CompAir

CompAir UK Ltd

OPERATOR MANUAL

For a

H5211

Air Cooled Air Compressor

In any correspondence please quote;

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CUSTOMER:-
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OPERATOR HANDBOOK FOR A 5211.2.IA. AIR-COOLED COMPRESSOR

1 SAFETY

5000 SERIES COMPRESSORS

WARNING

The use of replacement parts or lubricating oils not supplied, recommended or approved by **CompAir UK Ltd Ipswich**, or the failure to maintain this equipment in accordance with the maintenance instructions, may invalidate the WARRANTY, cause equipment failure, create unsafe or hazardous conditions or result in damage to the equipment.

CompAir UK Ltd Ipswich cannot accept responsibility for damage, injury or failure caused by these situations.

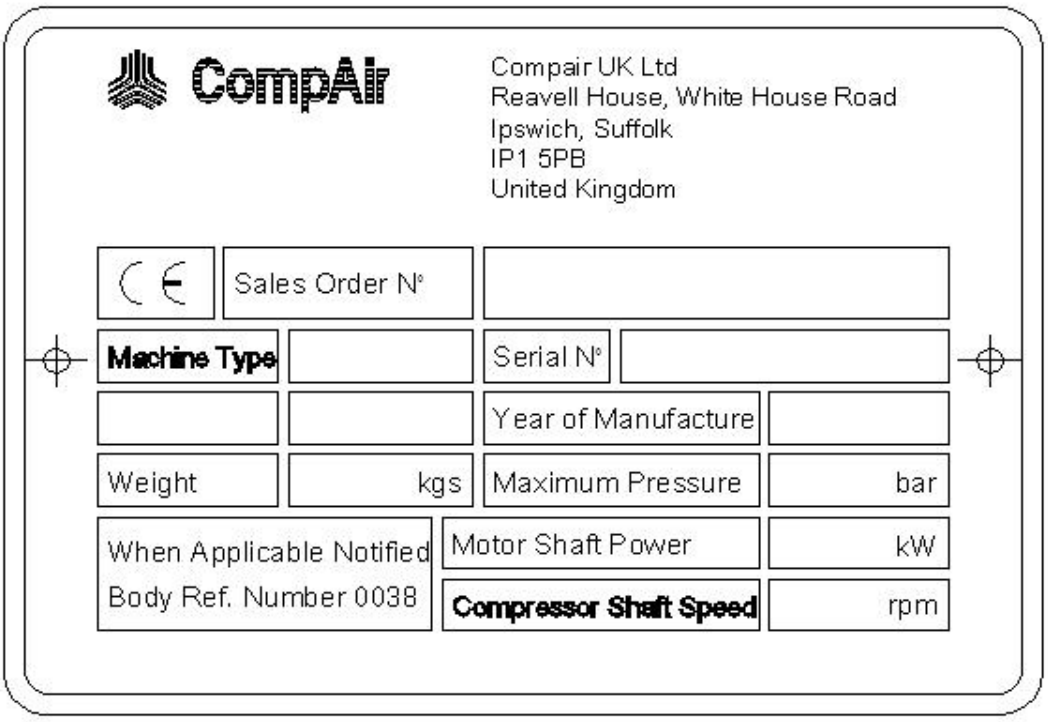
USE ONLY

CompAir UK Ltd Ipswich

GENUINE PARTS
AND
AUTHORISED SERVICE AGENTS

1.1 OWNERSHIP DATA

TECHNICAL DATA
It is recommended that details taken from the compressor and motor nameplates are recorded below.



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For any comments or queries about the contents of this manual, please write to CompAir UK Ltd. at the above address, marked for the attention of Mr. Owen Dale, Technical Author.

1.2 FOREWORD

SPECIAL ATTENTION
The **STANDARD BUILD** of all CompAir UK Ltd (Ipswich Operations) products are not intended for use in either Explosive or Potentially Explosive Atmospheres as defined in Directive 95/9/EC.

An Explosive atmosphere is a mixture with air, under atmospheric conditions, of flammable gases, vapours, hazes or dusts in which, after ignition has occurred, combination propagates to the entire unburned mixture and may cause a hazard.

A Potential Explosive atmosphere is an atmosphere, which could become explosive due to local conditions.

CompAir UK Ltd Ipswich H5000 Series compressors are designed and manufactured to give optimum performance, with long life and reliability.

This Manual will help you to obtain the best performance from your compressor. It provides the information required to install, commission and operate the compressor and carry out regular maintenance schedules, which will ensure the maximum satisfactory service life.

Included within the Manual is a comprehensive Parts List to allow the user to order spare parts for servicing.

Servicing facilities and the supply of genuine replacement parts are provided through a world-wide network of CompAir companies and CompAir UK Ltd. distributors, backed by the **Service tel+44 (0)1473 242097 and Parts department tel (+44 (0) 1473 242000) Fax (+44 (0) 1473 743468 and Sales (+44 (0) 1473 242000 Fax (+44 (0) 1473 743482 at CompAir UK Ltd., Ipswich (UK)**

The information in this Manual was correct at the time of printing but modifications to parts and procedures may be made without notice which could affect the servicing requirements of the compressor. Before any servicing or maintenance work is undertaken the user is advised to contact the local CompAir Company or CompAir UK Ltd Distributor for revised or up-dated information.

In any communication concerning the compressor it is essential to quote the MODEL, SERIAL No. and any CONTRACT Ref.

It is important this Manual is retained with the compressor for reference and should remain with the compressor if it is sold or transferred to another user. Ensure that the new user is made fully aware of the need to study the Safety Section and any Warnings for safe operation given throughout the text.

Protect the environment by using only approved method of disposal of condensates lubricating oil etc.

Please note:

a. Throughout the Manual all pressures quoted are gauge pressures.

b. Whilst recyclable materials are used as far as possible, please ensure when disposing of condensate, spent oil, used filter elements and any discarded parts or waste material of any kind make sure that there is no pollution to any natural water-course, drain system and that no burning waste takes place which could cause pollution of the atmosphere.

1.3 CAUTION

Use only **CompAir UK Ltd Ipswich Genuine Parts** when carrying out routine maintenance or repair. The use of replacement parts or lubricating oils not supplied or recommended by **CompAir UK Ltd Ipswich** can lead to expensive failures, which will not be covered by warranty.

Substitution of parts not manufactured or approved by CompAir UK Ltd Ipswich can create a potential personnel hazard.

This is a High Pressure Compressor, for safe and reliable operation use only genuine CompAir UK Ltd Ipswich Parts

To ensure continued trouble free operation it is important that periodic servicing is carried out in accordance with the information given in this manual - refer to the “Maintenance Section”.

Conditions of CompAir UK Ltd Ipswich warranty are stated in our Conditions of Sale. Details of warranty for a particular unit may be obtained from the local CompAir Company or authorised Distributor.

1.4 SAFETY PROCEDURES

- **WARRANTY**
  The Conditions of the CompAir UK Ltd Ipswich Warranty are set out in the Standard Conditions of Sale.

- **MAINTENANCE**
  To ensure continued trouble free operation of the compressor it is important that periodic maintenance and servicing are carried out in accordance with the information given in the "Maintenance" section of this Manual. If any replacement or repair is needed use genuine CompAir UK Ltd Ipswich parts.

* ***WARNING***
  The use of replacement parts or lubricating oils not supplied or approved by CompAir UK Ltd Ipswich may lead to failures in service which would not be covered by warranty.

Any unauthorised modifications or failure to maintain this equipment in accordance with maintenance instructions may make it unsafe. ***The use of replacement parts not supplied by CompAir UK Ltd Ipswich may create hazardous conditions over which CompAir UK Ltd Ipswich has no control.***

Such hazardous conditions may lead to accidents that can be life threatening, cause substantial bodily injury or result in damage to the equipment. ***CompAir UK Ltd Ipswich can bear no responsibility for equipment for which unapproved replacement parts are included.***

SPECIAL NOTE:

THE FOLLOWING HEALTH AND SAFETY PRECAUTIONS MUST BE READ IN CONJUNCTION WITH ANY OTHER MANUFACTURERS EQUIPMENT SUPPLIED.

1.4.1 GENERAL

CompAir UK Ltd Ipswich compressor safety relates to the document BS EN1012-1 Compressors and Vacuum Pumps - Safety requirements and the UK Pressure Systems Health & Safety Regulations S.I. No. 128.

- Most accidents which occur during the operation and maintenance of machinery result of failure to observe basic safety rules or precautions. Recognising a situation that is potentially hazardous can often prevent an accident.

- When handling, operating or carrying out maintenance on the unit, personnel must observe safe engineering practices and all relevant local regulations. The attention of users is drawn to the Health and Safety at Work Act 1974, and the regulations of the Institution of Electrical Engineers.

- CompAir *UK Ltd* cannot anticipate every possible circumstance, which might represent a potential hazard. The WARNINGS in this manual are therefore not all inclusive. If the user employs an operating procedure, an item of equipment or a method of working which is not specifically recommended by CompAir *UK Ltd* then they must ensure that the unit will not be damaged or made unsafe and that there is no risk to persons or property.

- Failure to observe these precautions given under "Safety Precautions" may be considered dangerous practice or misuse of the compressor

- Read and understand all WARNINGS, CAUTION AND MANDATORY LABELS on the unit before operating or carrying out maintenance or servicing.

1.4.2 WARNINGS, CAUTIONS & NOTES

The following details for this Safety Section relate to ESSENTIAL SAFETY REQUIREMENTS referred to in Machinery Directive 89/392/EEC, Amended 91/286/EEC.

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* Warnings call for attention to operating procedures involving specific hazards which could cause injury or death and are identified by the following

RISK OF DANGER

RISK OF HIGH PRESSURE

RISK OF GAS EXHAUST

RISK OF ELECTRIC SHOCK

RISK OF HOT SURFACE

CONSULT MANUAL

1.4.3 GENERAL SAFETY PRECAUTIONS

- When using cleaning solvents, local Health and Safety Regulations must be complied with. Provide good ventilation and use suitable protection such as a breathing filter mask, safety glass, protective apron and gloves.
- Safety footwear should be compulsory in all workshops. Safety helmets must be worn if there is any risk of falling objects.
- If using compressed air for cleaning purposes, ensure safety regulations are complied with and appropriate clothing worn.
- Never direct compressed air onto your skin or at other people. Never use compressed air to clean loose dirt from clothing.
- Before releasing compressed air through a hose make sure the free end is held securely so that it cannot whip and cause injury.
- Avoid injury by using a hoist to lift heavy loads. Check that all chains, hooks, shackles and slings are in good condition and are of the correct capacity. They must be tested and approved according to local safety regulations.
- Cables, chains or ropes should never be applied to lifting eyes. Always use an appropriate shackle or hook, properly positioned. Arrange lifting cables so that there are no sharp bends. Use a spreader bar to avoid side loads on hooks, eyes and shackles and never leave a heavy load unattended.
- When a load is on a hoist stay clear of the danger area beneath and around it. Keep lifting acceleration and speed within safe limits.

1.4.4 INSTALLATION PRECAUTIONS

- Competent personnel under a qualified supervisor must only carry out installation work.
- A fused isolator switch must be fitted between the main power supply and the compressor.
- Precautions must be taken to ensure that no injury is caused to passers-by through loose clothing being sucked into compressor intake.
- Ensure that the discharge pipe from the compressor to the user pipework, receiver or storage is free to expand and that no flammable material is within the vicinity. If any such material is close-by take steps to preclude ignition.
- A manual shut-off valve should be fitted in the discharge line to allow the compressor to be isolated. Non return valves cannot be relied upon for isolating parts from a pressure system. A safety valve must be installed between any compressor unit and the isolating valve.
- A pressure-reliving device must be fitted to every pressure vessel, or equipment containing air or gas above atmospheric pressure. Never remove or tamper with safety devices, guards or insulation fitted. In order to limit the risk of Legionnaires Disease, CompAir *UK LTD* advise caution with the use of cooling towers for water cooling the compressor. Closed circuit or direct mains cooling is preferred.
- Pipework or other parts with a surface temperature above 70°C, which may be accidentally touched in normal operation, must be guarded or insulated. Other high temperature pipework should be clearly marked and all pipework should be clearly marked.

1.4.5 OPERATIONAL PRECAUTIONS

- Competent personnel under a qualified supervisor must only operate the compressor.
- *Do not operate compressor with any removable inspection cover removed e.g. crankcase doors, valve covers etc.*
- Never remove or tamper with safety devices, guards or insulation materials.
- The compressor must only be operated at the supply voltage and frequency for which it is designed. Always isolate power before maintenance or servicing.
- When mains power is ON, lethal voltages are present in the electrical circuits and extreme caution is need when essential work is carried out on the electrical system. ***ALWAYS CONSULT A QUALIFIED ELECTRICIAN BEFORE ANY SUCH ESSENTIAL WORK.***

- Do not open starter compartment to touch electrical components while voltage is applied unless it is necessary for measurement, test or adjustment. Such work should always be carried out by a qualified. Electrician with appropriates tools and protection against an electrical hazard.
- If the unit is equipped with a Remote Control device, attach warning notices stating ***"THIS UNIT CAN BE STARTED REMOTELY"*** in prominent locations, one on the outside of the unit, the other inside the control compartment.
- As a further safeguard, take adequate precautions that no one is working or checking the unit before attempting to switch on remotely controlled equipment. Attach a ***"CHECK THAT ALL PERSONNEL ARE CLEAR OF UNIT BEFORE STARTING"*** or similar notice.
- Compressed air and gas piping, together with cooling water piping and other parts, with surface temperature greater than 70°C and may be accidentally touched, should be guarded or insulated.
- If there is any indication that the compressor is overheating it must be shutdown. (A high air or gas temperature switch is fitted as standard to guard against operating with excessive temperature). Beware of burns from hot oil and water when working on a unit recently shutdown.
- Do not operate the unit when guards provided for protection for all rotating and reciprocating parts have been removed for essential maintenance. Secure guards following any servicing or repair.
- Local noise regulations must be observed. Ear defenders are suggested by Noise at Work Regulations 1989 when the level is greater than 85 dB A at one meter. Be aware high noise levels can interfere with communication.

1.4.6 MAINTENANCE & REPAIR PRECAUTIONS

- Competent persons under qualified supervisor must carry out maintenance repair and modifications.
- The compressor will have a preserving oil applied to interior surfaces (Oil lubricated models). Oil free models will have desiccant bags in valve covers and distance pieces.
- Handling components such as seals, gaskets and diaphragms should not present a personnel hazard. Preservation oils again should not present a personnel hazard if handled under normal handling practices.
- Whilst compressors are asbestos free, treat all damaged gaskets as asbestos - when the Asbestos at work regulations apply.
- Viton 'O' seals under normal operating conditions are safe.
- However, should there be a fire within the compressor or these seals are likely to exceed a temperature of 300°C the material will decompose.

- **Degraded Viton gives off Hydrogen Fluoride fumes and if in contact with the skin an acid formed causes severe burns.**

- If Viton seals appear charred or gummy do not touch with unprotected hands: use neoprene or PVC gloves.
- Wash the area with limewater and avoid breathing any fumes. If contamination of the skin occurs washes with limewater and seeks medical advice.

Pre-Maintenance Operation

- Isolate the compressor from the main electrical supply. Lock the isolator in the OFF position and remove fuses.
- Attach a label ***" WORK IN PROGRESS - DO NOT APPLY VOLTAGE"***.
- Close the isolating valve between the compression unit and user's pipework. Close the isolating valve in the cooling water inlet pipe. Attach a label ***"WORK IN PROGRESS - DO NOT OPEN".***
- Check that all pressurised gas trapped in the system is released to atmosphere or safely to gas storage. Check that all pressure gauges register zero.
- Ensure that the cooling water system has been drained.
- Check that the drain valve on the delivery manifold is clear and gas pressure has been released.
- Check that all interstage drains are open to ensure any gas trapped between stages has been released.

- Stand clear of all valve covers when removing the securing screws.
- When removing valve covers for valve replacement, ensure a minimum of two threads is left engaged on the valve cover securing screws. Lever the valve cover until the 'O' seal is disengaged from the port in the cylinder head. Remove the securing screws and take out valve cover.
- ***Use only lubricating oils and greases approved by CompAir UK LTD to avoid potential hazards especially the risk of explosion or fire and the possibility of decomposition or generation of hazardous gases.***
- Always clean oil spills from the surrounding floor before and after maintenance work.
- Make sure all instructions concerning operation and maintenance are strictly followed and that the complete unit, with all accessories and safety devices, is kept in good order.
- The accuracy of pressure gauges and temperature switches should be regularly checked at least 13 month intervals and thoroughly examined at least every 48 months. They must be renewed or service exchanged when acceptable tolerances are exceeded.
- Protection devices should be tested at each regular service interval and replaced or service exchanged if not functioning correctly. The maximum pressure for safety valves under fault conditions is 1.10 times the set pressure, the set pressure being a minimum of 1.05 times the maximum operating pressure to ensure seat tightness.
- Never use a light source with an open flame for inspection.
- Before dismantling any part of the compressor be sure that all heavy movable parts are secure.
- After completion of any maintenance or repair ensure that no tools, loose items or rags are left on or inside the compressor.
- Do not use any flammable liquid to clean valves, filter elements, cooler passages, pipe bores or any component carrying a flow of air or gas during normal operation. If chlorinated hydrocarbon substances are used for cleaning, safety precautions must be taken against toxic vapours, which may be released.

DO NOT USE CARBON TETRACHLORIDE.

- Precautions must be taken against using acids, alkalis and chemical detergents for cleaning machined parts. These materials cause irritation and are corrosive to the skin, eyes, nose and throat. Avoid splashes and wear suitable protective clothing and safety glasses. Do not breathe mists. Ensure water and soap is readily available.
- When disposing of condensate, old oil, used filter elements and other parts and waste material of any kind make sure that there is no pollution to any drain or natural water course and that no burning of waste takes place which could cause pollution of the atmosphere.
- Keep the compressor clean at all times.
- Protect components and exposed openings by covering with a clean cloth or tape during repair or maintenance work.
- Protect the motor, intake, electrical and regulation components against the entry of moisture e.g. steam cleaning.
- Precautions must be taken when carrying out welding or any repair operation which generates flames or sparks. The adjacent components must be screened with non-flammable material and if oil present, the system must first be cleansed thoroughly by steam cleaning.
- Condensate (oil and water mixture from compression process) must be regarded as trade effluent and is therefore not suitable for discharge into a surface water sewer, soakaway or watercourse.

PROTECT THE ENVIRONMENT USE APPROVED METHODS OF DISPOSAL.

1.4.7 PRECAUTIONS IN THE EVENT OF FIRE

- Use extreme caution when handling components that have been subjected to fire or very high temperature. Some components may contain fluoroelastomer materials, which decompose under these conditions to form highly corrosive residues. Skin contact can cause painful and penetrating burns resulting in permanent skin and tissue damage.

2 AMENDMENTS

ISSUE No	REASON	DATE	PAGE No
1	NEW	JUNE 2001	ALL
2	NEW SERVICE PLAN	JAN 2009	31
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COMPRESSOR LOG SHEET											REF NO:		
COMPRESS0R			PRIME MOVER				INSTALLED AT:				OIL GRADE USED:		
TYPE:			TYPE:								CHECK OIL LEVEL		
SPEED:			POWER:								CHECK WATER IN/OUT TEMPS.		
SERIAL NO			DRIVE:				DATE INSTALLED:				CHECK COOLING FAN BLADES		
DATE	TIME	HRS RUN	STAGE TEMP °C	DELY TEMP °C	STAGE PRESSURES BAR / PSI					DELY PRESS. BAR/PSI	SERVICE PLAN NUMBER	REMARKS. SEE OVER FOR MORE	SIGNED
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		1000											
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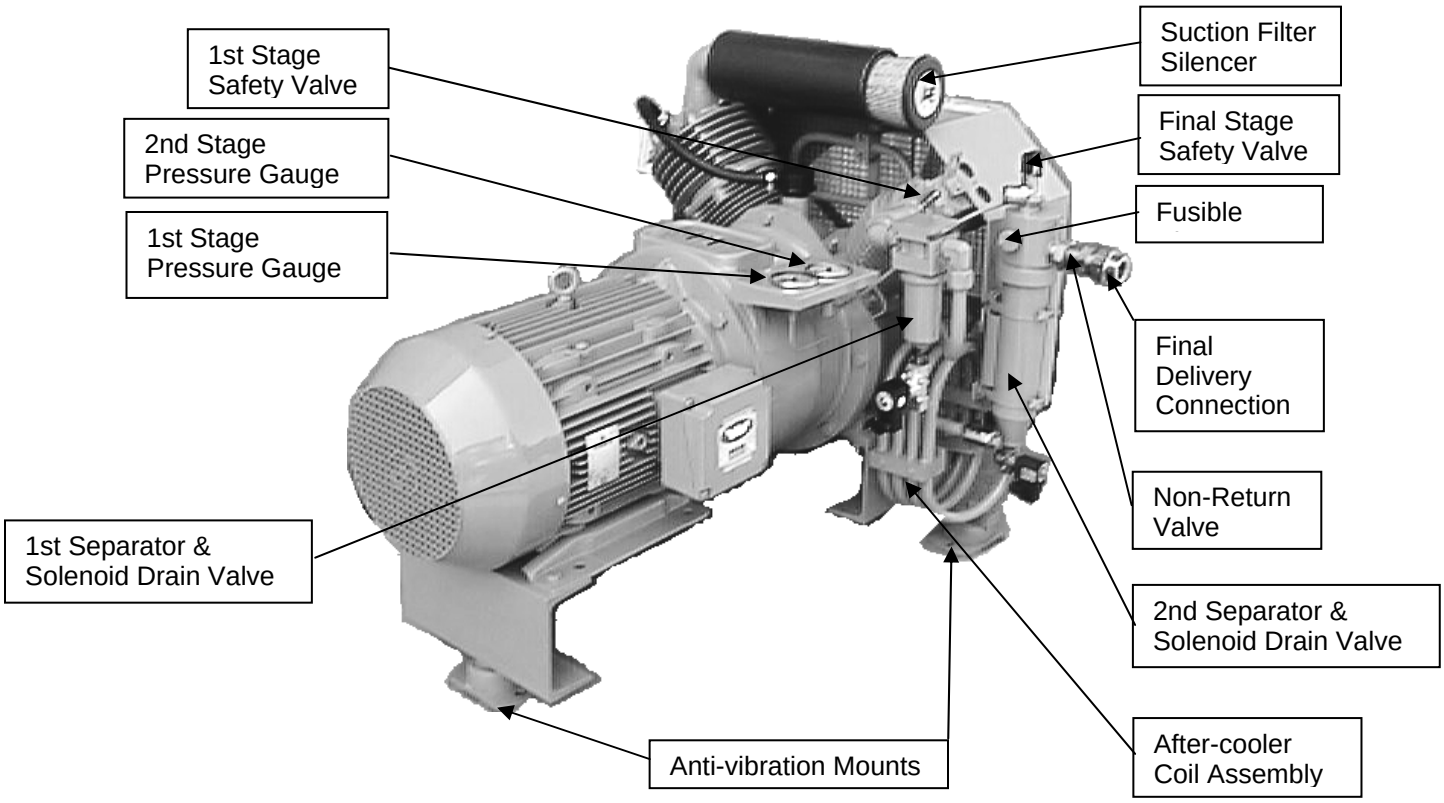
4 GENERAL DESCRIPTION AND OPERATION



4.1 GENERAL

The 5211 reciprocating compressor is a 2 stage, 90° Vee configuration, medium pressure, two cylinder, air cooled machine. It is supplied complete with intercooler and aftercooler; 1st and 2nd stage separators and safety valves; delivery pressure gauge and final delivery block incorporating non-return valve and positions for optional fusible plug and pressure switch. First and second stage unloaders (manual or solenoid) are fitted according to requirements together with safety valves and pulsation dampers on both stages.
Air for compression enters via the suction filter and passes to the first stage cylinder where it is compressed before passing through the heat exchanger and 1st stage separator to the second stage. On exit from the second and final stage air flows through a small integrally cast pulsation damper before going through and a cooling system , positioned in the fan airstream, then into the second stage separator, finally through the non-return valve.
An axial type cooling fan is housed in a cowl at the outer end of the crankcase.

4.2 BEARINGS

Main bearings are replaceable but big and small end bearings are only available as part of a connecting rod assembly.

4.3 VALVES

The first stage valve is of the concentric type and the second stage valve of the slot type.
All valves are easily accessible for cleaning and replacement.

4.4 LUBRICATION

Splash lubrication ensures an adequate supply to cylinders, pistons and running gear bearings. The crankcase is filled via an easily accessible breather/filler fitting. A sight glass indicates oil level.
The specified lubricant must be used at all times to ensure safe and efficient operation. Use of the correct lubricant will secure minimum wear and maximum protection against moist air corrosion. Recommendations are the result of extensive research by CompAir UK and all responsibility for the use of an oil, other than that recommended, is placed on the purchaser and the company supplying his oil.

THE NORMAL GUARANTEE WILL BE INVALIDATED SHOULD A FAILURE BE ATTRIBUTED, BY COMPAIR UK, TO THE USE OF A LUBRICANT NOT RECOMMENDED.

4.5 DRIVE

Drive can be arranged either for direct coupling or for vee belt transmission from a suitable power source, such as an electric motor or diesel engine.

4.6 INSTRUMENTATION

Pressure gauges are fitted to monitor the stage pressures.

4.7 AUTOMATIC STOP/START CONTROL

4.7.1 ELECTRIC DRIVEN SETS

On electric motor driven sets the motor starter is controlled by an air pressure switch which is supplied loose for fitting to customer's storage system. When the pre-selected setting on the pressure switch is reached the switch contact closes initiating the start up of the motor.
On reaching the pre-set high pressure setting, the switch contact opens and stops the motor.

Control circuits in the starter open solenoid operated drain valves fitted to the first and second stages. These valves both drain and unload the compressor whenever the compressor is stopped and ensure that the compressor is unloaded ready for the next starting sequence. This is to prevent overloading the motor which could occur if an attempt were made to start the compressor on load. When the motor is started the solenoid valve is closed automatically by the same control circuits and the compressor again comes on to load. The above sequence will be repeated until the compressor is manually stopped.

If the compressor is required to run continuously, then a timer can be incorporated in the starter to operate the solenoid valves for a brief period (typically 5 secs) every half an hour to drain the separators, thereby avoiding a build up of condensate.

4.7.2 ENGINE DRIVEN SETS

These sets are normally manually controlled and are fitted with a manually operated unloading valve for start-up.

4.8 NON-RETURN VALVE

A non-return valve is fitted to the final delivery connection. After removal of final delivery pipe can be unscrewed for access/replacement.

4.9 FUSIBLE PLUG

A Fusible Plug is fitted to the final stage separator cover. To protect against excessive temperatures

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5 LEADING PARTICULARS

5.1 UNIT DESIGNATION

Reciprocating, air cooled, medium pressure compressor,
for either direct or belt drive applications 5211

5.2 TECHNICAL DATA

Type ..... Two cylinder, two stage
Cooling ..... Fan activated air
Direction of rotation viewed from drive end ..... Anti-clockwise
Type of valves ..... Multi-ported concentric/slot
Intake silencer/ air filter ..... Dry
Preferred method of control ..... Auto stop/start

5.3 PRESSURES

Maximum Inlet pressure ..... 0.03 bar
Minimum discharge pressure. ..... 20 bar
Maximum discharge pressure (continuous) ..... 42 bar
Maximum discharge pressure (intermittent) ..... *45 bar

*(30 minutes on maximum load, 30 minutes off)

5.4 SAFETY VALVE SET PRESSURES

First Stage ..... 6.50 bar
Second Stage ..... WP+10%

5.5 GENERAL

First stage piston displacement at max speed ..... 84.1 m^3/hr

5.6 DIMENSIONS

First Stage Cylinder Bore ..... 115 mm
Second Stage Cylinder Bore ..... 58 mm
Stroke ..... 75 mm
Final Delivery Connection ..... G $^3/_4$
First Stage Suction Connection (Bare M/C) ..... Rp $1^1/_2$
Compressor Height (Bare M/C) ..... 750 mm
Compressor Width ..... 635 mm
Compressor Length ..... 500 mm

5.7 WEIGHT

Bare Machine with pulley (approx.) ..... 125 kgs

5.8 SPEED

Maximum ..... 1800 rpm
Maximum if running more than 1000 hours per year ..... 1500 rpm
Minimum ..... 750 rpm

5.9 TEMPERATURES

*Minimum Ambient and Air Inlet Temperature .....(minus) -10°C
Maximum Ambient and Air Inlet Temperature .....55°C

*(See lubricant duties).

NOTE:
It is extremely difficult to accurately record air temperatures by the metal surface temperature, due to air flow from the fan cooling down the reading. However, as a general guide no metal surface temperature should exceed 160 °C.

5.10 LUBRICANTS

Recommended synthetic oil .....REAVELLITE
Recommended mineral oil..... * MOBIL RARUS 427
(For lower than normally recommended temperature duties consult CompAir UK.)
Oil capacity of crankcase..... litres 1.4
Recommended silicone grease (for assembly) ..... Dow Corning MS33

* (Running in & low pressure conditions only. Consult CompAir UK)

5.11 TORQUE SETTINGS

ALL FIGURES ± 5%

FOR NON LUBRICATED FASTENERS

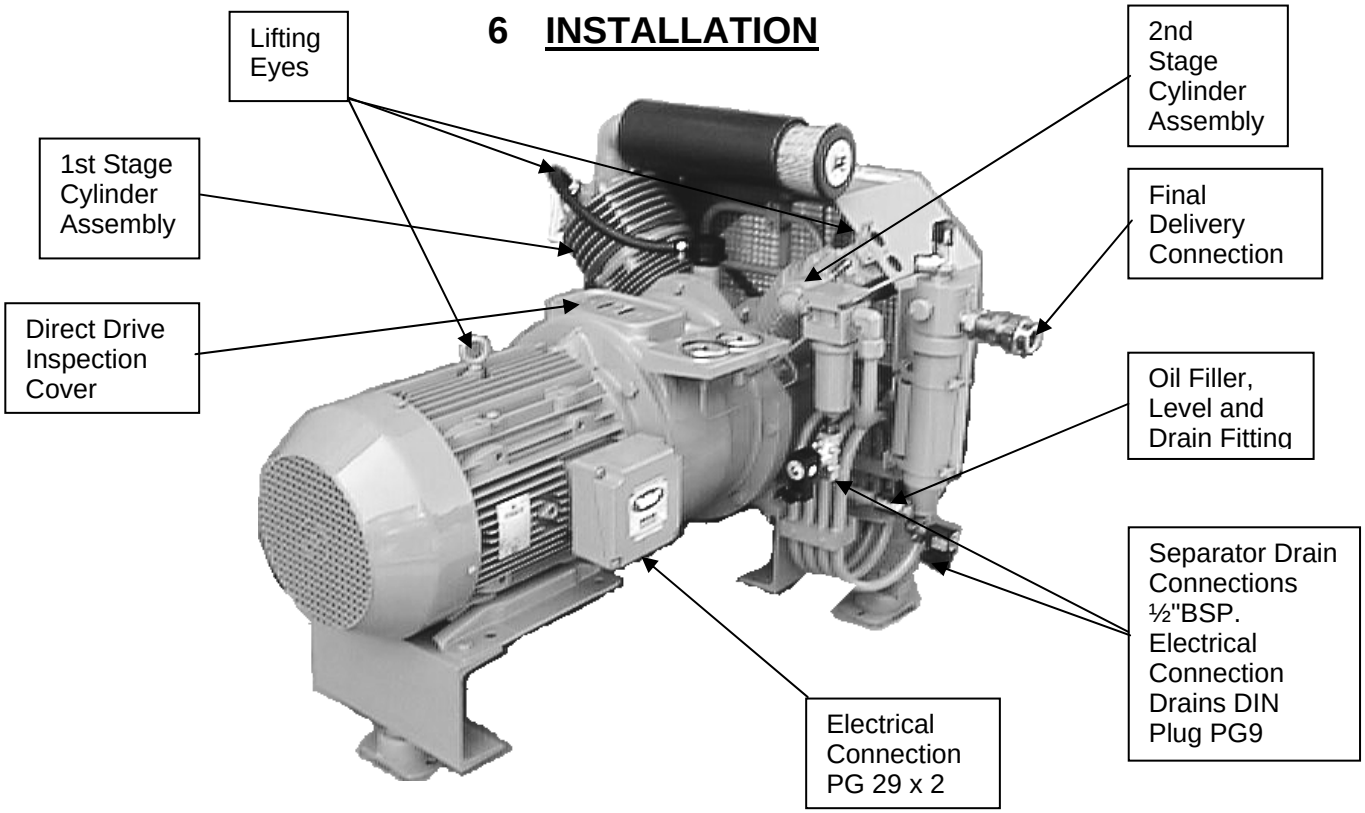
ASSEMBLY OPERATION	**SIZE**	**NEWTON METRE (Nm)**
Cylinders to Crankcase and Foot to Crankcase	M12	95
Driving & Outer End Covers to Crankcase	M8	27
Balance Weight to Crankshaft	M10	55
1st Stage Cylinder Cover to Cylinder	M8	27
2nd Stage Cylinder Cover to Cylinder	M12	95
Flywheel to Crankshaft LH	M12	95
Delivery Block to Foot	M8	27
All Other (i.e. various setscrews for brackets, clips etc.)	M6	11
2nd Stage Separator Collar Nut	-	Hand tighten only

5.12 RUNNING CLEARANCES

DESCRIPTION	STAGE	AS FITTED (mm)	MAX PERMISSIBLE WEAR LIMITS (mm)
Piston Ring Gap Piston Rings	1	0.4/0.6	1.8
Piston Ring Gap Piston Rings	2	0.2/0.4	1.5
Piston Ring/Groove Width Clearance	-	-	-
Piston Rings	1	0.02/0.05	0.25
Oil Control Ring	1	0.03/0.07	0.27
Piston Rings	2	0.01/0.05	0.25
Oil Control Ring	2	0.03/0.07	0.27
Piston Ring Width	-	-	-
Piston Rings	1	4.01/3.99	3.87
Oil Control Ring	1	5.99/5.98	5.84
Piston Rings	2	3.99/3.97	3.87
Oil Control Ring	2	4.5/4.48	4.35
Piston Skirt O/D	1	114.82/114.80	114.75
	2	57.92/57.90	57.85
Cylinder Bore	1	115.033/115.023	115.09
	2	58.03/58.0	58.09
Small End Bore to G/Pin Clearance.	-	-	-
Plain Bearing	0.09	0.015/0.03	0.09
Needle Roller Bearing	2	N/A	N/A
Crankshaft End Float		0.8/1.64	1.64

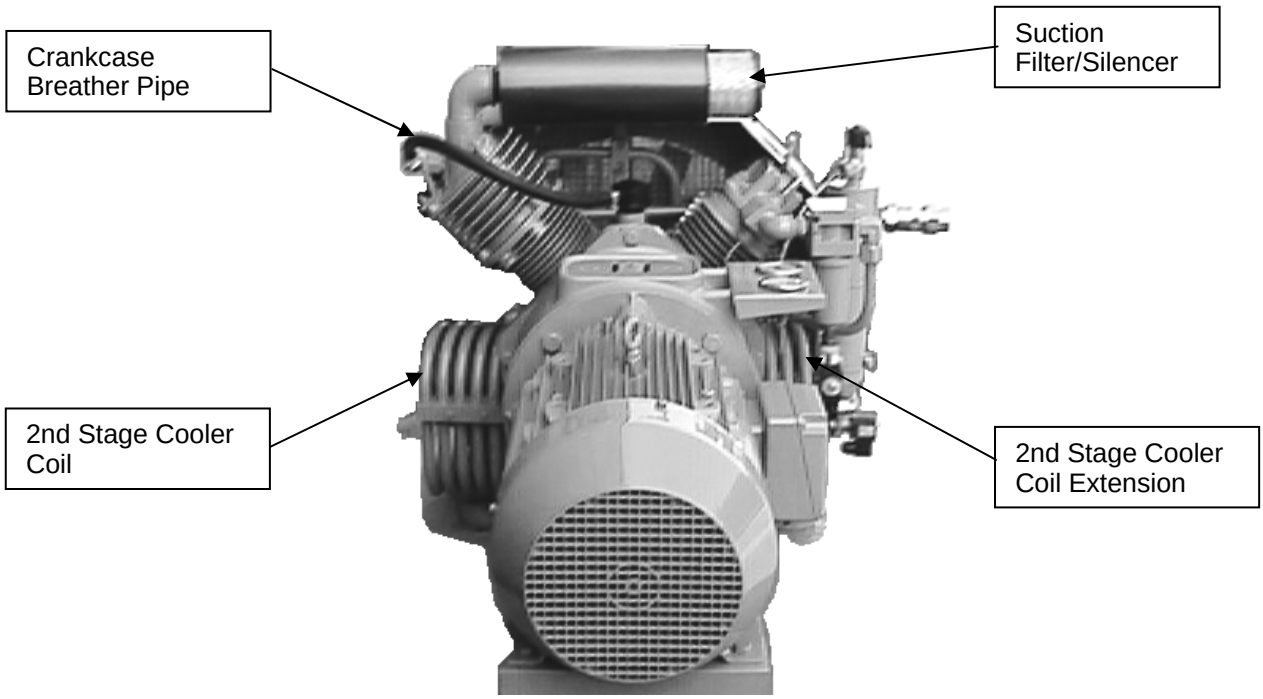
NOTE: Crankshaft main and big ends are fitted with roller bearings.

6 INSTALLATION



6.1 GENERAL

The compressor should be installed in a well ventilated position to allow adequate circulation of cooling air. If it is impossible to site the compressor away from fumes, heat, or areas of high humidity, then inlet air should be piped from the cleanest and coolest source of atmospheric air. Allow sufficient space around and above the machine for maintenance work to be carried out when required.
Fan cowl inlet should be a minimum of 300 mm from a wall or bulkhead to ensure adequate cooling air-flow.
Provision should be made for suitable lifting equipment.
Machines should be protected from severe weather conditions.



6.2 UNPACKING

Unless the compressor set is delivered uncrated, certain components, e.g. anti-vibration To avoid the loss of these items they should be located and removed first. After unpacking, fit any items which were loose in the crate and are now required for installing the set. To refit anti-vibration mounts (if supplied), first read the information under **HANDLING** (section3.3 below), then raise the set on to suitable supports and fit mounts by means of attached stud or setscrew

Any protective blanks fitted to the compressor ports should not be removed until making the pipework connections.

6.3 HANDLING

A guide to the weight of the unit is given in Section 2. Before attempting to move the set, ensure that the available lifting equipment is of suitable capacity. When lifting by crane or hoist, sling the unit with ropes or chains under the compressor baseplate and ensure by use of a spreader, that the lifting tackle is held clear of any compressor components such as switches and belt guard etc.

6.4 MOUNTING

Seating must be level and designed to support the weight and any out of balance forces. Unless flexible mounts are being used shims should be placed where necessary to ensure that the bedplate is not strained out of alignment when the holding down bolts are finally tightened.

6.5 DRIVE

Compressor is suitable for direct or belt drive application. When belt driven ensure that driving and driven pulley grooves are in line and shafts are parallel, before and after installation Tensioning procedures follow normal practice. (See B.S. 3790 1981). See SECTION 10 for details on DIRECT DRIVE>

6.6 CONNECTIONS, PIPEWORK AND FITTINGS

Careful thought should be given to the system and piping lay-out with all piping and connections suitable for the pressures and capacities involved.
If flexible mountings are to be used under the bedplate, then pipes and electrical cable to and from the compressor must have adequate flexibility.
Suitable joints should be made in the connecting pipes so that only a short length of pipe need be removed to allow the compressor to be dismantled during overhaul.
Before assembly of pipework is completed, ensure that all port protection plugs and blanks are removed.
Ensure all pipes are free from jointing compound, pipe scale, swarf, dirt and other foreign matter, especially if suction piping is used.
All pipework must be suitably supported to prevent vibration so that no undue strain is placed on the compressor.
A suction filter must always be fitted to prevent damage and excessive wear. When the filter is remote from the compressor, the suction ducting must be of sufficient strength to prevent damage being caused by the pulsating suction pressure. Additionally when the compressor is installed on anti-vibration mountings, it should have sufficient flexibility to absorb a small degree of movement.

To protect the machines from excessive temperatures, either a fusible plug or temperature cut-out switch should be fitted to the machine outlet (delivery).
An aftercooler is fitted to avoid high temperature discharge air being delivered into the system receiver.

Extra separators and drain traps must be of adequate capacity and arranged so that they can be drained regularly. When delivering into an air main it is recommended that the delivery pipe connects into the top of the air main delivery pipe.

A non-return valve is fitted to the delivery fitting to allow two or more machines to be connected to a common main and delivery unloading to be used.

Stop valves must be fitted in pipelines to isolate compressor and control equipment. Unloader and control piping must be as short as possible. Inlets and outlets on air receivers must be well above any condensate level.

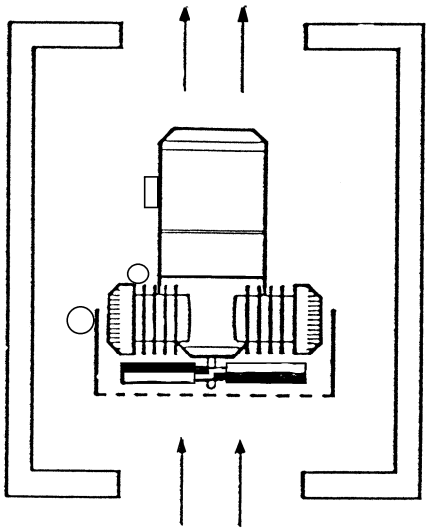
Safety valves, (relief valves), are fitted as standard equipment to compressor. Safety valves must also be fitted to the receiver pipeline system to protect this from any excessive pressure build up.

6.7 ELECTRICAL

The electrical connections to the set must always comply with any local regulations which are applicable, and be suitable for the electrical loads involved. Wiring must be installed by a qualified electrician. As the maintenance periods for the compressor are determined on an hours run basis, some accurate method of operational time recording should be employed to indicate when routine maintenance becomes due.
For this purpose, it is recommended fitting a meter to the unit to record hours run.

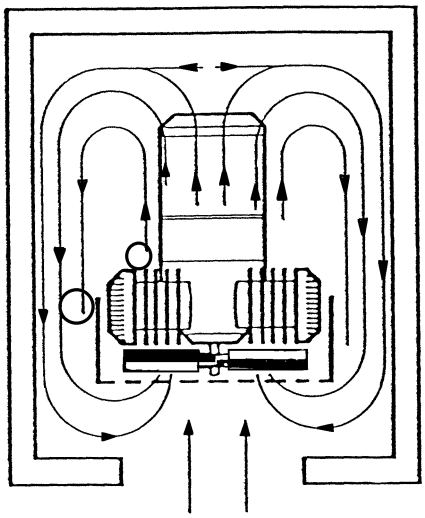
6.8 SITING REQUIREMENTS

(Diagrams not to scale)



RECOMMENDED INSTALLATION

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

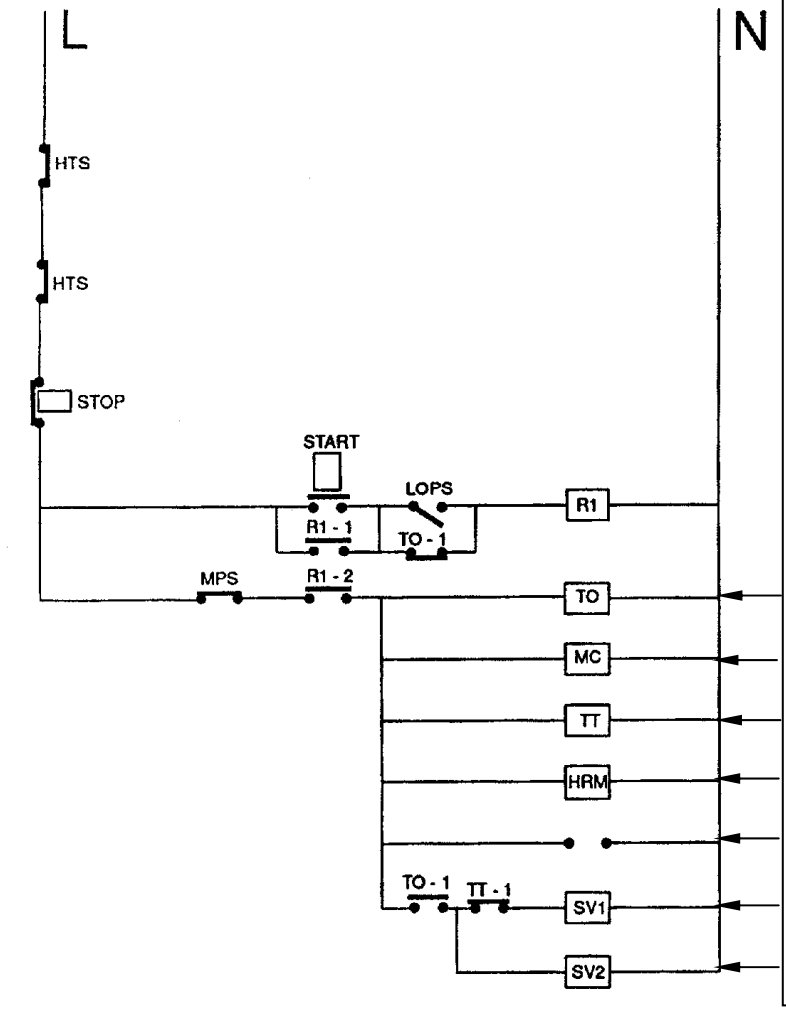


INCORRECT INSTALLATION

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

NOTE:
In small buildings and enclosures the inlet and outlet vents should have a minimum cross sectional area of 0.3 m^2 and for enclosures the fan inlet should be sealed by means of a duct between fan guard and the wall to prevent re-circulation of cooling air.
When the compressor has to be situated next to a wall or bulkhead in a large building in which there is no opening, the fan cowl inlet must always be more than 300mm from the wall or bulkhead to avoid restriction of cooling air flow to the compressor.

6.9 TYPICAL CONTROL WIRING DIAGRAM



KEY

R RELAY
T TIMER
SV SOLENOID VALVE
HTS HIGH TEMPERATURE CUT OUT SWITCH
LOPS LOW OIL PRESSURE SWITCH
MPS MAIN PRESSURE SWITCH

OPERATION

START ON LOW PRESSURE SIGNAL FROM MPS.
ON REACHING HIGH PRESSURE COMPRESSOR STOPS, UNLOADS AND DRAINS.
IF COMPRESSOR RUNS FOR 30 MINUTES WITHOUT STOPPING, DRAINS OPEN AUTOMATICALLY FOR 5 SECONDS.

10 SECOND DELAY ON. INSTANT OFF

MAIN COIL.

INSTANT ON. DE-ENERGISES 5 SECONDS. EVERY 30 MINUTES RE-ZEROS ON RE-ENGERGISING.
HOURS RUN METER.

FOR WATER PUMP MOTOR (5417, 5436 & 5437)

FOR DELIVERY UNLOADERS/DRAINS.

CONTROL CIRCUIT FOR AUTO STOP/START

7 COMMISSIONING OR RECOMMISSIONING

W A R N I N G :-
BEFORE OPERATING THIS EQUIPMENT USERS SHOULD BE MADE AWARE OF AND ENSURE COMPLIANCE WITH THE HEALTH AND SAFETY REGULATIONS APPROPRIATE TO THIS CLASS OF WORK. ATTENTION OF U.K. USERS IS DRAWN TO THE HEALTH AND SAFETY AT WORK ACT, 1974 & CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH REGULATIONS 1988.

TAMPERING WITH SAFETY VALVES IS DANGEROUS AND ALSO INVALIDATES THE GUARANTEE.

7.1 LUBRICATION

The recommended lubricant is REAVELLITE, a synthetic oil.
There are some materials, e.g. certain rubbers, paints, plastics and metals, which are not compatible with synthetic oils. Components on these compressors are compatible with synthetic oil but a problem may exist with ancillary equipment. Consult equipment manufacturer if in doubt.

7.2 BEFORE STARTING

Ensure familiarity with safety devices and type of control.
Check complete installation, including pipework.
Check alignment of compressor and driving unit pulleys.
Ensure driving belt tension is correct.
Remove dry type suction filter element, blow over with low pressure air and re-insert in casing.
Ensure silencer bore and pipework are clean.
Fill with the correct grade of lubricant until oil level is between the minimum and maximum level marks on the sight glass.

IMPORTANT- Maintain oil level between these marks at all times.

Check that all pipework and electrical cables are secure and connections are tight.
Rotate compressor by hand for at least one complete revolution to ensure freedom of movement.

NOTE: It is not necessary to remove any inhibition lubricant which may have been applied before despatch, unless there are specific instructions attached to the compressor stating otherwise.

7.3 START-UP PROCEDURE

Operate starter and immediately check :-
Air is being delivered from the machine.
The rotation is correct (anti-clockwise looking on flywheel end of compressor) .
There are no uncharacteristic noises.
All pressure gauges are indicating.

Correct rotation is essential to achieve cooling air flow through fan to compressor.

RUN LIGHT for thirty minutes and then gradually bring up to load over the following thirty minutes.
After running on load for 10 minutes, stop the compressor and with the pressure still applied visually check for any air or oil leaks. Use soapy water when checking for air leaks.

WARNING:-
DO NOT TRY TO CORRECT LEAKS WHEN ITEMS ARE PRESSURISED.

Restart the compressor and check and adjust the pressure switch setting, if necessary.
After 30 minutes operation, check cylinder cover. Intake pipe to cylinder cover should be warm and outlet pipes hot. This indicates valves are functioning correctly.
If pressure and temperatures are checked and recorded at 30 minute intervals this can help to give advanced warning of any malfunctions.

7.4 MAINTENANCE

After First 15 Hours Running Time
Ensure that alignment and belt tensioning is correct.
After First 50 Hours Running Time
Change the crankcase oil.
Remove the crankcase oil drain plug and drain crankcase oil after compressor has been running and oil is still warm.
Replace the drain plug. Fill with the correct grade of lubricant until the oil level is between the minimum and maximum marks on the sight glass.
Recheck oil level after starting compressor.
If using mineral oil examine compressor valves.

The next oil change will be after 1000 hours running time.

8 OPERATION AND ROUTINE MAINTENANCE

8.1 OPERATION AND GENERAL MAINTENANCE

Commissioning procedure 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 cleaning/change.
Keep the exterior of the compressor clean, especially pipe connections and joints, as this will assist in detecting any leaks. Ensure finned intercooler is clean at all times.
Monitor and record pressures and temperatures in order to give advanced warning of any malfunction. Ambient conditions, especially temperatures, will vary readings but they are usually within plus or minus 4%.
Marking the pressure gauge glass at the normal running pressure will allow easy comparisons of pressure to be made in the future.

8.2 STARTING UP

Check crankcase oil level. Top up if necessary with recommended oil until the level up to the maximum level mark on sight glass.
Set stop valves and adjust trip circuits correctly.
Check that all loose equipment and tools are clear of compressor and ancillary equipment.
Operate starter, and bring on to load. Oil level will drop in glass when machine is running.
Unloader/bleed valve will close automatically.
On engine sets start in accordance with engine suppliers operating manual and close manual drain/unloading valve only when engine is up to speed. Bring on to load as for electric sets.
Whilst the compressor is running, listen for any noises indicative of mechanical failure. Stop and investigate if:-
1) Any uncharacteristic noises commence.
2) Any safety valve opens.

WARNING:-
THE CAUSE OF A SAFETY VALVE OPENING MUST BE INVESTIGATED AND RECTIFIED. DO NOT ATTEMPT TO PREVENT A VALVE OPENING BY TAMPERING WITH ITS SETTING. THIS IS EXTREMELY DANGEROUS.

8.3 RUNNING ON LOAD

Check temperatures and monitor gauges for normal pressures.
When fitted, operate manual drains at 30 minute intervals.

NOTE: These machines will normally be under automatic stop/start control unless engine driven, when manual control is more usual.

8.4 STOPPING

When not fitted with automatic stop/start controls the compressor can be stopped by the push to stop button on the starter.
Always isolate electric supply at the end of an operational duty period.
On engine sets - stop the engine in accordance with engine operating manual and manually open drain/unloader valve to allow unloaded restart when required.

8.5 STANDING IDLE

After one week standing idle, turn the machine over by hand before starting to ensure it turns freely. 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 the following recommended inhibition procedure:-

Fill crankcase with Shell Ensis 20 to the correct level indicated by the crankcase sight glass.
Run the compressor.
Switch off the compressor.
Remove first and second stage cylinder covers and valves.
Wipe clean all valves, cylinder covers and valve chambers.
Spray valves, cylinder cover, valve chambers and cylinders with PX.4.
Shake valves to remove excess.
Refit valves, cylinder covers etc., torque to correct values.
New joints should be fitted between cylinder cover and valve, valve and cylinder.
Drain sump of oil.
Seal all openings with threaded plastic plugs.

9 MAINTENANCE SCHEDULE

W A R N I N G :-

BEFORE PROCEEDING WITH MAINTENANCE ON THE COMPRESSOR IT MUST BE STOPPED AND ISOLATED ELECTRICALLY AND MECHANICALLY AND VISIBLE WARNING NOTICES DISPLAYED.

IN ADDITION ALL INTERNAL PRESSURE MUST BE RELEASED AND THE COMPRESSOR ISOLATED FROM THE RECEIVER.

NEVER ATTEMPT TO STRAIGHTEN BADLY BENT PIPEWORK OR RE-USE DAMAGED UNION FITTINGS.

TAMPERING WITH SAFETY VALVES IS DANGEROUS AND INVALIDATES THE GUARANTEE

NEVER TIGHTEN ANY FITTING WHEN IT IS UNDER PRESSURE

Note:-
An O&M manual must cater for a wide variety of operating duties, ambient conditions and methods of control. Periods given in this manual allow for the worst combination and are also based on preventative maintenance rather than operation until failure occurs.

9.1 GENERAL

It is useful to tabulate pressure, temperatures, oil used etc., against hours run, as this provides a detailed record of the machine condition. It can also give an indication of impending problems.

9.2 DAILY

Check oil level in crankcase and top up if necessary.
Check stage pressures and temperatures.
Ensure finned cooler is clean and free from any build-up of dirt.

9.3 WEEKLY

Check for oil or air leaks, rectify if necessary.
Check correct operation of all controls.
Check all nuts, screws and fittings for tightness.

9.4 RECOMMENDED MAINTENANCE SCHEDULE

Service Kit Number					SERVICE SCHEDULE 5211 MK2 AIR				
HSK1503	HSK1708	HSK1732	HSK1708	HSK1740					
Run Hours									
50	1000	2000	3000	4000	Task	Preparatory Task	Task Description	Parts Provided	Qty
X	X	X	X	X	1		Change crankcase oil 1.35 litre	Reavellite S lubricant 1 Litre	2
	X	X	X		2		Suction Filter Element	Element	1
				X	3		Joint kit	Joint kit	1
		X		X	4		Remove 1st stage valve & cover	O ring-valve to cover	1
		X		X				O ring-valve to cover	1
		X		X	5	+4	Replace 1st stage valve	Valve	1
				X			Check condition of 1st stage cylinder		
				X	6		Remove 1st stage cylinder	O ring- cyl. to c/case	1
				X	7	+4	Replace 1st stage piston assy.	1st stage piston assy.	1
		X		X	8		Remove 2nd stage valve & cover	Joint-valve to cover	1
		X		X				Joint-valve to cyl.	1
		X		X	9	+8	Replace 2nd stage valve	Valve	1
				X			Check condition of 2nd stage cylinder		
				X	10	+8	Remove 2nd stage cylinder	O ring- cyl. to c/case	1
				X	11	+8	Replace 2nd stage piston rings, gudgeon pin & circlips	Ring set	1
				X				Gudgeon pin	1
				X				Circlip	2
							NOTE-MK1 TO MK2=PISTON CHANGE		
							Mk1 2nd Stage Cyl can be used with Mk1 or Mk2 Running Gear		
							Mk2 2nd Stage Cyl can be used only with Mk2 Running Gear		
							Mk2 Running gear must have MK2 1st stage piston (MK1's must also match)		
				X	12	+3	Replace crankshaft / con rod assy	crank / rod assy	1
				X	13		Clean 1st stage separator		
				X	14		Service 2nd stage separator(new type)	Filter element	1
				X				O ring- separator body	1
				X	15		Replace suction filter	Filter	1
				X	16		1st stage safety valve	1st stage R/V valve	1
				X	17		2ndstage safety valve	R/V valve 33 bar	1
					17		**OR**	R/V valve 49.5 bar	1
				X			Test pressure gauges	1st stage	1
	X	X	X	X			Check belt tension & condition of all ancillaries		

SERVICE SCHEDULE 5211 MK2 AIR

Service Kit Number									
HSK1503	HSK1708	HSK1732	HSK1708	HSK1740					
Run Hours									
50	1000	2000	3000	4000	Task	Preparatory Task	Task Description	Parts Provided	Qty
	X	X	X	X			Check tightness of all fasteners(PARTICULARLY COOLER CLAMP FASTENERS)		
				X	18	+4	Inspect 1st stage cylinder assy	cylinder assy.	1
									1
				X	19	+8	Inspect 2nd stage cylinder assy	cylinder assy.	1

10 REMOVAL AND REPLACEMENT OF VALVES

10.1 GENERAL

Valves may have a thin carbon layer and should be slightly moist with oil. Valve maintenance is a simple procedure provided the following guidelines are observed.
Keep a spare oiled and maintained set of valves in store for quick compressor servicing.

10.2 VALVE CLEANING – ALL STAGES

Clean all traces of old joint from the cylinder cover, valve and cylinder joint faces.
Inspect all joint faces for cracks or damage liable to impair sealing efficiency.
Clean or decarbonize the cylinder as necessary, ensuring that all loose deposits are removed after cleaning.
Valve cleaning is restricted to cleaning any excessive carbon deposits from valve ports. This should be done very carefully to avoid damage to the valve. The first stage valve may be dismantled for cleaning but the second stage valve should not be dismantled as there are no replacement parts available. Providing synthetic oil is used as recommended, only very small deposits of carbon will occur over a long period of operation.

WARNING:- Great care should be taken when removing carbon deposits to ensure that the seating faces of the valve components are not damaged.

All faces should be clean and bright over their whole area, with no evidence of uneven contact. Renew any plates which are indented, cracked, warped, or have wear grooves which exceed 1/10th of the plate thickness.

If the seats show severe wear or indentations the complete valve assembly must be renewed. The remaining components should be checked for cracks, distortion or other damage liable to impair valve operation.

To dismantle the first stage valve separate valve guard from valve seat after removing retaining screws. Remove valve plate. Ensure that valve plate is **not** reversed if the plate is being reused. Wash the valve parts in a suitable degreasing agent. Blow dry, reassemble using the original or a new valve plate and re-oil prior to placing in compressor.

10.3 1ST STAGE VALVE

10.3.1 REMOVAL

Undo pressure gauge pipe at the coupling on the pressure gauge.
Detach and remove pressure gauge.
Remove main fan guard retaining screws and slide guard forwards over the fan and remove from compressor. The inner mesh guard may be left in position.
Remove breather pipe. Detach suction filter silencer and first stage delivery pipe coupling nut.
Unscrew and remove the four cylinder cover retaining screws and remove cylinder cover. Remove valve and discard the 'O' ring seals between cylinder cover and valve, valve and cylinder.

10.3.2 REPLACEMENT

Fit valve and cylinder cover to cylinder using new 'O' rings between cylinder cover, valve and cylinder.
Refit cylinder cover retaining screws and tighten in a diagonal sequence to specified torque.
Remaining parts are assembled in reverse order to the removal procedure.

10.4 2ND STAGE VALVE

10.4.1 REMOVAL

Undo pressure gauge pipe detach and remove pressure gauge. Remove main fan guard only, as described above in 1st stage valve removal.
Detach second stage suction pipe and delivery pipe coupling nuts. Remove pressure gauge panel retaining screw from cylinder cover. Unscrew and remove the six cylinder cover retaining nuts and remove cylinder cover complete with integral cast pulsation damper.
Remove valve and discard the joints between cylinder cover and valve, valve and cylinder.

10.4.2 REPLACEMENT

Fit valve and cylinder cover to cylinder using new joints between cylinder cover, valve and cylinder.
Refit the six cylinder cover retaining nuts and tighten in a diagonal sequence to specified torque.
Remaining parts are assembled in reverse order to the removal procedure.

Retighten cylinder cover after compressor has been on full pressure for 2 hours.

11 FAULT GUIDE

W A R N I N G :-

BEFORE PROCEEDING WITH MAINTENANCE ON THE COMPRESSOR IT MUST BE STOPPED AND ISOLATED ELECTRICALLY AND MECHANICALLY AND VISIBLE WARNING NOTICES DISPLAYED.

IN ADDITION ALL INTERNAL PRESSURE MUST BE RELEASED AND THE UNIT ISOLATED FROM THE RECEIVER.

NOTE:– A Safety valve opening indicates excessive pressure and under NO CIRCUMSTANCES must a safety valve be screwed down to accommodate excessive pressure. THIS IS DANGEROUS. If safety valve opens or appears faulty shut down compressor immediately and investigate. If the fault appears immediately or shortly after a service, first examine those parts disturbed during the service.

The following is a list covering the probable causes of operational faults, together with a suggested remedy.

Fault	Probable Cause	Recommendation(s)
EXCESSIVE PRESSURE	Faulty suction or delivery valve(s).	Service valve(s) as necessary. ***NOTE: A faulty suction valve gives excess pressure in previous stage.***
	Pressure gauge inaccurate.	Check gauge against instrument of known accuracy.
	Pipeline restriction.	***Existing Installation:*** Check functioning and setting of all control valves. Clean pipeline filters and service elements.
		New Installation: Ensure all protective plugs are removed from ports and control valves are set correctly. Check pipework is of adequate dimensions with minimum of bends. Check joint gaskets for correct positioning and size.
	Final delivery pressure control fault or pressure switch fault.	***Automatic Control:*** Inspect control equipment for malfunction, rectify as necessary.
INSUFFICIENT PRESSURE OR VOLUME	Blocked suction filter.	Remove and service.
	First stage suction valve fault.	Remove, examine and rectify/replace.
	Air leakage from machine / system.	Locate and rectify. Check drain valves are closed.
	Wear.	If general wear is suspected, strip machine, examine components and renew as necessary.
	Loss of drive.	Check vee-belt drive and tension.
	Excessive blowby.	Check piston rings.
OVERHEATING	Operating above maximum recommended duty.	Reduce operating duty.
	Insufficient cooling air.	Check location and area ventilation.
	Reduced cooling efficiency.	Examine cooler(s) for partial blockage.
	Cooling fan clogged.	Clean fan.
	Cylinder fins clogged or dirty.	Clean cylinder fins.
	Wrong rotation.	Reconnect electrical supply to give correct rotation.
EXCESSIVE NOISE	Machine or pipework system vibration.	Examine machine seating, tighten mounting bolts. Check pipework system is firmly secured. Check clearances and tension of vee-belts.
	Oil level low.	Refill to correct level.
	Pulley loose.	Tighten pulley.
	Belt drive worn.	Replace belts.
	Worn bearings.	Remove from bearing housings and replace.
EXTENDED RUNNING	Speed too low.	Check motor speed. Check vee-belt drive tension.
	Air leak on machine or pipework.	Locate and rectify.
EXCESSIVE WEAR	Excessive speed and / or pressure.	Operate within specified limits.
	Dirty air and / or suction pipeline.	Examine filters and renew elements. Clean out suction pipeline.
	Incorrect lubricant.	Change to correct lubricant.
	Incorrect oil level.	Fill to correct level.
	Excessive side or end thrust.	Correct alignment, adjust belt tension.
	Incorrect belt tension.	Adjust belts to correct tension.
FAILURE TO START	Seizure.	If machine can not be rotated freely by hand when unloaded this indicates a serious fault. Examine and replace any broken or damaged components before attempting to re-start the compressor.
	Electrical or control fault.	Trace and rectify or consult a qualified electrician.

How to order spares

**IN ORDER TO AVOID UNNECESSARY DELAY,
PLEASE QUOTE:-**

1. Complete invoicing and shipping address

2. Machine Model Reference No.

3. Machine No.

4. Item Reference

5. Part No.

6. Description

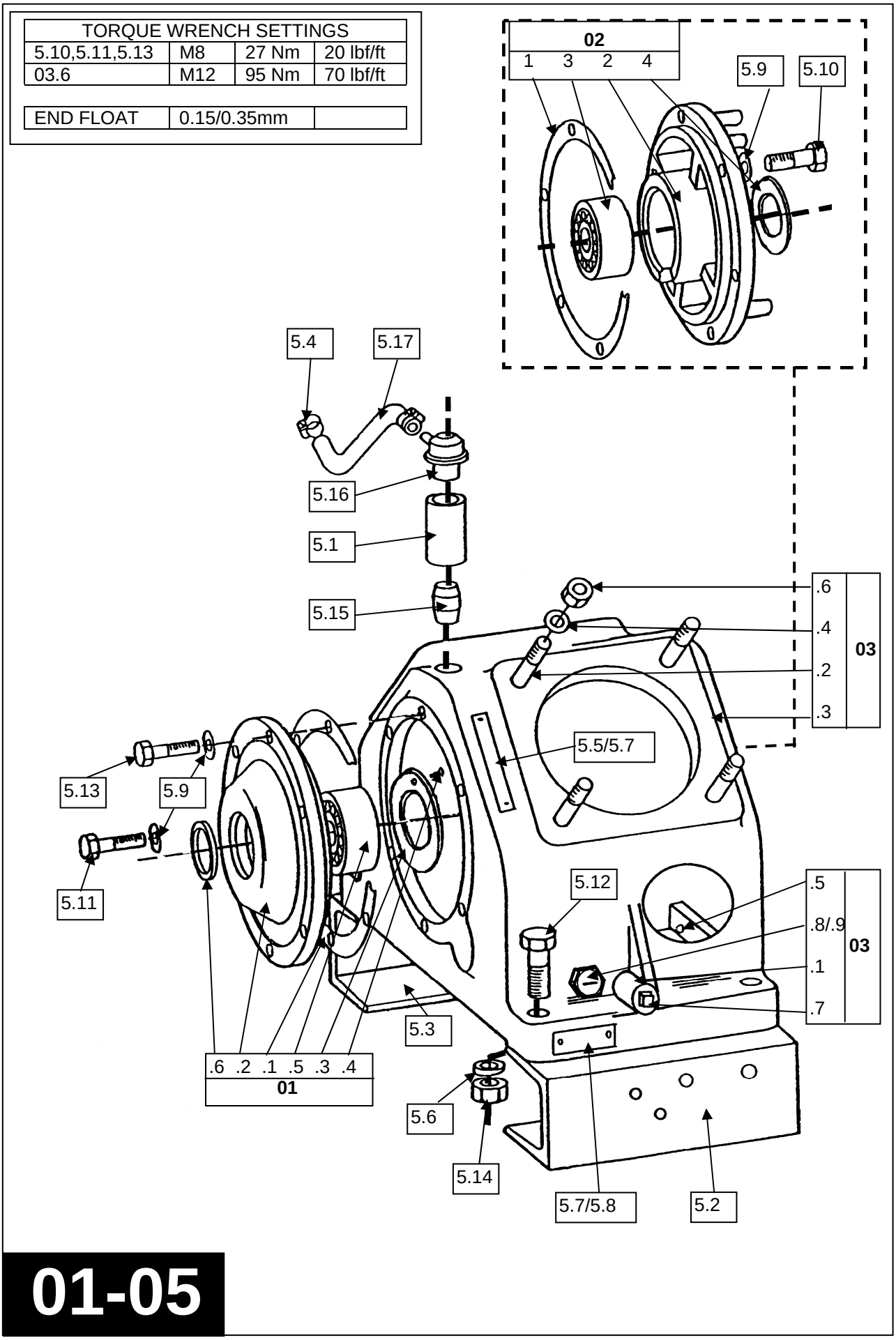
7. Quantity required

12 PARTS LIST

CONTENTS LIST

Due to our policy of continuous improvement we reserve the right to alter, modify and update without prior notice.

TORQUE WRENCH SETTINGS			
5.10,5.11,5.13	M8	27 Nm	20 lbf/ft
03.6	M12	95 Nm	70 lbf/ft
END FLOAT	0.15/0.35mm		



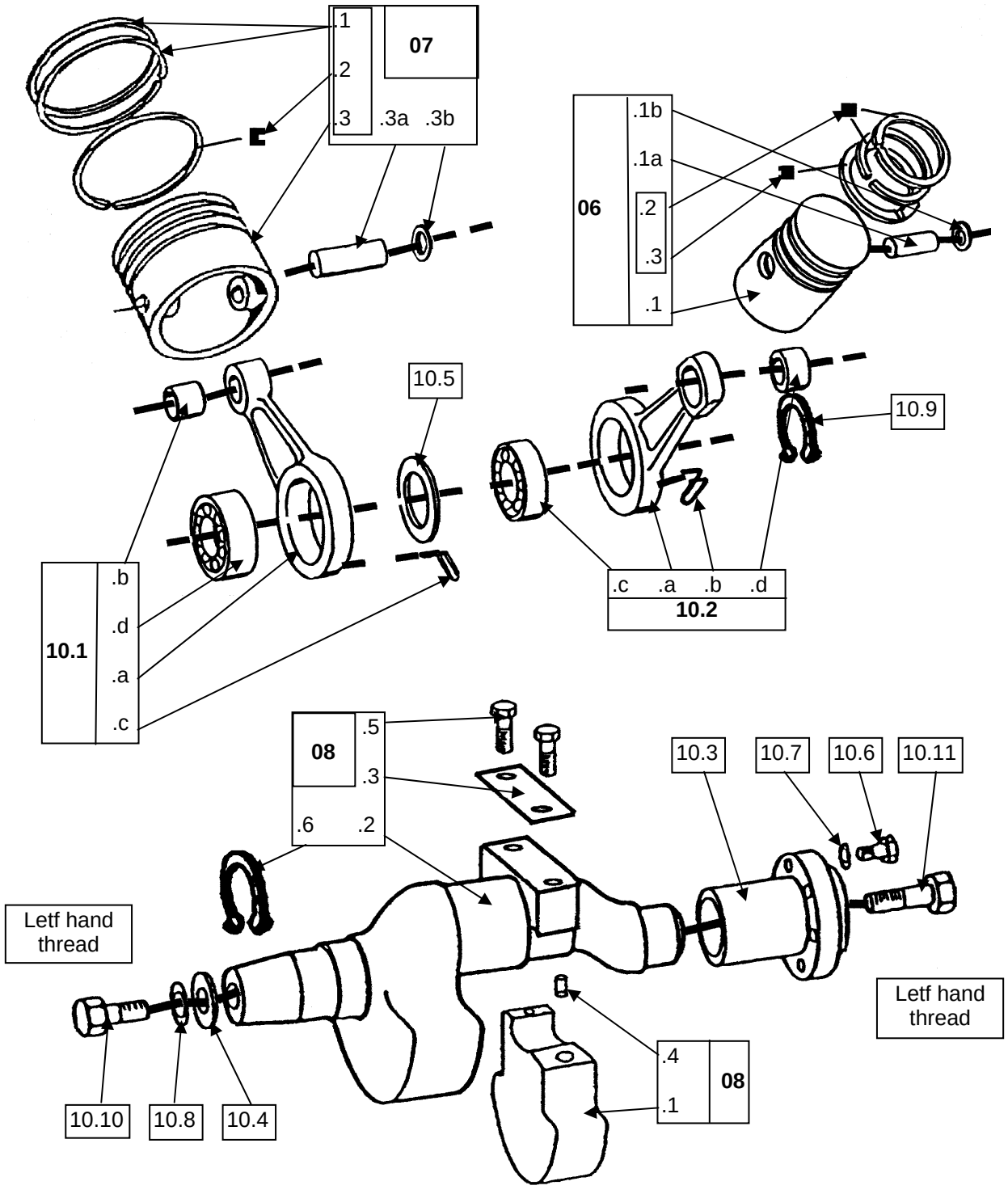
01-05

CRANKCASE PARTS

ITEM REF	DESCRIPTION	PART No	No OFF
01	**BEARING HOUSING D/E Parts:-**	**LE13506.100***	**1**
.1	*Joint*	*E1320*	*1*
.2	*Bearing Housing*	*E13506#*	*1*
.3	*Retaining Plate*	*E13527*	*1*
.4	*Screw Csk*	*95050.348*	*3*
.5	*Bearing Main D/E*	*96008.18*	*1*
.6	*Oil Seal*	*98505.1021*	*1*
02	**BEARING HOUSING O/E Parts:-**	**E61120.100***	**1**
.1	*Joint*	*E1320*	*1*
.2	*Bearing Housing*	*E61120#*	*1*
.3	*Bearing Main O/E*	*96046.172*	*1*
.4	*Oil Seal*	*98505.1006*	*1*
.4	*Oil Seal*	*98505.1005*	*0*
03	**CRANKCASE ASSEMBLY Parts:-**	**E61127.50***	**1**
.1	*Extension Pipe*	*C202813.2*	*1*
.2	*Stud M12 x 35*	*D66720.12.53*	*8*
.3	*Crankcase*	*E61127#*	*1*
.4	*Washer Fan Disc 1/2"*	*PS1113.3*	*8*
.5	*Wire Brass*	*W0222.0062*	*1*
.6	*Nut M12*	*95111.7*	*8*
.7	*Plug 3/8" BSPT*	*95405.944*	*1*
.8	*Seal for Oil Level Gauge*	*95640.14*	*1*
.9	*Oil Level Gauge*	*98540.1001*	*1*
	The following parts are not illustrated:-		
05.1	ADAPTOR	C202292	1
05.2	MOUNTING BRACKET R/H	C202818	1
05.3	MOUNTING BRACKET L/H	C202852	1
05.4	CLIP HOSE	PS1180.3	2
05.5	NAME PLATE MADE IN ENGLAND	PS1673	1
05.6	WASHER TAPER	PS1742.2	4
05.7	RIVET ROKUT	PS2189.1	4
05.8	NAME PLATE SERIAL	RP513	1
05.9	WASHER COPPER M8	T6495.56	12
05.10	SETSCREW M8 X 25	95000.256	6
05.11	SETSCREW M8 X 35	95000.258	5
05.12	BOLT M12 X 65	95006.203	4
05.13	CAPSCREW M8 X 25	95018.201	1
05.14	NUT M12	95111.7	4
05.15	NIPPLE BARREL 1" BSP	95414.206	1
05.16	OIL FILLER/FILTER	98262.1166	1
05.17	HOSE 1/2" BORE X 450	98315.1127	1

TORQUE WRENCH SETTINGS			
08.5	M10	55 Nm	40 lbf/ft
10.10	M12	95 Nm	70 lbf/ft

T.D.C. CLEARANCES		
1st stage	0.25/1.15mm	
2nd stage	8.25/9.05MM	

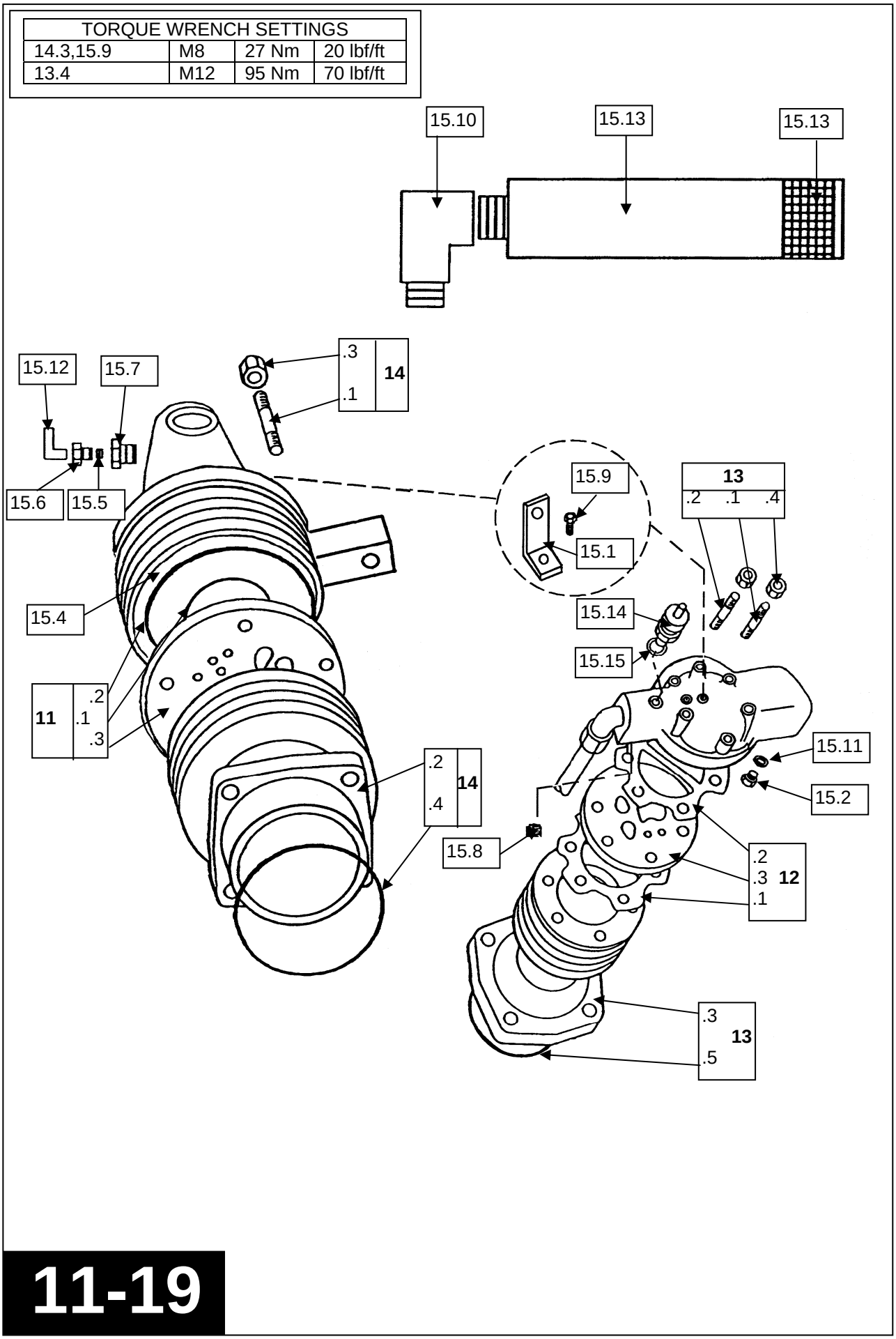


06-10

RUNNING GEAR PARTS

ITEM REF	DESCRIPTION	PART No	5211.2
06	**PISTON 2nd STAGE Parts:-**	**D101149.50***	**1**
.1	*Piston*	*D101149#*	*1*
.1a	*Gudgeon Pin*	*C202864*	*1*
.1b	*Circlip*	*95650.21*	*2*
.2	*Piston Ring*	*E2133#*	*2*
.3	*Piston Ring*	*98477.1123#*	*1*
.	***Piston Ring Set***	***98477.1131****	***1***
07	**PISTON 1st STAGE Parts:-**	**D101549.100***	**1**
.1	*Piston Ring*	*98477.1166.1#*	*2*
.2	*Oil Control Ring*	*98477.1166.2#*	*1*
.3	*Piston*	*D101549#*	*1*
.3a	*Gudgeon Pin*	*C203631*	*1*
.3b	*Circlip*	*95650.22*	*2*
	Piston Ring Set	***98477.1167****	***1***
08	**CRANKSHAFT Parts:-**	**E61123.100***	**1**
.1	*Balance Weight*	*D101624#*	*1*
.2	*Crankshaft*	*E61123#*	*1*
3	*Locking Tab*	*E7730*	*1*
.4	*Dowel*	*H6*	*1*
.5	*Bolt M10 x 70*	*95006.177*	*2*
.6	*Circlip*	*95650.1045*	*1*
09	**CONN ROD 1st STAGE Parts:-**	**C203778***	**1**
.a	*Bush S/E*	*C203777#*	*1*
.b	*Conn Rod*	*D101436#*	*1*
.c	*Splash Pin*	*E1880*	*1*
.d	*Bearing B/E*	*98076.1127#*	*1*
09.1	**CONN ROD 2nd STAGE Parts:-**	**C203779***	**1**
.a	*Conn Rod*	*D101436#*	*1*
.b	*Splash Pin*	*E1880*	*1*
.c	*Bearing S/E*	*98076.1108#*	*1*
.d	*Bearing B/E*	*98076.1127#*	*1*
10.1	**CONN ROD 1st STAGE Parts:-**	**C202035.2**	**0**
.a	*Conn Rod*	*E1856#*	*0*
.b	*Bearing S/E*	*E1857#*	*0*
.c	*Splash Pin*	*E1880*	*0*
.d	*Bearing B/E*	*98076.1127#*	*0*
10.2	**CONN ROD 2nd STAGE Parts:-**	**C202865**	**0**
.a	*Conn Rod*	*D101148#*	*0*
.b	*Splash Pin*	*E1880*	*0*
.c	*Bearing S/E*	*98076.1127#*	*0*
.d	*Bearing B/E*	*98076.1108#*	*0*
10.3	EXTENSION SHAFT FAN	C202933	1
10.4	WASHER LARGE	D2616	1
10.5	SPACER	E1858	1
10.6	SETSCREW M6 X 20	95000.229	6
10.7	WASHER SPRING M6	95179.5	6
10.8	WASHER CONICAL	95188.18	1
10.9	CIRCLIP	95650.1050	1
10.10	SETSCREW L/H M12 X 30	98500.1010	1
10.11	SETSCREW L/H M12 X 70	98500.1044	1

TORQUE WRENCH SETTINGS			
14.3,15.9	M8	27 Nm	20 lbf/ft
13.4	M12	95 Nm	70 lbf/ft

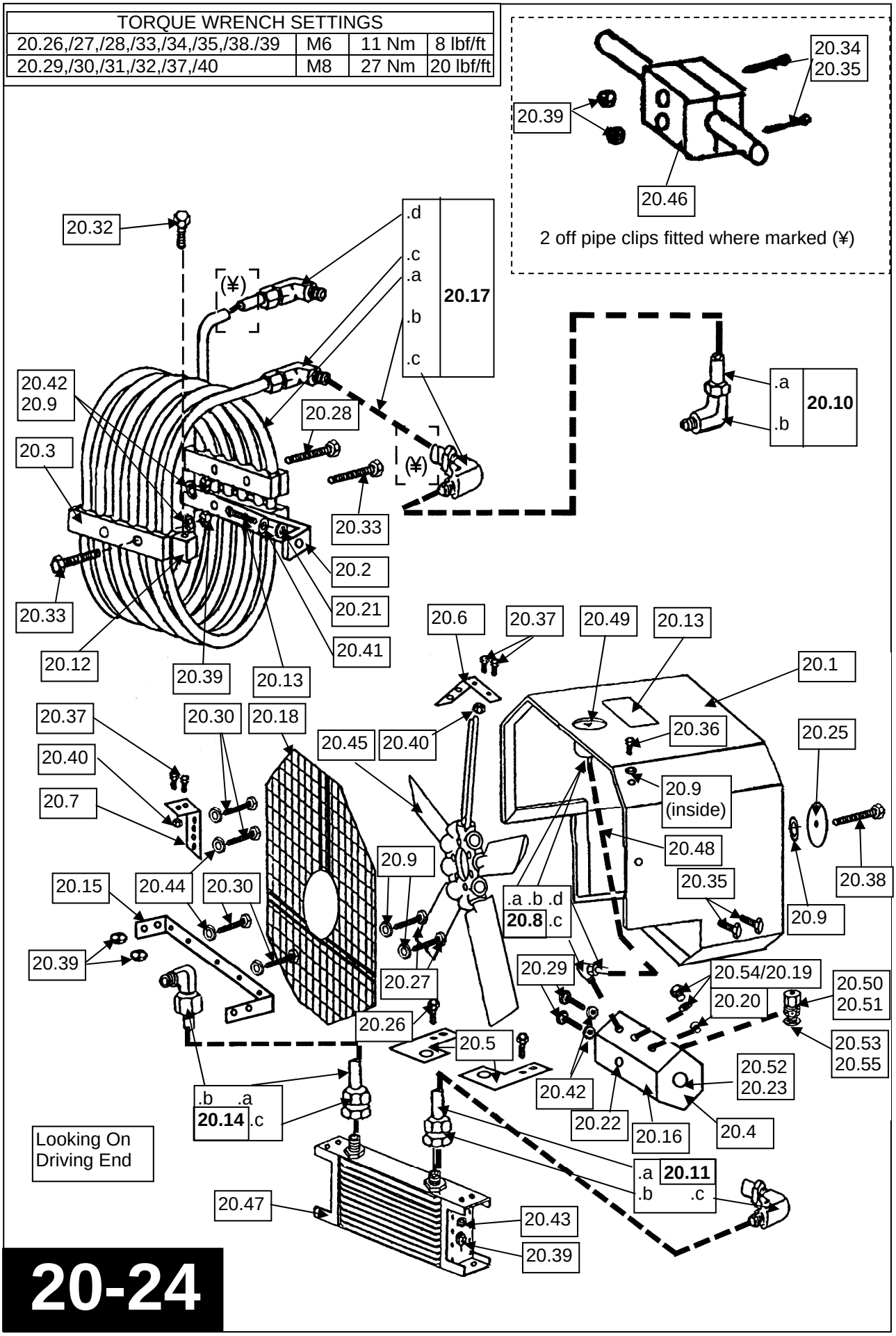


1st & 2nd STAGE CYLINDER PARTS

ITEM REF	DESCRIPTION	PART No	No OFF
11	**VALVE ASSY 1st STAGE Parts:-**	**C202860***	**1**
.1	*'O' Rng*	*95602.85*	*1*
.2	*'O' Ring*	*95602.97*	*1*
.3	*Valve - Concentric*	*98650.1831#*	*1*
12	**VALVE ASSY 2nd STAGE Parts:-**	**C202861***	**1**
.1	*Joint*	*C202284*	*1*
.2	*Joint*	*C202285*	*1*
.3	*Valve - Slot*	*98650.1834#*	*1*
13	**CYLINDER 2nd STAGE Parts:-**	**E61125.100***	**0**
.1	*Stud M12 x 93*	*D66720.12.111*	*0*
.2	*Stud M12 x 54*	*D66720.12.72*	*0*
.3	*Cylinder*	*E61125#*	*0*
.4	*Nut M12*	*95111.7*	*0*
.5	*'O' Ring*	*95602.96*	*0*
13	**CYLINDER 2nd STAGE Parts:-**	**E61185.100***	**0**
.1	*Stud M12 x 93*	*D66720.12.111*	*0*
.2	*Stud M12 x 54*	*D66720.12.72*	*0*
.3	*Cylinder*	*E61125#*	*0*
.4	*Nut M12*	*95111.7*	*0*
.5	*'O' Ring*	*95602.96*	*0*
13	**CYLINDER 2nd STAGE Parts:-**	**E61566.100***	**1**
.1	*Stud M12 x 93*	*D66720.12.111*	*4*
.2	*Stud M12 x 60*	*D66720.12.78*	*2*
.3	*Cylinder*	*E61538#*	*1*
.4	*Nut M12*	*95111.7*	*6*
.5	*'O' Ring*	*95602.96*	*1*
14	**CYLINDER 1st STAGE Parts:-**	**E61566.100***	**1**
.1	*Stud M18 x 122*	*D66720.8.134*	*4*
.2	*Cylinder*	*E61126*	*1*
.3	*Nut M12*	*95111.5*	*4*
.4	*'O' Ring*	*95602.96*	*1*
15.1	BRACKET LIFTING	C200607.1	2
15.2	ADAPTOR	C202784.1	1
15.3	COVER CYLINDER 2nd STAGE	E61022	1
15.4	COVER CYLINDER 1st STAGE	E61122	1
15.5	TUBING SLEEVE ½"	PS1285.7	1
15.6	TUBING NUT ½"	PS1286.7	1
15.7	ADAPTOR ½" BSPT X ½" O/D	PS1295.17	1
15.8	PLUG 1/2" BSPT	PS1454.4	1
15.9	SETSCREW M8 X 16	95000.254	1
15.10	ELBOW 1.1/2" BSPT X 1.1/2" BSPP	95405.58	1
15.11	WASHER COPPER 1.1/4"	95635.9	1
15.12	STEM ELBOW	98156.3102	0
15.13	SUCTION FILTER	98262.1076	1
.a	Element for suction filter	98262.1061*	1
15.14	VALVE SAFETY	98650.1163-7.6	1
15.15	WASHER COPPER 1/4" BSP	98660.1153	1

TORQUE WRENCH SETTINGS			
20.26,/27,/28,/33,/34,/35,/38./39	M6	11 Nm	8 lbf/ft
20.29,/30,/31,/32,/37,/40	M8	27 Nm	20 lbf/ft

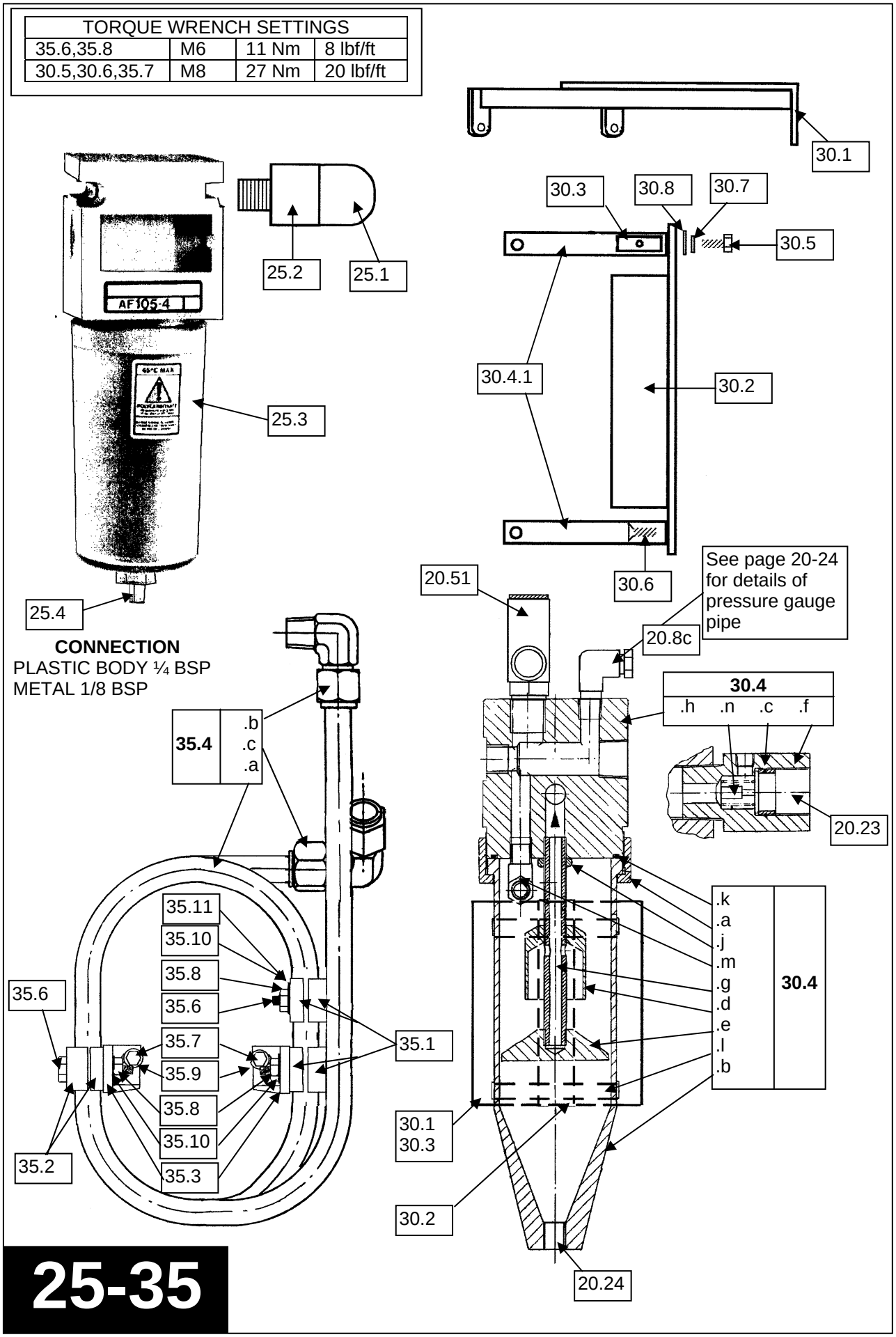
2 off pipe clips fitted where marked (¥)



COOLING ASSEMBLIES

ITEM REF	DESCRIPTION	PART No	No OFF
20.1	FAN GUARD & DUCT	A30099	1
20.2	BRACKET COOLER	CU41239	1
20.3	CLIP COOLER	C200926	5
20.4	FERRULE	C202619	0
20.5	BRACKET COOLER	C202819	2
20.6	SUPPORT BAR - TOP	C202820	1
20.7	SUPPORT BAR - CENTRAL	C202824	1
20.8	**PRESS GAUGE PIPE ASSY Parts:-**	**C202835**	**0**
.a	*Tube Nut 4mm*	*98156.1315#*	*0*
.b	*Tube Sleeve 4mm*	*98156.1386#*	*0*
.c	*Elbow 1/4" BSPT x 4mm O/D*	*98156.2071#*	*0*
.d	*Tube Bundy 4mm O/D x 39"*	*98617.1015#*	*0*
20.8A	**PRESS GAUGE PIPE ASSY Parts:-**	**C203824**	**1**
.a	*Tube Nut 6mm*	*98156.1317#*	*2*
.b	*Tube Sleeve 6mm*	*98156.1388#*	*2*
.c	*Elbow 1/4" BSPT x 6mm O/D*	*98156.2073#*	*1*
.c.1	*Elbow 1/4" BSPT x 6mm O/D*	*98156.2873#*	*1*
.d	*Tube Plastic 6mm O/D x 39"*	*98617.1026#*	*1*
.e	*Pressure gauge washer*	*98261.1524#*	*1*
20.9	WASHER LARGE M6 X 19 O/D		
20.10	**PIPE ASSY Parts:-**	**C202866**	**0**
.a	*Tube Copper Ø 3/4" x 16 swg x 15"*	*W3225.1132#*	*0*
.b	*Elbow 1/2" BSPT x 3/4" O.D*	*98156.2616#*	*0*
20.11	**DELY PIPE ASSY 1ST STAGE Parts:-**	**C202934**	**1**
.a	*Tube Copper Ø 25 x 1.6 x 15"*	*M3201.2522#*	*1*
.b	*Connector 3/4" BSPP x 25 mm O/D*	*95440.74#*	*1*
.c	*Elbow 1" BSPT x 25 mm O/D*	*98156.3185#*	*1*
20.12	BRACKET COOLER	C202935	1
20.12.1	PLATE LEGEND	C203056	1
20.13	NAMEPLATE	C85771.11	1
20.14	**SUCT PIPE ASSY 2nd STAGE Parts:-**	**D101191**	**1**
.a	*Tube Copper Ø 3/4" x 16 swg x 25"*	*W3225.1132#*	*1*
.b	*Elbow 1/2" BSPT x 3/4" O/D*	*98156.2617#*	*1*
.c	*Connector 3/4" BSPP x 3/4" O/D*	*98156.3155#*	*1*
20.14	**SUCT PIPE ASSY 2nd STAGE Parts:-**	**D101128**	**0**
.a	*Tube Copper Ø 3/4" x 16 swg x 25"*	*W3225.1132#*	*0*
.b	*Elbow 3/4" BSPT x 3/4" O/D*	*98156.2617#*	*0*
.c	*Connector 3/4" BSPP x 3/4" O/D*	*98156.3155#*	*0*
20.15	SUPPORT BAR - LOWER	D101135	1
20.16	BLOCK DELIVERY	E61010	0
20.17	**AFTERCOOLER COIL ASSY Parts:-**	**E61129**	**1**
.a	*Tube Copper Ø 3/4" x 16 swg x 200"*	*W3225.1132#*	*1*
.b	*Tube Copper Ø 3/4" x 16 swg x 36"*	*W3225.1132#*	*1*
.c	*Elbow Union Ø 3/4"*	*98156.1855#*	*1*
.d	*Elbow 3/4" BSPT x 3/4" O/D x 45°*	*98156.3156*	*1*

TORQUE WRENCH SETTINGS			
35.6,35.8	M6	11 Nm	8 lbf/ft
30.5,30.6,35.7	M8	27 Nm	20 lbf/ft

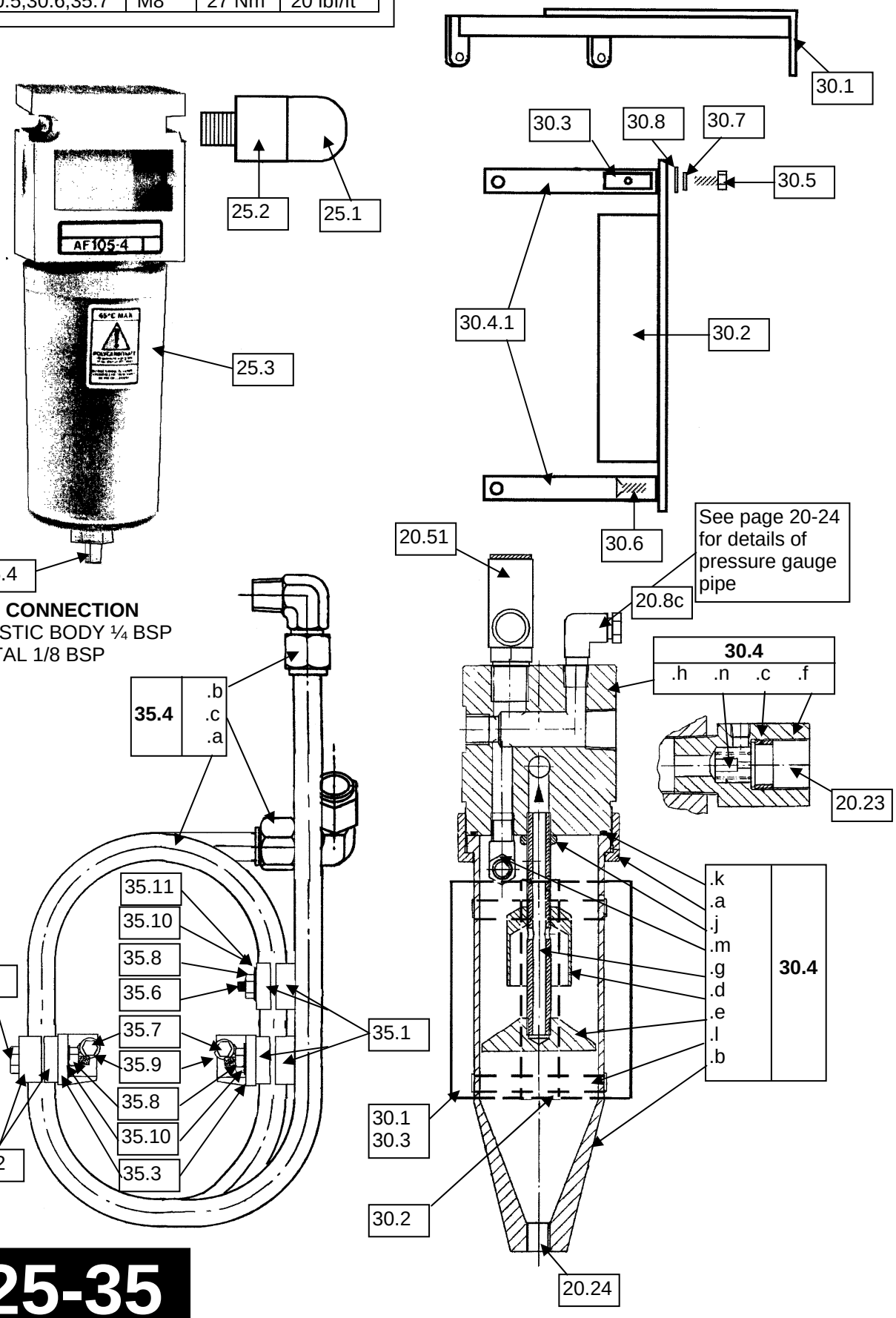


25-35

COOLING ASSEMBLIES Cont.

ITEM REF	DESCRIPTION	PART No	No OFF
20.18	FAN GUARD INNER	E61130	1
20.19	PLUG 3/8" BSP	PS1068.3	1
20.20	PLUG 1/8" BSPT	PS1454.1	1
20.21	WASHER TAPER M8	PS1742.1	3
20.22	RED CAP	PS2023.2	1
20.23	RED CAP	PS2023.4	1
20.24	RED CAP see CONTRACT for details	PS2023.15	1
20.25	ROTATION PLATE	RP534	1
20.26	SETSCREW M6 X 12	95000.227	4
20.27	SETSCREW M6 X 20	95000.229	5
20.28	SETSCREW M6 X 60	95000.237	4
20.29	SETSCREW M8 X 16	95000.254	0
20.30	SETSCREW M8 X 20	95000.255	4
20.31	SETSCREW M8 X 25	95000.256	1
20.32	SETSCREW M8 X 40	95000.259	1
20.33	BOLT M6 X 70	95006.132	4
20.34	CAPSCREW M6 X 40	95018.172	2
20.35	CAPSCREW M6 X 50	95018.174	2
20.36	SCREW BUTTON HEAD M6 X 10	95033.386	1
20.37	SCREW PAN HEAD M8 X 20	95018.200	7
20.38	SCREW CHEESE HEAD M6 X 20	95092.424	1
20.39	NUT M6	95111.4	4
20.40	NUT M8	95111.5	4
20.41	WASHER M8	95148.14	1
20.42	WASHER M6	95149.13	6
20.43	WASHER SPRING M6	95179.5	4
20.44	WASHER SPRING M8	95179.6	4
20.45	AXIAL FAN	98084.1024	1
20.46	CLAMP PIPE Ø 3/4"	98150.1049	2
20.47	COOLER INTERSTAGE	98154.1002	1
20.48	TIE CABLE	98241.1049	2
20.49	GAUGE PRESSURE 0 - 70 bar	98288.1027	1
20.50	VALVE SAFETY 2nd STAGE 33 bar	98650.1164-33	0
20.51	VALVE SAFETY 2nd STAGE 49.5 bar	98650.1164-50	1
20.52	VALVE NON-RETURN	98650.1566	0
20.53	SEAL COPPER 1/4" BSP	98660.1153	1
20.54	SEAL COPPER 3/8" BSP	98660.1154	1
20.55	SEAL COPPER 1/2" BSP	98660.1155	1
25	**SEPARATOR 1ST STAGE ASSY parts:-**	**D101657**	**1**
25.1	ELBOW 3/4" BSP	95405.55	1
25.2	REDUCER HEX 3/4" BSP X 1/2" BSP	95405.819	1
25.3	SEPARATOR 1st STAGE	C203667	1
25.4	SEPARATOR DRAIN SEE CONTRACT	FOR DETAILS	1
30.1	BRACKET	C202870	1
30.2	CHANNEL SUPPORT	C202871	1
30.3	PLATE TAPPED	C202873.1	1

TORQUE WRENCH SETTINGS			
35.6,35.8	M6	11 Nm	8 lbf/ft
30.5,30.6,35.7	M8	27 Nm	20 lbf/ft



25-35

COOLING ASSEMBLIES Cont.

ITEM REF	DESCRIPTION	PART No	No OFF
30.4	**SEPARATOR 2nd STAGE ASSY parts:-**	**D101623**	**1**
30.4	**SEPARATOR 2nd STAGE ASSY parts:-**	**D101192**	**0**
.a	*Nut Collar*	*C200752*	*0*
.b	*Body Separator*	*C201603*	*0*
.c	*Ferrule*	*C202619*	*0*
.d	*Shroud*	*C202869*	*0*
e	*Mushroom*	*C202880*	*0*
.f	*Body Non Return Valve*	*C202882*	*0*
.g	*Pipe Outlet*	*C202883*	*0*
.h	*Cover*	*D101153*	*0*
.j	*Nut M12*	*95111.7*	*0*
.k	*'O' Ring*	*95602.61*	*0*
.l	*Clip*	*98150.1007*	*0*
.m	*Elbow1/4" BSPT X 8 mm*	*98156.2575*	*0*
.n	*Non Return Valve (internals)*	*98650.1824*	*0*
30.5	SETSCREW M8 x 30	95000.257	1
30.6	SCREW CSK M8 x 30	95028.136	1
30.7	WASHER PLAIN M8	95148.14	2
30.8	WASHER SPRING M8	95179.6	1
31	**COOLER EXTENTION ASSY parts:-**	**E61576**	**1**
.a	*Tube 3/4" x 16g x 126"*	*W3225.1132*	*1*
.b	*Elbow 3/4" o/d x 1/2" BSPT*	*98156.2616*	*1*
.c	*Tube Nut Triple-Loc*	*98156.3777*	*1*
.d	*Sleeve Nut Triple-Loc*	*98156.3787*	*1*
35.1	CLAMP	C202874	4
35.2	CLAMP	C202875	2
35.3	BRACKET	D101152	2
35.4	**COOLER EXTENTION ASSY parts:-**	**E61141**	**0**
.a	*Tube 3/4" x 16g x 126"*	*W3225.1132*	*0*
.b	*Elbow 3/4" o/d*	*98156.1855*	*0*
.c	*Elbow 3/4" o/d x 1/2" BSPT*	*98156.2616*	*0*
35.5	WASHER TAPER 3/8"	PS1742.1	2
35.6	BOLT M6 X 70	95006.132	4
35.7	SETSCREW M8 X 35	95000.258	2
35.8	NUT M6	95111.4	6
35.9	WASHER PLAIN M8	95148.14	2
35.10	WASHER PLAIN PLATED M6	95149.13	2
35.11	WASHER LARGE	98660.1189	4

MAINTENANCE KITS

ITEM REF	DESCRIPTION	PART No	No OFF
	MAINTENANCE JOINT KIT	**98504.1292***	**1**
12.1	Joint 2nd Stage Valve to Cylinder	C202284	1
12.2	Joint 2nd Stage Valve to Cover	C202285	1
01.1/02.1	Joint D/E & O/E Bearing Hsg to Crankcase	E1320	2
11.1	'O' Ring 1st Stage Valve to Cover	95602.85	1
13.5/14.4	'O' Ring 1st & 2nd Stage Cyls to Crankcase	95602.96	2
11.2	'O' Ring 1st Stage Valve to Cylinder	95602.97	1
15.11	Washer Copper 1.1/4" BSP	95635.9	1
15.15/20.5	Washer Copper 1/4" BSP	98660.1153	2
3	Washer Copper 3/8" BSP	98660.1154	1
20.54			

ITEM REF	DESCRIPTION	PART No	No OFF
	1st STAGE VALVE PLATE	**98651.1023***	**1**

13 ANCILLARY EQUIPMENT

13.1 ELECTRIC MOTOR – APP034

ELECTRIC MOTOR MAINTENANCE

WARNING :

Isolate power supply to motor before commencing any routine cleaning or maintenance work.

Routine Cleaning :

Remove the fan cover and ensure that all holes are completely open. Clear any dirt and fluff from behind the fan and along the ribs of the frame.

Periodic Maintenance :

Remove the cover and the fan which is fitted on the shaft extension.

Slacken and remove bearing cover screws and endshield bolts/studs. The endshields should then be eased off their spigots.

The rotor can now be withdrawn carefully from the stator.

Having dismantled the motor, maintenance can now be carried out to remove all dirt. Dry, compressed air under comparatively low pressure is best as a high velocity stream can force dirt into the spaces between windings, etc.

Grease removing solvents should only be used very sparingly so as not to damage impregnating varnish or insulation.

Bearings are charged with sufficient grease to last at least two years, provided there is little or no grease leakage. When replenishing, use only good quality lithium based grease and avoid overfilling the bearing housing.

Motors should be reassembled in the reverse order from dismantling, taking care not to damage the windings on insertion of rotor, taking care not to damage the windings on insertion of rotor, remembering to ease endshields on bearings and spigots. DO NOT USE FORCE.

Before starting, check that the rotor revolves freely. Ensure that the electrical connections are correct and terminal nuts tight.

Refit any pulley, coupling, sprocket etc. which have been removed, being particularly careful to ensure correct alignment with the driven part, as misalignment may lead to ultimate bearing failure and shaft breakage.

13.2 HIGH AIR PRESSURE SWITCH – APP086

HIGH AIR/GAS PRESSURE SWITCHES

PART NO: 98524/1025, 1049, 1094, 1095, 1096, 1102, 1103, 1104, 1107, 1128, 1135, 1136, 1137, 1210 & 1212

OPERATION - MANUAL START/AUTO STOP
Located as close as possible to the delivery, inlet air/gas line, the pressure switch stops the compressor when the air/gas pressure rises or falls above or below the pre-set pressure setting.

TYPICAL SETTINGS - Set to actual operating pressures or check contract for details.

Set pressures:	98524/1025	Setting Range 30"hg vac - 15 psig rising	
	98524/1094	Setting Range 0.14 - 4 psig rising	
	98524/1095	Setting Range 0.35 - 11 psig rising	
	98524/1096	Setting Range 1.4 - 28 psig rising	
	98524/1102	Setting Range 0.2 - 4 bar g rising	Reset Differential 0.07 bar
	98524/1103	Setting range 2 - 28 bar g rising	Reset Differential 0.6 bar
	98524/1107	Setting range 0.2 - 4 bar g rising	Reset Differential 0.6 bar
	98524/1128	Setting Range 2.5 mbar - 125 mbar	To withstand 2.2 bar overload.
	98524/1135	Setting Range 0.2 - 4 bar g rising	Reset Differential 0.07 bar
	98524/1136	Setting Range 3 - 70 bar g rising.	
	98524/1137	Setting Range 3 - 66.5 bar g rising.	
	98524/1210	Setting Range 5 – 40 mbar	
	98524/1212	Setting Range 70mbar – 70bar	

The switch transforms a change of pressure into an electrical "On" or "Off" signal.
When a pre-set pressure is reached the snap action contact stops the compressor.

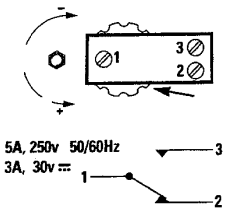
OPERATION - AUTO START/STOP
Located as close as possible to the delivery air/gas line, the pressure switch stops the compressor when the upper pre-set pressure setting is attained and triggers off the start when the lower differential pressure limit is reached.

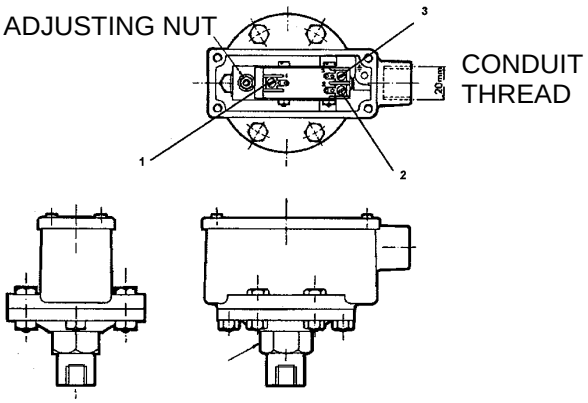
TYPICAL SETTINGS - Set to actual operating pressures or check contract for details.

Set pressures:	98524/1049	Setting Range 2 - 42 bar g rising	
		Set Pressure HIGH 31 bar g rising	Set Pressure LOW 28 bar g falling.
	98524/1104	Setting Range 2 - 70 bar g rising	
		Set Pressure HIGH 40 bar g rising	Set Pressure LOW 36 bar g falling.
	98524/1137	Setting Range 3 - 66.5 bar g rising	
		Set Pressure HIGH 42 bar g rising	Set Pressure LOW 39 bar g falling.

The switch transforms a change of pressure into an electrical "On" or "Off" signal.

When a pre-set high pressure is reached the snap action contact stops the compressor, after dropping to the lower setting, the compressor restarts.





INSTALLATION
Mount the switch by the bracket provided.
It is usual to connect 1 (C) and 2 (NC) to the compressor electrical control circuit terminals marked "Pressure Switch".

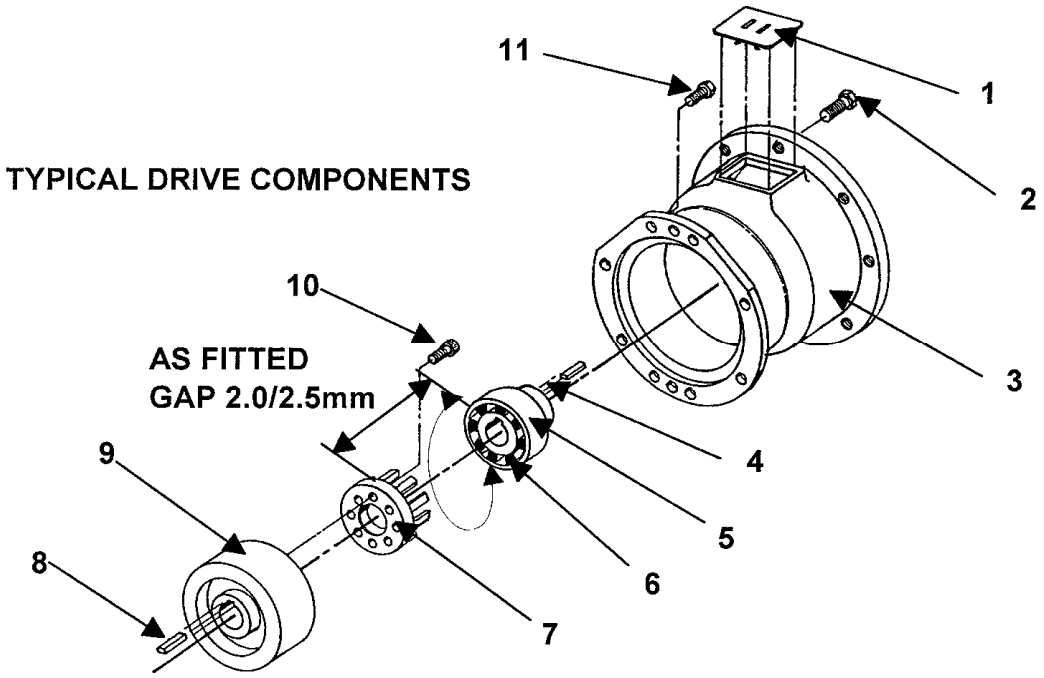
Remove cover to set pressure setting, using a pressure gauge. Note:- Switches are pre-set and do not usually need adjusting. Please confirm with Engineering at CompAir UK Ltd Ipswich if switches are to be adjusted.

a. Turn adjusting nut clockwise to lower set point.
b. Turn adjusting nut anti clockwise to raise set point.
c. To adjust differential use notched wheel below the microswitch.

13.3 DIRECT DRIVE – APP011B

DIRECT DRIVE:

Ensure compressor and drive motor is correctly aligned as the flexible couplings are for vibration duties only and not as non-alignment couplings. Note direct coupled sets with bell type housing (see below) are self aligning.



DIRECT DRIVE CHECKING FOR FREE PLAY AND WEAR.

After the first 500 hours and every 2000 hours, more frequently on arduous duties such as more than 6 starts per hour on auto stop/start operation, check the following:-
Ensuring compressor is isolated from mains supply, remove inspection cover (1) from bell housing (3) to expose drive components (5, 6 & 7), then by gripping the motor half coupling (5) firmly check for free movement by rotating backwards and forwards. The amount of free movement should be minimal 0.5 to 1.0 mm, excessive movement i.e. 3 to 4 mm or more should be investigated and the rubber couplings (6) replaced (complete set) as necessary.

13.4 SOLENOID VALVE – APP171

2 WAY NORMALLY OPEN SOLENOID VALVE

OPERATION

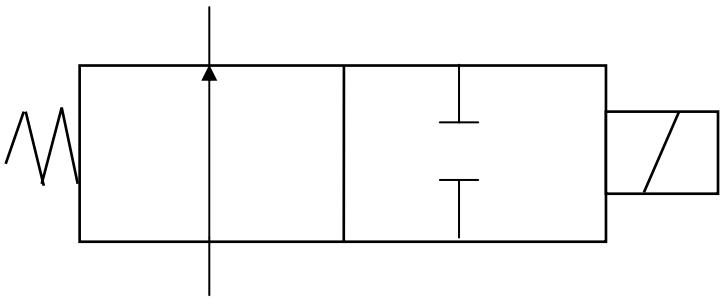
2 way normally open, energise to close, continuous duty.
On starting the solenoid valve is open. When energised the valves will close thus allowing pressure to build up in the system to the desired pressure. On shutdown the solenoid valve open (de-energised) this takes the pressure off thus allowing the drain to blow any condensate collected within.

PART NUMBERS

Technical Details			**Size**		**Maximum pressure**
Part No	Voltage	Hz	Port	Orifice	Bar
98516.1018	240	50/60AC	¼”BSPP	1.6mm	60
98516.1040	240	50 AC	1/8”BSP	1.5mm	30
98516.1042	240	50 AC	½”BSP	12mm	16
98516.1043	110	50 AC	½”BSP	12mm	16
98516.1044	24	DC	½”BSP	12mm	16
98516.1048	6	DC	¼”BSP	1.6mm	60
98516.1049	12	DC	¼”BSP	1.6mm	60
98516.1050	24	DC	¼”BSP	1.6mm	60
98516.1051	48	DC	¼”BSP	1.6mm	60
98516.1052	110	DC	¼”BSP	1.6mm	60
98516.1053	220	DC	¼”BSP	1.6mm	60
98516.1054	12	50/60AC	¼”BSP	1.6mm	60
98516.1055	24	50/60AC	¼”BSP	1.6mm	60
98516.1056	48	50/60AC	¼”BSP	1.6mm	60
98516.1057	110	50/60AC	¼”BSP	1.6mm	60
98516.1058	220	50/60AC	¼”BSP	1.6mm	60
98516.1059	380	50/60AC	¼”BSP	1.6mm	60
98516.1084	240	50AC	¼”BSP	2.0mm	50
98516.1085	110	50AC	¼”BSP	2.0mm	50
98516.1091	24	50AC	¼”BSP	2.0mm	50
98516.1092	220	50AC	¼”BSP	2.0mm	50
98516.1093	12	DC	¼”BSP	2.0mm	50
98516.1094	24	DC	¼”BSP	2.0mm	50
98516.1095	110	DC	¼”BSP	2.0mm	50
98516.1096	220	DC	¼”BSP	2.0mm	50
98516.1102	24	60AC	¼”BSP	2.0mm	50
98516.1103	110	60AC	¼”BSP	2.0mm	50
98516.1104	220	60AC	¼”BSP	2.0mm	50
98516.1105	240	60AC	¼”BSP	2.0mm	50

INSTALLATION

Electrical connection		Amps pin to DIN 46242
Connector		To DIN 43650
Protection		IP65
Cable thread size		PG9
Coil		Class 'H' 180°C insulation
Coil duty		Continuous
Voltage tolerance from normal	-	10% to +10%
Working fluid		Air, water, gas, fuel oil & non corrosive liquids.
Ambient temperature range	-	5°C to +50°C



WARNING

The use of replacement parts or lubricating oils not supplied, recommended or approved by **CompAir UK Ltd. Ipswich**, may lead to failure in service which would not be covered by the warranty.

Any unauthorised modifications or failures to maintain this equipment is accordance with the manufacturers maintenance instructions may make it unsafe. The use of replacement parts not supplied by or recommended by CompAir UK Ltd may create unsafe and hazardous conditions or result in damage to the equipment over which CompAir UK Ltd has no control. Such hazardous conditions may lead to accidents that can be life threatening, cause substantial bodily injury or result in damage to the equipment.

CompAir UK Ltd can bear no responsibility for equipment in which unapproved replacement parts are included.

GENUINE PARTS
CompAir UK Ltd

Use ***Reavellite*** compressor lubricant.
Advantages:

- Longer life.
- Longer time between oil changes.
- Longer valve life.
- Can be used in new or old compressors.
- Reduces carbon build up.
- Reduces oil consumption.

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