONE.

REGULATIONS MADE UNDER THE FOOD AND ENVIRONMENT PROTECTION ACT 1985 MUST ALSO BE COMPLIED WITH.

IT IS MOST IMPORTANT THAT THE CORRECT PROTECTIVE CLOTHING IS WORN AT ALL TIMES WHEN HANDLING PESTICIDE. CLEANACRES MACHINERY STOCK A FULL RANGE OF PROTECTIVE CLOTHING, IF YOU THINK YOU ARE NOT PROPERLY EQUIPPED IN THIS RESPECT PLEASE CONTACT US FOR ADVICE.

PARTS MANUAL - CONTENTS

AIRTEC NOZZLE PLASTIC

1 NAP 1

2 NAP 03

3 NAT 0002T

4 NAP 0235

5 NAP 05

6 NAT 0006

7 NAT Q1821

8 NAP 04

9 N214 Q1819

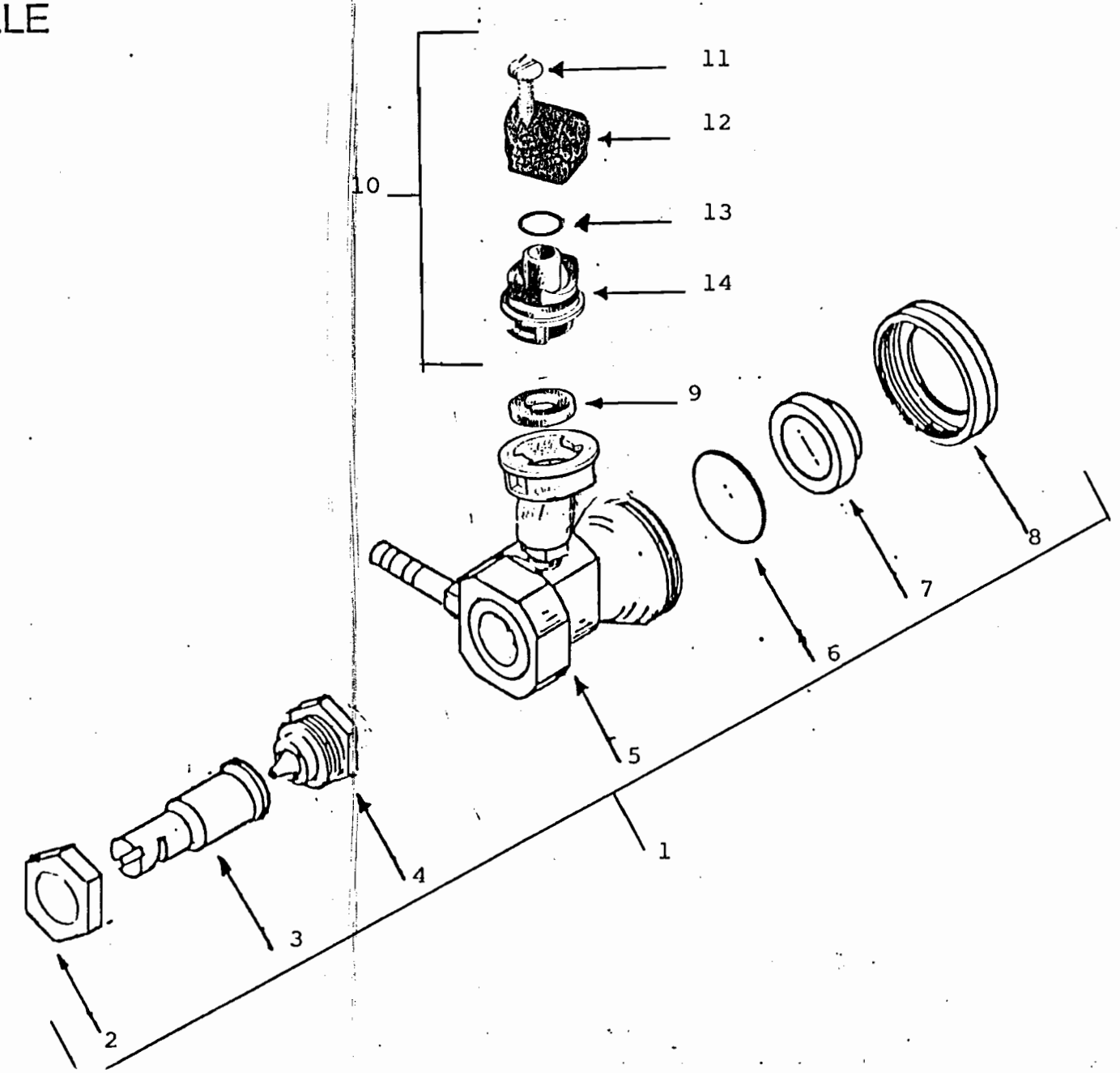
10 BCC 2

11 N2066356

12 N215 AQ2701

13 N215 AQ2706

14 N215 AQ2704



AIR BAND CLAMP

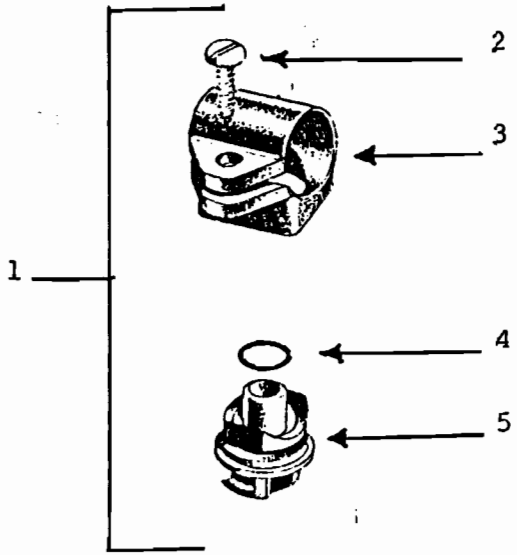
1 BCC 1

2 N215 AQ2707

3 N215 AQ2703

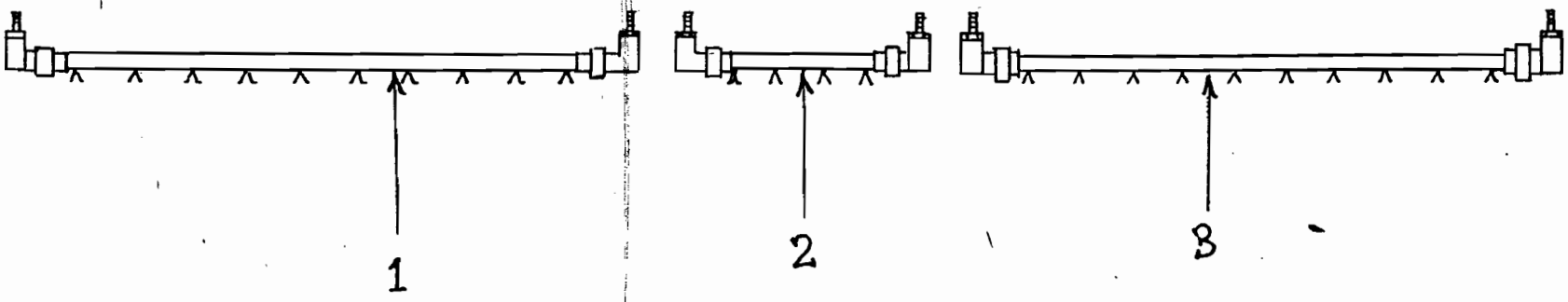
4 N215 AQ2706

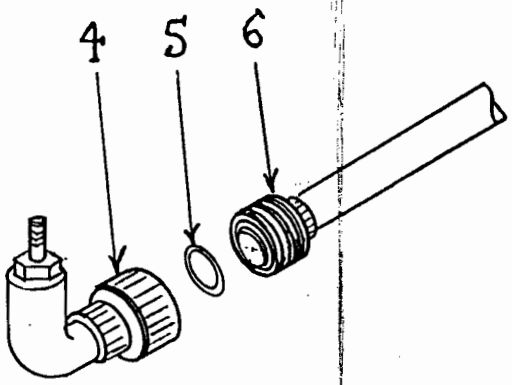
5 N215 AQ2704

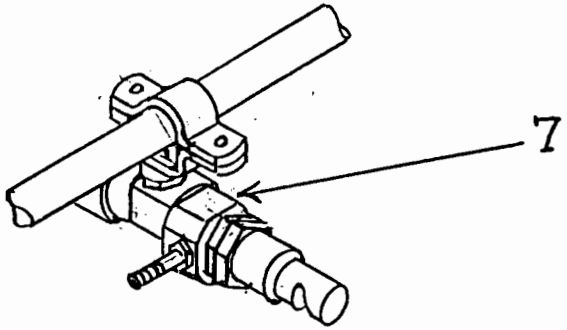


LIQUID LINE AND FITTINGS

3 SECTION







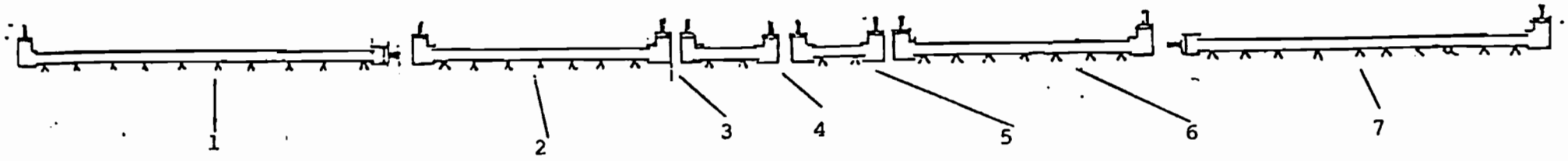
LIQUID LINE AND FITTINGS

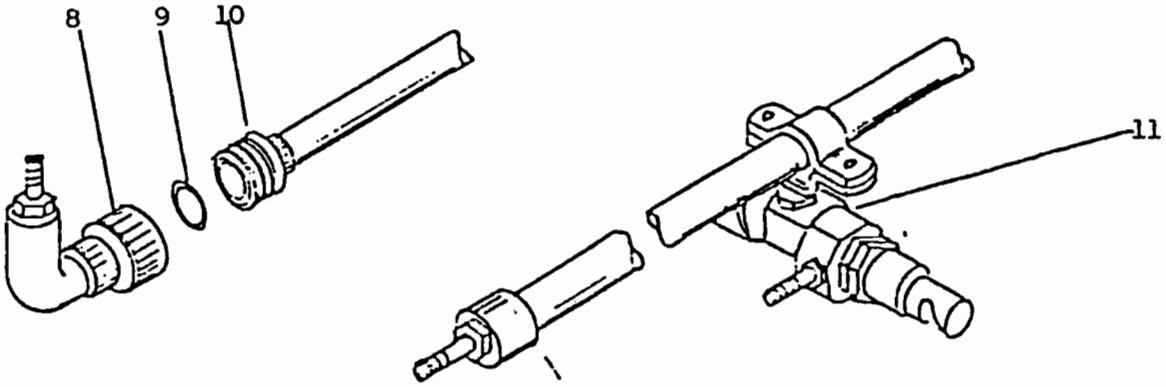
3 SECTION

REF.NO.	PART NO.	DESCRIPTION
1	0011	L/H SPRAYLINE
2	0012	CENTRE SPRAYLINE
3	0013	R/H SPRAYLINE
4	0014	FEMALE UNION
5	0015	O-RING
6	0016	MALE UNION
7	0017	NOZZLE ASS'Y

LIQUID LINE AND FITTINGS

4 SECTION





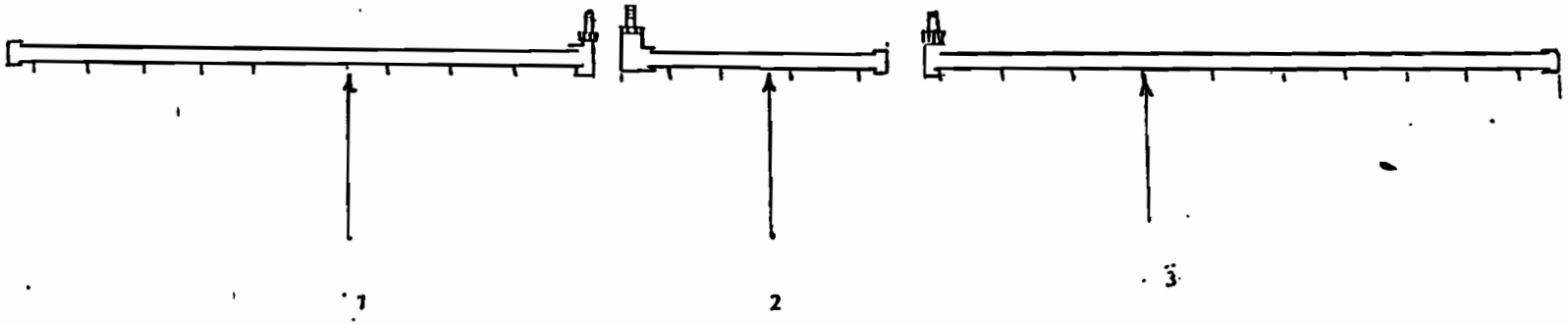
LIQUID LINE AND FITTINGS

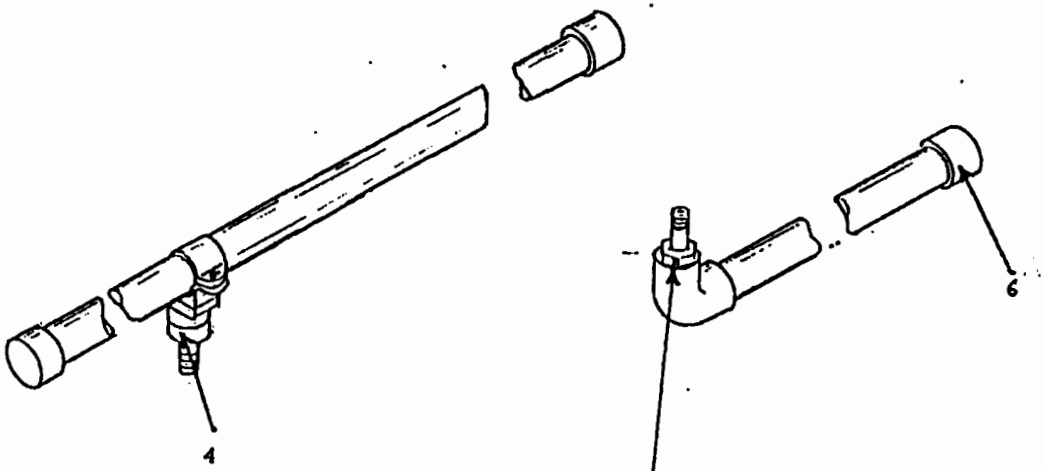
4 SECTION

REF.NO.	PART NO.	DESCRIPTION
1	0018	L/H SPRAYLINE
2	0019	L/H SPRAYLINE
3	0020	L/H SPRAYLINE
4	0021	L/H SPRAYLINE
5	0022	R/H SPRAYLINE
6	0023	R/H SPRAYLINE
7	0024	R/H SPRAYLINE
8	0025	FEMALE UNION
9	0026	O-RING
10	0027	MALE UNION
11	0028	AIRTEC NOZZLE

AIR LINE AND FITTINGS

3 SECTION





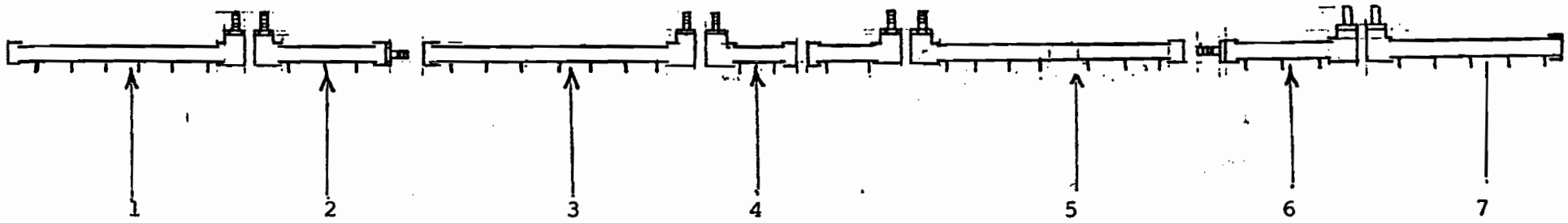
AIR LINE AND FITTINGS

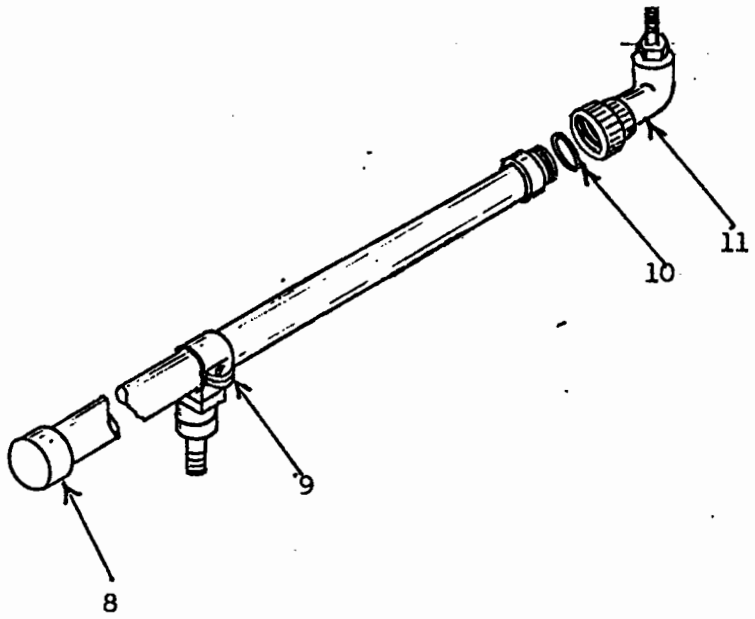
3 SECTION

REF.NO.	PART NO.	DESCRIPTION
1	0029	L/H AIR LINE
2	0030	CENTRE AIR LINE
3	0031	R/H AIR LINE
4	0032	GAUGE CONNECTOR
5	0035	CENTRE HOSETAIL
6	0036	END CAP

AIR LINE AND FITTING

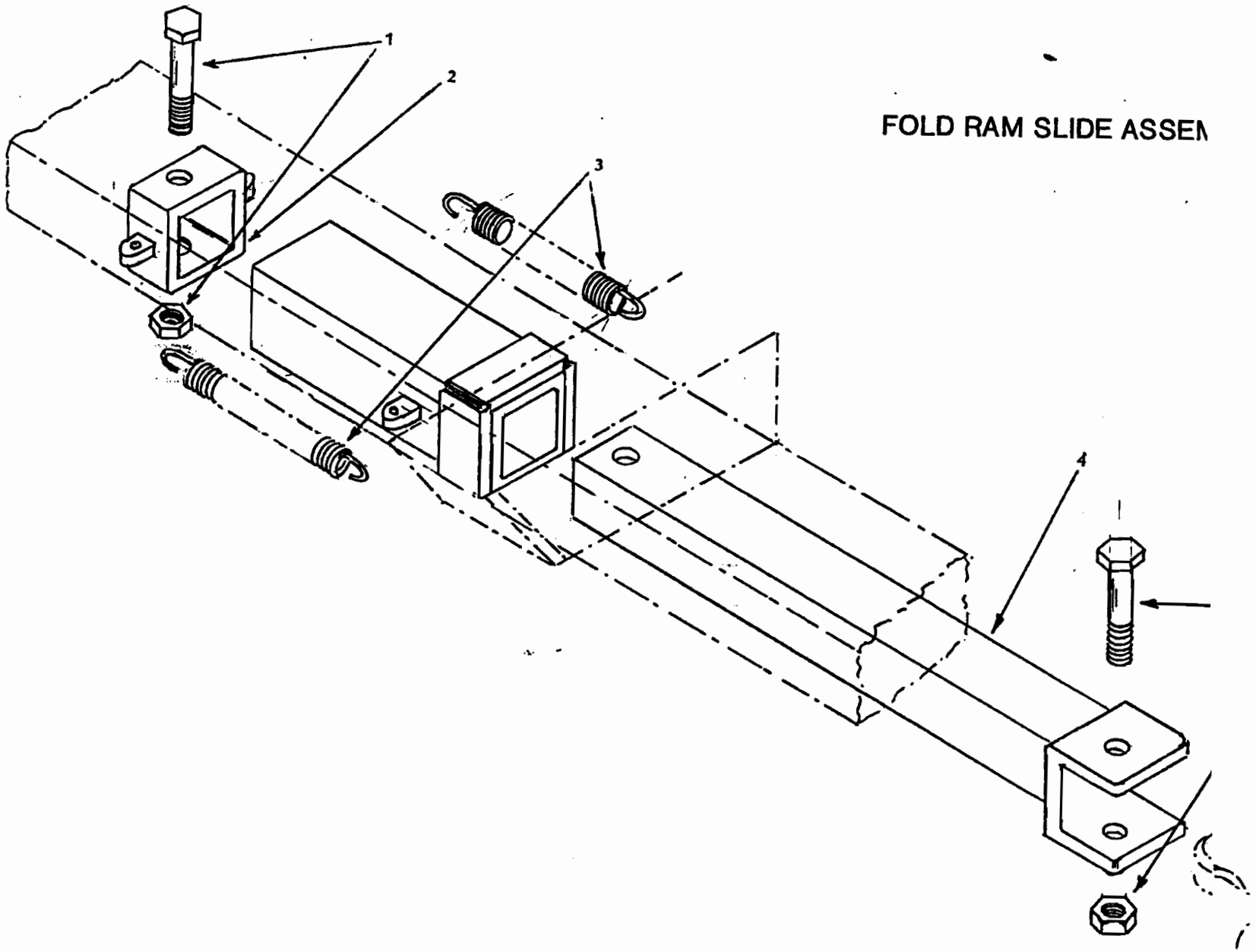
4 SECTION





AIR LINE AND FITTINGS
4 SECTION

REF.NO.	PART NO.	DESCRIPTION
1	0037	L/H AIR LINE
2	0038	L/H AIR LINE
3	0039	L/H AIR LINE
4	0040	CENTRE AIR LINE
5	0041	R/H AIR LINE
6	0042	R/H AIR LINE
7	0043	R/H AIR LINE
8	0044	END CAP
9	0045	GAUGE CONNECTOR
10	0048	O RING
11	0049	ELBOW

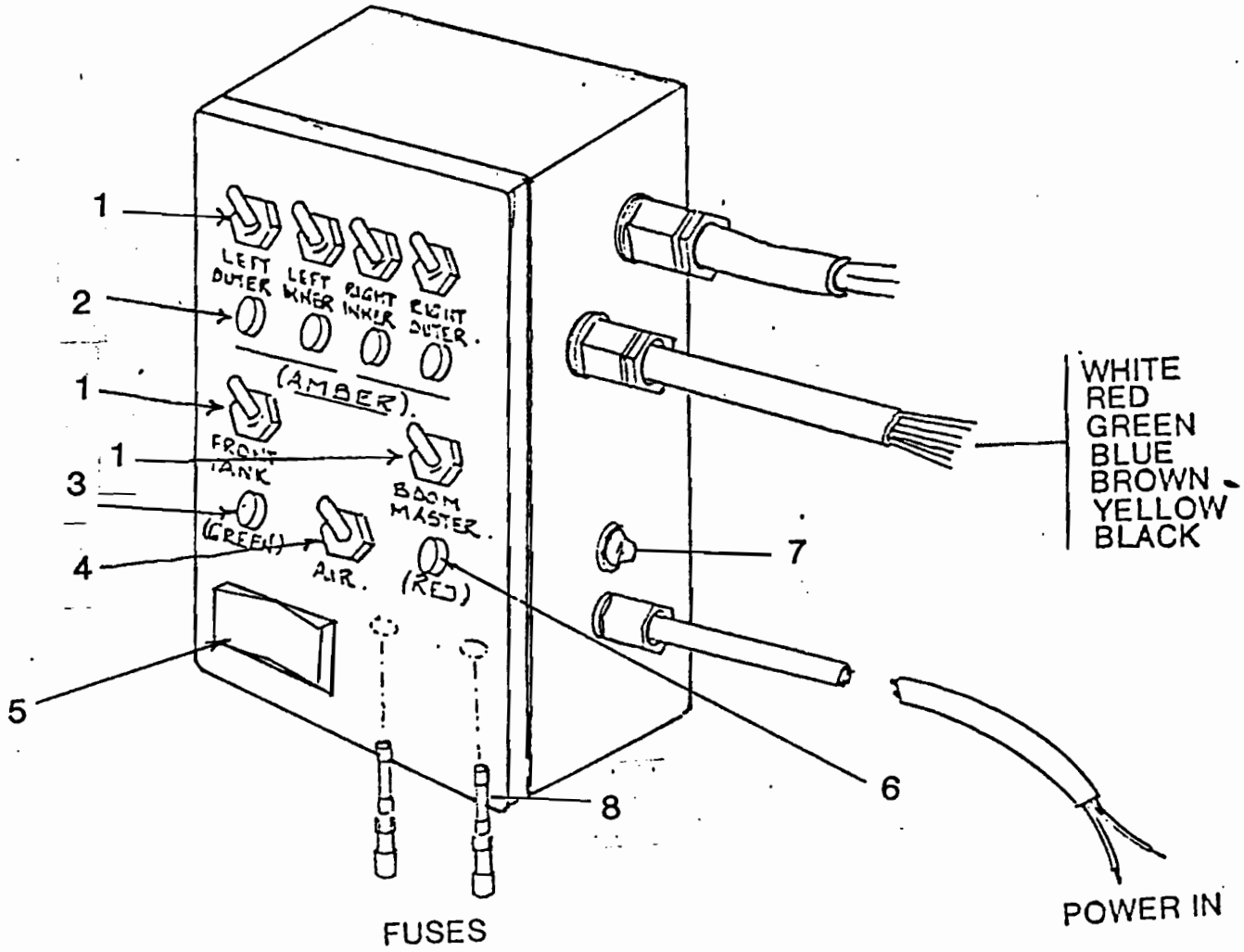


FOLD RAM SLIDE ASSEN

FOLD RAM SLIDE ASSEMBLY

REF.NO.	PART NO.	DESCRIPTION
1	0050	BOLT/NUT
2	0051	STOP
3	0052	SPRING
4	0053	SLIDE
5	0054	BOLT/NUT

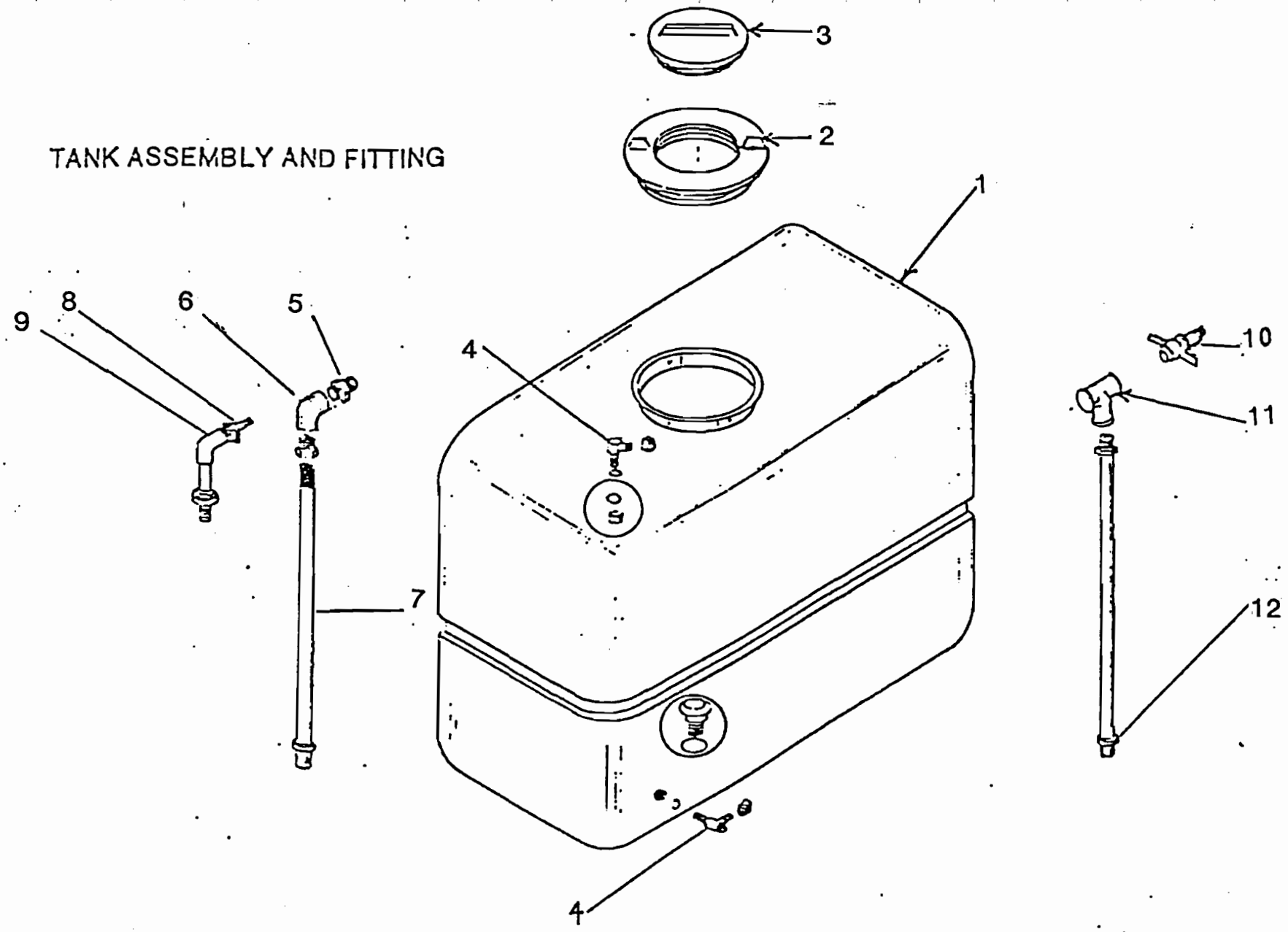
CONTROL BOX


1
2
1
1
3
4
5
LEFT OUTER
LEFT INNER
RIGHT INNER
RIGHT OUTER.
(AMBER).
FRONT TANK
BOOM MASTER.
(GREEN)
AIR.
(RED)
WHITE
RED
GREEN
BLUE
BROWN
YELLOW
BLACK
7
6
8
FUSES
POWER IN

CONTROL BOX

REF.NO.	PART NO.	DESCRIPTION
1	0055	SWITCH
2	0056	AMBER LIGHT
3	0057	GREEN LIGHT
4	0058	AIR SWITCH
5	0059	LIQUID SWITCH
6	0060	RED LIGHT
7	0061	FRONT TANK SOCKET
8	0062	FUSE

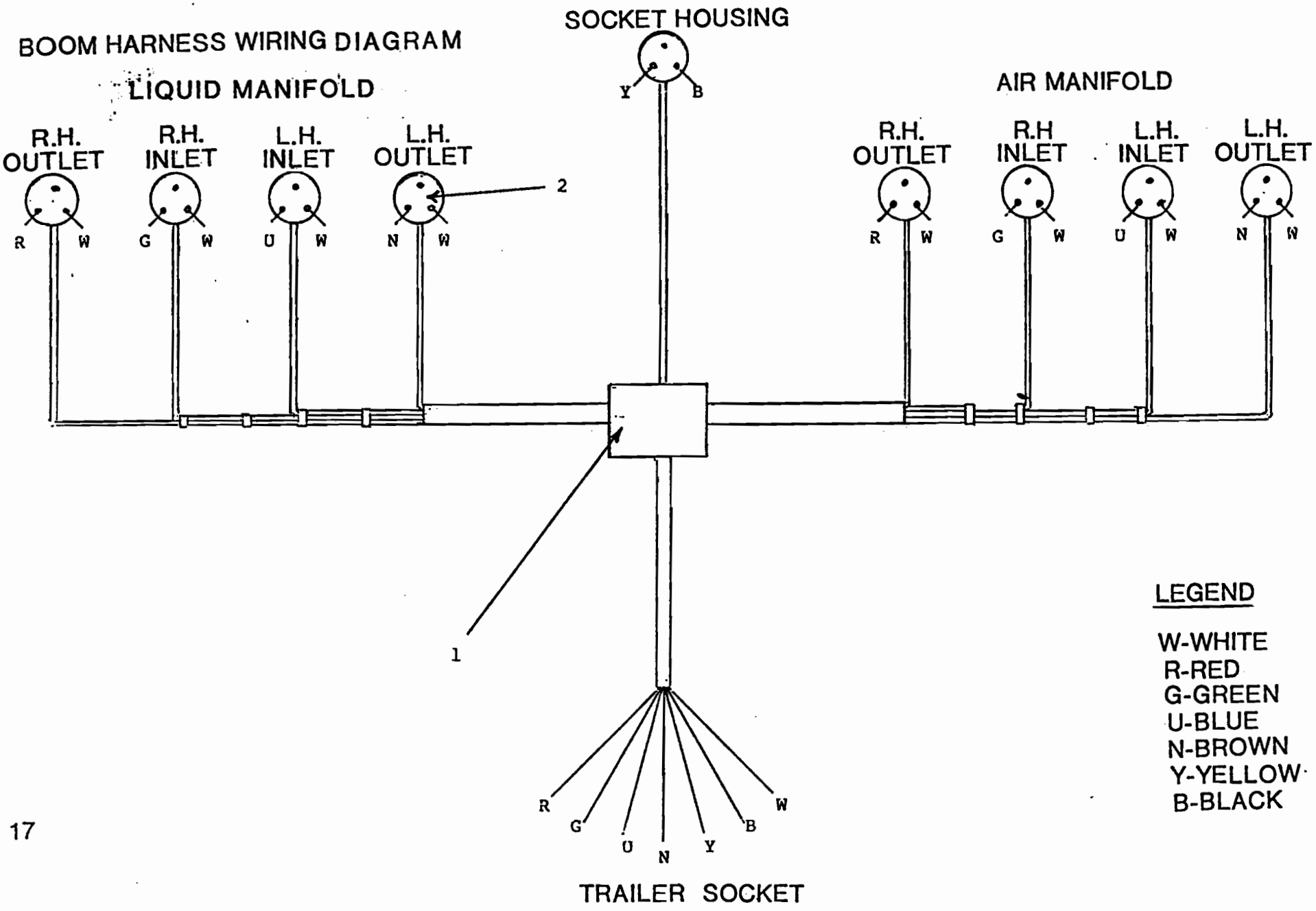
TANK ASSEMBLY AND FITTING



TANK ASSEMBLY AND FITTING

REF.NO.	PART NO.	DESCRIPTION
1	0067	TANK 185 or 146
2	0068	185 OUTER LID
3	0069	185 INNER LID
4	0070	ELBOW ASSY
5	0071	NIPPLE
6	0072	ELBOW
7	0073	DROP PIPE
8	0074	HOSE TAIL
9	0075	ELBOW
10	0076	HOSE TAIL
11	0077	TEE
12	0078	HOSETAIL

BOOM HARNESS WIRING DIAGRAM



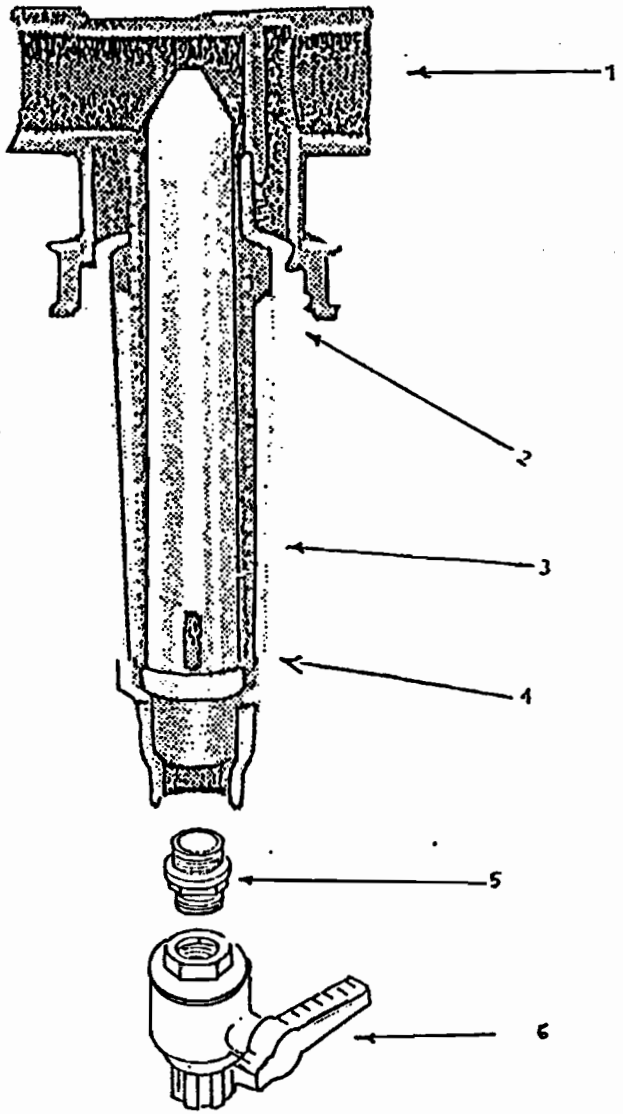
LEGEND

W-WHITE
R-RED
G-GREEN
U-BLUE
N-BROWN
Y-YELLOW
B-BLACK

BOOM HARNESS WIRING DIAGRAM

REF.NO.	PART NO.	DESCRIPTION
1	0080	COMPLETE HARNESS
2	0081	PLUG

FLUSHING FILTER

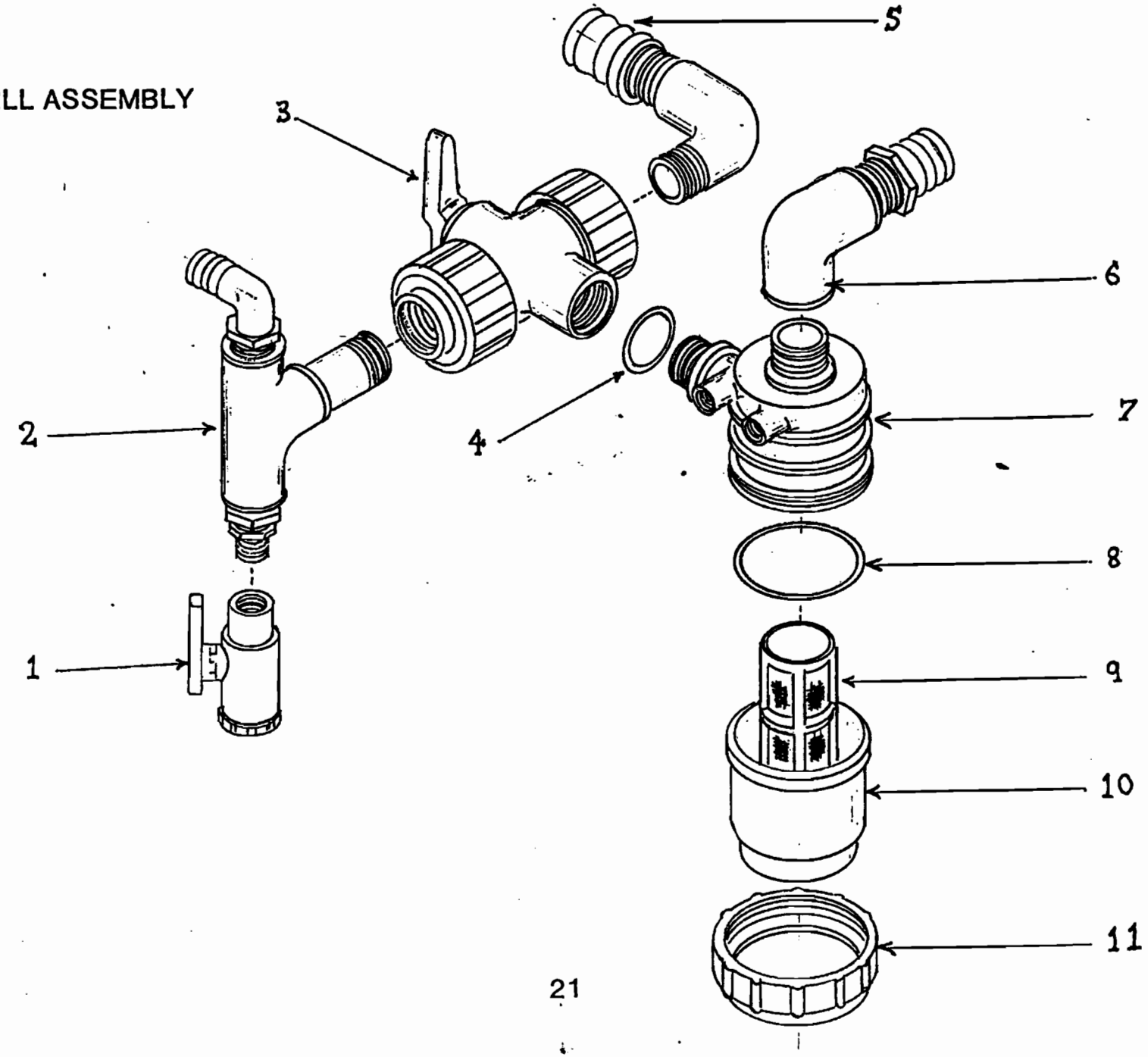


3/4

FLUSHING FILTER

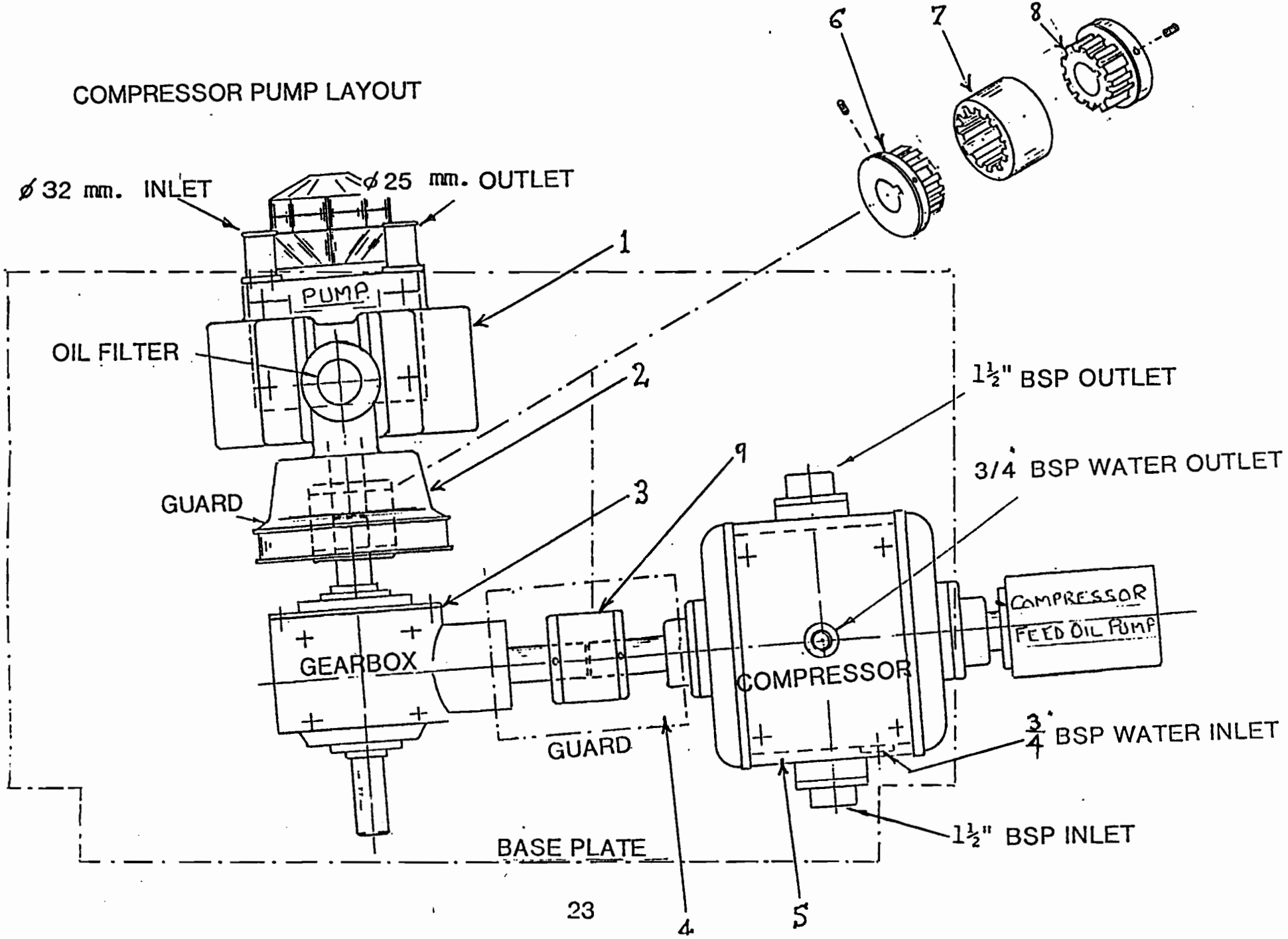
REF.NO.	PART NO.	DESCRIPTIOPN
1	0082	FILTER BODY
2	0083	O RING
3	0084	FILTER GAUZE
4	0085	HOUSING
5	0086	NIPPLE
6	0087	TAP

SELF FILL ASSEMBLY



SELF FILL ASSEMBLY

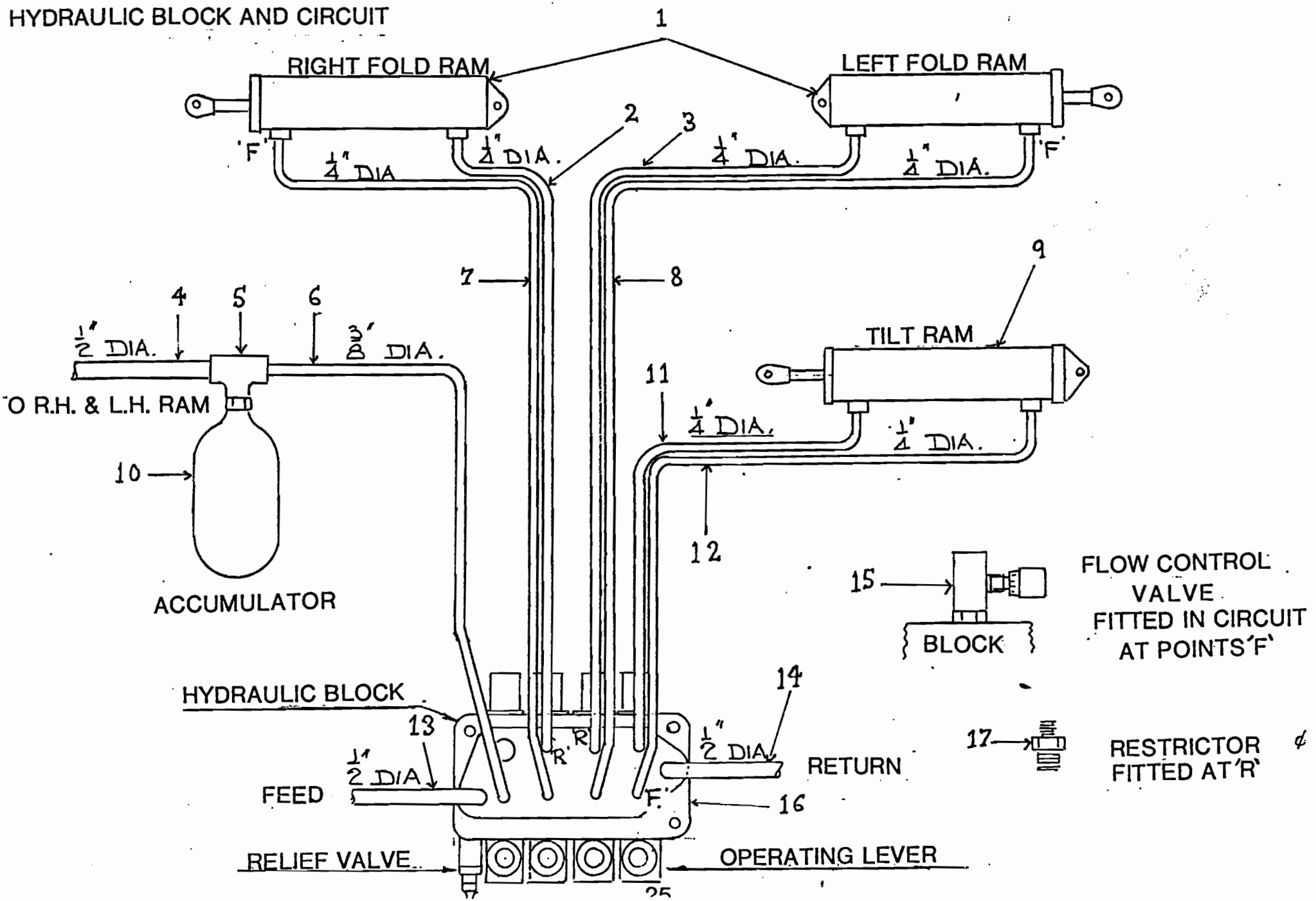
REF.NO.	PART NO.	DESCRIPTION
1	0087	TAP
2	0088	TEE ASSY.
3	0089	3 WAY TAP
4	0090	O RING
5	0091	CAMLOCK ASSY.
6	0092	ELBOW ASSY.
7	0093	FILTER BODY
8	0094	O RING
9	0095	FILTER GAUZE
10	0096	HOUSING
11	0097	RING


COMPRESSOR PUMP LAYOUT
ø 32 mm. INLET
ø 25 mm. OUTLET
PUMP
OIL FILTER
GUARD
GEARBOX
GUARD
BASE PLATE
COMPRESSOR
COMPRESSOR
FEED OIL PUMP
1½" BSP OUTLET
3/4 BSP WATER OUTLET
3/4 BSP WATER INLET
1½" BSP INLET
1
2
3
4
5
6
7
8
9

COMPRESSOR PUMP LAYOUT

REF.NO.	PART NO.	DESCRIPTION
1	0098	PUMP
2	0099	GUARD
3	0100	GEAR BOX
4	0101	GUARD
5	0102	COMPRESSOR
6	0103	PUMP COUPLING
7	0104	COUPLING RUBBER
8	0105	GEAR BOX/PUMP COUPLING
9	0107	COMP COUPLING

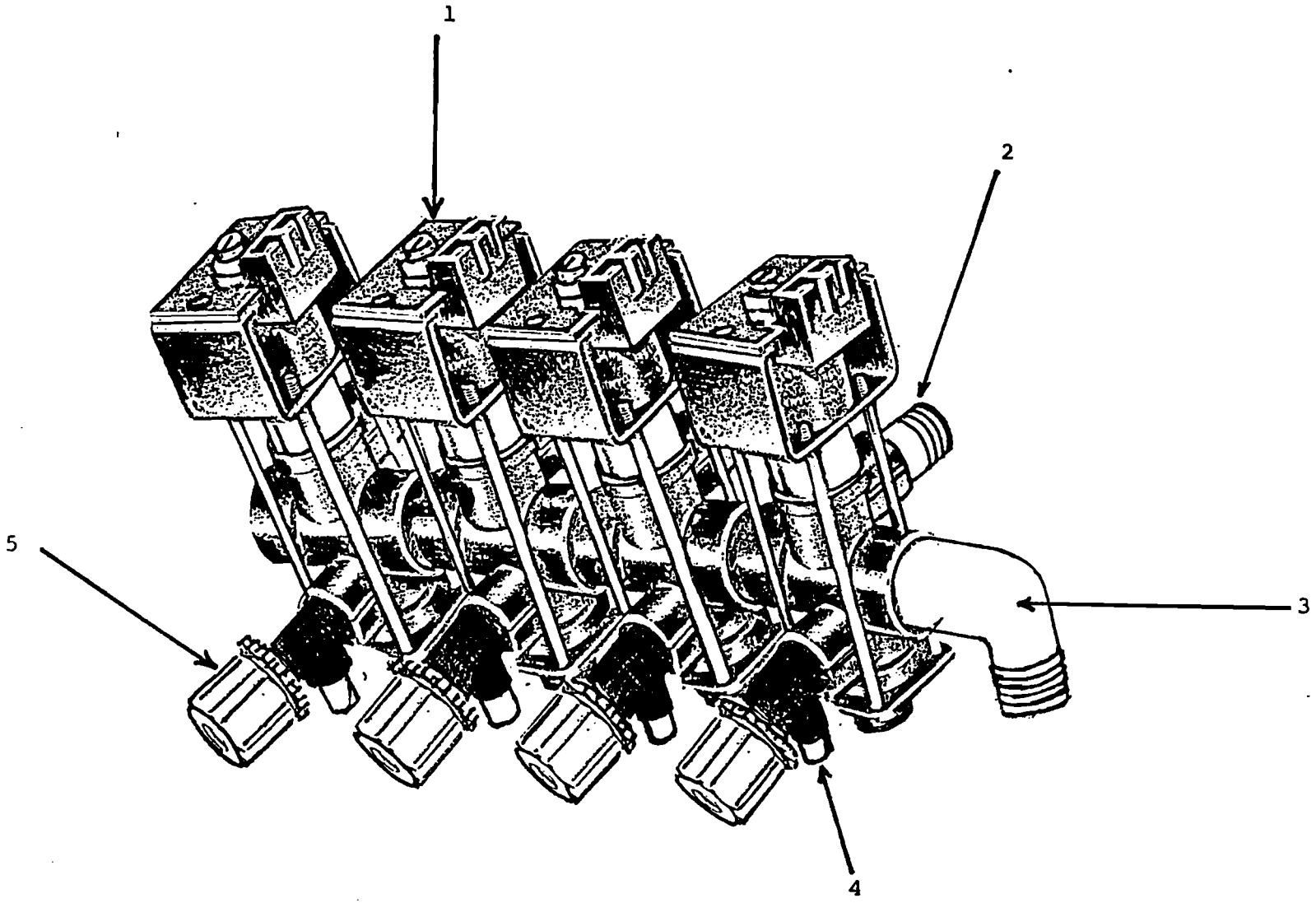
HYDRAULIC BLOCK AND CIRCUIT



HYDRAULIC BLOCK AND CIRCUIT

REF.NO.	PART NO.	DESCRIPTION
1	0108	FOLD RAM
2	0109	R/H SHORT HOSE
3	0110	L/H SHORT HOSE
4	0111	ACCUM TO R AND L RAM
5	0112	TEE
6	0113	HYD. BLOCK TO ACCUM.
7	0114	R/H LONG HOSE
8	0115	L/H LONG HOSE
9	0116	TILT RAM
10	0117	ACCUMULATOR
11	0118	TILT RAM SHORT HOSE
12	0119	TILT RAM LONG HOSE
13	0120	FEED HOSE
14	0121	RETURN HOSE
15	0122	FLOW CONTROL VALVE
16	0123	HYDRAULIC BLOCK
17	0124	RESTRICTOR

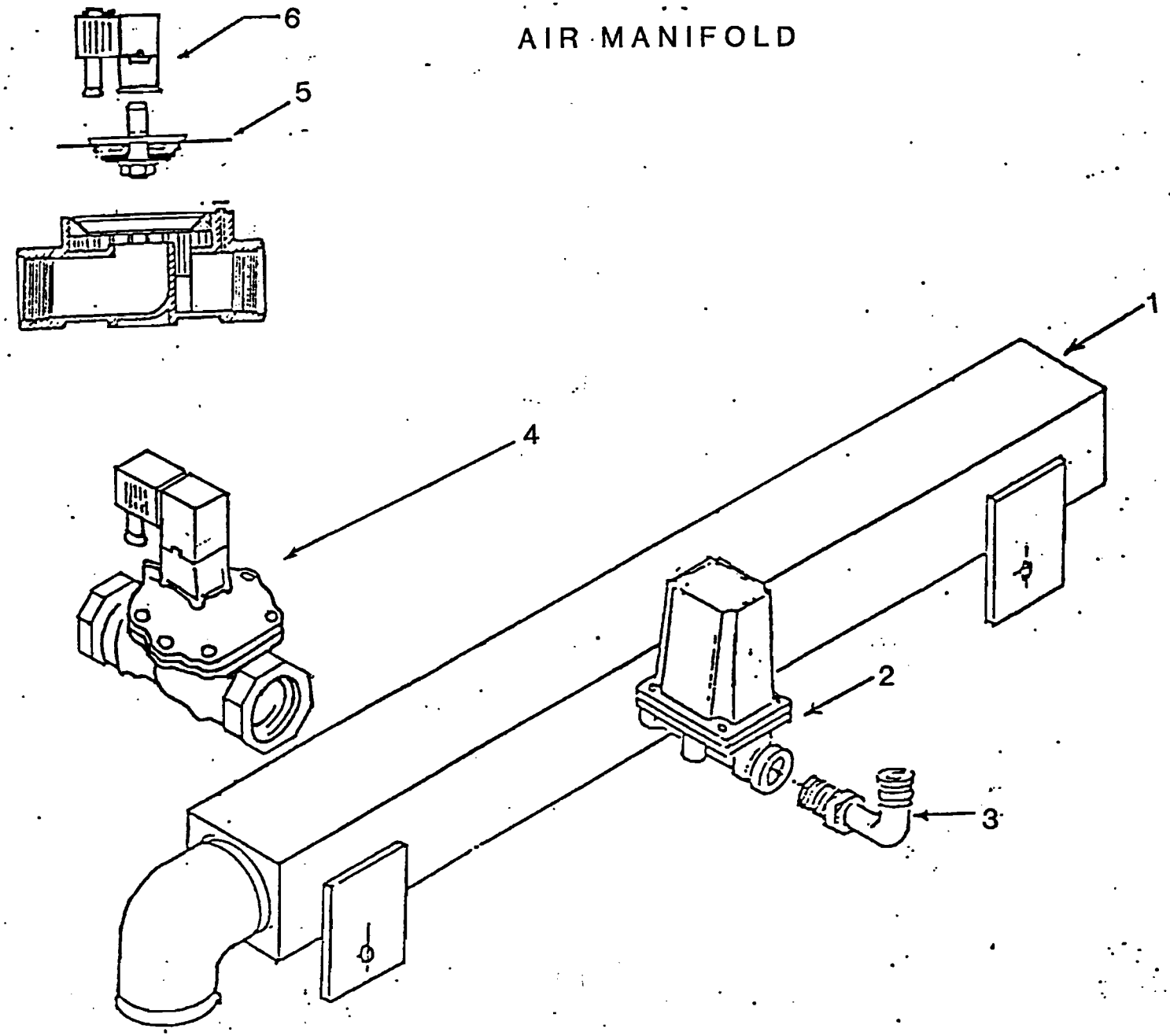
LIQUID MANIFOLD



LIQUID MANIFOLD

REF.NO.	PART NO.	DESCRIPTION
1	0125	DIRECTO VALVE
2	0126	HOSE TAIL
3	0127	ELBOW HOSE TAIL
4	0128	HOSE TAIL
5	0129	THROTTLE VALVE

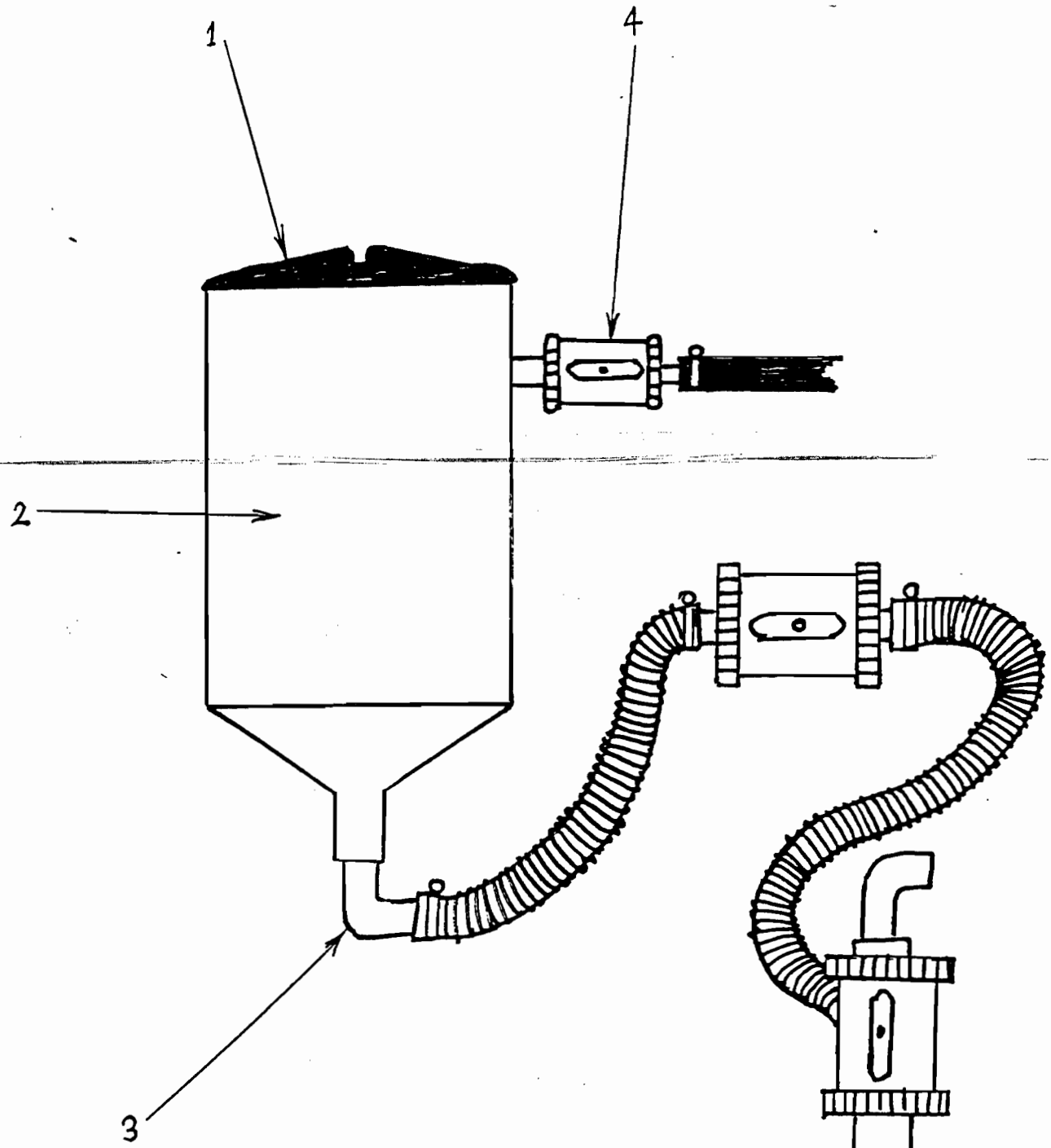
AIR MANIFOLD



AIR MANIFOLD

REF. NO.	PART NO.	DESCRIPTION
1	MAMS0002	MANIFOLD
2	VPR244	BUTTERFLY VALVE
3	NFWEL3410	ELBOW
4	VSO-138	SOLENOID
5	VSO-138D	MAIN SEAL
6	VSO-138C	SOLENOID LID

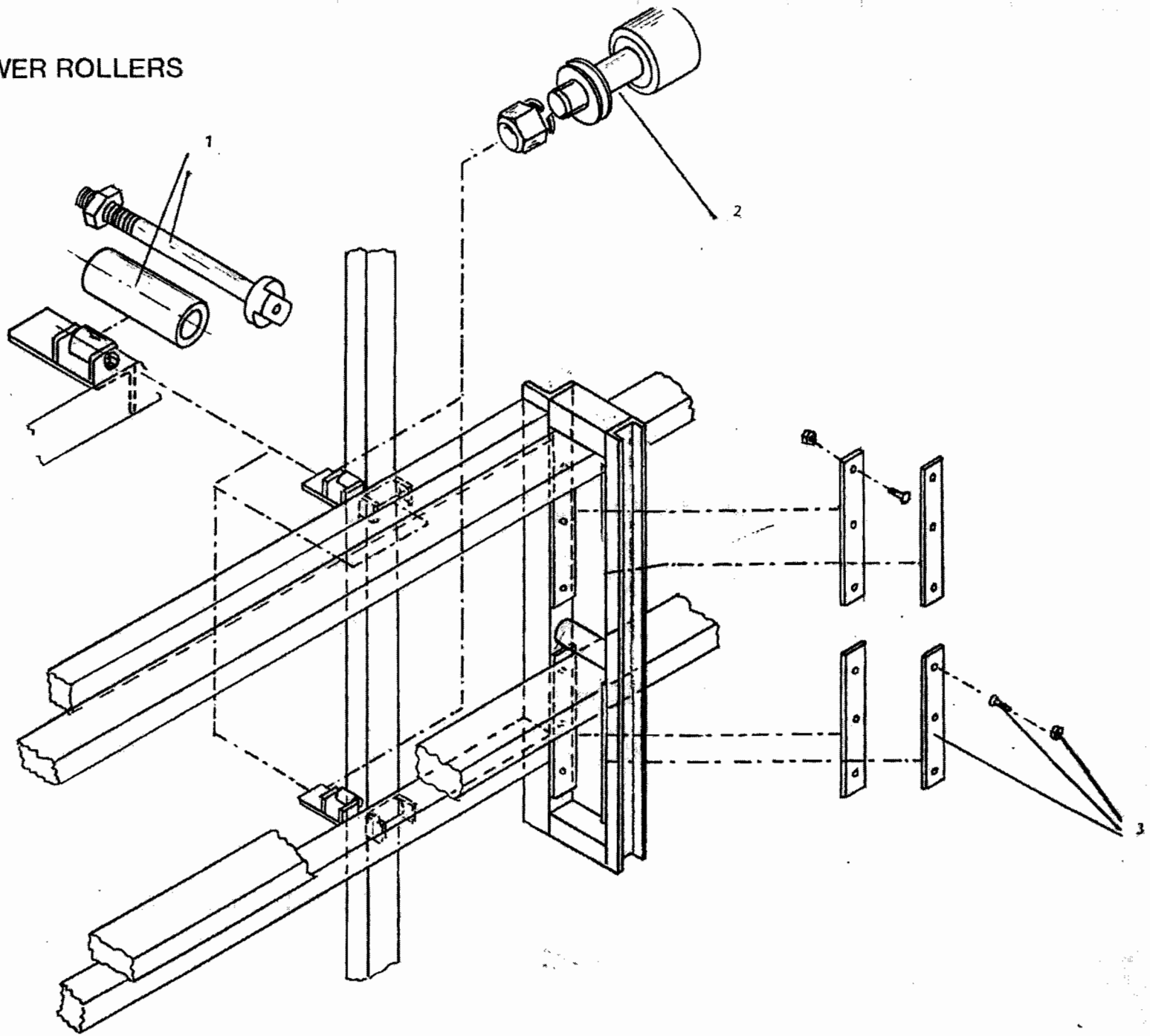
CHEMICAL INDUCTION BOWL



CHEMICAL INDUCTION BOWL

REF. NO.	PART NO.	DESCRIPTION
1	0125	TANKLID COMPLETE
2	0126	TANK
3	0127	ELBOW HOSETAIL
4	0128	½" BALL VALVES

BOOM RAISE AND LOWER ROLLERS



BOOM RAISE AND LOWER ROLLERS

REF.NO.	PART NO.	DESCRIPTION
1	0194	ROLLER
2	0195	FOLLOWER
3	0196	RUBBING STRIP

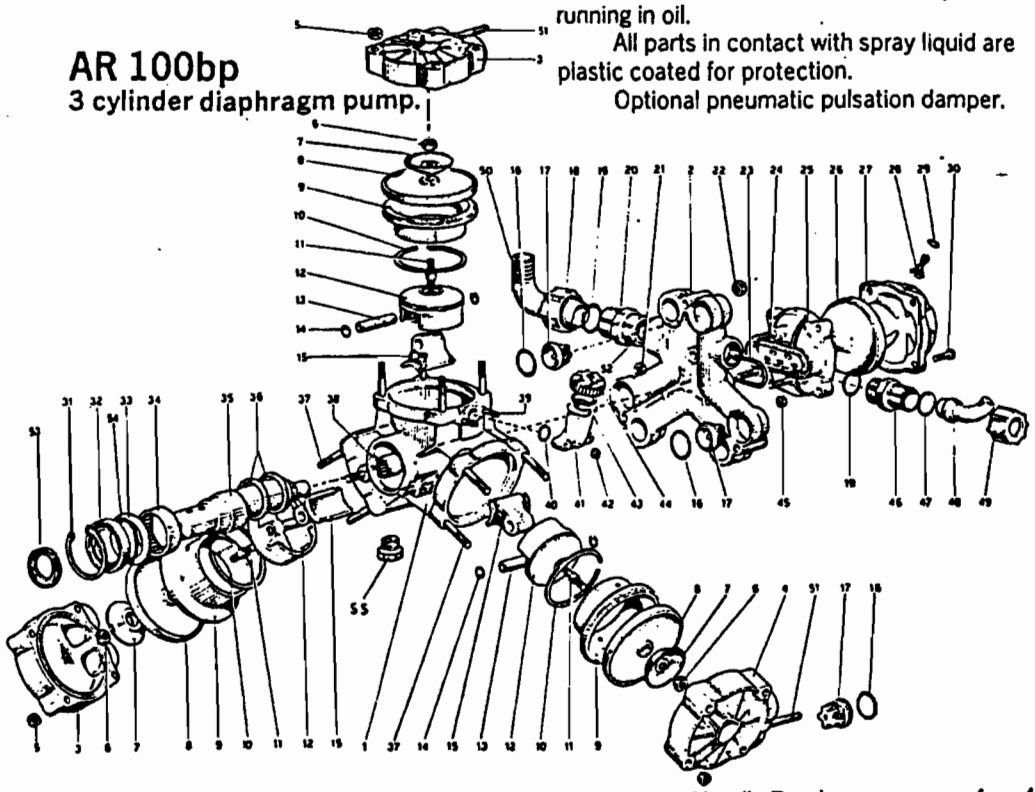
AR 100bp

3 cylinder diaphragm pump.

Semi-hydraulic three-diaphragm pump, with crankshaft and most mechanical parts running in oil.

All parts in contact with spray liquid are plastic coated for protection.

Optional pneumatic pulsation damper.



B	1	Body	1	47580010
	2	Manifold	1	47580150
	3	Cylinder Head	2	47550101
	4	Cylinder Head	1	47550102
	5	Nut 10MA	12	47180150
	6	Diaph. Retaining Nut	3	47550131
	7	Retaining Plate	3	47580090
★	8	Diaphragm	3	47550085
	9	Piston Sleeve	3	47580110
	10	Piston Ring	3	47500260
	11	Stud	3	47550270
	12	Piston	3	47580120
	13	Piston Spindle	3	47380300
	★ = Items in Winter Overhaul Kit			47KIT100
	14	Circlip	6	47380080
	15	Con Rod	3	47580140
★	16	'O' Ring	6	47320030
★	17	Valve	6	47559050
	18	1¼" BSP Hosetail Nut	1	47580060
	19	'O' Ring	2	47390291
	20	Hexagonal Nipple	1	47580030
	21	Nut 8MA H6.5	3	47390270
	22	Nut 10MA	3	47180150
	23	Gasket	1	47580050
	24	Stud 10MA x 33	3	47280030
	25	Air Receiver Base	1	47580180
	26	Air Diaphragm	1	47550190
	27	Air Receiver Head	1	47550230
	28	Air Valve	1	47550300
	29	'O' Ring	1	47650542
	30	Bolt 8MA x 30	4	47580290
	31	Circlip 62mm	1	47200391
	32	Seal Seat	1	47550470
	33	Washer	1	47550070
	34	Needle Bearing	1	47550060
	35	Shaft	1	47550170
	36	Spacer Ring	2	47580130
	37	Stud 10MA x 65	12	47550200
	38	Needle Bearing	1	47550310
	39	Stud 6MA x 34	2	47550330
	40	'O' Ring	1	47180101
	41	Oil Reservoir	1	47550030
	42	Nut 6MA H6	2	47390440
	43	'O' Ring	1	47550040
	44	Oil Reservoir Cap	1	47550050
	45	Nut 8MA	4	47380240
	46	Hexagon Nipple	1	47550340
	47	'O' Ring	1	47550350
	48	25mm 90° Hosetail	1	47550370
	49	1" BSP Hosetail Nut	1	47550242
	50	30mm 90° Hosetail	1	47580040
	51	Stud 10MA x 72	3	47550020
	52	'O' Ring	1	47250310
	53	Seal, Oil	1	47550491
	54	Seal	1	47550480
	55	⅜" BSP Plug	1	47030171
	57	Manifold Elbow (Right)	2	47580071
	58	Manifold Elbow (Left)	1	47580072
	59	P.T.O. Guard	1	47540660
	60	Washer	1	47550331

AIRTEC 2. (PLASTIC NOZZLE) CALIBRATION CHART 35 RESTRICTOR

Pressure Settings		Spray Quality	Flow Rate Mls/Min Per Nozzle	Application Rates									
				Ltrs per HA. at KPH				Flow Rate F.ozs Per Min	Galls per acre at MPH				
Air PSI	Liquid PSI			8	10	12	14		4	5	6	7	8
10 15 20	15 20 25	Fine Very Fine Very Fine	332	50	40	33.2	28.5	11.6	5.5	4.4	3.7	3.1	2.75
10 15 20	17 23 28	Medium Fine Very Fine	386	58	46	39	33	13.5	6.4	5.1	4.3	3.6	3.2
10 15 20	19 24 29	Medium Medium Fine	420	63	50	42	36	14.7	7.0	5.6	4.6	4.0	3.5
10 15 20	22 26 32	Medium Medium Fine	465	70	56	46.5	40	16.3	7.7	6.2	5.1	4.4	3.8
10 15 20	24 28 34	Medium Medium Fine	500	75	60	50	43	17.5	8.3	6.6	5.5	4.7	4.1
10 15 20	25 30 36	Medium Medium Fine	525	79	63	52.5	45	18.4	8.7	7.0	5.8	5.0	4.3
10 15 20	28 33 39	Coarse Medium Medium	580	87	70	58	50	20.3	9.6	7.7	6.4	5.5	4.8
10 15 20	31 36 40	Coarse Medium Medium	615	92	74	61.5	53	21.6	10.2	8.1	6.8	5.8	5.1
15 20 25	41 46 51	Coarse Coarse Medium	680	102	82	68	58.3	24.0	11.3	9.0	7.5	6.4	5.6
15 20 25	47 51 56	Coarse Coarse Medium	740	111	89	74	63.5	26.0	12.3	9.8	8.2	7.0	6.1
15 20 25	50 56.5 60	Coarse Coarse Medium	790	119	95	79	68	28.0	13.1	10.5	8.7	7.5	6.5

AGH. JULY 1991