



OPERATING AND MAINTENANCE INSTRUCTIONS

FOR

5404A

5405A

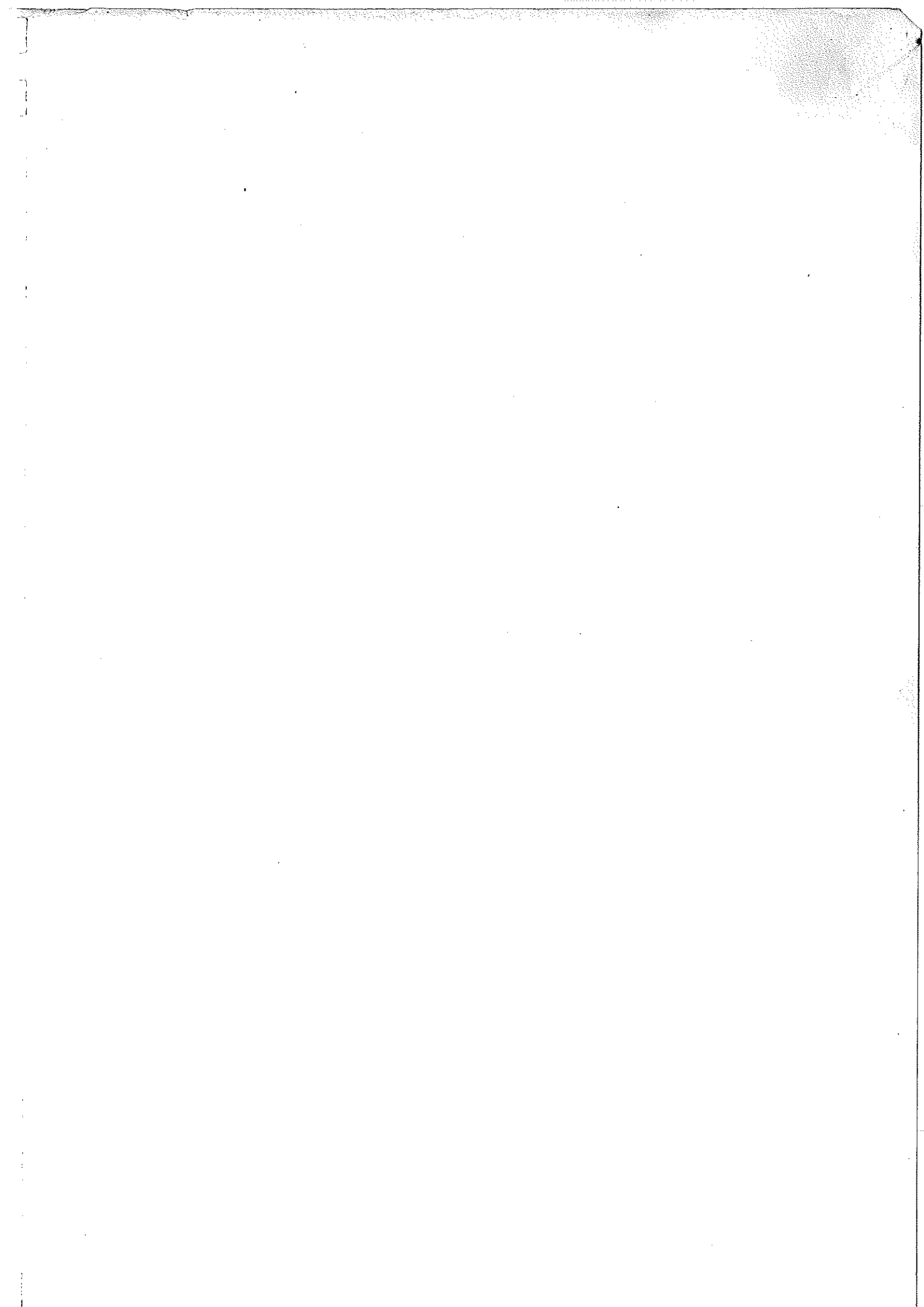
AIR COOLED, HIGH PRESSURE RECIPROCATING COMPRESSORS

IN ALL CORRESPONDENCE RELATING TO THIS MACHINE, PLEASE QUOTE:-

JOB NUMBER
MACHINE NUMBER
MACHINE TYPE AND MARK NUMBER
(Indicated on nameplate)

WHEN ORDERING SPARE PARTS ALSO QUOTE:-

PUBLICATION NUMBER 9800/1
PARTS LIST ISSUE NUMBER 2



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ACCESSORY LISTS

1. These compressors have been designed and manufactured to provide maximum performance. Regular servicing will assist in maintaining this high performance.

2. World wide service and parts facilities are provided by Compair Distributors. Service and Parts Departments at Ipswich are available should any difficulty arise.

3. Job number and compressor serial numbers must be quoted in all communications.

4. All pressures referred to are gauge pressures.

5. In addition to automatically invalidating the warranty, the substitution of parts not manufactured or approved by Compair Industrial, can reduce performance or service life and create potential mechanical or personnel hazards,

6. The right is reserved to modify the contents of this manual, without notice, and the data given is in no way binding on the manufacturers

7. It is expected that users will employ safe working practices and will observe any related legal requirements when installing, operating and overhauling these compressors. The attention of U.K. users is drawn to the Health & Safety at Work Act, 1974.

IMPORTANT SAFETY WARNING

THESE MACHINES ARE SAFE AND WILL NOT PRESENT A RISK TO HEALTH WHEN PROPERLY USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL.

ALL MOVING PARTS MUST BE GUARDED, I.E. COUPLINGS, FLYWHEELS, PULLEYS, BELT DRIVES ETC.

ALL ANCILLARY EQUIPMENT MUST BE SUITABLE FOR THE PRESSURES AND CAPACITIES INVOLVED, SUCH AS PIPEWORK, CONNECTIONS, ADDITIONAL SAFETY VALVES, FITTING ETC. IN ADDITION, REGULATIONS APPLICABLE AT SITE MUST BE OBSERVED.

BEFORE MAINTENANCE OR DISMANTLING, ISOLATE ALL ELECTRICAL SUPPLY FROM MACHINE AND ANCILLARY EQUIPMENT, ISOLATE IT FROM STORAGE PIPEWORK AND RELEASE ALL PRESSURE FROM THE MACHINE, PIPEWORK AND STORAGE VESSELS.

FOREWORD

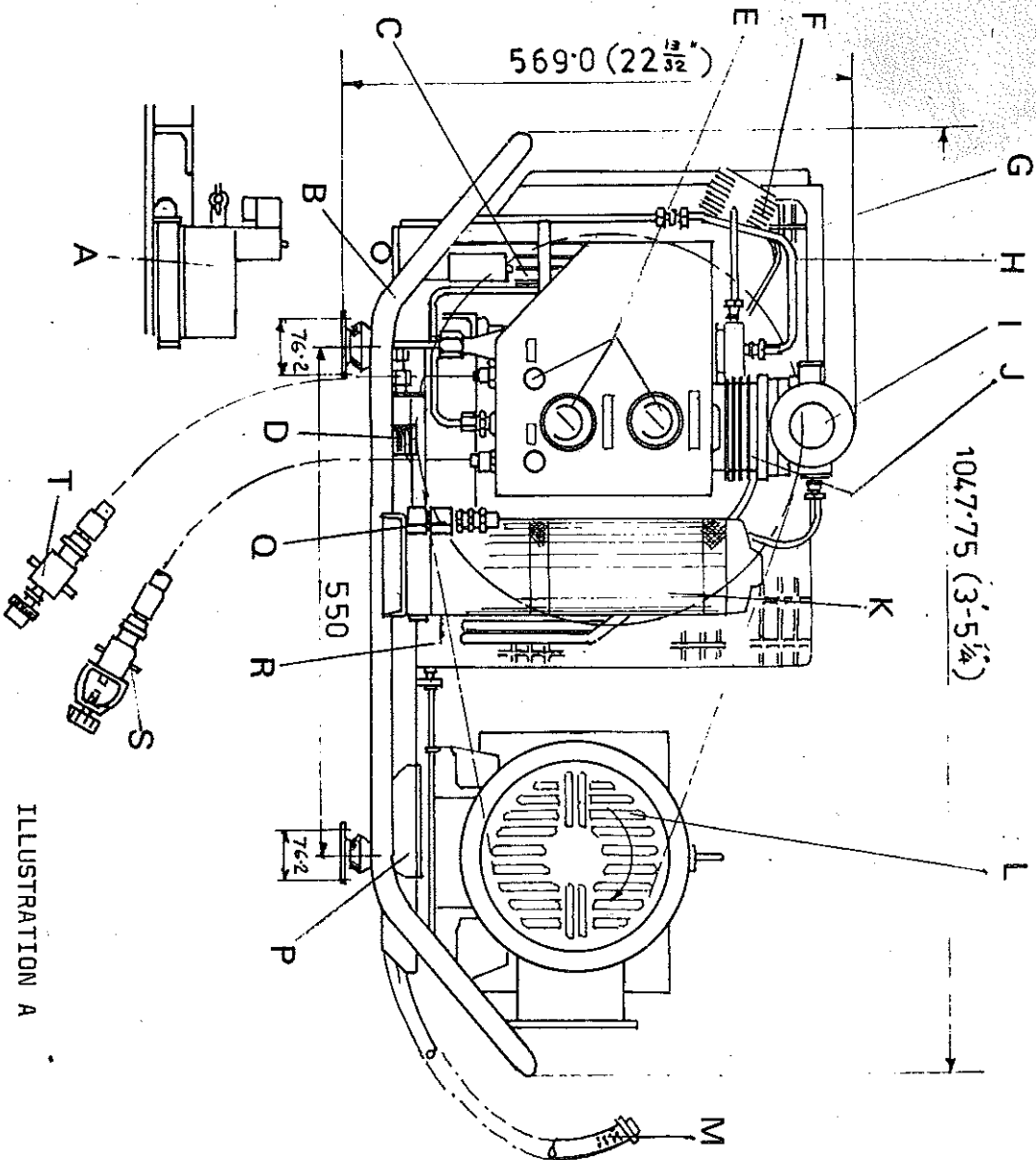


ILLUSTRATION A

- A AUTOMATIC CONDENSATE DUMP VALVE (Optional)
- B CARRYING FRAME
- C COOLING COIL
- D LOW OIL PRESSURE SWITCH (Optional)
- E CHARGING VALVES AND GAUGES
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- O CONDENSATE DRAIN TUBE
- P BEDPLATE
- Q PRESSURE RELIEF VALVE
- R SAFETY VALVE
- S AQUALUNG CHARGING CLAMP
- T SIEBE OR DIN CHARGING ADAPTOR

GENERAL DESCRIPTION

1A. These compressors are three cylinder, three stage, W configuration, air cooled machines and are fitted with a grooved and vaned driving flywheel which directs cooling air over the cylinders and cooler coils.

1B. OPERATION
Air enters, via intake filter, and flows to the first stage cylinder where it is compressed to approximately 3.4 bar (50 psig) in the 5404A and 4.6 bar (67 psig) in the 5405A. Passing to the second stage, via an intercooler located in the fan air flow, it is then further compressed to 40.0 bar (580 psig) and 45.5 bar (660 psig) respectively. Air then passes through another intercooler, also in the fan air stream, to the third stage for final compression to 350.0 bar (5000 psig). Leaving the third stage it passes through a finned element from where it is delivered at approximately 5 C above ambient temperature.

1C. RUNNING GEAR
First and second stages are protected by safety valves but the third stage safety valve must be fitted in the system before any restriction occurs: non-return valve etc. On breathing air sets it is fitted to the final separator.

1D. MAIN BEARINGS are replaceable but big and small end bearings are renewed as connecting rod assembly.

1E. VALVES
All valves on both models are of the combined inlet/outlet flat plate type but the first stage valve assemblies differ in size on the 5404A and 5405A models. Second and third stage valves are integral cylinder head and valve units.

1F. LUBRICATION
A cam operated force feed oil pump pressurizes the lubrication system and delivers lubricant via an oil pressure regulator to the third stage cylinder plunger. Oil is also directed, via a return pipe, to the second stage cylinder, from where the residue returns to the crankcase for atomization and lubricant for the running gear and first stage cylinder. It finally returns to the sump for re-circulation.
The specified lubricant must be used at all times to ensure safe and efficient operation with minimum wear and protection against moist air corrosion. Recommendations are the result of extended research at Reavell works and all responsibility for the use of an oil other than that recommended, is placed on the purchaser and his oil company.
THE NORMAL GUARANTEE MAY BE INVALIDATED SHOULD A FAILURE BE ATTRIBUTED BY REAVELL WORKS, IPSWICH, TO THE USE OF A LUBRICANT NOT RECOMMENDED.

1G. GAUGES
Pressure gauges are not fitted to machine but tappings are available on first and second stages and it is recommended that these are utilized for piping to a remote pressure gauge panel to monitor inter-stage pressures. A tapping is also available in the oil regulator to monitor oil pressure, if required; this can also be used with a pressure switch for a shut-down facility in the event of a lubrication failure.

TEMPERATURES

NOTE: ***

IT IS EXTREMELY DIFFICULT TO ACCURATELY RECORD AIR TEMPERATURES BY MEASURING THE SURFACE METAL TEMPERATURE DUE TO THE AIR FLOW FROM THE FAN COOLING DOWN THE READING. HOWEVER, AS A GENERAL GUIDE, NO METAL SURFACE TEMPERATURE SHOULD EXCEED 160°C (338°F). PRESENT PRODUCTION MACHINES HAVE A TAPPING FOR A THERMOCOUPLE PROVIDED IN THE FINAL DELIVERY IN ORDER TO MONITOR AIR TEMPERATURE ACCURATELY AND THIS SHOULD NOT EXCEED 230°C (446°F)

LEADING PARTICULARS

5404A | 5405A

UNIT DESIGNATION

V-belt driven, high pressure air cooled compressor

TECHNICAL DATA

Type
 Three Stage, Single Acting, w Configuration
 Air
 Anti-clockwise
 Multi-ported
 DRY
 Auto Stop/Start

TEMPERATURES *** See Note on Facing Page

Ambient temperature Max
 °C 35
 °C -10
 Min

Delivery temperature (Approx).....
 5 °C above ambient temperature

PRESSURES

Delivery pressure Max
 psi 5000
 bar 350
 Delivery pressure Min
 psi 1250
 bar 86
 First stage working pressure
 psi 50
 bar 3.4
 Second stage working pressure
 psi 580
 bar 40.0
 Third stage working pressure
 psi 5000
 bar 350
 Oil pressure
 psi 800
 bar 55.1

Charging rate with 6 litre cylinder from 0 to 5000
 psi
 gfm 5.6
 m³/hr 9.5

Displacement at 1300 rpm
 gfm 7.06
 m³/hr 12

SPEED

Speed, normal
 rpm 1300

1300
 11.6
 12.3
 7.05
 55.1
 800
 350
 5000
 45.5
 660
 4.6
 67
 86
 1250
 350
 5000

* The equivalent charging rate is obtained by charging a 6 litre cylinder from 0 to 5000 psi without maintaining the pressure on the compressor or allowing for temperature or compressibility.

2A.

28.

LEADING PARTICULARS cont

| 5404A | | 5405A | |
|--|-------|-------|-------|
| 28. TECHNICAL DATA cont | | | |
| Compressor horsepower (max) .. | 4.66 | 5.70 | 4.25 |
| Compressor horsepower (min)..... | 4.0 | 4.9 | 3.7 |
| Noise level (approx) at 1 metre (this level is increased during start-up)..... | 83 | 83 | 83 |
| <u>DIMENSIONS (Bare machine)</u> | | | |
| Length | 14.2 | 14.2 | 361 |
| Width..... | 20.8 | 20.8 | 530 |
| Height | 19.8 | 19.8 | 505 |
| First stage cylinder bore | 2.755 | 2.755 | 3.464 |
| Second stage cylinder bore | 1.417 | 1.417 | 36 |
| Third stage cylinder bore | 0.551 | 0.551 | 14 |
| Stroke..... | 1.574 | 1.574 | 40 |
| <u>WEIGHTS</u> | | | |
| Machine with fan pulley..... | 75 | 79 | 36 |
| Fan pulley..... | 9 | 9 | 4.1 |
| <u>INCLINATION</u> | | | |
| Permissible inclination of compressor | 10° | 10° | 20° |
| Front to rear to side | 10° | 10° | 20° |
| Right to left | 20° | 20° | 20° |

LEADING PARTICULARS cont

5404A 5405A

2C. LUBRICANTS

Recommended oil - Synthetic only, after running in (see Section 4A.4 and 4C.3).....
 Sump capacity
 Recommended grease (for assembly)

ANDEROL 500
 2.75 pts
 1.57 litres

SHELL ALVANIA R3

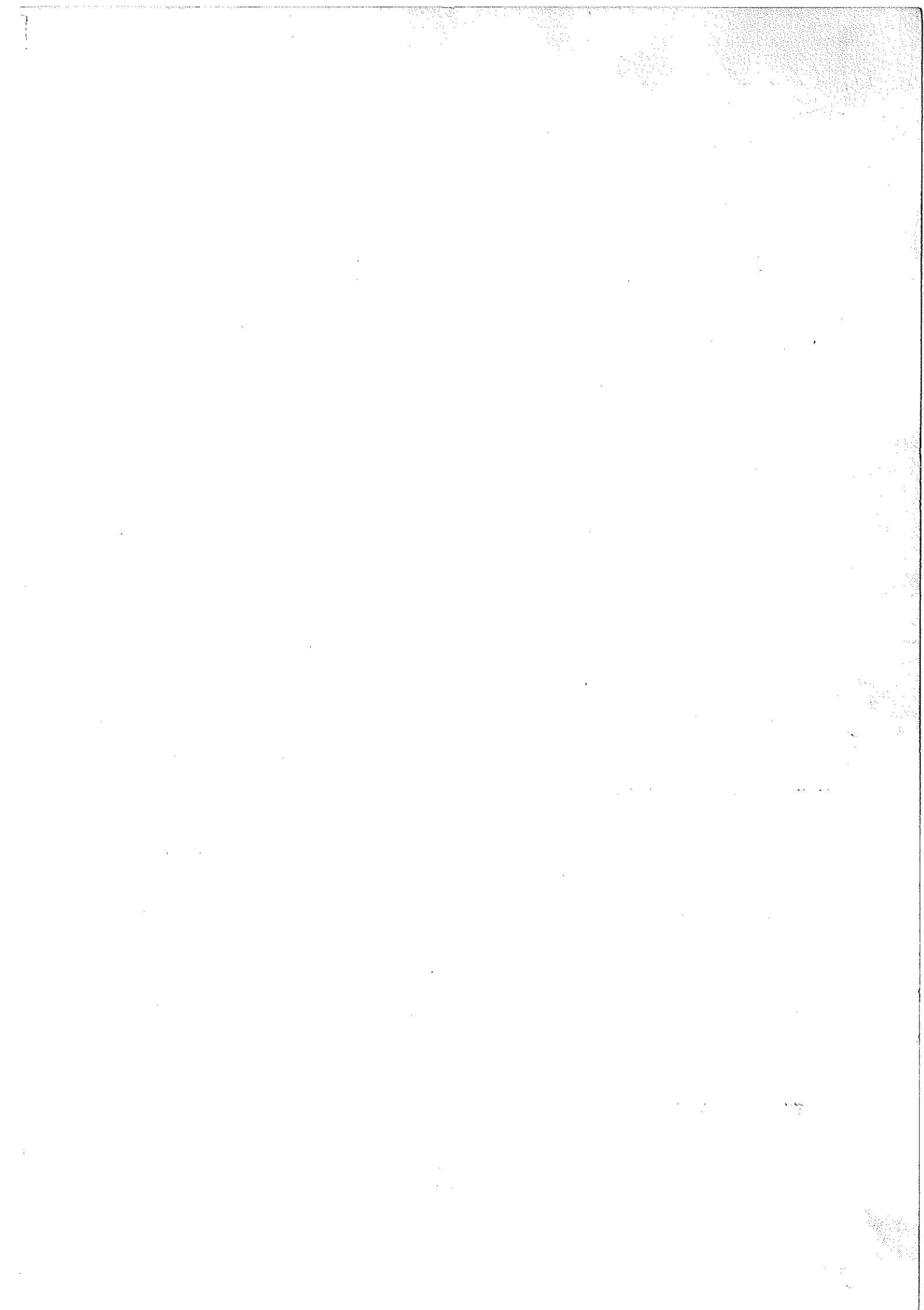
2D. TORQUE WRENCH SETTINGS

| UNIT | DIAMETER | TORQUE KGF/M | TORQUE LBF/FT |
|--------------------------|---------------------|--------------|---------------|
| FIRST STAGE VALVE COVER | M8 | 1.38 | 10 |
| FIRST STAGE VALVE | $\frac{3}{8}$ " UNF | 1.5 | 10.8 |
| SECOND STAGE VALVE COVER | M8 | 1.65 | 12 |
| THIRD STAGE VALVE COVER | M8 | 1.65 | 12 |
| FLYWHEEL | M8 | 2.75 | 20 |
| OIL PUMP CAM | M6 | 1.1 | 8 |
| BALANCE WEIGHT | M8 | 2.75 | 20 |
| ALL OTHERS | M6 | 0.83 | 6 |
| | M8 | 2.07 | 15 |
| | M10 | 4.15 | 30 |
| | M12 | 7.26 | 52.5 |

The above torque settings are for non-lubricated threads, i.e. dry condition.

2E. SUGGESTED POWER REQUIREMENTS

| | | | | |
|-------|------------------------|---------------|---------|---------|
| 5404A | ELECTRIC MOTOR, 2 POLE | 4kw (5.4hp) | 415volt | 3 phase |
| 5405A | ELECTRIC MOTOR, 2 POLE | 4kw (5.4hp) | 240volt | 1 phase |
| 5405A | ELECTRIC MOTOR, 2 POLE | 5.5kw (7.4hp) | 415volt | 3 phase |
| 5404A | PETROL ENGINE | 6kw (8 hp) | | |
| 5404A | DIESEL ENGINE | 6kw (8 hp) | | |



INSTALLATION

GENERAL

3A.

Compressor must be installed in a level, well ventilated position clear of fumes, heat or high humidity to ensure efficient performance and also to prevent over temperature problems. If sited in a large building there should be few problems, provided there is a reasonable air gap between the front and back of the compressor and any obstructions. If positioned in a small or confined building, clean cooling air must be directed or ducted towards the compressor fan ensuring that there is also no air flow short circuit. As all motor power is dissipated in heat to the cooling air, it is essential that expired cooling air has an unobstructed passage and exit. Another important factor is that all coolers, and in particular the delivery air finned tubing, should be maintained in a clean condition to attain maximum dissipation of compressor heat. (See DIAGRAM B)

In a cold climate the compressor should be installed in a heated location. Allow sufficient space around the installation to enable safe maintenance working conditions.

Suitable lifting equipment should be readily available.

Protection from severe weather conditions is desirable.

3B.

MOUNTING

For permanent installation seating must be flat, level and designed to support the weight and any out of balance forces. If necessary, use shims to ensure bedplate is not strained on final tightening down.

3C.

BELT DRIVE

Ensure that driving and driven pulley grooves are in line and shafts are parallel before and after fixing. Tensioning procedures follow normal practice. (See: SECTION 5H.)

3D.

CONNECTIONS, PIPEWORK AND FITTINGS

1. All piping and connections must be suitable for the pressures and capacities involved.
2. If bedplate flexible mountings are used, connecting pipes must have adequate flexibility. Incorporate a short length of pipe either side of the compressor to allow ease of dismantling for maintenance.
3. Ensure all port protection plugs and blanks are removed, all pipes, especially suction piping, are free from jointing compound, pipe scale, swarf, dirt or other foreign matter before final pipe assembly.
4. A suction filter must always be fitted to prevent damage and excessive wear. If remote from the compressor, suction ducting must be suitable to avoid damage from pulsating suction pressure.
5. A non-return valve should be fitted in the delivery line, especially if the system has appreciable capacity or if two or more machines are connected to a common main. It should also be fitted whenever any method of delivery unloading is used. Stop valves must be fitted in pipelines to isolate compressor and control equipment. Unloader and control piping must be as short as possible. Air receiver inlets and outlets must be well above condensate level.

6. Safety valves are fitted as standard equipment on the first and the second stages of these machines but a safety valve must be fitted on the compressor side of the final delivery, upstream of any possible restriction such as a stop or non-return valve and where it cannot be isolated from the compressor.

7. Ensure compressor is installed to comply with local Electricity Authority stipulations and that necessary electrical work is carried out by a competent electrical engineer. Check electrical requirements for machine with manufacturer before commencing installation wiring.

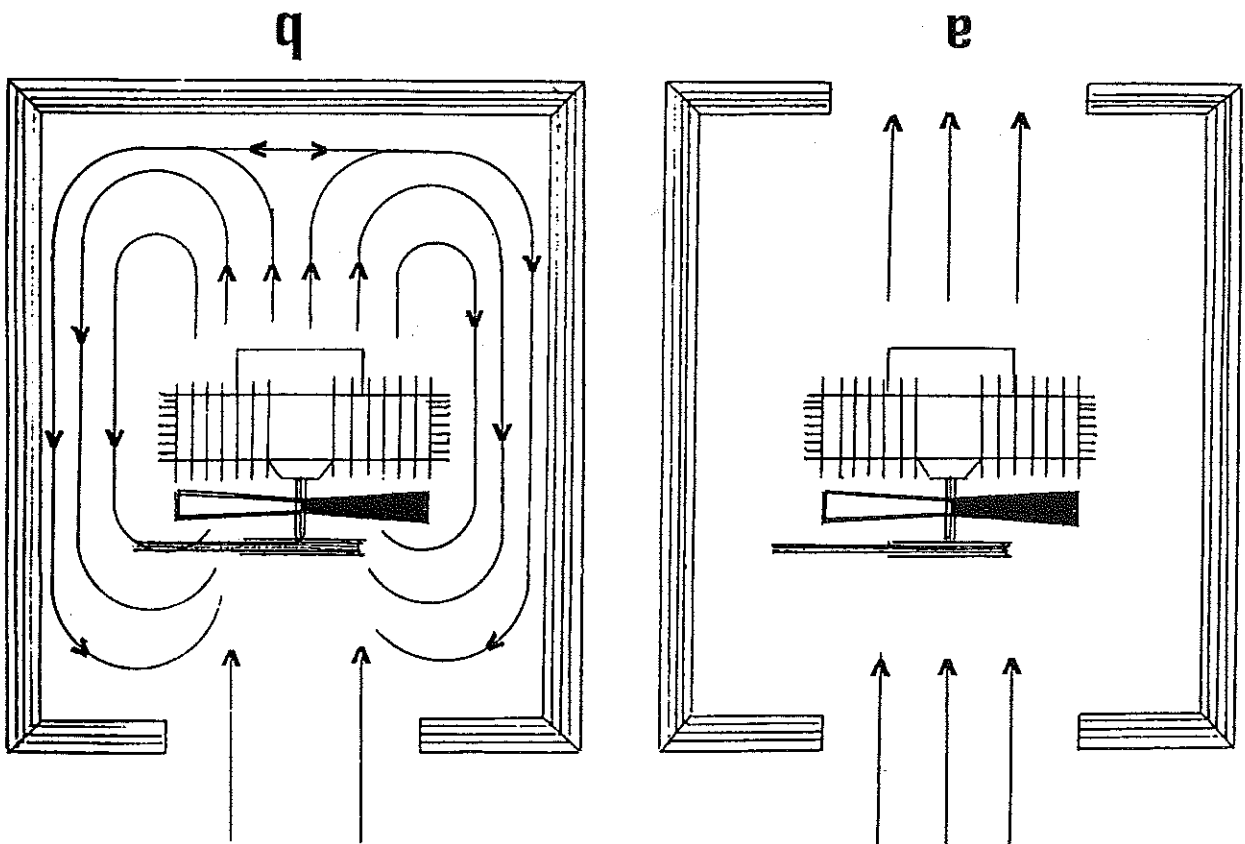


DIAGRAM B

RECOMMENDED INSTALLATION

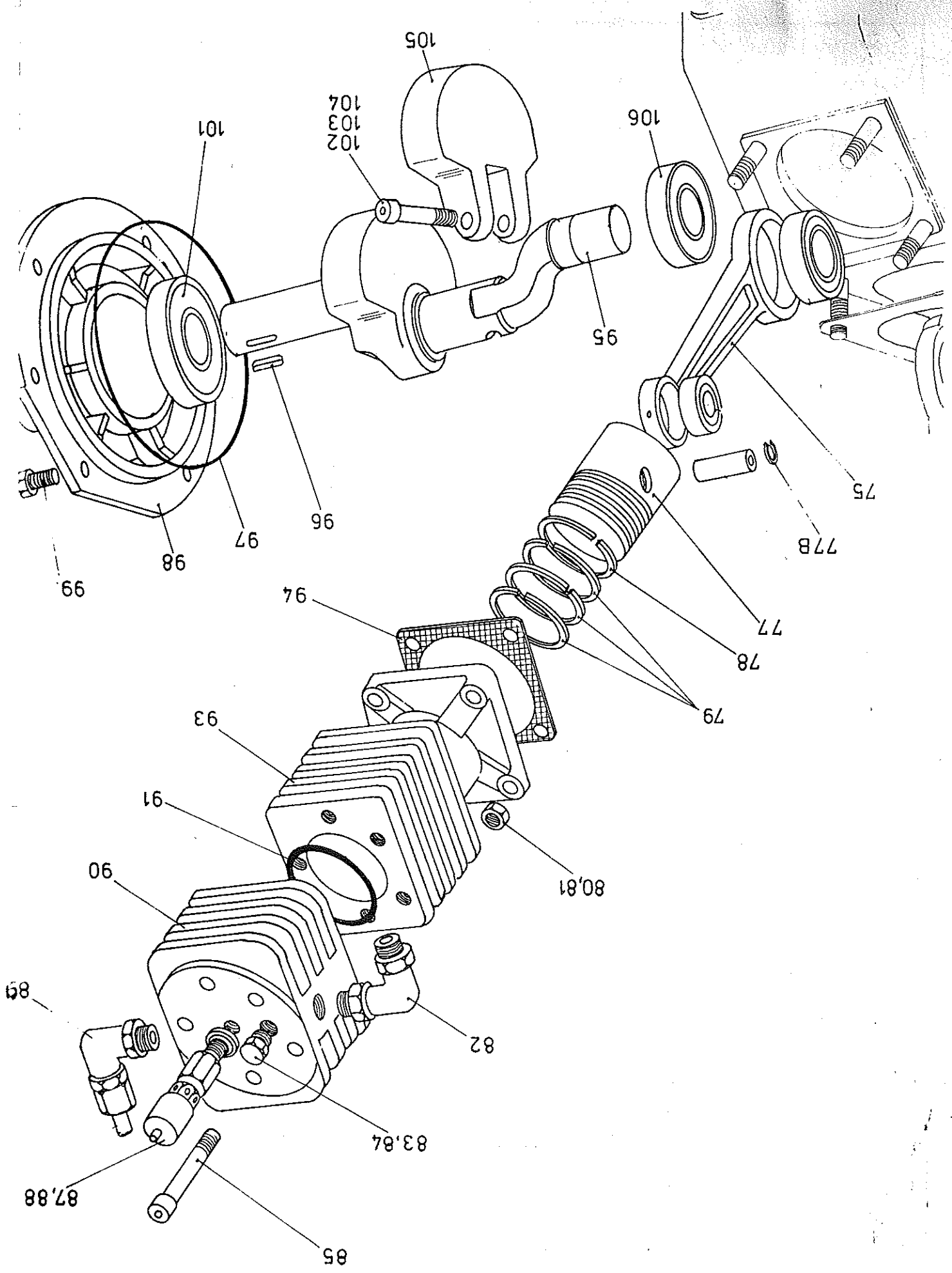
COOLING AIR ENTERS, PASSES OVER MACHINE AND AS HEATED AIR, IT IS EXHAUSTED FROM THE MACHINE ENVIRONMENT

INCORRECT INSTALLATION

COOLING AIR ENTERS, PASSES OVER MACHINE AND THEN AS HEATED AIR, RE-CIRCULATES IN MACHINE ENVIRONMENT

| ITEM | DESCRIPTION | QTY | 5404A | 5405A |
|------|---|-----|-------------------|------------|
| 33 | PLUG | 1 | PS.1814/2 | |
| 34 | DOWTY SEAL | 1 | PS.1322/1 | |
| 35 | VALVE, SAFETY, SECOND STAGE | 1 | 98650/1164 | |
| 36 | DOWTY SEAL | 1 | PS.1322/2 | |
| 37 | SEPARATOR BODY | 1 | 98444/1001 | |
| 38 | SEPARATOR DOWNPIPE with Item 28 | 1 | C.200652 | |
| 39 | STUDS | 8 | D.100171/8 | |
| 39A | COUPLING | 1 | 98156/2701 /41 | |
| 40 | WASHERS, BREATHER | 1 | 95640/0009 | |
| 41 | BREATHER, CRANKCASE | 1 | 98262/1035 | |
| *41A | 'O'RING, BREATHER | 1 | 95602/0058 | |
| 42 | PLASTIC COUPLING | 1 | C.200658 | |
| 43 | NYLON TUBE | 1 | 98617/1012 | |
| 44 | PIPE, OIL FILLER PIPE ASSEMBLY | 1 | C.200568/2 | |
| 45 | SOCKET, OIL FILLER PIPE ASSEMBLY | 1 | 95602/0040 | |
| 46 | 'O'RING, OIL FILLER PLUG) OIL LEVEL | 1 | 95602/0040 | |
| 47 | PLUG, OIL FILLER) ROD | 1 | C.200568/1 | |
| 48 | DIPSTICK) ASSEMBLY | 1 | 98262/1036 | |
| 49 | INLET FILTER COMPLETE | 1 | 98262/1036 | |
| 50 | ADAPTOR, INLET FILTER | 1 | C.200634 | |
| 51 | 'O'RING ADAPTOR | 1 | 95602/0045 | |
| 52 | WASHER, FIBRE | 1 | 95640/0017 | |
| 53 | SCREWS, SOCKET HEAD | 4 | 95018/0211 | |
| 54 | WASHERS | 4 | 95148/0014 | |
| 55 | COVER, FIRST STAGE | 1 | D.100206 | D.100205 |
| 57 | TUBE, FIRST STAGE COOLER (5404A only) | 1 | D.100209 | |
| 58 | VALVE - INLET/DISCHARGE, FIRST STAGE | 1 | 98650/1158 | 98650/1159 |
| 59 | 'O'RING | 1 | 98504/1030 | 98504/1028 |
| 60 | CYLINDER, FIRST STAGE | 1 | D.100156 | D.100155 |
| 61 | NUTS | 4 | 95111/0005 | |
| 62 | WASHERS | 4 | 95148/0014 | |
| 63 | PISTON RINGS, FIRST STAGE, TAPERED | 1 | 98477/1016 | 98477/1017 |

* Not Illustrated



SECTION 8
 Publication 9800/1

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COMMISSIONING

COMMISSIONING OR STARTING A NEW OR OVERHAULED UNIT

IMPORTANT - Lubrication

After 100 hours running-in it is advisable to run these compressors on SYNTHETIC OILS, and the recommended lubricant is ANDEROL 500. This has the advantage of significantly reducing carbon deposits, thus extending normally expected maintenance periods by 1 1/2 to 3 times. Likewise, oil changes fall into the same category. Wear rates are reduced and oil carry over can be down by 35%. Close tolerance manufacture also effects predicted properties from batch to batch, resulting in consistent performance. The lubricant manufacturers have given assurance that ANDEROL 500 is non-toxic and suitable for use in breathing air compressors.

Disadvantages are that the compressor must be run-in for at least 100 hours on normal mineral type oils, and this applies to both new machines and after major maintenance work. There are also some materials, e.g. certain rubbers, paints, plastics and metals which are not compatible with synthetic oils. Components on these compressors are synthetic oil compatible but a problem may exist with ancillary equipment. Consult equipment manufacturer to determine compatibility.

4A. BEFORE STARTING

1. Check complete installation, including pipework and alignment of compressor with driving unit.

2. Remove dry suction filter element, blow over with low pressure air and re-insert in casing.

3. Ensure silencer bore and pipework is clean and blank removed from suction pipe.

4. Ensure crankcase is filled to MAXIMUM mark on dipstick with MOBIL RARUS 427 mineral oil. Do not overfill - over lubrication is harmful. It is essential that mineral oil is used for initial 100 hours running-in and also same running period after complete overhaul.

5. Remove valve head and examine cylinder bore. Add small quantity of oil to upper cylinder and ROTATE COMPRESSOR BY HAND to spread oil over cylinder faces.

6. If machine has been idle for six months or more, remove oil pump bearing cover and lubricate the bearing before starting up. ENSURE THIRD STAGE PLUNGER IS WELL LUBRICATED WITH RECOMMENDED OIL.

4B. START-UP PROCEDURE

1. Rotate the compressor once or twice by hand to ascertain free movement.
2. Operate starter and immediately check rotation - an attached label or plate indicates correct rotation. A loud knocking noise will be present but this is normal when machine is first started up.
3. Check pressure gauges for stage airflow.
4. Check oil is flowing in regulator sight glass.

5. Run at reduced pressure, i.e., 500 psi, for 15 minutes before bringing slowly onto load. With breathing air sets open dump valve man at cock and then gradually close. Check air is being delivered by noting increase in pressure gauge reading.

NOTE: Purge each section of the system with air before using delivered air, to ensure no dirt or foreign matter is present.

6. Check and adjust, if necessary, the air governor or pressure switch setting, if appropriate.

7. After 30 minutes operation check valve heads. Intake pipe to valve heads should be hand warm and outlet pipes hot. This indicates valves are functioning correctly.

8. Breathing Air Sets

Breathing air sets must be initially run for at least one hour before any cylinder charging operations are undertaken, in order to allow the filters to obtain their operational dewpoint level.

4C. AFTER FIRST 15 HOURS RUNNING TIME

1. Ensure that alignment and belt tensioning is correct.

2. After first 50 Hours Running Time

Change oil in crankcase. When changing oil drain whilst warm, then slowly pour fresh oil into filler neck. Wait 5 minutes, then start compressor and check oil is flowing in sight glass. With machine still running, loosen vent screw in bottom of oil pump and bleed until bubble free oil emerges. Stop machine and top-up crankcase. Examine valves. For tightening torques: See SECTION 2.

3. After first 100 Hours Running Time

Drain the old mineral lubricant completely while it is still warm.

Remove from crankcase sump all deposits and/or sludge. This is necessary due to the excellent solvency of synthetic oils which tend to loosen and remove existing deposits. Use flushing agent for this purpose.

Inspect suction and delivery valves. If they are carbon covered and have heavy lacquer deposits, remove and thoroughly clean. Remove any deposits which may have formed in accessible air passageways.

Fill to recommended level with synthetic oil ANDEROL 500.

4. After first 200 Hours Running Time

Drain and change crankcase oil as above.

Examine valves.

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OPERATION AND ROUTINE MAINTENANCE

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5A.

OPERATION AND DAILY MAINTENANCE

Commissioning procedure (SECTION 4) should be used:

(a) For first commissioning run

(b) Following overhaul

(c) After standing idle for a long period

Crankcase oil needs to be changed after major overhaul. Starting

procedure should be observed after valve overhaul.

Keep exterior of the compressor clean, especially pipe connections and

joints, as this will assist in detecting any leaks. Ensure flinned final

stage cooler coil is clean at all times.

5B.

STARTING UP

Check crankcase oil level, top up, if necessary, with recommended oil to

maximum mark on dipstick.

Hand unload compressor. Operate starter, close unloader(s) and bring on

to load. Check machine rotates anti-clockwise when viewed from drive end.

Oil level will drop in sight glass when machine is running.

5C.

RUNNING ON LOAD

Crack all drains at 30 minute intervals to clear condensate.

5D.

DO NOT RUN THE MACHINE UNLOADED.

5E.

STOPPING

Open condensate drains, where appropriate.

Stop compressor.

5F.

STANDING IDLE

Leave condensate drains open.

If machine is to stand idle for more than five weeks (or shorter period

if ambient conditions are unfavourable) it is advisable to carry out

recommended inhibition procedure.

5G.

MAINTENANCE SCHEDULE

BEFORE CARRYING OUT ANY MAINTENANCE WORK ENSURE ALL PRESSURE IS RELEASED

AND INSTALLATION IS ELECTRICALLY ISOLATED. NEVER ATTEMPT TO STRAIGHTEN

BADLY BENT PIPEWORK OR RE-USE DAMAGED UNION FITTINGS.

NOTE:

Regular servicing is essential if the design performance of the

compressor is to be maintained. Maintenance intervals will

depend on operating conditions and the following intervals can

be used as a guide when the machine is operated under normal

conditions, and may be extended with operating experience.

Examination and monitoring during commissioning will give a good

indication of the machine's anticipated maintenance requirements.

Observe the following points:

1.

If pressure gauges are fitted, check stage pressures are

within stated limits - if not fitted, check that safety

valves are not operating. The stage pressures give an

indication of any valve problems. If a stage pressure

increases, investigate the valves in the next stage.

For a lower pressure than required, check valve on that

stage. Always stop machine if a safety valve opens.

TAMPERING WITH SAFETY VALVES INVALIDATES THE GUARANTEE

NOTE: cont

2. Check that oil is visible in sight feed unit.
3. Stop the compressor on load and examine for oil or air leaks, which must be rectified after releasing pressure.

NEVER TIGHTEN ANY FITTING WHEN IT IS UNDER PRESSURE

1. Weekly
In addition to operational checks, inspect all nuts, screws and fittings for tightness. Inspect for oil or air leaks, which must be rectified immediately.

2. Periodically
Remove and service suction filter/silencer

3. Every 600 Hours Running Time (or 16 weeks)
Check that alignment and belt tension is correct. (See SECTION 5H)

Remove and service all suction and delivery valves. It is recommended that valve plates and springs are renewed.

If necessary clean all coolers and fan blades. It is essential that attention is paid to the third stage cooler which is prone to clogging with debris.

4. Every 1200 Hours Running Time (or 32 weeks)
Drain crankcase oil after compressor has been running and oil is still warm. Replace plug and refill crankcase to the maximum mark on dipstick, using recommended oil. Re-check level after oil has had time to settle.

5. Every 1800 Hours Running Time
Refurbish or replace all valves.

6. Every 2400 Hours Running Time
The compressor should be given a full mechanical check.

Check pressure gauges, if fitted, for correct reading. Intercoolers should be water tested to ensure there is no risk of tube failure.

V-BELT ADJUSTMENT

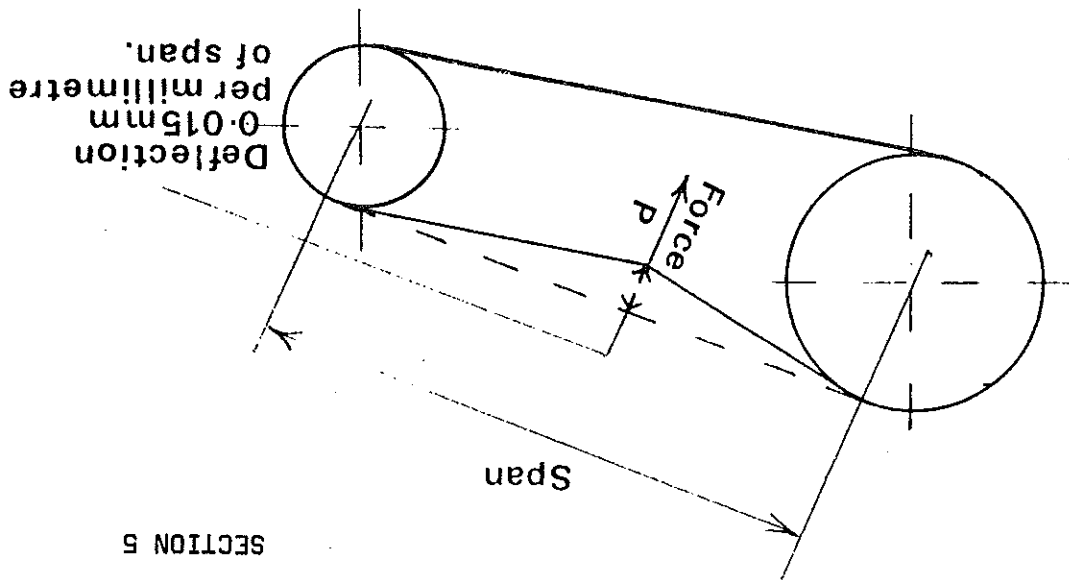
5H.

1. Remove belt guard.

2. Loosen drive motor securing bolts and slide towards compressor. Examine belts for wear and replace if necessary. If oily or greasy, clean before replacing on pulleys. Always fit new belts in sets of the same type from the same manufacturer.

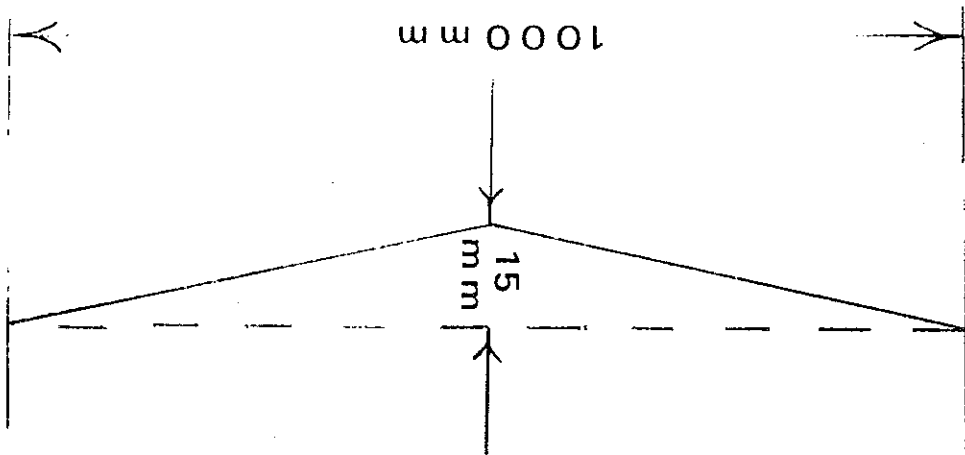
3. Slide drive unit away from compressor and tension belts to achieve $\frac{7}{32}$ " (2 cm) deflection when pressed down at a point midway between pulleys. A pencil type belt tension indicator will greatly assist in this procedure.

4. Secure drive unit fixing bolts and replace belt guard.



BELT DEFLECTION MEASUREMENT

EXAMPLE-1000mm x 0.015mm = 15mm deflection.

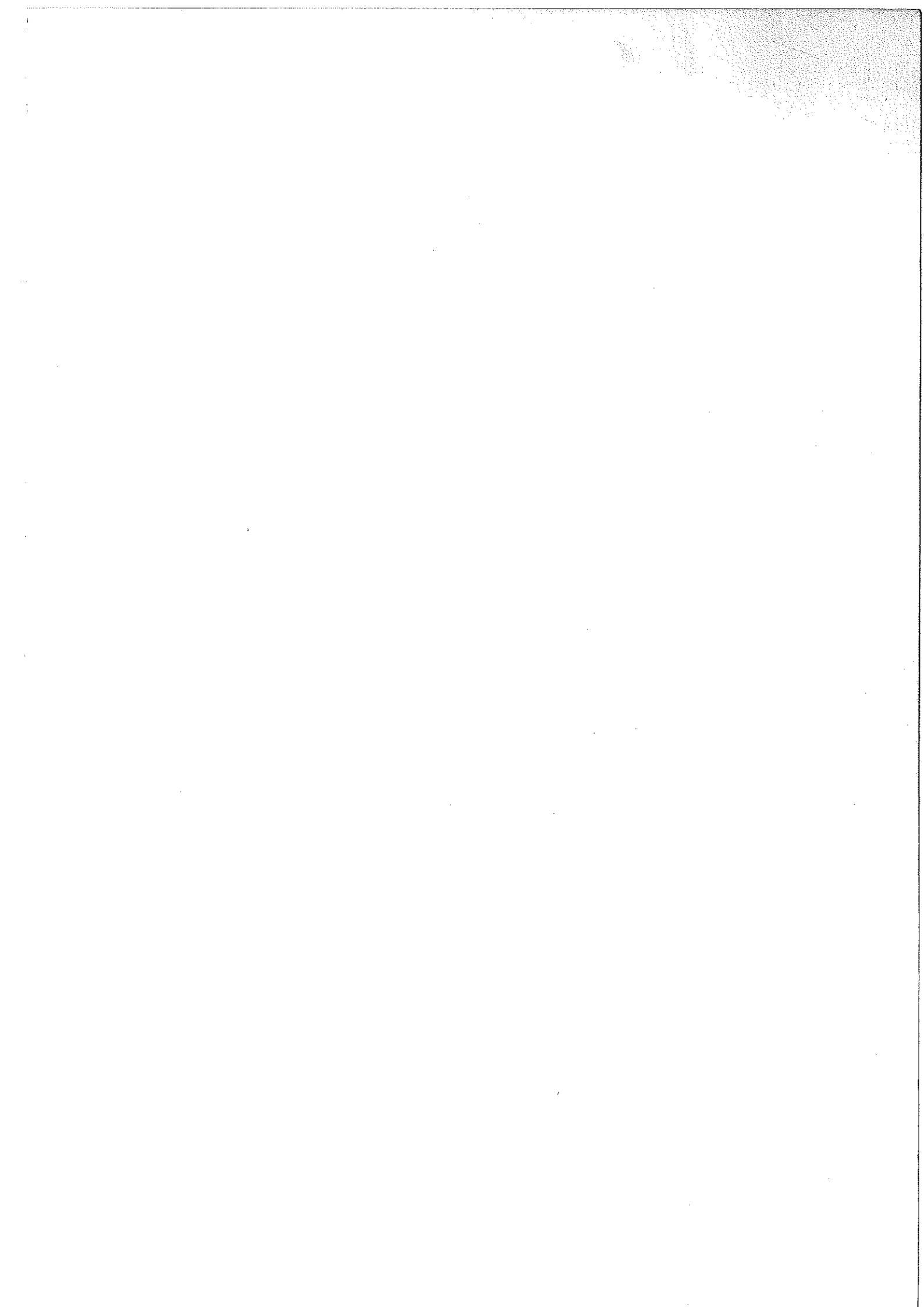


5404, 5405, 5406, 5407, 5408, 5409

REQUIRED DEFLECTION FORCE 'P' AT CENTRE OF SPAN ASSUMING
STANDARD COMPRESSOR SPEED AND DRIVE.

SPA SECTION BELTS 34 NEWTONS

A SECTION BELTS 18 NEWTONS



DISMANTLING AND REASSEMBLY NOTES

SERVICING VALVE ASSEMBLIES

Keep a spare oiled and maintained set of valves in store for quick compressor servicing.

GENERAL

Valves should have a thin carbon layer and be slightly moist with oil. Valve removal is a simple procedure but the following guidelines should be observed.

FIRST STAGE VALVE

1. Loosen connecting pipe unions, remove valve cover bolts.
2. Disconnect discharge pipe and lift valve cover off.
3. Remove valve head.
4. Disassemble by removing centre bolt, ensuring valve plates and springs do not fall loose.
5. Clean valve components and examine plates, springs and 'o' rings for damage. The seating face of each plate/ring should be clean and bright with all round contact, and free from indentations. If severely indented, plate and rings must be replaced.
6. ALWAYS RENEW VALVE PLATES AND RINGS IN SETS.
7. NEVER GRIND VALVE PLATES TO THEIR SEATS.
8. Ensure all components are clean, especially valve bodies, as obstructed passages will adversely affect valve operation.
9. For correct assembly, see valve drawing.
10. NEVER REVERSE A VALVE PLATE/RING, always replace items exactly as removed.
11. Check free movement of valve plates.
12. Tighten centre bolt to recommended torque setting.
13. Check 'o' ring joint under valve.
14. Locate valve spigot into cylinder and replace valve cover.
15. Replace valve cover bolts and tighten down evenly to recommended torque.

SECOND STAGE VALVE

1. Disconnect inlet and discharge connections, do not disturb elbow fittings in valve head.
2. Remove six socket head bolts.
3. Remove valve head from cylinder by turning slightly to disengage pipe connection, and lift valve head clear.
4. Remove two setscrews and separate upper and lower valve head halves, making sure components do not fall loose.
5. Thoroughly clean and examine plates and rings for damage and wear. Examine 'o' ring and replace if any sign of damage or wear.
6. Place 'o' ring in groove in upper half of valve head.

7. Assemble valve plates and springs as per Illustration No. 3.
8. Hold two halves together ensuring all components are correctly fitted, and insert two setscrews. Tighten to recommended torque setting.
9. Locate assembled valve head on cylinder ensuring locating peg in cylinder engages in slot in underside of valve head, by slightly turning assembly. Ensure 'o'ring is positioned correctly on cylinder and remains there as valve is fitted. Replace six socket head screws and tighten to recommended torque setting.
10. THIS PEG AND SLOT FIXTURE ENSURES CORRECT VALVE LOCATION.
Re-couple inlet and discharge connections and tighten.

6D. THIRD STAGE VALVE

1. Disconnect six nuts and remove inlet and discharge pipes.
2. Withdraw valve head from six studs.
3. Remove two setscrews in round bottom housing and disassemble, ensuring spring plates and spring do not fall loose.
4. Clean components and examine for damage and wear.
5. Check both 'o'rings for damage and renew, if necessary.
6. If valve plates/rings need renewal, they must be replaced in sets.
7. Ensure all passages in top, middle and bottom parts are clean as obstructions will severely affect performance.
8. To re-assemble, place top part upside down on a clean flat surface and put 'o'ring in groove, drop plates and spring into housing.
9. Replace centre part, ensuring peg locates.
10. Place 'o'ring in bottom part, repeat procedure with plates/rings.
11. Carefully lift assembled components and place over bottom part, ensuring peg locates.
12. When satisfied that all components are correctly assembled, hold together firmly and replace two setscrews and tighten to recommended torque setting.
13. Place assembly over cylinder studs, making sure pegs on cylinder locate in holes on underside of valve head. THIS ENSURES CORRECT VALVE LOCATION.
Ensure 'o'ring is positioned correctly under valve.
14. Replace six nuts and tighten to recommended torque setting.

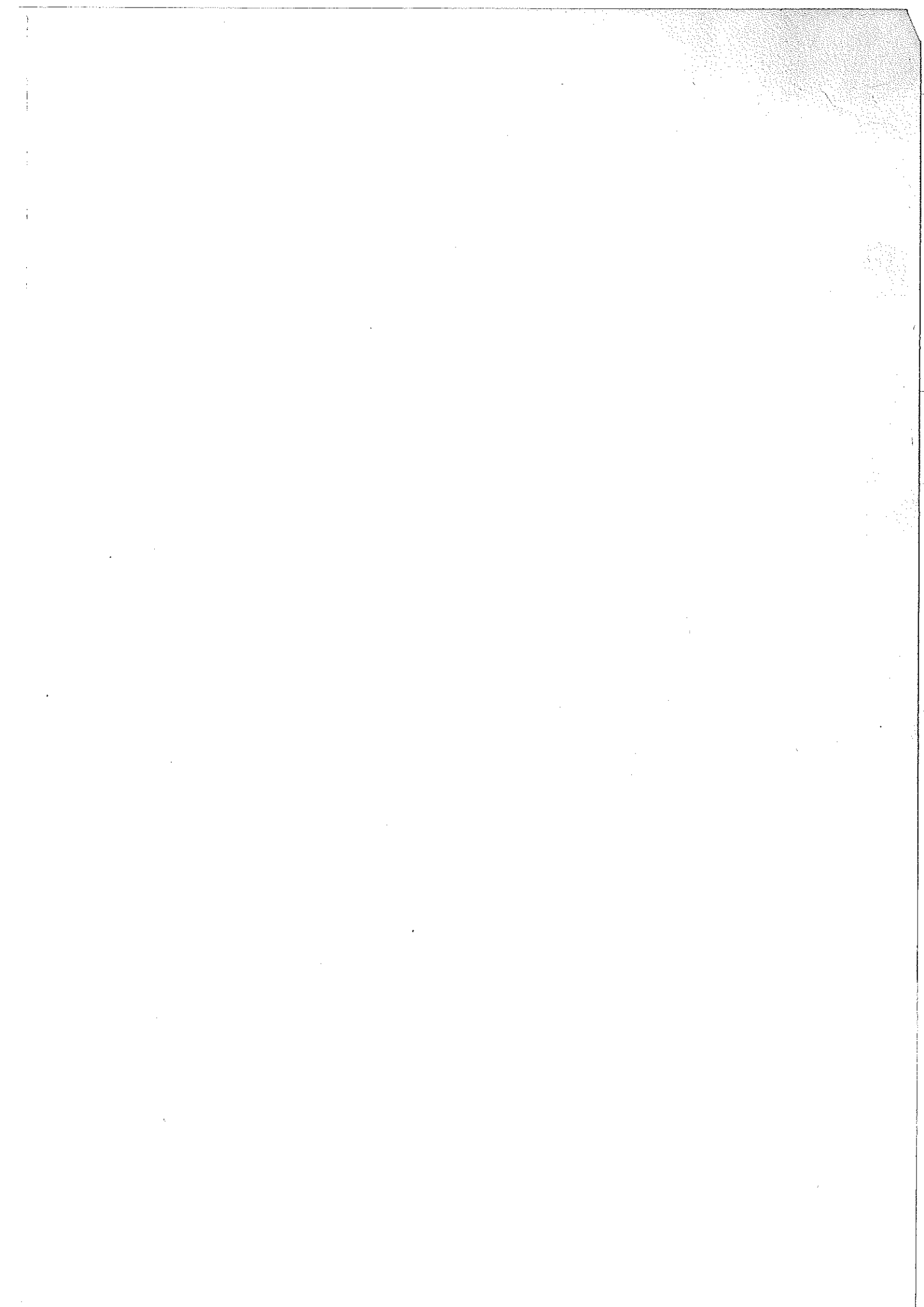
6E. MAINTENANCE - GENERAL

1. Clean machine with a fireproof solvent, never petrol.
2. Do not use suspect gaskets. Remove doubt by replacing.
3. Guideon pins are a sliding fit and should not need force to fit or remove.
4. Never assemble piston rings to pistons with a screwdriver. Always use a piston ring retainer.
5. A bearing extractor must be used at all times for bearing removal - never use a hammer.
6. Check that crankshaft alignment is correct and turns freely.
7. 'O'ring should be smeared with silicone grease before fitting.

8. Particular attention should be paid, when refitting first stage cylinder head. Check 'O'ring is not damaged, replace the valve cover in the correct position. The cylinder head must be tightened down diagonally to recommended torque, giving opposite bolts half a turn at a time.
9. Turn compressor over by hand to ensure that it has complete freedom of movement.
10. Check oil level before starting.

INHIBITION FOR STORAGE

1. Release all pressure from compressor and system.
2. Drain off lubricating oil whilst still warm.
3. Fill the crankcase to maximum level with PX4 inhibiting oil.
4. Start compressor and run for 10 minutes on light load, with separator drains open. Whilst running, remove inlet filter and inject small quantity of PX4 into intake to ensure protection to valves and upper cylinders.
5. Stop compressor, release all pressure, remove third stage plunger and dip in PX4 to ensure complete coating of inhibitor and seal all openings with plugs or masking tape.
6. Drain off inhibitor oil and DO NOT TURN MACHINE OVER AFTER INHIBITING.
7. Attach label stating "DO NOT TURN OVER" and date of inhibition.
8. Cover with waterproof sheet and store in dry position. TURN COMPRESSOR OVER BY HAND FOR SEVERAL REVOLUTIONS BEFORE RE-COMMISSIONING.



FAULT GUIDE

These notes are intended only as a guide to the more common aspects of fault location. In the case of difficulty, Service Engineers are available to advise and assist.

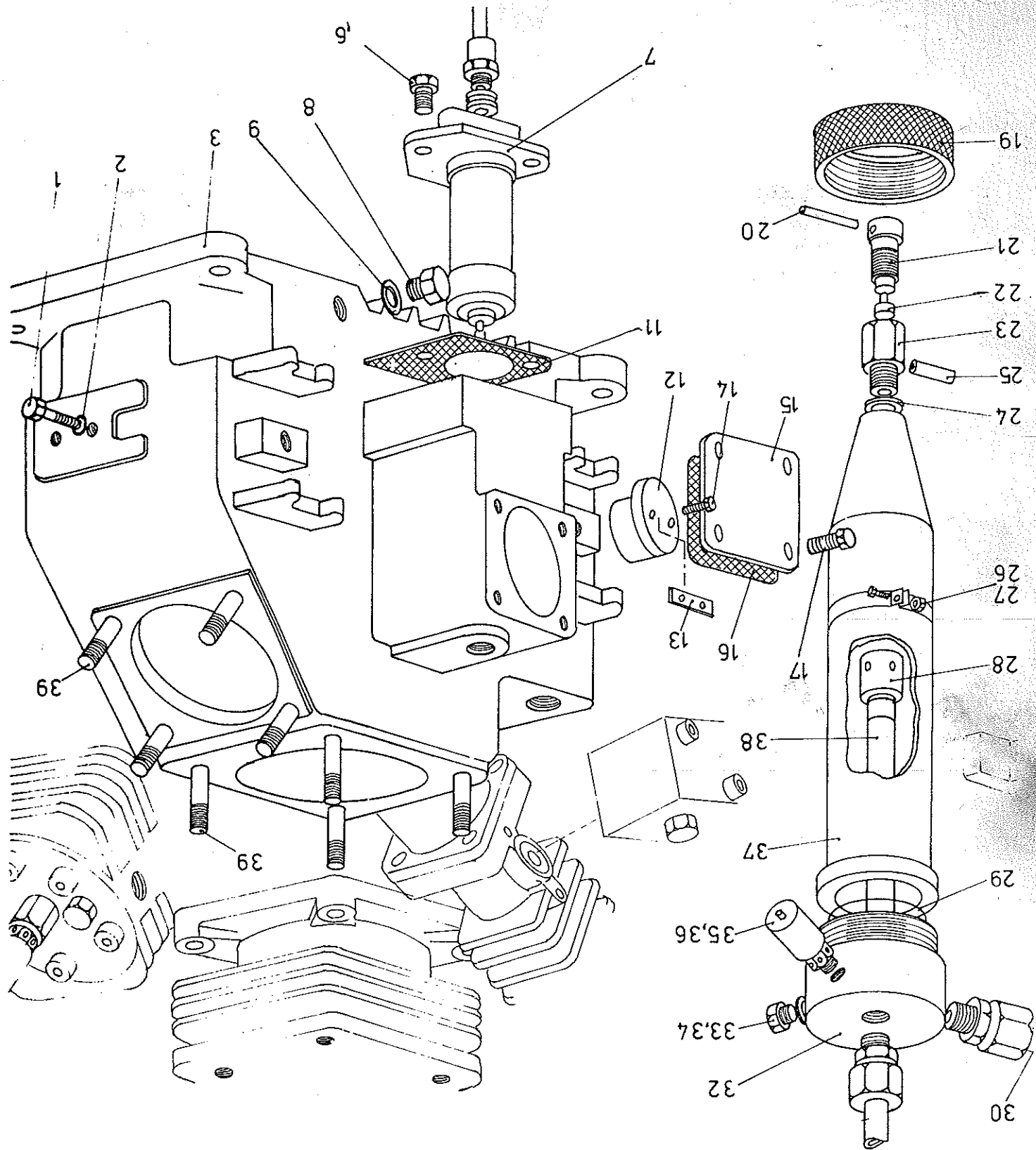
It is assumed that:

1. Ambient and air inlet temperature is not too high.
2. Driving unit and power supply are adequate and in good working order.
3. Lubricant(s) are correct.

| RECOMMENDATION | PROBABLE CAUSE | FAULT |
|---|---|--|
| <p>SERVICE VALVE(S) AS NECESSARY</p> <p>NOTE: A suction valve fault usually gives excess pressure in the previous stage.</p> <p>CHECK PRESSURE GAUGE AGAINST GAUGE OF KNOWN ACCURACY.</p> <p>EXISTING INSTALLATION Check setting and function of all control valves. Clean pipeline filters and service elements as necessary.</p> <p>NEW INSTALLATION Ensure that protective plugs and blanks have been removed from ports and that all control valves are correctly set. Pipework must be of ample size with a minimum of bends. Joint gaskets should be checked for correct positioning and size.</p> <p>REMOVE AND EXAMINE AND REPLACE, IF NECESSARY</p> | <p>FAULTY SUCTION OR DELIVERY VALVE(S)</p> <p>PRESSURE GAUGE NOT ACCURATE</p> <p>RESTRICTION IN PIPELINE</p> <p>FOURTH STAGE PLUNGER FAILURE</p> | <p>7A.1 EXCESSIVE STAGE PRESSURE</p> <p>EXCESSIVE THIRD STAGE PRESSURE</p> |
| <p>REMOVE AND SERVICE</p> <p>REMOVE AND EXAMINE</p> <p>LOCATE AND RECTIFY (e.g. drain valve open)</p> <p>IF GENERAL WEAR IS SUSPECTED, STRIP THE MACHINE AND EXAMINE ALL WORKING PARTS</p> <p>CHECK BELT DRIVE</p> <p>RENEW VALVE</p> <p>CHECK AND CLEAN VALVES, REPLACE MAIN PARTS, AS NECESSARY</p> | <p>BLOCKED SUCTION FILTER</p> <p>FAULTY FIRST STAGE SUCTION VALVE</p> <p>(AIR) LEAKAGE IN PIPE SYSTEM OR FROM MACHINE WEAR</p> <p>LOSS OF DRIVE</p> <p>PREMATURE OPENING OF FINAL SAFETY VALVE</p> <p>INTAKE OR OUTLET VALVE NOT CLOSING PROPERLY</p> | <p>7A.2 INSUFFICIENT PRESSURE OR VOLUME</p> <p>(See also: EXCESSIVE STAGE PRESSURE)</p> |

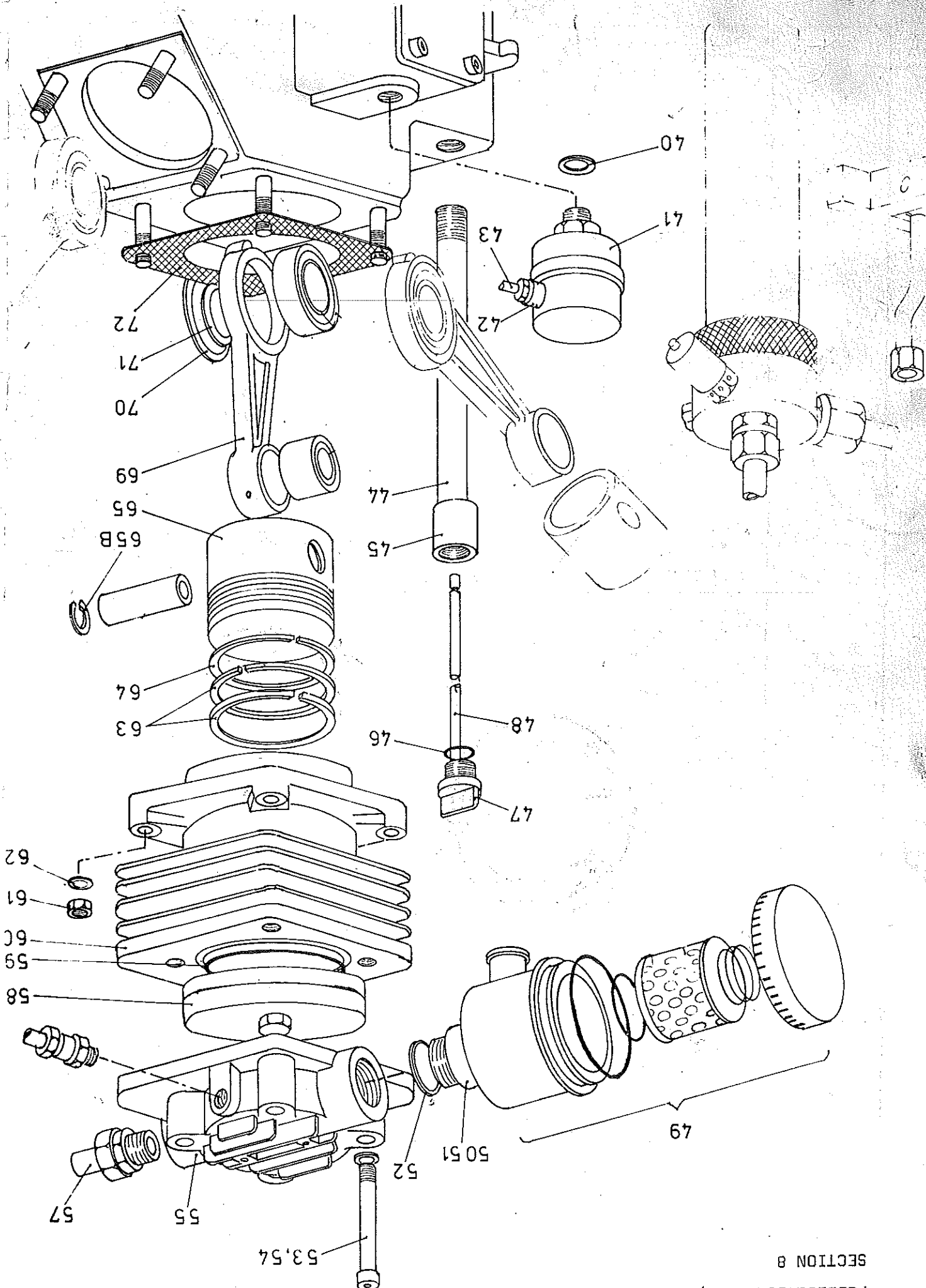
| RECOMMENDATION | PROBABLE CAUSE | FAULT |
|--|--|--|
| <p>REDUCE DUTY TO ACCEPTABLE LEVEL</p> <p>CHECK THAT PIPEWORK/VALVES DO NOT FORM A CLOSED LOOP, I.E. FEEDING HOT DELIVERED AIR BACK INTO MACHINE INLET</p> <p>CHECK LOCATION. MAXIMUM AMBIENT TEMPERATURE IS 35°C</p> <p>CHECK AND CLEAN VALVES, REPLACE WORN PARTS AS NECESSARY</p> <p>CLEAN OUT CYLINDER FINS</p> <p>CLEAN TUBES WITH A BRUSH AND COMPRESSED AIR</p> <p>ADJUST BELT DRIVE</p> <p>SERVICE AIR INTAKE FILTER</p> | <p>DUTY HIGHER THAN RECOMMENDED MAXIMUM</p> <p>INLET TEMPERATURE HIGHER THAN RECOMMENDED MAXIMUM</p> <p>INSUFFICIENT SUPPLY OF COOLING AIR</p> <p>INLET OR DELIVERY VALVES NOT CLOSING PROPERLY</p> <p>CYLINDER FINS CLOGGED OR DIRTY</p> <p>INTERCOOLER AND AFTER COOLER TUBES DIRTY</p> <p>V-BELTS SLIPPING</p> <p>AIR INTAKE FILTER BLOCKED</p> | <p>7A.3 OVERHEATING (See also: EXCESSIVE STAGE PRESSURE AND INSUFFICIENT PRESSURE)</p> |
| <p>SECURE PIPEWORK WITH EXTRA SUPPORTS, IF NECESSARY</p> <p>CHECK OIL LEVEL AND REPLENISH</p> <p>TIGHTEN PULLEY</p> <p>REPLACE V-BELTS IN SETS</p> <p>INSECURE MOUNTING. TIGHTEN MOUNTING BOLTS</p> <p>INSPECT AND ADJUST THE ALIGNMENT OF THE PULLEY</p> <p>AIR TRAPPED IN OIL PUMP. VENT PUMP AND OIL LINE</p> <p>DISMANTLE, EXAMINE AND REPLACE</p> | <p>VIBRATION OF CONNECTING PIPEWORK OR OF MACHINE SET UP AND ITS SURROUNDINGS</p> <p>OIL LEVEL LOW</p> <p>PULLEY LOOSE</p> <p>V-BELTS WORN</p> <p>VIBRATION IN MACHINE</p> <p>PULLEY OUT OF LINE</p> <p>LOW OIL PRESSURE</p> <p>WORN BEARING</p> | <p>7A.4 EXCESSIVE NOISE</p> <p>LOUD MACHINE NOISE ON START-UP IS NORMAL</p> |
| <p>IF SPEED CANNOT BE UP-RATED, FIT ADDITIONAL MACHINE OR MACHINE WITH LARGER CAPACITY.</p> <p>CHECK V-BELT DRIVE</p> | <p>SPEED TOO LOW OR MACHINE NOT LARGE ENOUGH</p> | <p>7A.5 EXTENDED RUNNING</p> |

| RECOMMENDATION | PROBABLE CAUSE | FAULT |
|---|--|-------------------------------------|
| <p>ADJUST ACCORDINGLY</p> <p>CLEAN FILTER ELEMENT</p> <p>PULLEY OUT OF ALIGNMENT - RE-ALIGN</p> <p>V-BELTS TOO TIGHT OR TOO LOOSE - ADJUST</p> <p>CHECK DRAINAGE SYSTEM AND REGULARLY CHECK CONDITION OF CRANKCASE OIL</p> <p>BELT TOO TIGHT OR TOO LOOSE - ADJUST</p> <p>OIL OR GREASE ON BELT - CLEAN OR REPLACE V-BELT</p> | <p>EXCESSIVE SPEED AND/OR PRESSURE</p> <p>DIRTY AIR AND/OR SUCTION PIPELINE</p> <p>EXCESSIVE SIDE OR END THRUST</p> <p>EXCESSIVE MOISTURE CONTENT IN AIR OR GAS</p> <p>V-BELT WEAR</p> | <p>7A.6</p> <p>EXCESSIVE WEAR</p> |
| <p>IF MACHINE DOES NOT ROTATE FREELY (WHEN UNLOADED) THIS INDICATES A FAULT OF A SERIOUS NATURE. INVESTIGATE AND CHECK FOR BROKEN AND DAMAGED COMPONENTS BEFORE TRYING TO RE-START</p> <p>LOCATE AND RECTIFY, OR CONSULT AN ELECTRICIAN.</p> | <p>SEIZURE</p> <p>ELECTRICAL OR CONTROL FAULT</p> | <p>7A.7</p> <p>FAILURE TO START</p> |
| <p>VENT PUMP AND OIL LINE</p> <p>DISMANTLE AND CLEAN</p> <p>EXAMINE THIRD STAGE PLUNGER AND RENEW, IF NECESSARY</p> | <p>AIR TRAPPED IN OIL PUMP</p> <p>OIL REGULATOR DIRTY</p> <p>THIRD STAGE PISTON PROBLEM</p> | <p>7A.8</p> <p>LOW OIL PRESSURE</p> |
| | | |



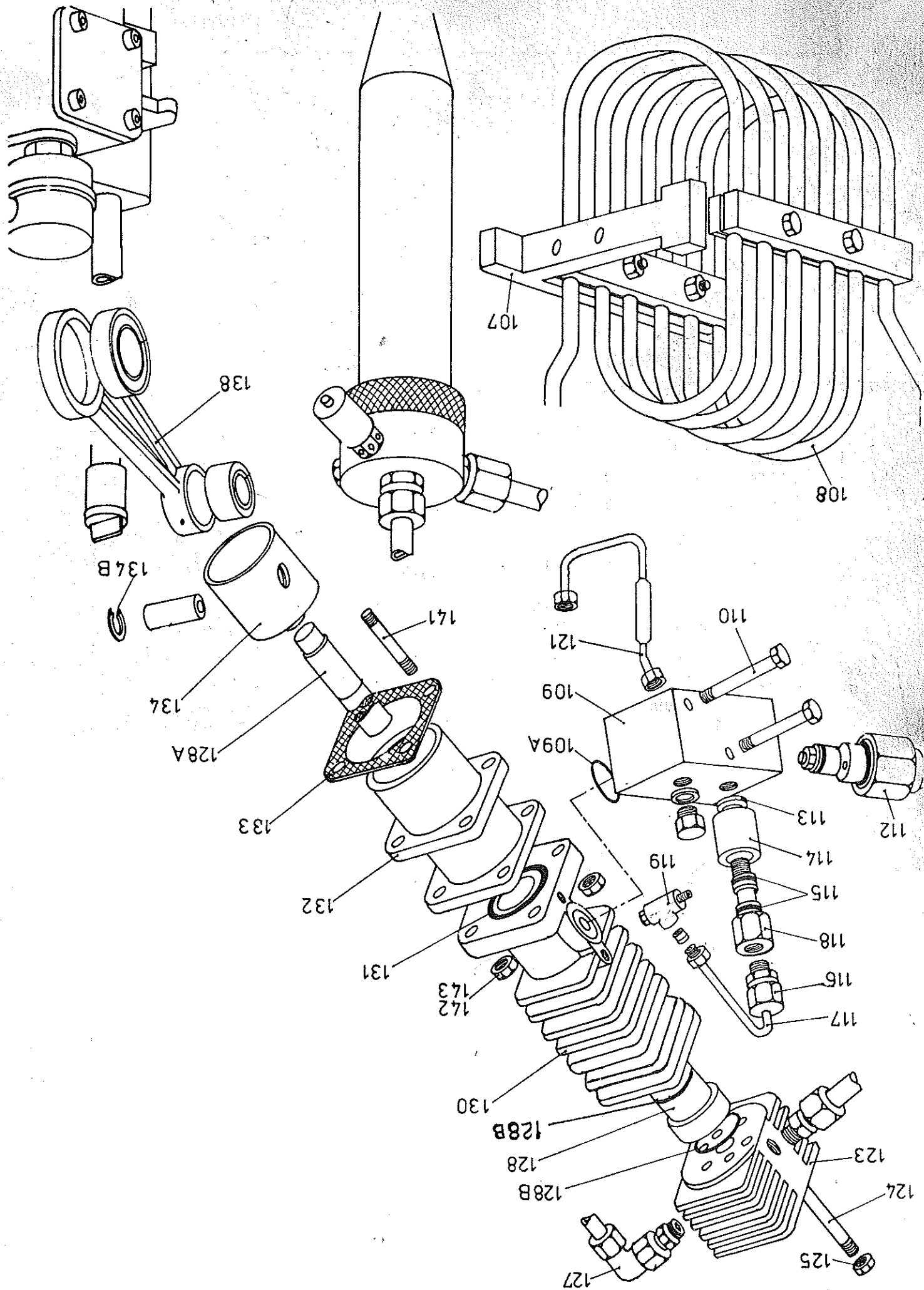
| ITEM | DESCRIPTION | QTY | S404A | S405A |
|------|--|-----|------------|-------|
| 1 | SCREW, HEX HEAD | 4 | 95000/0257 | |
| 2 | WASHERS, SPRING | 4 | 95175/0006 | |
| 3 | CRANKCASE with items 8,9,39,141,142 & 143 | 1 | E.60169 | |
| 6 | SCREWS, SOCKET HEAD | 3 | 95000/0256 | |
| 7 | OIL PUMP | 1 | 98446/1003 | |
| 8 | PLUG, OIL DRAIN | 1 | C.22053/2 | |
| 9 | WASHER | 1 | 95640/0007 | |
| 10 | SOCKET, 3/8" BS PIPE | 1 | 95405/1003 | |
| 11 | JOINT, OIL PUMP | 1 | 98502/1017 | |
| 12 | CAM, OIL PUMP DRIVE | 1 | 200555/1 | |
| 13 | TAB WASHER | 1 | 200555/2 | |
| 14 | SCREW, HEX HEAD | 2 | 95000/0228 | |
| 15 | END COVER, CRANKCASE | 1 | C.200563 | |
| 16 | JOINT, END COVER | 1 | 98502/1016 | |
| 17 | SCREWS, SOCKET HEAD | 4 | 95000/0234 | |
| 18 * | SEPARATOR ASSEMBLY, SECOND STAGE, comprising items 19, 29, 32,28,37,38 AND DRAIN | 1 | D.100221 | |
| 19 | SEPARATOR COLLAR NUT | 1 | C.200650 | |
| 19A* | DRAIN VALVE ASSEMBLY comprising items 20,21, 22,23,24 & 25 | | | |
| 20 | TENSION PIN | 1 | 95540/0172 | |
| 21 | DRAIN VALVE SCREW | 1 | C.200650/2 | |
| 22 | VALVE | 1 | C.200656/3 | |
| 23 | DRAIN BODY | 1 | C.200657/2 | |
| 24 | WASHER, FIBRE | 1 | PS.1322/2 | |
| 25 | BRANCH PIPE | 1 | C.200657/3 | |
| 26 | SCREW, HEX HEAD | 2 | 95000/0253 | |
| 27 | CLIP, SEPARATOR | 1 | 98150/1006 | |
| 28 | SEPARATOR DEFLECTOR with item 38 | 1 | C.200653 | |
| 29 | 'O'RING, SEPARATOR | 1 | 95602/0051 | |
| 30 | TUBE, SECOND STAGE INLET | 1 | D.100208 | |
| 31 | TUBE, SECOND STAGE COOLER TO SEPARATOR | 1 | E.60448 | |
| 32 | SEPARATOR COVER | 1 | C.200651 | |

* Not Illustrated



1st ser 98650/1310
 98477/1039
 98650/1060
 98650/1061
 98650/1013
 98477/1039
 98477/1026
 98502/1014
 98502/0050
 98540/0160
 D.100427
 95301/0008
 *
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 95301/0008
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 SECTION 8
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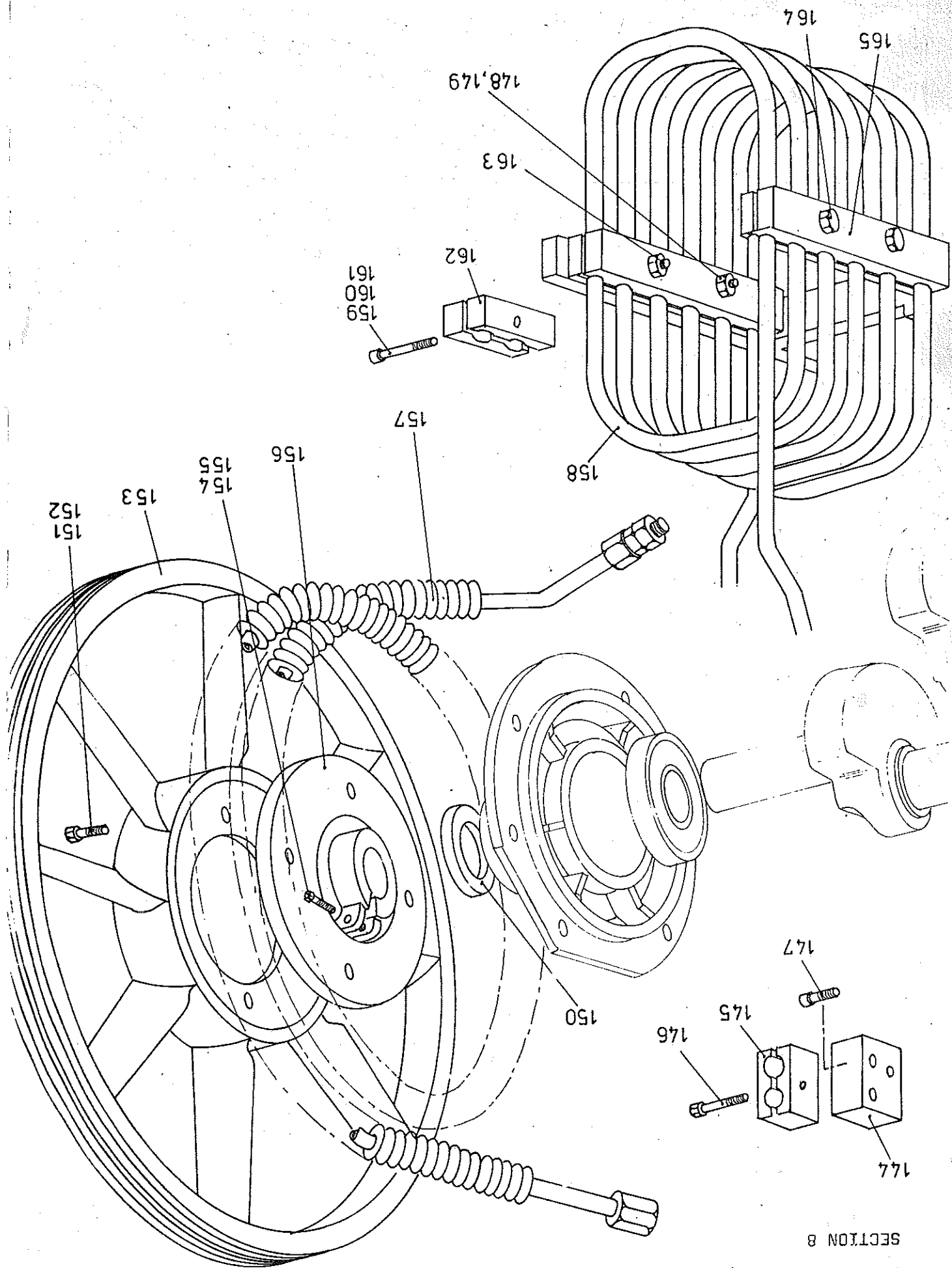
| ITEM | DESCRIPTION | QTY | 5404A | 5405A |
|------|---|-----|------------|------------|
| 64 | PISTON RING, FIRST STAGE, SCRAPER | 1 | 98477/1038 | 98477/1039 |
| *64A | PISTON RING, FIRST STAGE, SCRAPER | 1 | 98477/1038 | 98477/1026 |
| 65 | PISTON, FIRST STAGE, WITH GUDGEON PIN | 1 | C.200565 | C.200564 |
| 65B | CIRCLIPS ONLY | 2 | 95650/0020 | C.201063 |
| 69 | CONNECTING ROD ASSEMBLY, FIRST STAGE complete with items 66, 67, 68 & 69 | 1 | C.201060 | C.201063 |
| 70 | SPACER, CONN ROD - OUTER RING | 4 | 98660/1060 | |
| 71 | SPACER, CONN ROD - INNER RING | 3 | 98660/1061 | |
| 72 | JOINT, FIRST STAGE CYLINDER | 1 | 98502/1013 | |
| 75 | CONNECTING ROD ASSEMBLY, SECOND STAGE | 1 | C.201061 | |
| 77 | PISTON, SECOND STAGE WITH GUDGEON PIN AND CIRCLIPS AND RINGS | 1 | C.200566 | |
| 77B | PISTON, SECOND STAGE WITH GUDGEON PIN AND CIRCLIPS ONLY | 2 | 95650/0012 | |
| 78 | PISTON RING, PLAIN, SECOND STAGE | 1 | 98477/1002 | |
| 79 | PISTON RING, TAPERED, SECOND STAGE | 3 | 98477/1013 | |
| 80 | NUTS | 4 | 95111/0005 | |
| 81 | WASHERS | 4 | 95148/0014 | |
| 82 | ELBOWS | 2 | 98156/2533 | |
| 83 | PLUG | 3 | PS.1814/2 | |
| 84 | DOWTY SEAL | 1 | PS.1322/1 | |
| 85 | SCREW, SOCKET HEAD | 6 | 95018/0206 | |
| 87 | VALVE, SAFETY, FIRST STAGE | 1 | 98650/1163 | |
| 88 | DOWTY SEAL | 1 | PS.1322/2 | |
| 89 | TUBE, SECOND STAGE COOLER | 1 | E.60448 | |
| 90 | VALVE, INLET/DISCHARGE, SECOND STAGE | 1 | 98650/1160 | |
| 91 | OR-RING, SECOND STAGE CYLINDER | 1 | 95602/0050 | |
| 93 | CYLINDER, SECOND STAGE | 1 | D.100159 | |
| 93A | TENSION PIN | 1 | 95540/0160 | |
| 94 | JOINT, SECOND STAGE CYLINDER | 1 | 98502/1014 | |
| 95 | CRANKSHAFT ASSEMBLY comprising items 95, 96, | 1 | D.100427 | |
| 96 | KEY | 1 | 95301/0008 | |



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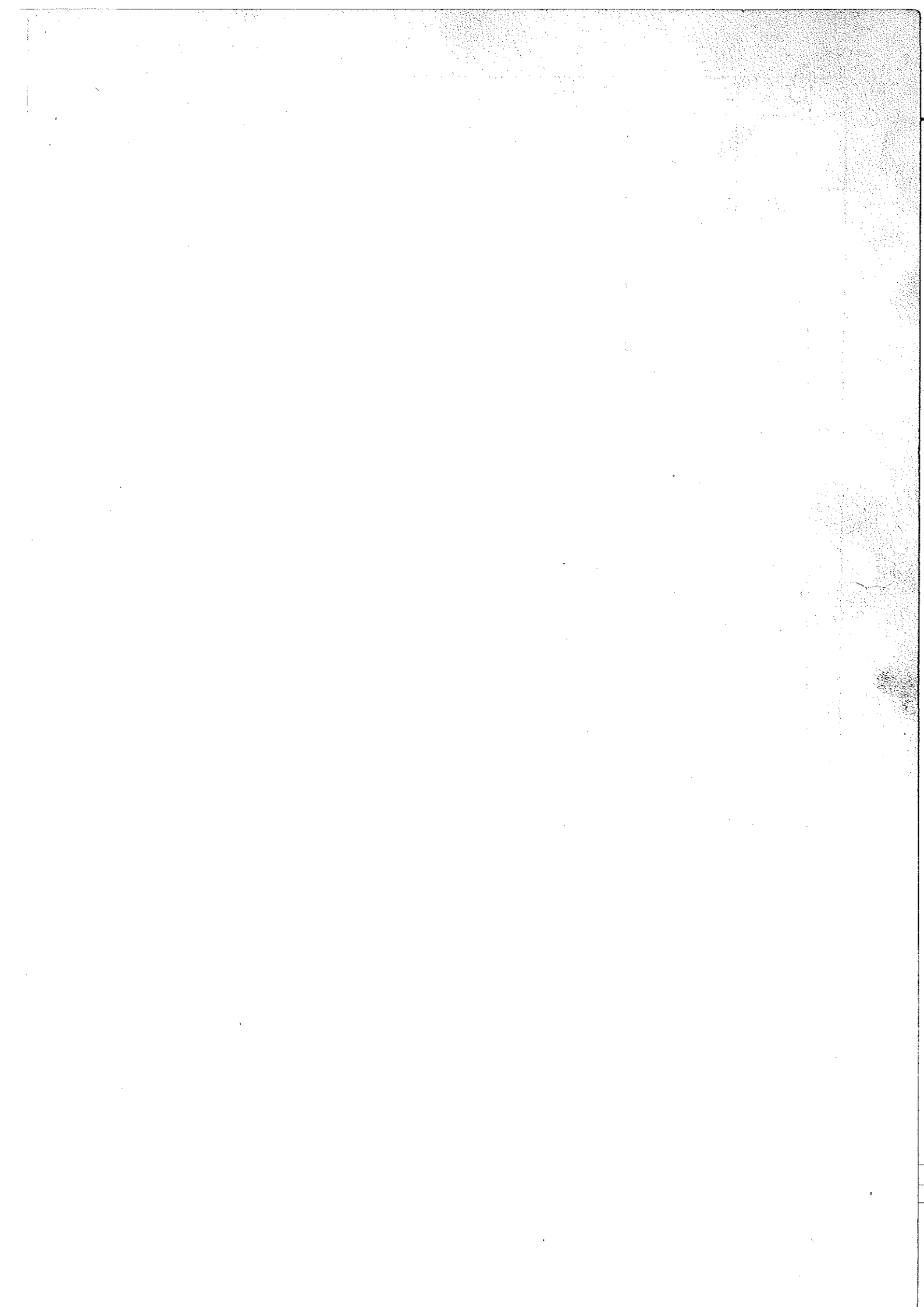
| ITEM | DESCRIPTION | QTY | 5404A | 5405A |
|-------|---|-----|---------------|-------|
| 97 | 'O'RING, HOUSING | 1 | 95602/0098 | |
| 98 | HOUSING, DRIVE END BEARING | 1 | D.100154 | |
| 99 | SCREWS, SOCKET HEAD | 6 | 95000/0255 | |
| 101 | BEARING, DRIVE END MAIN | 1 | 98076/1019 | |
| 102 | SCREW, SOCKET HEAD | 1 | 95018/0207 | |
| 103 | NUTS | 1 | 95111/0005 | |
| 104 | WASHER, SPRING | 1 | 95179/0006 | |
| 105 | BALANCE WEIGHT | 1 | C.200554 | |
| 106 | BEARING, NON-DRIVE END MAIN | 1 | 98076/1018 | |
| 107 | BRACKET, COOLER COIL | 2 | D.100183 | |
| *107A | SCREW | 4 | 95000/0257 | |
| *107B | WASHER | 4 | 95179/0006 | |
| 108 | COIL, COOLER, SECOND STAGE | 1 | E.60448 | |
| 108A | OIL PRESSURE REGULATOR ASSEMBLY, comprising items, 109,109A,110, 112, 113,114,115 & 118 | 1 | C.200635 | |
| 109 | BODY, OIL PRESSURE REGULATOR | 1 | C.200629 | |
| 109A | 'O'RING | 1 | 95602/0007 | |
| 110 | SCREWS, SOCKET HEAD | 2 | 95000/0235 | |
| 112 | VALVE, OIL RELIEF- | 1 | 98650/1162 | |
| 113 | WASHERS | 1 | 95635/0001 | |
| 114 | SIGHT GLASSES | 1 | 98281/1001 | |
| 115 | 'O'RING, SIGHT GLASS | 2 | 95602/0008 | |
| 116 | COUPLING | 2 | 98156/1123 | |
| 117 | OIL FEED PIPE | 1 | M31300603/450 | |
| 118 | FITTING, LUBRICATOR SIGHT GLASS | 1 | C.200628 | |
| 119 | BANDS, COMPLETE WITH NUT AND TUBING SLEEVE | 1 | 98156/2090 | |
| 121 | OIL FILTER END PIPE | 1 | 98262/1039 | |
| 122 | UNION COMPLETE | 1 | 98156/1559 | |
| 123 | VALVE, INLET DISCHARGE, THIRD STAGE | 1 | 98650/1161 | |
| 124 | STUDS | 6 | D.100171/8 | |
| *124A | TAPER PLUG | 1 | PS.1451/1 | |
| 125 | NUTS | 6 | 98422/1028 | |

* Not Illustrated



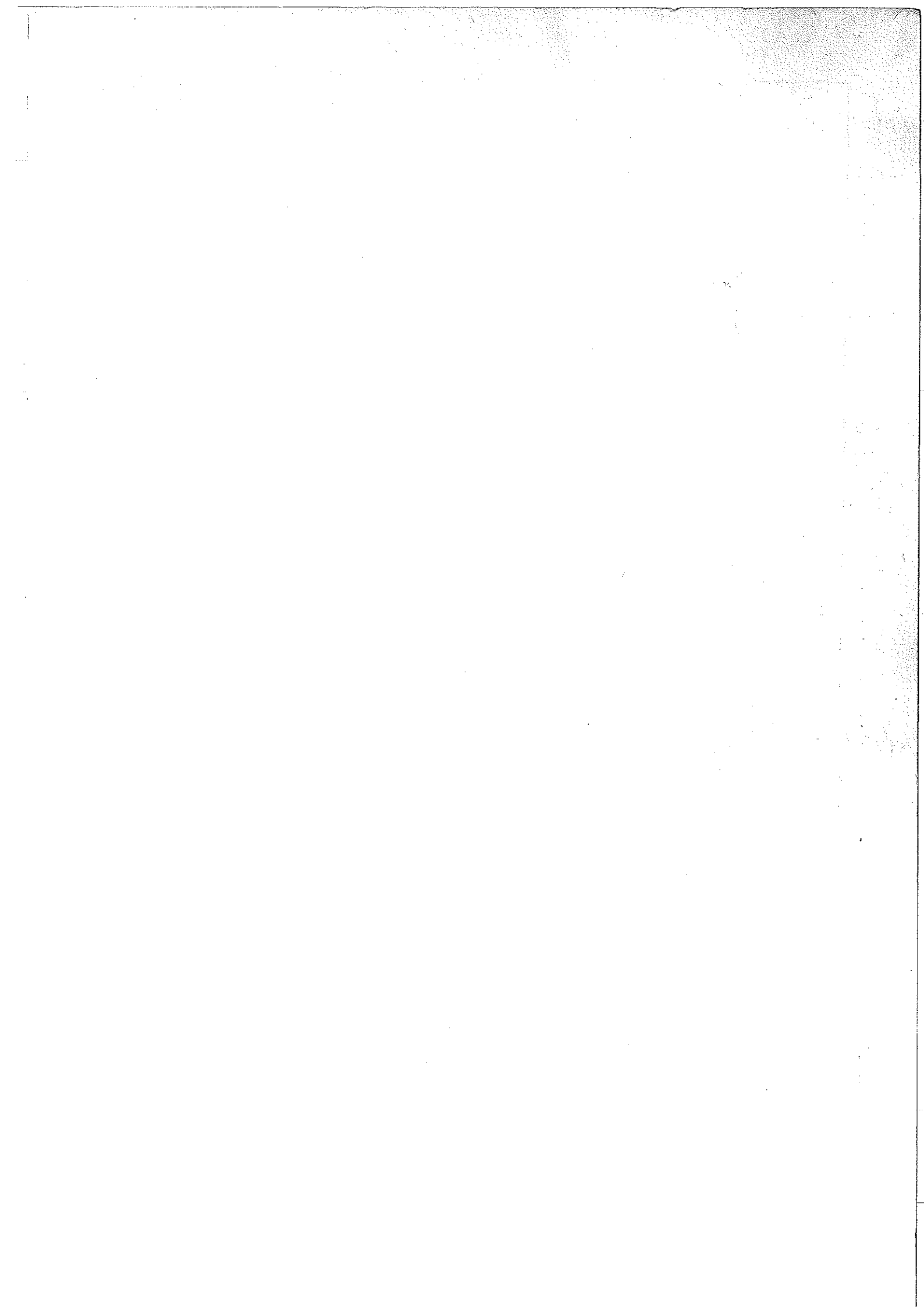
| ITEM | DESCRIPTION | QTY | 5404A | 5405A |
|------|--|-----|---------------|-------|
| 127 | ELBOW, SWIVEL NUT | 1 | 98156/1604 | |
| 127A | MALE CONNECTOR | 1 | 98156/1574 | |
| 128 | LINER AND PLUNGER ASSEMBLY, THIRD STAGE | 1 | C.200567 | |
| 128B | 'O'RING, THIRD STAGE LINER | 3 | 95602/0018 | |
| 129 | PISTON RINGS, THIRD STAGE | 2 | 98477/1073 | |
| 130 | CYLINDER ASSEMBLY, THIRD STAGE | 1 | D.100325 | |
| 131 | 'O'RING, THIRD STAGE CROSSHEAD | 1 | 98504/1029 | |
| 132 | GUIDE, THIRD STAGE CROSSHEAD | 1 | D.100161 | |
| 133 | JOINT, THIRD STAGE CROSSHEAD | 1 | 98502/1015 | |
| 134 | CROSSHEAD WITH GUIDERON PIN AND CIRCLIPS | 1 | 98438/1001 | |
| 134B | CIRCLIPS ONLY | 2 | 95650/0014 | |
| 138 | CONNECTING ROD ASSEMBLY, THIRD STAGE | 1 | C.201062 | |
| 141 | STUDS | 4 | D.100171/8/86 | |
| 142 | NUTS | 4 | 95111/0005 | |
| 143 | WASHER | 4 | 95148/0014 | |
| 144 | PAD, COOLER CLIP | 1 | C.200589 | |
| 145 | CLIPS, AFTERCOOLER | 6 | C.200587 | |
| 146 | SCREWS, HEX HEAD | 3 | 95000/0233 | |
| 147 | SCREWS, SOCKET HEAD | 2 | 95000/0229 | |
| 148 | NUTS | 16 | 95111/0004 | |
| 149 | WASHERS | 16 | 95148/0013 | |
| 150 | SEAL, CRANKSHAFT | 1 | 95605/0057 | |
| 151 | SCREWS, SOCKET HEAD | 4 | 95000/0255 | |
| 152 | WASHERS, SPRING | 4 | 95179/0006 | |
| 153 | FLYWHEEL FAN ASSEMBLY comprising items 151 - 156 | 1 | E.60341 | |
| 154 | SCREW, SOCKET HEAD | 1 | 95000/0259 | |
| 155 | WASHER, SPRING | 1 | 95179/0006 | |
| 156 | HUB, FLYWHEEL, with item 153 | | | |
| 157 | COIL, AFTERCOOLER | 1 | E.60393 | |
| 158 | COIL, FIRST STAGE COOLER | 1 | E.60187 | |
| 159 | BOLTS, HEX HEAD | 2 | 95006/0132 | |

* Not Illustrated

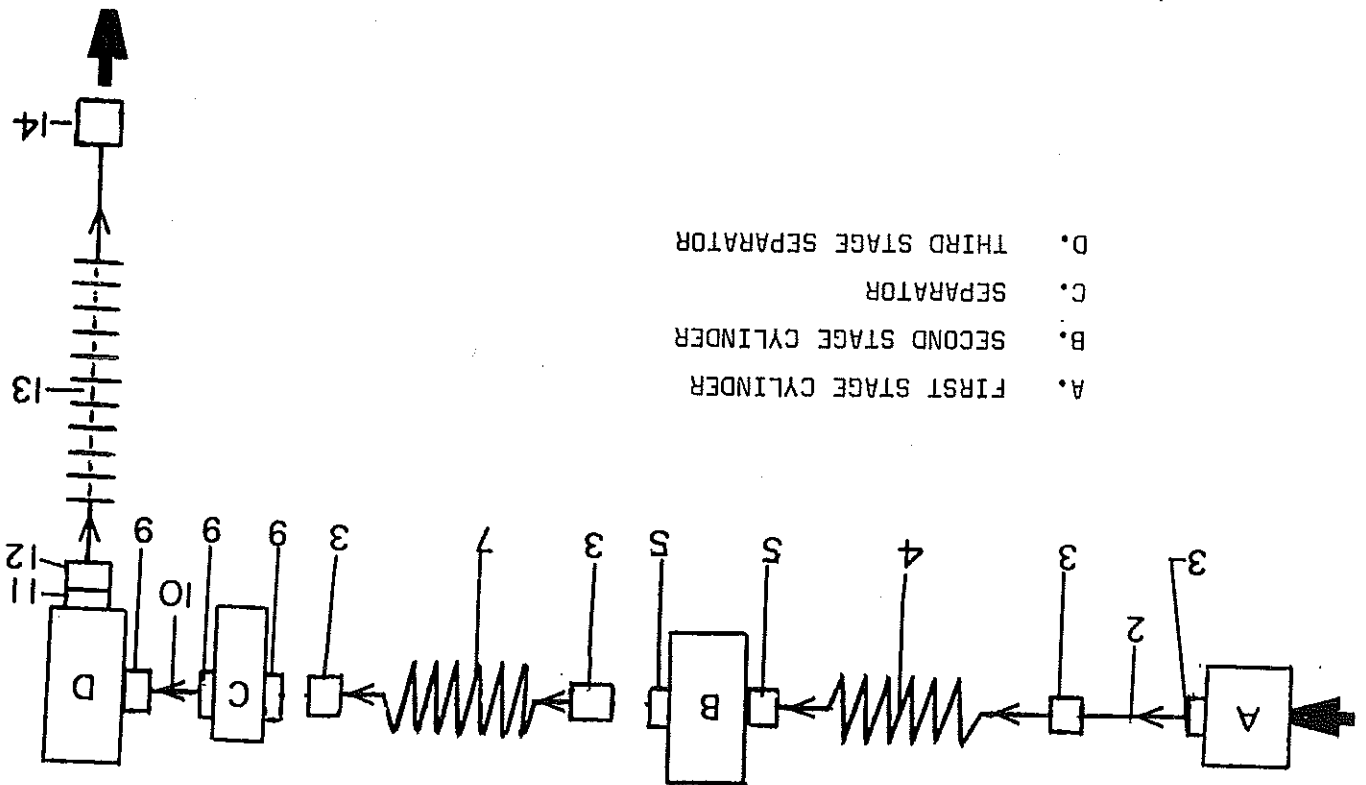


| ITEM | DESCRIPTION | QTY | 5404A | 5405A |
|------|---------------------|-----|------------|----------|
| 160 | NUTS | 2 | 95111/0004 | |
| 161 | WASHERS | 2 | 95148/0013 | |
| 162 | CLIPS, COOLER PIPE | 6 | | C.200586 |
| 163 | SCREWS, HEX HEAD | 4 | 95000/0234 | |
| 164 | SCREWS, HEX HEAD | 5 | 95000/0233 | |
| 165 | CLAMPS, COOLER COIL | 6 | C.200576 | C.200576 |
| 166 | MOUNTING BRACKET | 2 | C.200836 | |
| 167 | SETSCREW, HEX HEAD | 4 | 95000/0256 | |
| 169 | UNION COMPLETE | 1 | 98156/1559 | |

* Not Illustrated

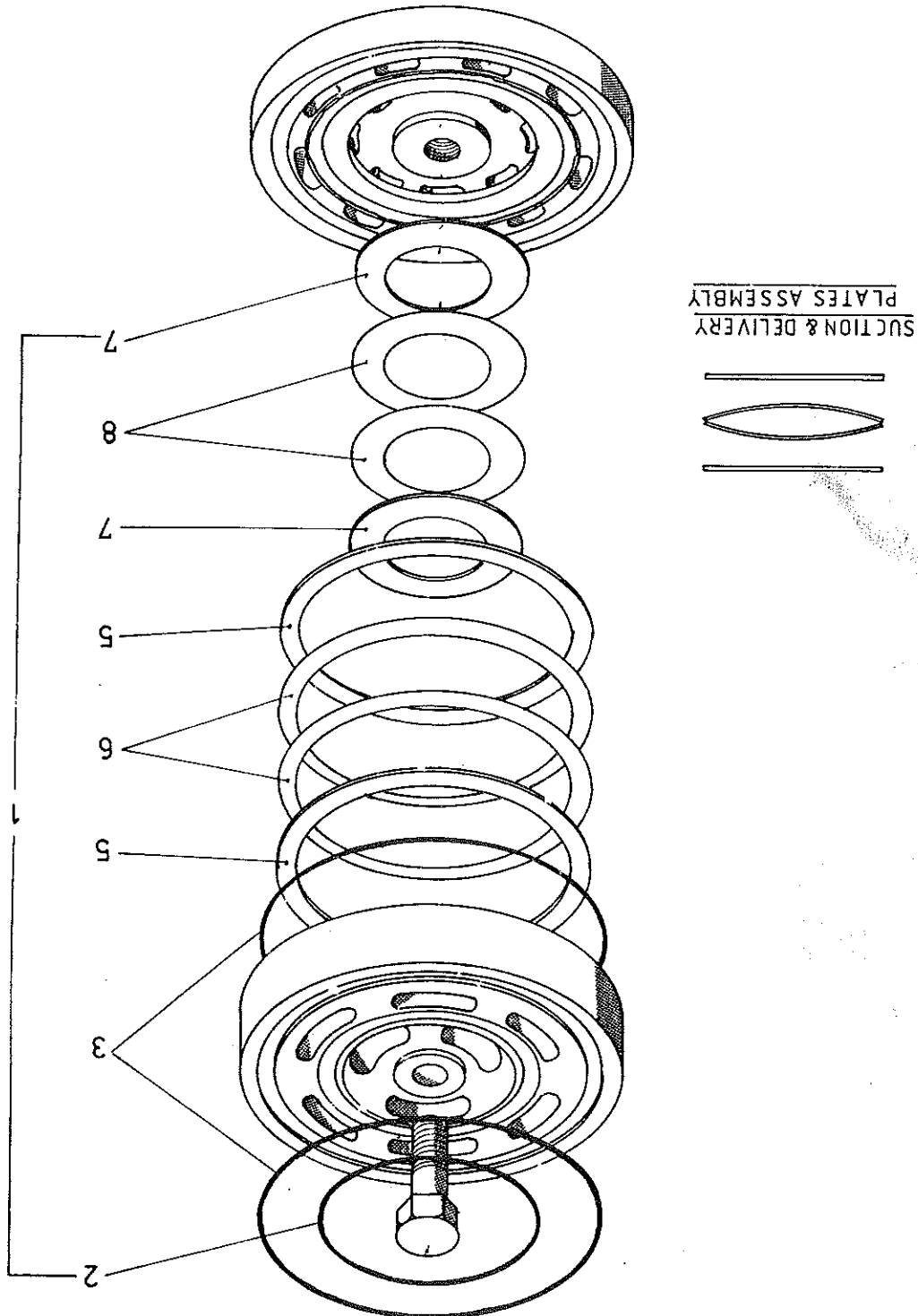


PIPEWORK AND FITTINGS



| ITEM NO | DESCRIPTION | PART NO. 5404A | PART NO. 5405A | QTY 5404A | QTY 5405A |
|---------|----------------------------|-------------------|-------------------|--------------|--------------|
| 2 | ALUMINIUM TUBE, Ø 2" X 14G | D.100209 | E.60202 | 1 | 1 |
| 3 | STRAIGHT COUPLING | 98156/2552 | 98156/2552 | 3 | 3 |
| 4 | ALUMINIUM TUBE, Ø 2" X 14G | E.60187 | E.60187 | 1 | 1 |
| 5 | STUD ELBOW | 98156/2533 | 98156/2533 | 2 | 3 |
| 7 | ALUMINIUM TUBE, Ø 2" X 14G | E.60448A | E.60448A | 1 | 1 |
| 9 | STUD COUPLING | 98156/2515 | 98156/2515 | 3 | 3 |
| 10 | ALUMINIUM TUBE, Ø 2" X 14G | D.100208 | D.100208 | 1 | 1 |
| 11 | MALE CONNECTOR BODY | 98156/1574 | 98156/1574 | 1 | 1 |
| 12 | SWIVEL NUT ELBOW | 98156/1604 | 98156/1604 | 1 | 1 |
| 13 | THIRD STAGE COIL | E.60393 | E.60393 | 1 | 1 |
| 14 | UNION | 98156/1559 | 98156/1559 | 1 | 1 |

| ITEM NO. | DESCRIPTION | QTY | PART NUMBER |
|----------|---------------------|-----|-------------|
| 1 | VALVE COMPLETE | 1 | 98650/1159 |
| 2 | O-RING - VITON | 1 | 95602/0059 |
| 3 | O-RING - VITON | 2 | 95602/0090 |
| 5 | BACKING/VALVE PLATE | 2 | 98650/1224 |
| 6 | VALVE SPRING PLATE | 2 | 98650/1223 |
| 7 | BACKING/VALVE PLATE | 2 | 98650/1226 |
| 8 | VALVE SPRING PLATE | 2 | 98650/1225 |

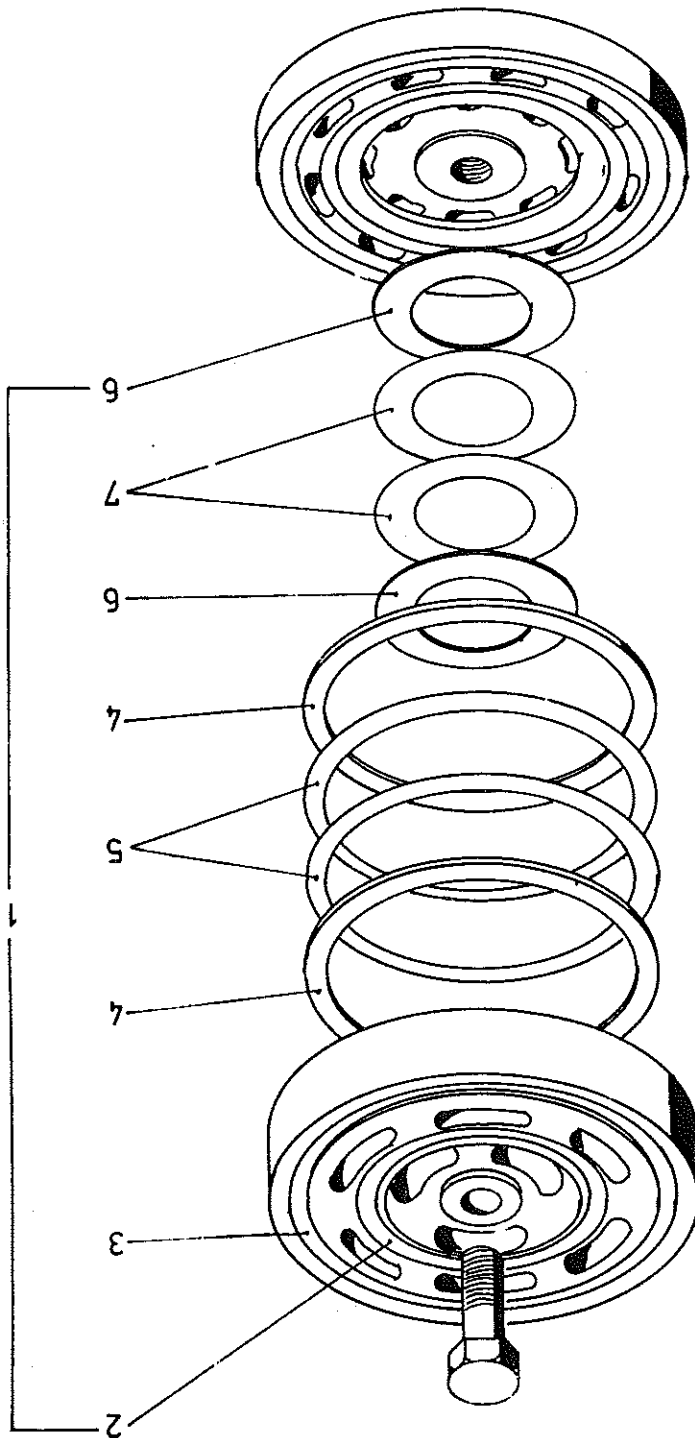


FIRST STAGE VALVE 98650/1159

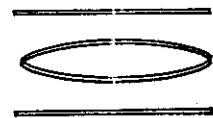
Publication 9800/1

SECTION 8

5405A



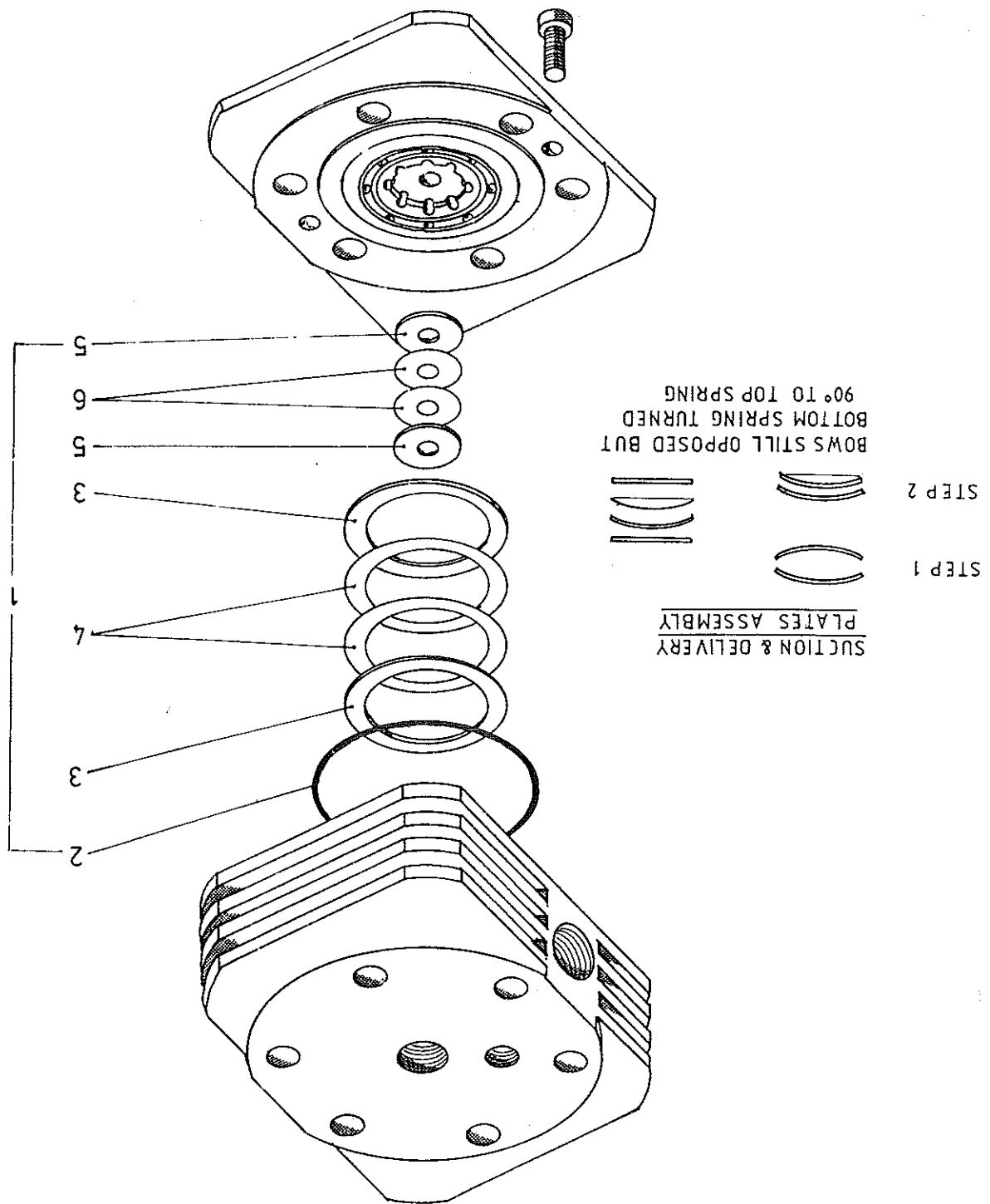
SUCTION & DELIVERY
PLATES ASSEMBLY



5404A

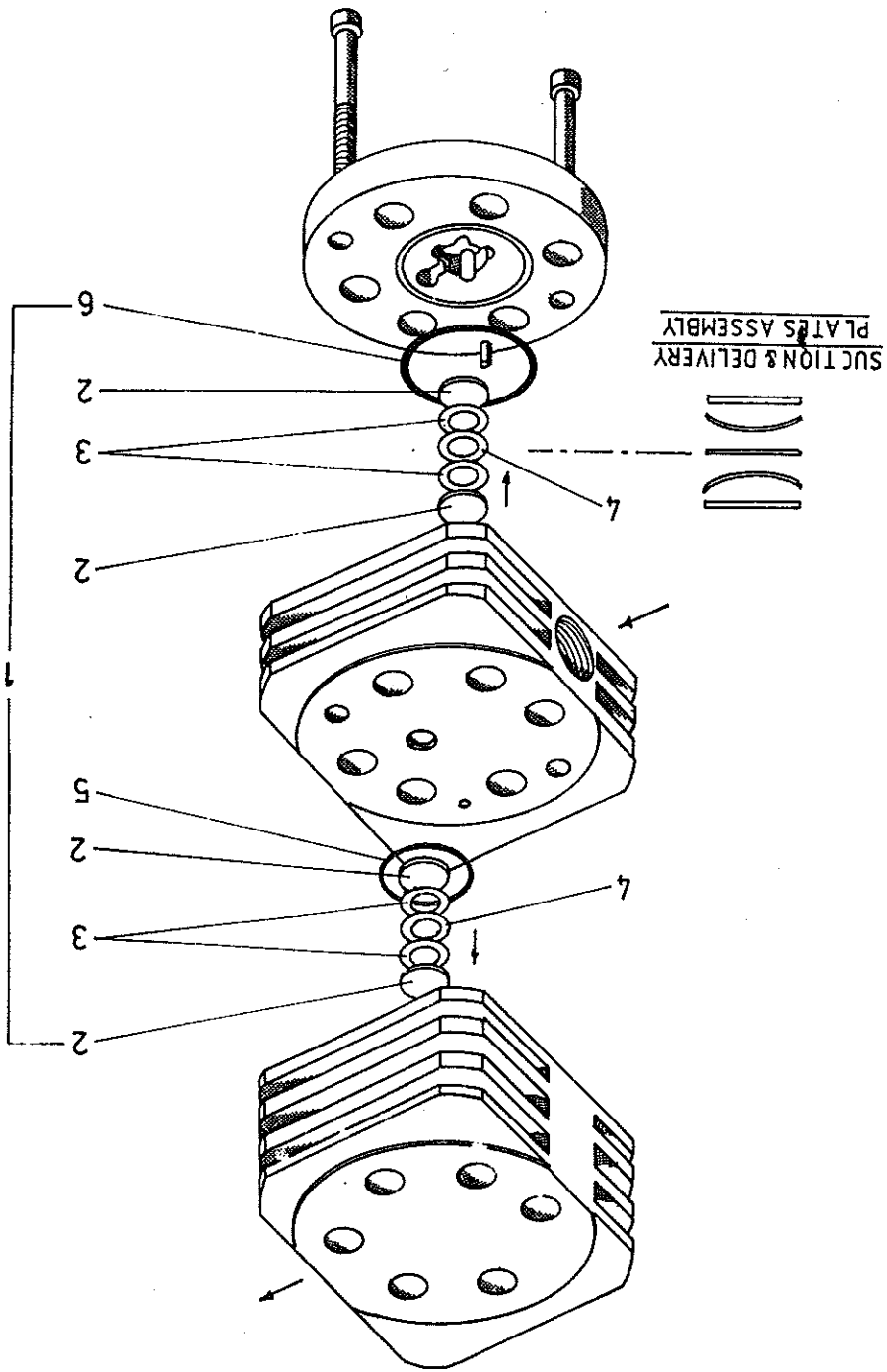
| ITEM NO. | DESCRIPTION | QTY | PART NUMBER |
|----------|---------------------|-----|-------------|
| 1 | VALVE COMPLETE | 1 | 98650/1158 |
| 2 | O-RING - VITON | 1 | 95602/0050 |
| 3 | O-RING - VITON | 1 | 95602/0085 |
| 4 | SPRING PLATE | 2 | 98650/1203 |
| 5 | BACKING/VALVE PLATE | 2 | 98650/1204 |
| 6 | SPRING PLATE | 2 | 98650/1205 |
| 7 | BACKING/VALVE PLATE | 2 | 98650/1206 |

SECOND STAGE VALVE 98650/1160



| ITEM NO. | DESCRIPTION | QTY | PART NUMBER |
|----------|--------------------|-----|-------------|
| 1 | VALVE COMPLETE | 1 | 98650/1160 |
| 2 | VALVE SPRING RINGS | 1 | 95602/0054 |
| 3 | VALVE PLATE | 2 | 98650/1211 |
| 4 | VALVE SPRING RING | 2 | 98650/1212 |
| 5 | VALVE PLATE | 2 | 98650/1213 |
| 6 | VALVE SPRING RINGS | 2 | 98650/1214 |

THIRD STAGE VALVE 98650/1161



| ITEM NO. | DESCRIPTION | QTY | PART NUMBER |
|----------|--------------------|-----|-------------|
| 1 | VALVE COMPLETE | 1 | 98650/1161 |
| 2 | VALVE PLATE | 4 | 98650/1196 |
| 3 | VALVE SPRING RING | 4 | 98650/1197 |
| 4 | VALVE CENTRE PLATE | 2 | 98650/1198 |
| 5 | 'O'RING - VITON | 1 | 95602/0016 |
| 6 | 'O'RING - VITON | 1 | 95602/0018 |

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FILTRATION

SYSTEM

A.

The system comprises a high tensile light alloy chamber which contains the replaceable filter cartridge and a pressure maintaining valve and safety valve which are attached to the chamber base. This base also functions as a separator and a bleed screw is fitted for manual condensate drainage purposes, if automatic drainage is not fitted.

All components are of heavy duty construction capable of dealing with the pressures involved. Any damage incurred on the surface of the shell will seriously impair its safety.

Two types of charging adaptors - Siebe and D.I.N. can be fitted, with or without gauges.

Air enters the filter chamber from the compressor final delivery via the base, passes up to the top of the chamber interior and then enters the filter cartridge through holes in the acrylic container. After filtration the air leaves the chamber at the base and passes through a pressure maintaining valve which ensures constant pressure in the chamber, from where it is piped to the charging hose panel.

The safety valve mounted on the chamber base releases excess pressures should they build up in the filtration chamber. Should the safety valve fail, excess pressure within the chamber will rupture the bursting disc built into the chamber base.

These units may be mounted either on the compressor bedplate or in a separate location on an adjacent wall or fixture, as the filter bracket is designed for this purpose.

OPERATING

B.

Ensure that the compressor filtration unit is situated in a clean air environment and if an internal combustion prime mover is utilized, air intakes are directed away from any exhaust fumes. Keep all pipework and unions clean in order to facilitate easier detection of any possible air leakage.

Record hours run so that filter cartridges may be changed at recommended periods (if cartridge element has not already indicated this is necessary).

Before starting compressor open all compressor and filter separator drains, leave open for 5 seconds after compressor is started and then close in stage sequence to bring compressor onto load.

All drains should be opened every 30 minutes running time to remove condensate.

10 seconds before shutting machine down, all drains should be opened. If automatic drainage/unloading is fitted, solvent operated condensate dumping block will carry out the above procedure.

C. SERVICING

The filtration cartridge is designed to provide breathing air to meet the specification levels for water, oil, mist, odour and dirt in BS.4275 with normal atmospheric air intake, i.e. non-contaminated or fume free air, and expected cartridge life is as under:

| | |
|-------|---|
| 5404A | 50 hours running time, or three months, whichever is sooner |
| 5405A | 40 hours running time, or three months, whichever is sooner |

Cartridge life will be reduced at high ambient or humidity intake air conditions.

The filter elements are coloured, with the cobalt blue of the silica gel easily identified at the tip of the cartridge. When active it retains this colour but the cartridge must be changed as soon as the blue changes to any shade of PINK. It is, however, advisable that the recommended cartridge life in the chamber is never exceeded.

D. TO CHANGE CARTRIDGE

Before changing cartridge or performing any maintenance tasks, carry out the following safety procedures.

1. Open separator drains

2. Bleed drain system

3. Switch off and electrically isolate compressor

Unscrew filter chamber from base by turning anti-clockwise. If difficulty is experienced, use webbing type strap wrench.

Remove acrylic cartridge complete with top spring and spring cap.

Remove spring and place on one side.

Clean out inside of base, and chamber, removing any moisture which may still be present.

Clean external threads on base and internal ones in chamber shell and lightly grease with silicone grease.

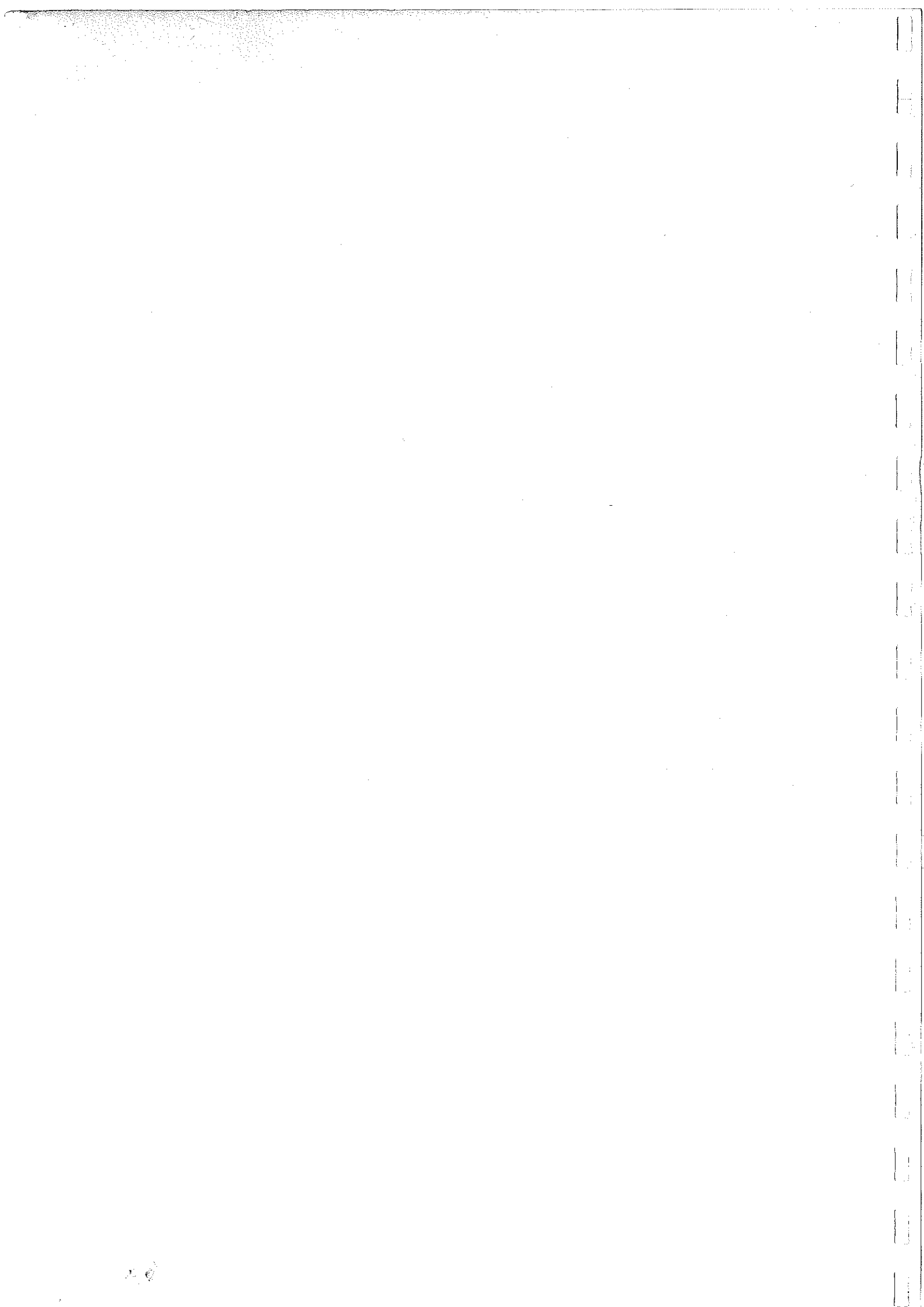
Remove replacement cartridge from its plastic bag and slide onto stem in filter base ensuring 'o'ring is not damaged during this process.

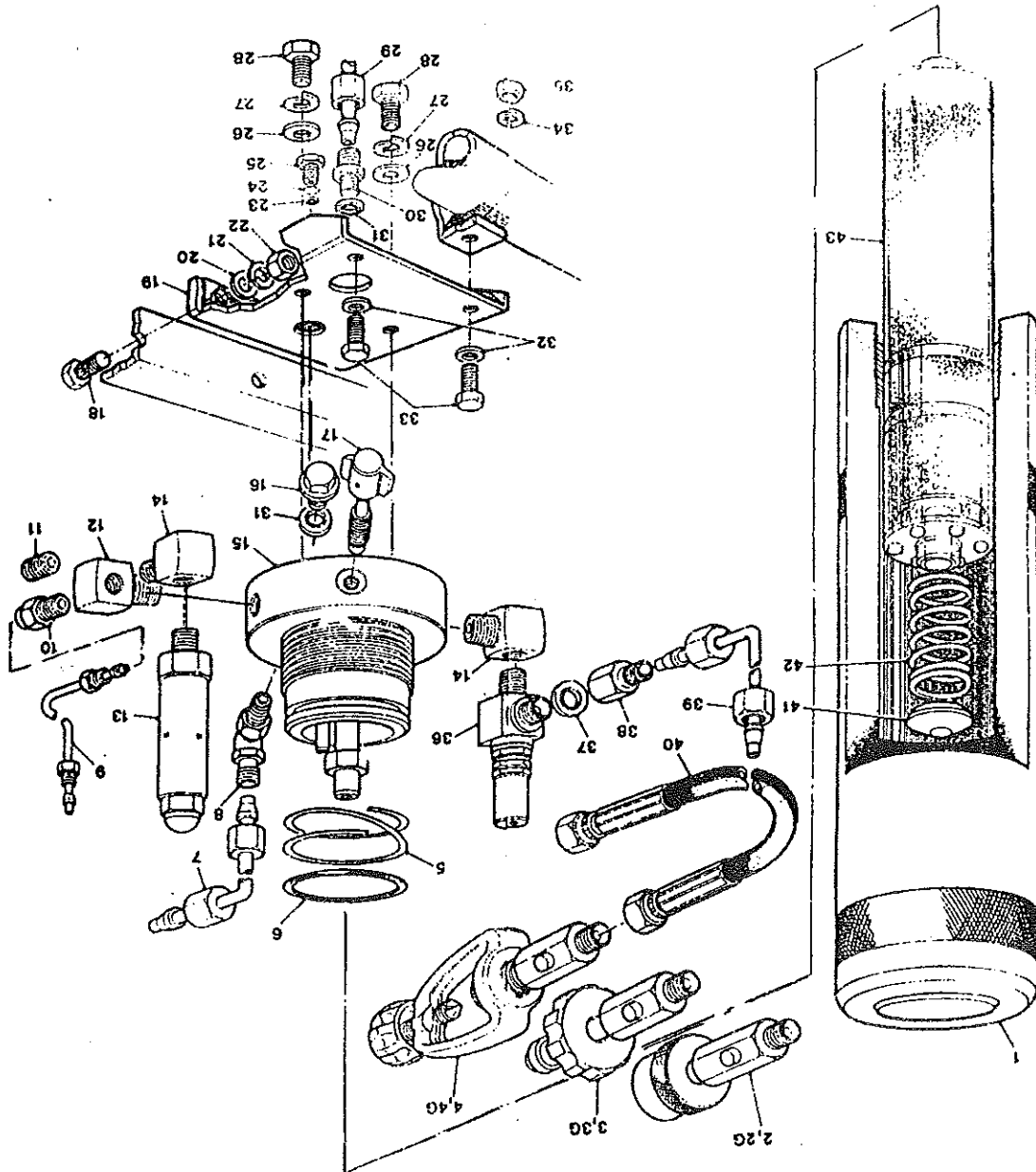
Replace top spring and spring cap.

Replace shell making sure that the helix extrusion washer and 'o'ring are properly seated in their respective grooves. NB. THE HELIX IS LEFT HANDED AND SHOULD ANY DAMAGE OCCUR DURING THIS OPERATION BOTH COMPONENTS MUST BE RENEWED.

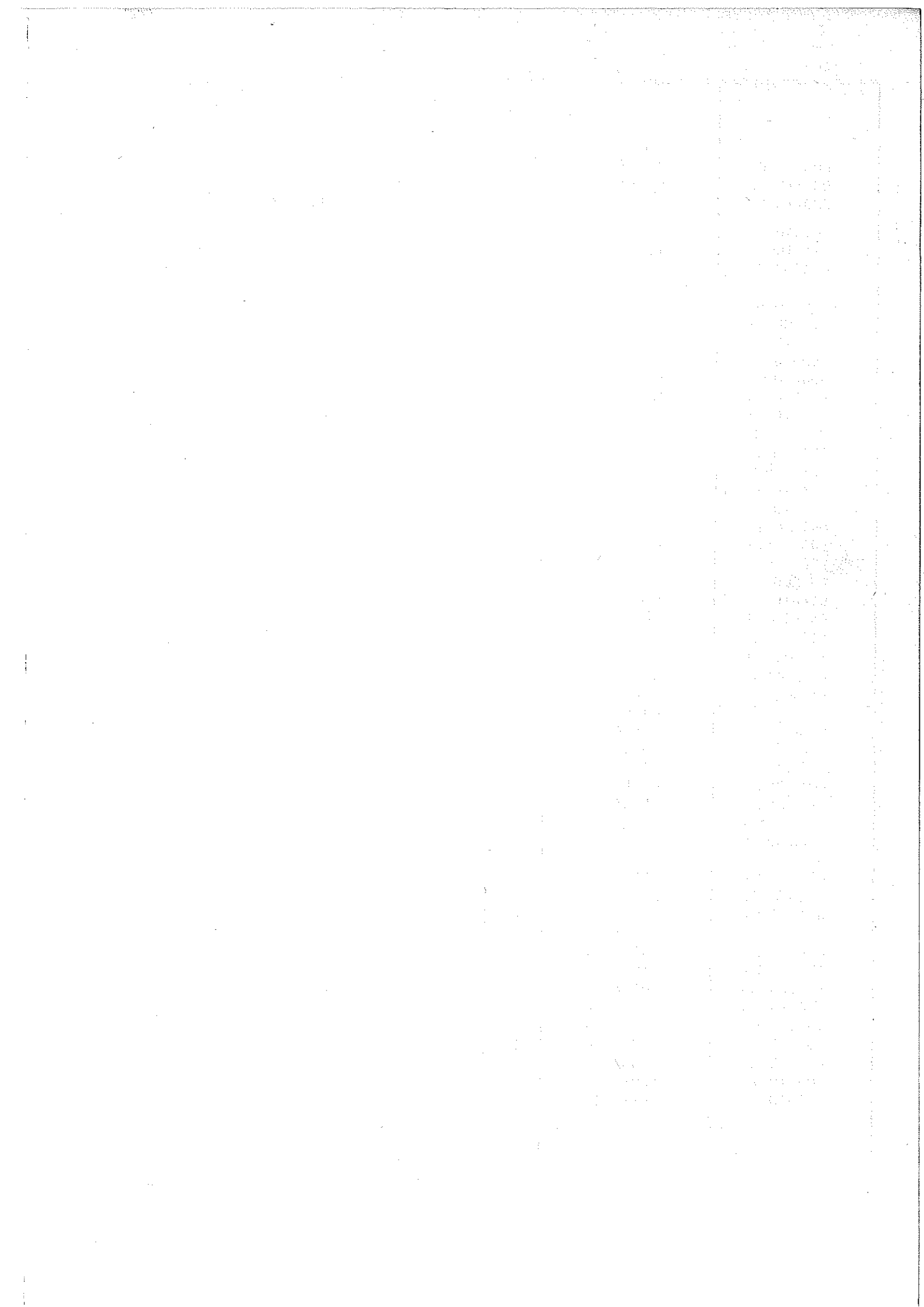
Place 1/1000th feeler gauge on face of base, screw shell down onto feeler, release slightly, remove feeler and screw shell down HAND TIGHT ONLY onto base.

NOTE. On early production filtration systems the filter elements consisted of loose quantities of chemicals, but these have now been replaced by the cartridge elements, which are interchangeable with the former contents.



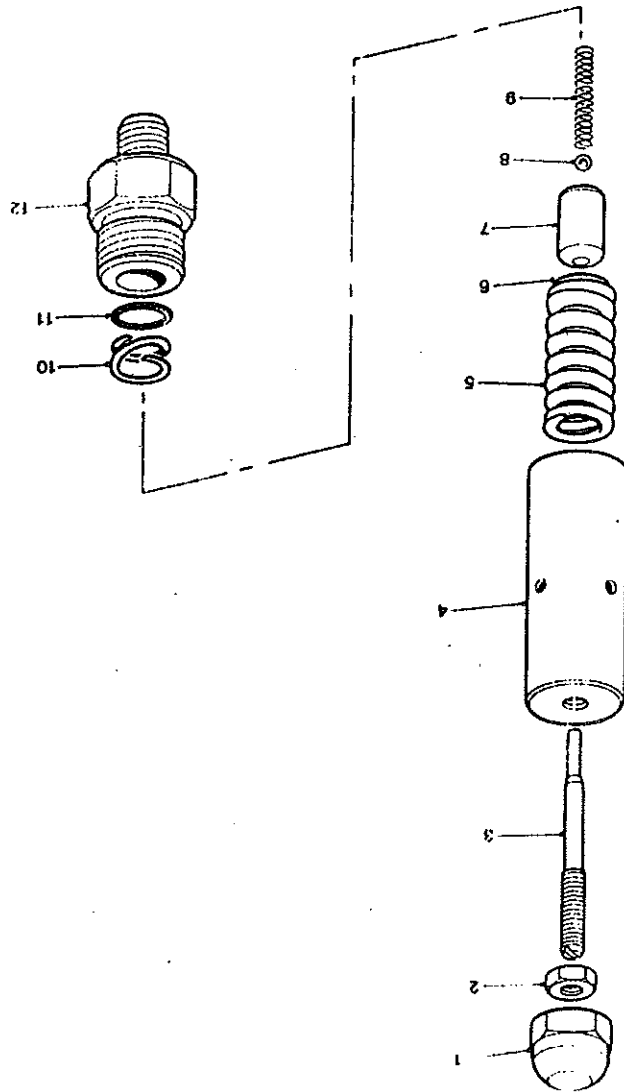


| ITEM NO | DESCRIPTION | NO. OFF | PART NUMBER |
|---------|---|---------|----------------|
| 1 | FILTER CASE | 1 | 98261/1106 |
| 2 | CHARGING ADAPTOR - SIEBE | 1 | 13-012800 |
| 3 | CHARGING ADAPTOR - D.I.N. | 1 | 13-012700 |
| 4 | CHARGING CLAMP | 1 | 13-012100 |
| 5 | ANTI EXTRUSION RING | 1 | 13-015709 |
| 6 | 'O'RING, 2 1/2" X 2 1/2" | 1 | 13-015708 |
| 7 | TUBE ASSEMBLY COMPRESSOR FILTER | 1 | 13-035701 |
| 8 | ELBOW 1/2" BSP TUBE | 1 | 13-017707 |
| 9 | TUBE ASSEMBLY FILTER-GAUGE | 1 | 13-035710 |
| 10 | ADAPTOR 1/2" BSP T 4mm TUBE | 1 | 13-035709 |
| 11 | BLANK PLUG | 1 | 13-035708 |
| 12 | CONNECTING BLOCK 1/2" M X 1/2" F X 1/2" F | 1 | 13-015717 |
| 13 | SAFETY VALVE | 1 | 13-013600 |
| 14 | CONNECTING BLOCK 1/2" M X 1/2" F | 1 | 13-015718 |
| 15 | FILTER BASE | 1 | 13-015701 |
| 16 | BLANK 1/2" BSP | 1 | 13-035711 |
| 17 | BLEED SCREW | 1 | 13-015710 |
| 18 | HEX BOLT M8 X 20 | 2 | 13-035702 |
| 19 | FILTER PLINTH | 1 | 13-035703 |
| 20 | PLAIN WASHER M8 | 2 | 13-015035 |
| 21 | SPRING WASHER M8 | 2 | 13-017703 |
| 22 | NUT M8 | 2 | 13-017704 |
| 23 | BURST DISC SEAL | 1 | 15-011910 |
| 24 | BURST DISC | 1 | 15-011909 |
| 25 | BURST PLUG | 1 | 13-015711 |
| 26 | PLAIN WASHER M10 | 2 | 13-015714 |
| 27 | SPRING WASHER M10 | 2 | 13-015715 |
| 28 | HEX BOLT M10 X 25 | 2 | 13-015713 |
| 29 | DRAIN TUBE | 1 | 13-035704 |
| 30 | COUPLING 1/2" BSP 1/2" TUBE | 1 | 13-035705 |
| 31 | BONDED SEAL 1/2" BSP | 2 | 13-035706 |
| 32 | PLAIN WASHER M6 | 2 | 13-017749 |
| 33 | HEX BOLT M6 X 15 | 2 | 13-035707 |
| 34 | SPRING WASHER M6 | 2 | 13-017712 |
| 35 | NUT M6 | 2 | 13-017750 |
| 36 | PRESSURE MAINTAINING VALVE | 1 | 13-013700 |
| 37 | BONDED SEAL 1/2" BSP | 1 | 13-013703 |
| 38 | COUPLING 1/2" BSP (F) 1/2" TUBE | 1 | 13-017721 |
| 39 | TUBE ASSEMBLY FILTER-PANEL | 1 | 13-035713 |
| 40 | 4" HOSE 1/2" BSP 1/2" BSP | 1 | 13-027000 |
| 41 | SPRING CAP | 1 | 13-015707 |
| 42 | CARTRIDGE SPRING | 1 | 13-015706 |
| 43 | CARTRIDGE (SEALED) | 1 | 13-035712 |
| 44 | 'O'RING 1/2" X 1/2" | 1 | 15-011303 |
| 45 | CHEMICAL (RE-CHARGE PACK) | 1 | On application |
| 46 | CARTRIDGE | 1 | 13-015722 |
| 47 | FELT PAD 2.1/8" DIA | 2 | 13-015712 |
| * | CARTRIDGE COMPRESSION PLATE | 1 | 13-015705 |
| 26 | CHARGING ADAPTOR WITH GAUGE | | 13-013000 |
| 36 | CHARGING ADAPTOR WITH GAUGE | | 13-012900 |
| 46 | CHARGING ADAPTOR WITH GAUGE | | 13-012200 |



SAFETY VALVE - 98261/1114

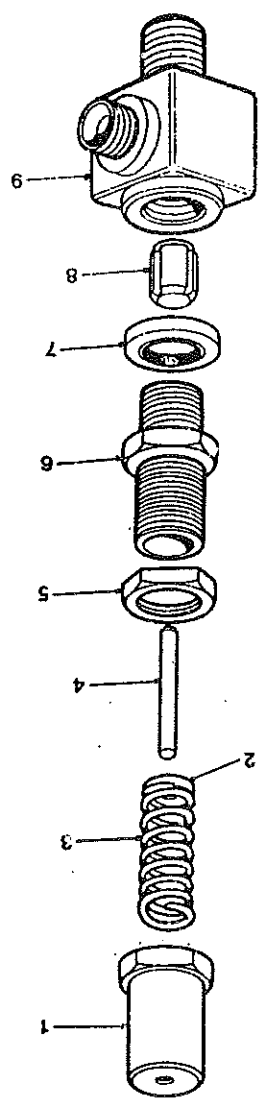
13-013600



| ITEM NO | DESCRIPTION | QTY | PART NUMBER |
|---------|----------------------------|-----|------------------------|
| 1 | VALVE COMPLETE | 1 | 98261/1114 - 13-013600 |
| 2 | LOCKNUT | 1 | 1155 - 13-013612 |
| 3 | SCREW - PRESSURE ADJUSTING | 1 | 1156 - 13-013611 |
| 4 | HOUSING | 1 | 1157 - 13-013610 |
| 5 | SPRING - PRESSURE | 1 | 1158 - 13-013609 |
| 6 | SPRING CAP | 1 | 1159 - 13-013608 |
| 7 | PISTON | 1 | 1160 - 13-013607 |
| 8 | BALL | 1 | 1161 - 13-013606 |
| 9 | SPRING - SEAL RETAINING | 1 | 1162 - 13-013605 |
| 10 | ANTI EXTRUSION RING | 1 | 1163 - 13-013604 |
| 11 | O-RING | 1 | 1164 - 13-013603 |
| 12 | HEX BODY | 1 | 1165 - 13-013602 |
| | | | 1166 - 13-013601 |

PRESSURE MAINTAINING VALVE 98261/1130

13-013700



| ITEM NO. | DESCRIPTION | QTY | PART NO. |
|----------|-----------------|-----|------------------------|
| 1 | VALVE COMPLETE | 1 | 98261/1130 - 13-013700 |
| 2 | ADJUSTER | 1 | " 1146 - 13-013709 |
| 3 | SPRING CAP | 1 | " 1147 - 13-013707 |
| 4 | SPRING | 1 | " 1148 - 13-013708 |
| 5 | PLUNGER | 1 | " 1149 - 13-013704 |
| 6 | LOCKNUT | 1 | " 1150 - 13-013706 |
| 7 | PLUNGER HOUSING | 1 | " 1151 - 13-013705 |
| 8 | BONDED SEAL | 1 | " 1152 - 13-013703 |
| 9 | PISTON | 1 | " 1153 - 13-013702 |
| | VALVE BODY | 1 | " 1154 - 13-013701 |

Failure of compressor to unload or drain properly or a constant leakage of air from the dump block drain indicates a dump block piston malfunction. This can be rectified by completely dismantling the dump block, cleaning and renewing dump block piston 'O' rings.

Ensure gaskets and 'O' rings are properly seated and all assembly screws correctly tightened.

MAINTENANCE

Activating first stage air pressure is controlled by a solenoid pilot unloader valve mounted on the dump block. This solenoid is wired into the compressor starter to unload the compressor during starting and stopping.

Absence of servo air pressure allows dump valve pistons to open and air and condensate to vent.

The dump block functions as an unloader at start up and shut down, and as a drain valve whilst the compressor is running.

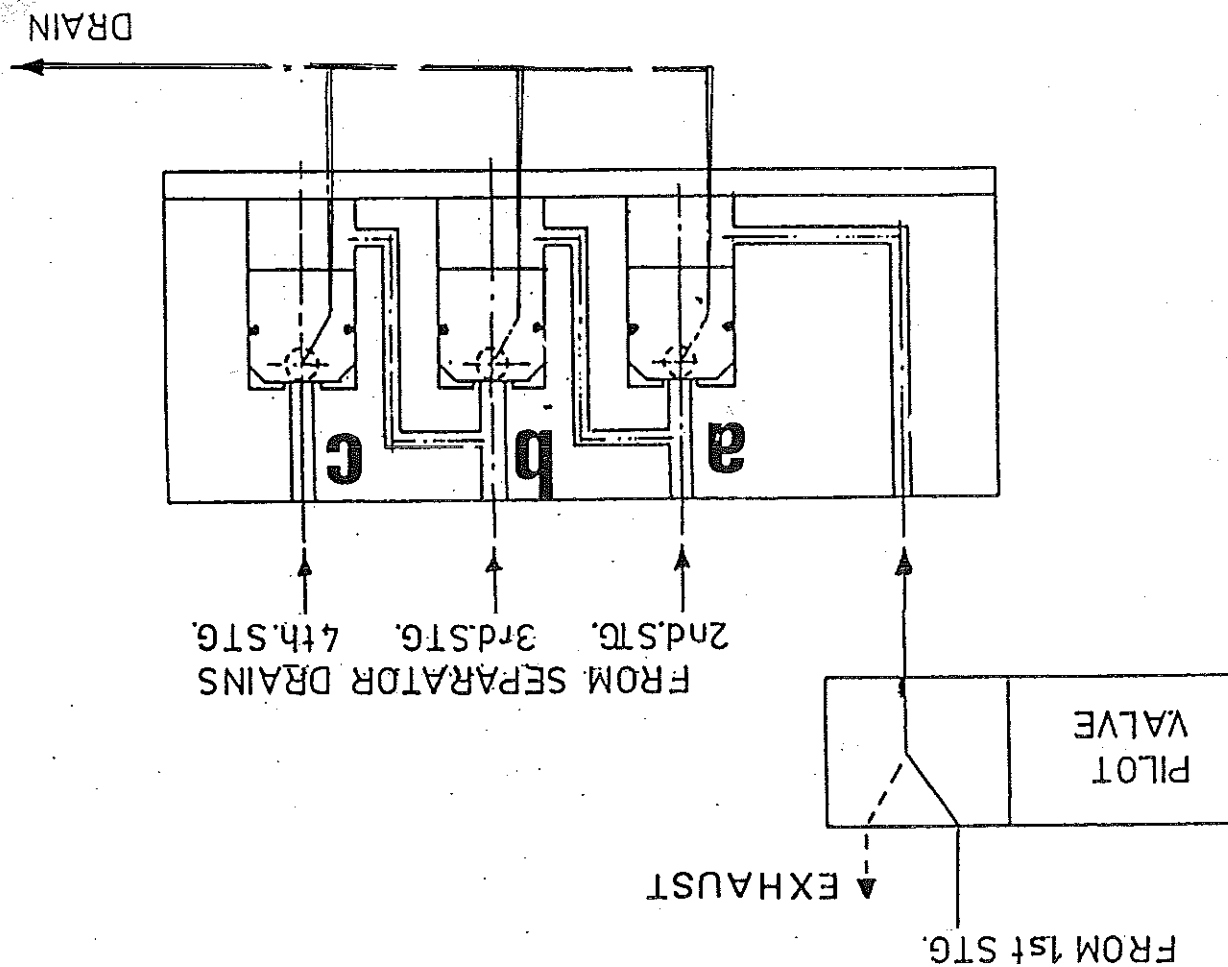
In the dump block, servo air pressure activates a piston which seals off any escape of air from the compressor second stage. Subsequently second stage pressure activates another piston which seals off the third stage, and for a four stage layout, this operation is further repeated. In this condition all drains are sealed and the compressor runs on load.

SYSTEM

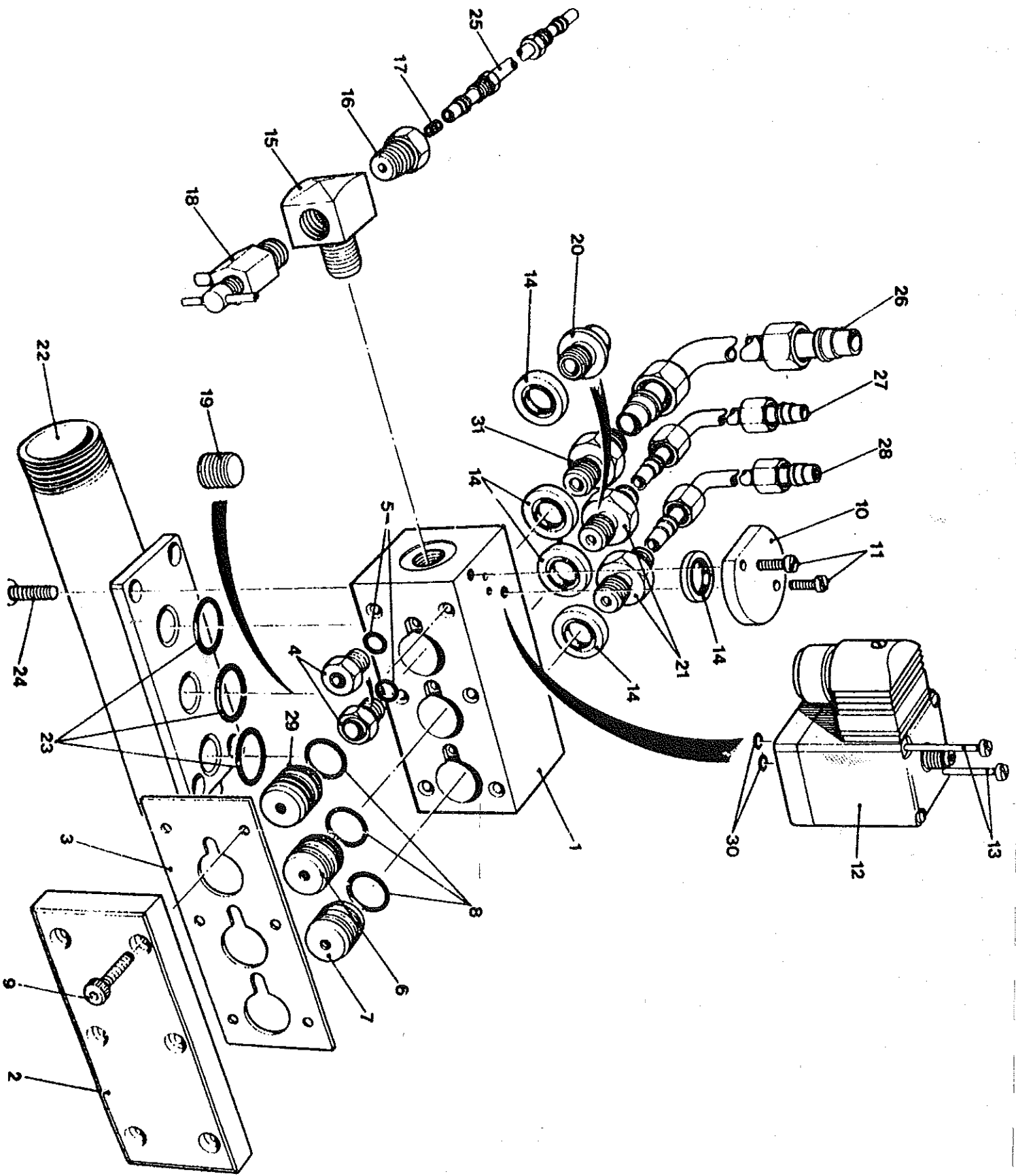
CONDENSATE DUMPING BLOCK

3. SCHEMATIC ARRANGEMENT OF DUMP VALVE

STOP START CONTROL



| | | | | |
|---------|--------|---------|-------|---------|
| MACHINE | 5404/5 | 2 STAGE | BLANK | 3 STAGE |
| A | B | C | | |



| ITEM NO. | DESCRIPTION | QTY | PART NUMBER |
|----------|---|-----|-------------|
| 1 | BLOCK, MARK 2 | 1 | 98261/1270 |
| 2 | PLATE | 1 | "/1271 |
| 3 | GASKET | 1 | "/1272 |
| 4 | LOW PRESSURE SEAT | 1 | "/1273 |
| 5 | 'O'RING, $\frac{8}{32}$ " X $\frac{3}{16}$ " | 1 | "/1274 |
| 6 | PISTON - INTERMEDIATE PRESSURE | 1 | "/1275 |
| 7 | PISTON - HIGH PRESSURE | 1 | "/1276 |
| 8 | 'O'RING, $\frac{8}{32}$ " X $\frac{3}{16}$ " | 2 | "/1277 |
| 9 | CAP HEAD SCREW 2BA X $\frac{3}{8}$ " | 6 | "/1278 |
| 10 | BLANK PLATE | 1 | "/1051 |
| 11 | SCREW | 2 | "/1052 |
| 12 | SOLENOID 240 VOLT | 1 | "/1062 |
| 13 | SOLENOID 110 VOLT | 1 | "/1063 |
| 14 | BONDED SEAL, $\frac{3}{8}$ " BSP | 4 | "/1054 |
| 15 | CONNECTING BLOCK | 1 | "/1047 |
| 16 | ADAPTOR, $\frac{3}{8}$ " M - 4mm | 1 | "/1048 |
| 17 | RESTRICTOR | 1 | "/1049 |
| 18 | MANUAL BLEED VALVE | 1 | "/1050 |
| 19 | BLANK, $\frac{3}{8}$ " BSP | 1 | "/1055 |
| 20 | BLANK, $\frac{3}{8}$ " BSP | 1 | "/1056 |
| 21 | ADAPTOR, $\frac{3}{8}$ " M - $\frac{3}{8}$ " TUBE | 2 | "/1053 |
| 22 | C.O.V. MOUNT | 1 | "/1042 |
| 23 | 'O'RING, $\frac{3}{8}$ " X $\frac{3}{8}$ " | 2 | "/1044 |
| 24 | CAP HEAD SCREW 6m X 16 | 4 | "/1281 |
| 26 | TUBE ASSEMBLY, FIRST STAGE TO CDV | 1 | "/1059 |
| 27 | TUBE ASSEMBLY, SECOND STAGE TO CDV | 1 | "/1060 |
| 28 | TUBE ASSEMBLY, THIRD STAGE TO CDV | 1 | "/1061 |
| 29 | 'O'RING, 1.5 X 3.5 mm | 2 | "/1287 |
| | | | 13-021020 |
| | | | 13-021002 |
| | | | 13-021003 |
| | | | 13-021031 |
| | | | 13-014801 |
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| | | | 13-013703 |
| | | | 13-015717 |
| | | | 13-018168 |
| | | | 13-036950 |
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| | | | 13-034888 |
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| | | | 13-036948 |
| | | | 13-034892 |
| | | | 13-034895 |
| | | | 13-034897 |
| | | | 13-021009 |

13-034801 (Not Illustrated)

LOCATION: Illustration A, Item B

FRAME ASSEMBLY 98261-1001

| DESCRIPTION | QTY | PART NUMBER |
|---------------------------------|-----|-------------|
| FRAME | 1 | 98261/1002 |
| ANTI VIBRATION MOUNTINGS | 4 | "/1003 |
| BOLT M12 X 40 | 4 | "/1004 |
| WASHER M12 | 4 | "/1005 |
| FRAME FOOT | 4 | "/1006 |
| WASHER M8 | 4 | "/1007 |
| NUT M8 | 4 | "/1008 |
| MOTOR ADJUSTING SCREW, M10 X 50 | 1 | "/1009 |
| NUT M10 | 1 | "/1010 |
| 13-034802 | | 13-035300 |
| 13-037132 | | 13-036904 |
| 13-017702 | | 13-015035 |
| 13-017704 | | 13-017704 |
| 13-036979 | | 13-036979 |
| 13-036106 | | 13-036106 |

13-034810 (Not Illustrated)

LOCATION: Illustration A, Item P

MOTOR PLATE ASSEMBLY 98261/1011

| DESCRIPTION | QTY | PART NUMBER |
|---------------|-----|-------------|
| MOTOR PLATE | 1 | 98621/1012 |
| BOLT M10 X 20 | 2 | "/1013 |
| BOLT M10 X 25 | 1 | "/1014 |
| WASHER M10 | 3 | "/1015 |
| NUT M10 | 1 | "/1010 |
| 13-034811 | | 13-034811 |
| 13-034812 | | 13-034812 |
| 13-034813 | | 13-034813 |
| 13-015714 | | 13-015714 |
| 13-036106 | | 13-036106 |

13-034865 (Not Illustrated)

LOCATION: Illustration A, Item G

GUARD ASSEMBLY 5404 - 98261/1016
5405 - 98261/1017

| DESCRIPTION | QTY | PART NUMBER |
|---------------------|-----|-------------|
| GUARD REAR PANEL | 1 | 98261/1018 |
| GUARD FRONT PANEL | 1 | "/1019 |
| GUARD END PANEL | 2 | "/1020 |
| MOTOR COVER PLATE | 1 | "/1021 |
| BRACKET SPACER | 1 | "/1022 |
| GUARD BRACKET 5404 | 1 | "/1023 |
| GUARD BRACKET 5405 | 1 | "/1024 |
| POP RIVETS 1/8" | 10 | "/1025 |
| SELF TAPPING SCREWS | 6 | "/1026 |
| PAN HEAD SCREWS | 4 | "/1027 |
| BOLT M6 X 20 | 1 | "/1028 |
| WASHER M6 | 3 | "/1029 |
| NUT M6 | 1 | "/1030 |
| BOLT M6 X 15 | 2 | "/1031 |
| 13-034866 | | 13-034866 |
| 13-034867 | | 13-034867 |
| 13-034869 | | 13-036917 |
| 13-034870 | | 13-034870 |
| 13-034872 | | 13-034872 |
| 13-034909 | | 13-034909 |
| 13-017739 | | 13-017739 |
| 13-036931 | | 13-036931 |
| 13-017746 | | 13-017746 |
| 13-036933 | | 13-036933 |
| 13-017749 | | 13-017749 |
| 13-017750 | | 13-017750 |
| 13-034871 | | 13-034871 |

P BLAST TUBE ASSEMBLY 98261/1032 13-034880 (Not Illustrated) LOCATION: Illustration A, Items O and M

| DESCRIPTION | QTY | PART NUMBER |
|------------------------------|-----|-------------|
| BLAST TUBE | 1 | 98261/1032 |
| REDUCING SOCKET | 1 | 13-034882 |
| OUTLET PIPE | 1 | 13-036943 |
| FLEXIBLE EXHAUST PIPE | 1 | 13-017718 |
| BLANK | 1 | 13-036944 |
| CLIP | 2 | 13-017719 |
| "U" BOLT | 2 | 13-034884 |
| NUT | 4 | 13-036946 |
| WASHER | 4 | 13-015035 |
| CONDENSATE DRAIN VALVE MOUNT | 1 | 13-036947 |
| CAP HEADED SCREW M6 X 15 | 4 | 13-036945 |
| O-RING | 3 | 13-036949 |

Q CHARGING PANEL ASSEMBLY 98261/1065 13-036957 (Not Illustrated) LOCATION: Illustration A, Item E

| DESCRIPTION | QTY | PART NUMBER |
|--|-----|-------------|
| PANEL | 1 | 98261/1066 |
| GAUGE | 2 | 13-036923 |
| LABEL - COMPRESSOR PRESSURE | 1 | 13-017737 |
| LABEL - CHARGING PRESSURE | 1 | 13-036968 |
| GAUGE CLIP | 2 | 13-036924 |
| POP RIVET 1/8" | 4 | 13-017739 |
| LINE VALVE | 2 | 13-013800 |
| ADAPTOR, 1/4" M - 1/4" TUBE | 3 | 13-036962 |
| ADAPTOR, 1/4" M - 1/4" CORE | 2 | 13-036963 |
| FOUR WAY BLOCK | 1 | 13-027500 |
| SCREW 2BA X 1 1/2 | 2 | 13-01075 |
| NUT 2BA | 2 | 13-018180 |
| WASHER 2BA | 2 | 13-018179 |
| WASHER 8 mm | 2 | 13-015035 |
| ELBOW 1/4" M - 1/4" TUBE | 2 | 13-017707 |
| ADAPTOR 1/4" M - 4 mm TUBE | 1 | 13-018168 |
| PIPE ASSEMBLY (SHORT) 4-WAY S.O.V. | 1 | 13-036959 |
| PIPE ASSEMBLY (LONG) 4-WAY S.O.V. | 1 | 13-036960 |
| PIPE ASSEMBLY GAUGE 4-WAY | 1 | 13-036961 |
| PIPE ASSEMBLY GAUGE FILTER SYSTEM | 1 | 13-035710 |
| CHARGING HOSE | 2 | 13-027000 |
| CHARGING ADAPTOR, 200 BAR (as required) | " | 13-012500 |
| CHARGING ADAPTOR WITH BLEED, 200 BAR (as required) | " | 13-012700 |
| CHARGING ADAPTOR, 300 BAR | " | 13-029000 |
| CHARGING ADAPTOR WITH BLEED, 300 BAR | " | 13-030700 |
| CHARGING ADAPTOR, SIEBE | " | 13-012600 |
| CHARGING ADAPTOR WITH BLEED, SIEBE | " | 13-012800 |
| CHARGING CLAMP | " | 13-012000 |
| CHARGING CLAMP WITH BLEED | " | 13-012100 |

R COMPRESSOR FITTING KIT(5404/5) 98261/1092 13-034874 (Not Illustrated)

| DESCRIPTION | QTY | PART NUMBER |
|---------------------------|-----|-------------|
| BOLT M8 X 30 | 4 | 98261/1094 |
| WASHER M8 | 4 | 13-015035 |
| NUT M8 | 4 | 13-017704 |
| ADAPTOR 5/16" - 1/4" TUBE | 1 | 13-036969 |

S MOTOR FITTING KIT (5404) 98261/1096 13-034878 (Not Illustrated)
 MOTOR FITTING KIT (5405) 98261/1097 13-034906

| DESCRIPTION | QTY | PART NUMBER |
|---------------|-----|-------------|
| BOLT M10 X 35 | 4 | 98261/1098 |
| WASHER M10 | 4 | 13-015714 |
| NUT M10 | 4 | 13-036106 |
| PULLEY 5404 | 1 | 13-034850 |
| PULLEY 5405 | 1 | 13-034907 |
| V-BELT | 2 | 13-034851 |

T ENGINE FITTING KIT 98261/1102 13-034852 (Not Illustrated)

| DESCRIPTION | QTY | PART NUMBER |
|--------------|-----|-------------|
| BOLT M8 X 45 | 4 | 98261/1103 |
| WASHER M8 | 4 | 13-015035 |
| NUT M8 | 4 | 13-017704 |
| PULLEY | 1 | 13-034855 |
| V-BELT | 2 | 13-034851 |

