

Atlas Copco

Instruction Manual



Instruction Manual
for Portable Compressors
English

XAS 67 Kd C3 APP - XAS 130 KD7 C3 APP
XAS 87 Kd C3 APP - XAS 175 KD7 C3 APP

Engine Kubota V1505
Engine Kubota V1505-T

Atlas Copco

**Instruction Manual
for Portable Compressors**

**XAS 67 - XAS 130
XAS 87 - XAS 175**

Original instructions

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ATLAS COPCO - PORTABLE ENERGY DIVISION
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Use only authorized parts.

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The manufacturer does not accept any liability for any damage arising from modifications, additions or conversions made without the manufacturer's approval in writing.

Neglecting maintenance or making changes to the setup of the machine can result in major hazards, including fire risk.

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Preface

Follow the instructions in this booklet and we guarantee you years of troublefree operation. It is a solid, safe and reliable machine, built according to the latest technology.

Always keep the manual available near the machine.

In all correspondence always mention the compressor type and serial number, shown on the data plate.

The company reserves the right to make changes without prior notice.

CALIFORNIA Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

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Safety precautions



To be read attentively and acted accordingly before towing, lifting, operating, performing maintenance or repairing the unit.

INTRODUCTION

The policy of Atlas Copco is to provide the users of their equipment with safe, reliable and efficient products. Factors taken into account are among others:

- the intended and predictable future use of the products, and the environments in which they are expected to operate,
- applicable rules, codes and regulations,
- the expected useful product life, assuming proper service and maintenance,
- providing the manual with up-to-date information.

Before handling any product, take time to read the relevant instruction manual. Besides giving detailed operating instructions, it also gives specific information about safety, preventive maintenance, etc.

Keep the manual always at the unit location, easy accessible to the operating personnel.

See also the safety precautions of the engine and possible other equipment, which are separately sent along or are mentioned on the equipment or parts of the unit.

These safety precautions are general and some statements will therefore not always apply to a particular unit.

Only people that have the right skills should be allowed to operate, adjust, perform maintenance or repair on Atlas Copco equipment.

It is the responsibility of management to appoint operators with the appropriate training and skill for each category of job.

Skill level 1: Operator

An operator is trained in all aspects of operating the unit with the push-buttons, and is trained to know the safety aspects.

Skill level 2: Mechanical technician

A mechanical technician is trained to operate the unit the same as the operator. In addition, the mechanical technician is also trained to perform maintenance and repair, as described in the instruction manual, and is allowed to change settings of the control and safety system. A mechanical technician does not work on live electrical components.

Skill level 3: Electrical technician

An electrical technician is trained and has the same qualifications as both the operator and the mechanical technician. In addition, the electrical technician may carry out electrical repairs within the various enclosures of the unit. This includes work on live electrical components.

Skill level 4: Specialist from the manufacturer

This is a skilled specialist sent by the manufacturer or its agent to perform complex repairs or modifications to the equipment.

In general it is recommended that not more than two people operate the unit, more operators could lead to unsafe operating conditions.

Take necessary steps to keep unauthorized persons away from the unit and eliminate all possible sources of danger at the unit.

When handling, operating, overhauling and/or performing maintenance or repair on Atlas Copco equipment, the mechanics are expected to use safe engineering practices and to observe all relevant local safety requirements and ordinances. The following list is a reminder of special safety directives and precautions mainly applicable to Atlas Copco equipment.

These safety precautions apply to machinery processing or consuming air. Processing of any other gas requires additional safety precautions typical to the application and are not included herein.

Neglecting the safety precautions may endanger people as well as environment and machinery:

- endanger people due to electrical, mechanical or chemical influences,
- endanger the environment due to leakage of oil, solvents or other substances,
- endanger the machinery due to function failures.

All responsibility for any damage or injury resulting from neglecting these precautions or by non-observance of ordinary caution and due care required in handling, operating, maintenance or repair, also if not expressly mentioned in this instruction manual, is disclaimed by Atlas Copco.

The manufacturer does not accept any liability for any damage arising from the use of non-original parts and for modifications, additions or conversions made without the manufacturer's approval in writing.

If any statement in this manual does not comply with local legislation, the stricter of the two shall be applied.

Statements in these safety precautions should not be interpreted as suggestions, recommendations or inducements that it should be used in violation of any applicable laws or regulations.

GENERAL SAFETY PRECAUTIONS

- 1 The owner is responsible for maintaining the unit in a safe operating condition. Unit parts and accessories must be replaced if missing or unsuitable for safe operation.
- 2 The supervisor, or the responsible person, shall at all times make sure that all instructions regarding machinery and equipment operation and maintenance are strictly followed and that the machines with all accessories and safety devices, as well as the consuming devices, are in good repair, free of abnormal wear or abuse, and are not tampered with.
- 3 Whenever there is an indication or any suspicion that an internal part of a machine is overheated, the machine shall be stopped but no inspection covers shall be opened before sufficient cooling time has elapsed; this to avoid the risk of spontaneous ignition of oil vapour when air is admitted.
- 4 Normal ratings (pressures, temperatures, speeds, etc.) shall be durably marked.
- 5 Operate the unit only for the intended purpose and within its rated limits (pressure, temperature, speeds, etc.).
- 6 The machinery and equipment shall be kept clean, i.e. as free as possible from oil, dust or other deposits.
- 7 To prevent an increase in working temperature, inspect and clean heat transfer surfaces (cooler fins, intercoolers, water jackets, etc.) regularly. See the **Preventive maintenance schedule**.
- 8 All regulating and safety devices shall be maintained with due care to ensure that they function properly. They may not be put out of action.
- 9 Care shall be taken to avoid damage to safety valves and other pressure-relief devices, especially to avoid plugging by paint, oil coke or dirt accumulation, which could interfere with the functioning of the device.
- 10 Pressure and temperature gauges shall be checked regularly with regard to their accuracy. They shall be replaced whenever outside acceptable tolerances.
- 11 Safety devices shall be tested as described in the maintenance schedule of the instruction manual to determine that they are in good operating condition. See the **Preventive maintenance schedule**.
- 12 Mind the markings and information labels on the unit.
- 13 In the event the safety labels are damaged or destroyed, they must be replaced to ensure operator safety.
- 14 Keep the work area neat. Lack of order will increase the risk of accidents.
- 15 When working on the unit, wear safety clothing. Depending on the kind of activities these are: safety glasses, ear protection, safety helmet (including visor), safety gloves, protective clothing, safety shoes. Do not wear the hair long and loose (protect long hair with a hairnet), or wear loose clothing or jewellery.
- 16 Take precautions against fire. Handle fuel, oil and anti-freeze with care because they are inflammable substances. Do not smoke or approach with naked flame when handling such substances. Keep a fire-extinguisher in the vicinity.

SAFETY DURING TRANSPORT AND INSTALLATION

Transport of the unit has to be done by authorized/experienced people.

When towing, lifting or transporting the compressor in any way, the battery switch must always be switched off.

To lift a unit, all loose or pivoting parts, e.g. doors and towbar, shall first be securely fastened.

Do not attach cables, chains or ropes directly to the lifting eye; apply a crane hook or lifting shackle meeting local safety regulations. Never allow sharp bends in lifting cables, chains or ropes.

Helicopter lifting is not allowed.

It is strictly forbidden to dwell or stay in the risk zone under a lifted load. Never lift the unit over people or residential areas. Lifting acceleration and retardation shall be kept within safe limits.

1 Before towing the unit:

- ascertain that the pressure vessel(s) is (are) depressurized,
- check the towbar, the brake system and the towing eye. Also check the coupling of the towing vehicle,
- check the towing and brake capability of the towing vehicle,
- check that the towbar, jockey wheel or stand leg is safely locked in the raised position,
- keep hands/fingers away from the coupling device and all other potential pinch points. Keep feet away from the towbar to avoid injury if it should slip,
- ascertain that the towing eye can swivel freely on the hook,

- check that the wheels are secure and that the tyres are in good condition and inflated correctly,
 - connect the signalisation cable, check all lights and connect the pneumatic brake couplers, ascertain that the signalisation cable can not drag on the ground when towing the unit,
 - attach the safety break-away cable or safety chain to the towing vehicle,
 - remove wheel chocks, if applied, and disengage the parking brake,
 - check whether springs on wheelchocks are missing or broken.
- 2 To tow a unit use a towing vehicle of ample capacity. Refer to the documentation of the towing vehicle.
 - 3 If the unit is to be backed up by the towing vehicle, disengage the overrun brake mechanism (if it is not an automatic mechanism).
 - 4 Never exceed the maximum towing speed of the unit (mind the local regulations).
 - 5 Place the unit on level ground and apply the parking brake before disconnecting the unit from the towing vehicle. Unclip the safety break-away cable or safety chain. If the unit has no parking brake or jockey wheel, immobilize the unit by placing chocks in front of and/or behind the wheels. When the towbar can be positioned vertically, the locking device must be applied and kept in good order. The unit must always be used/parked/stored in a non publicly accessible area, locked away from access by unauthorized persons.
 - 6 To lift heavy parts, a hoist of ample capacity, tested and approved according to local safety regulations, shall be used.
 - 7 Lifting hooks, eyes, shackles, etc., shall never be bent and shall only have stress in line with their design load axis. The capacity of a lifting device diminishes when the lifting force is applied at an angle to its load axis.
 - 8 For maximum safety and efficiency of the lifting apparatus all lifting members shall be applied as near to perpendicular as possible. If required, a lifting beam shall be applied between hoist and load.
 - 9 Never leave a load hanging on a hoist.
 - 10 A hoist has to be installed in such a way that the object will be lifted perpendicular. If that is not possible, the necessary precautions must be taken to prevent load-swinging, e.g. by using two hoists, each at approximately the same angle not exceeding 30° from the vertical.
 - 11 Locate the unit away from walls. Take all precautions to ensure that hot air exhausted from the engine and driven machine cooling systems cannot be recirculated. If such hot air is taken in by the engine or driven machine cooling fan, this may cause overheating of the unit; if taken in for combustion, the engine power will be reduced.
 - 12 Before moving the compressor, switch it off.

SAFETY DURING USE AND OPERATION

- 1 When the unit has to operate in a fire-hazardous environment, each engine exhaust has to be provided with a spark arrestor to trap incendiary sparks.
 - 2 The exhaust contains carbon monoxide which is a lethal gas. When the unit is used in a confined space, conduct the engine exhaust to the outside atmosphere by a pipe of sufficient diameter; do this in such a way that no extra back pressure is created for the engine. If necessary, install an extractor. Observe any existing local regulations. Make sure that the unit has sufficient air intake for operation. If necessary, install extra air intake ducts.
 - 3 When operating in a dust-laden atmosphere, place the unit so that dust is not carried towards it by the wind. Operation in clean surroundings considerably extends the intervals for cleaning the air intake filters and the cores of the coolers.
 - 4 Close the compressor air outlet valve before connecting or disconnecting a hose. Ascertain that a hose is fully depressurized before disconnecting it. Before blowing compressed air through a hose or air line, ensure that the open end is held securely, so that it cannot whip and cause injury.
 - 5 The air line end connected to the outlet valve must be safeguarded with a safety cable, attached next to the valve.
 - 6 No external force may be exerted on the air outlet valves, e.g. by pulling on hoses or by installing auxiliary equipment directly to a valve, e.g. a water separator, a lubricator, etc. Do not step on the air outlet valves.
 - 7 Never move a unit when external lines or hoses are connected to the outlet valves, to avoid damage to valves, manifold and hoses.
 - 8 Do not use compressed air from any type of compressor, without taking extra measures, for breathing purposes as this may result in injury or death. For breathing air quality, the compressed air must be adequately purified according to local legislation and standards. Breathing air must always be supplied at stable, suitable pressure.
 - 9 Distribution pipework and air hoses must be of correct diameter and suitable for the working pressure. Never use frayed, damaged or deteriorated hoses. Replace hoses and flexibles before the lifetime expires. Use only the correct type and size of hose end fittings and connections.
 - 10 If the compressor is to be used for sand-blasting or will be connected to a common compressed-air system, fit an appropriate non-return valve (check valve) between compressor outlet and the connected sand-blasting or compressed-air system. Observe the right mounting position/direction.
 - 11 Before removing the oil filler plug, ensure that the pressure is released by opening an air outlet valve.
 - 12 Never remove a filler cap of the cooling water system of a hot engine. Wait until the engine has sufficiently cooled down.
 - 13 Never refill fuel while the unit is running, unless otherwise stated in the Atlas Copco Instruction Book (AIB). Keep fuel away from hot parts such as air outlet pipes or the engine exhaust. Do not smoke when fuelling. When fuelling from an automatic pump, an earthing cable should be connected to the unit to discharge static electricity. Never spill nor leave oil, fuel, coolant or cleansing agent in or around the unit.
 - 14 All doors shall be shut during operation so as not to disturb the cooling air flow inside the bodywork and/or render the silencing less effective. A door should be kept open for a short period only e.g. for inspection or adjustment.
- 15 Periodically carry out maintenance works according to the maintenance schedule.
 - 16 Stationary housing guards are provided on all rotating or reciprocating parts not otherwise protected and which may be hazardous to personnel. Machinery shall never be put into operation, when such guards have been removed, before the guards are securely reinstalled.
 - 17 Noise, even at reasonable levels, can cause irritation and disturbance which, over a long period of time, may cause severe injuries to the nervous system of human beings. When the sound pressure level, at any point where personnel normally has to attend, is:
 - below 70 dB(A): no action needs to be taken,
 - above 70 dB(A): noise-protective devices should be provided for people continuously being present in the room,
 - below 85 dB(A): no action needs to be taken for occasional visitors staying a limited time only,
 - above 85 dB(A): room to be classified as a noise-hazardous area and an obvious warning shall be placed permanently at each entrance to alert people entering the room, for even relatively short times, about the need to wear ear protectors,
 - above 95 dB(A): the warning(s) at the entrance(s) shall be completed with the recommendation that also occasional visitors shall wear ear protectors,
 - above 105 dB(A): special ear protectors that are adequate for this noise level and the spectral composition of the noise shall be provided and a special warning to that effect shall be placed at each entrance.

- 18 The unit has parts, which may be accidentally touched by personal, of which the temperature can be in excess of 80°C (176°F). The insulation or safety guard, protecting these parts shall not be removed before the parts have cooled down to room temperature. As it is technically not possible to insulate all hot parts or to install safety guards around hot parts (e.g. exhaust manifold, exhaust turbine), the operator / service engineer must always be aware not to touch hot parts when opening a machine door.
- 19 Never operate the unit in surroundings where there is a possibility of taking in flammable or toxic fumes.
- 20 If the working process produces fumes, dust or vibration hazards, etc., take the necessary steps to eliminate the risk of personal injury.
- 21 When using compressed air or inert gas to clean down equipment, do so with caution and use the appropriate protection, at least safety glasses, for the operator as well as for any bystander. Do not apply compressed air or inert gas to your skin or direct an air or gas stream at people. Never use it to clean dirt from your clothes.
- 22 When washing parts in or with a cleaning solvent, provide the required ventilation and use appropriate protection such as a breathing filter, safety glasses, rubber apron and gloves, etc.
- 23 Safety shoes should be compulsory in any workshop and if there is a risk, however small, of falling objects, wearing of a safety helmet should be included.
- 24 If there is a risk of inhaling hazardous gases, fumes or dust, the respiratory organs must be protected and depending on the nature of the hazard, so must the eyes and skin.
- 25 Remember that where there is visible dust, the finer, invisible particles will almost certainly be present too; but the fact that no dust can be seen is not a reliable indication that dangerous, invisible dust is not present in the air.
- 26 Never operate the unit at pressures or speeds below or in excess of its limits as indicated in the technical specifications.
- 27 Do not use aerosol types of starting aids such as ether. Such use could result in an explosion and personal injury.

SAFETY DURING MAINTENANCE AND REPAIR

Maintenance, overhaul and repair work shall only be carried out by adequately trained personnel; if required, under supervision of someone qualified for the job.

- 1 Use only the correct tools for maintenance and repair work, and only tools which are in good condition.
- 2 Parts shall only be replaced by genuine Atlas Copco replacement parts.
- 3 All maintenance work, other than routine attention, shall only be undertaken when the unit is stopped. Steps shall be taken to prevent inadvertent starting. In addition, a warning sign bearing a legend such as "work in progress; do not start" shall be attached to the starting equipment. On engine-driven units the battery shall be disconnected and removed or the terminals covered by insulating caps. On electrically driven units the main switch shall be locked in open position and the fuses shall be taken out. A warning sign bearing a legend such as "work in progress; do not supply voltage" shall be attached to the fuse box or main switch.
- 4 Before dismantling any pressurized component, the compressor or equipment shall be effectively isolated from all sources of pressure and the entire system shall be relieved of pressure. Do not rely on non-return valves (check valves) to isolate pressure systems. In addition, a warning sign bearing a legend such as "work in progress; do not open" shall be attached to each of the outlet valves.
- 5 Prior to stripping an engine or other machine or undertaking major overhaul on it, prevent all movable parts from rolling over or moving.

- 6 Make sure that no tools, loose parts or rags are left in or on the machine. Never leave rags or loose clothing near the engine air intake.
- 7 Never use flammable solvents for cleaning (fire-risk).
- 8 Take safety precautions against toxic vapours of cleaning liquids.
- 9 Never use machine parts as a climbing aid.
- 10 Observe scrupulous cleanliness during maintenance and repair. Keep away dirt, cover the parts and exposed openings with a clean cloth, paper or tape.
- 11 Never weld on or perform any operation involving heat near the fuel or oil systems. Fuel and oil tanks must be completely purged, e.g. by steam-cleaning, before carrying out such operations. Never weld on, or in any way modify, pressure vessels. Disconnect the alternator cables during arc welding on the unit.
- 12 Support the towbar and the axle(s) securely if working underneath the unit or when removing a wheel. Do not rely on jacks.
- 13 Do not remove any of, or tamper with, the sound-damping material. Keep the material free of dirt and liquids such as fuel, oil and cleansing agents. If any sound-damping material is damaged, replace it to prevent the sound pressure level from increasing.
- 14 Use only lubricating oils and greases recommended or approved by Atlas Copco or the machine manufacturer. Ascertain that the selected lubricants comply with all applicable safety regulations, especially with regard to explosion or fire-risk and the possibility of decomposition or generation of hazardous gases. Never mix synthetic with mineral oil.
- 15 Protect the engine, alternator, air intake filter, electrical and regulating components, etc., to prevent moisture ingress, e.g. when steam-cleaning.
- 16 When performing any operation involving heat, flames or sparks on a machine, the surrounding components shall first be screened with non-flammable material.
- 17 Never use a light source with open flame for inspecting the interior of a machine.
- 18 Disconnect –battery-clamp before starting electrical servicing or welding (or turn battery-switch in “off” position).
- 19 When repair has been completed, the machine shall be barred over at least one revolution for reciprocating machines, several revolutions for rotary ones to ensure that there is no mechanical interference within the machine or driver. Check the direction of rotation of electric motors when starting up the machine initially and after any alteration to the electrical connection(s) or switch gear, to check that the oil pump and the fan function properly.
- 20 Maintenance and repair work should be recorded in an operator’s logbook for all machinery. Frequency and nature of repairs can reveal unsafe conditions.
- 21 When hot parts have to be handled, e.g. shrink fitting, special heat-resistant gloves shall be used and, if required, other body protection shall be applied.
- 22 When using cartridge type breathing filter equipment, ascertain that the correct type of cartridge is used and that its useful service life is not surpassed.
- 23 Make sure that oil, solvents and other substances likely to pollute the environment are properly disposed of.
- 24 Before clearing the unit for use after maintenance or overhaul, check that operating pressures, temperatures and speeds are correct and that the control and shutdown devices function correctly.

TOOL APPLICATIONS SAFETY

Apply the proper tool for each job. With the knowledge of correct tool use and knowing the limitations of tools, along with some common sense, many accidents can be prevented.

Special service tools are available for specific jobs and should be used when recommended. The use of these tools will save time and prevent damage to parts.

SPECIFIC SAFETY PRECAUTIONS

Batteries

When servicing batteries, always wear protecting clothing and glasses.

- 1 The electrolyte in batteries is a sulphuric acid solution which is fatal if it hits your eyes, and which can cause burns if it contacts your skin. Therefore, be careful when handling batteries, e.g. when checking the charge condition.
- 2 Install a sign prohibiting fire, open flame and smoking at the post where batteries are being charged.
- 3 When batteries are being charged, an explosive gas mixture forms in the cells and might escape through the vent holes in the plugs. Thus an explosive atmosphere may form around the battery if ventilation is poor, and can remain in and around the battery for several hours after it has been charged. Therefore:
 - never smoke near batteries being, or having recently been, charged,
 - never break live circuits at battery terminals, because a spark usually occurs.
- 4 When connecting an auxiliary battery (AB) in parallel to the unit battery (CB) with booster cables: connect the + pole of AB to the + pole of CB, then connect the - pole of CB to the mass of the unit. Disconnect in the reverse order.

Pressure vessels

Maintenance/installation requirements:

- 1 The vessel can be used as pressure vessel or as separator and is designed to hold compressed air for the following application:
 - pressure vessel for compressor,
 - medium AIR/OIL,and operates as detailed on the data plate of the vessel:
 - the maximum working pressure ps in bar (psi),
 - the maximum working temperature Tmax in °C (°F),
 - the minimum working temperature Tmin in °C (°F),
 - the capacity of the vessel V in l (US gal).
- 2 The pressure vessel is only to be used for the applications as specified above and in accordance with the technical specifications. Safety reasons prohibit any other applications.
- 3 National legislation requirements with respect to re-inspection must be complied with.
- 4 No welding or heat treatment of any kind is permitted to those vessel walls which are exposed to pressure.
- 5 The vessel is provided and may only be used with the required safety equipment such as manometer, overpressure control devices, safety valve, etc.
- 6 Draining of condensate shall be performed daily when vessel is in use.
- 7 Installation, design and connections should not be changed.
- 8 Bolts of cover and flanges may not be used for extra fixation.
- 9 (Pressure) vessel maintenance is to be performed by Atlas Copco.

Safety valves

- 1 All adjustments or repairs are to be done by an authorized representative of the valve supplier (see also **Preventive maintenance schedule**).
- 2 Only trained and technically competent personnel should consider overhaul, re-set or performance testing of safety valves.
- 3 The safety valve is supplied with either a lead security seal or crimped cover to deter unauthorised access to the pressure regulation device.
- 4 Under no circumstances should the set pressure of the safety valve be altered to a different pressure than that stamped on the valve without the permission of the installation designer.
- 5 If the set pressure must be altered then use only correct parts supplied by Atlas Copco and in accordance with the instructions available for the valve type.
- 6 Safety valves must be frequently tested and regularly maintained.
- 7 The set pressure should be periodically checked for accuracy.
- 8 When fitted, the compressors should be operated at pressures not less than 75% of the set pressure to ensure free and easy movement of internal parts.
- 9 The frequency of tests is influenced by factors such as the severity of the operating environment and aggressiveness of the pressurised medium.
- 10 Soft seals and springs should be replaced as part of the maintenance procedure.
- 11 Do not paint or coat the installed safety valve.

Leading particulars

SAFETY PICTOGRAMS USED

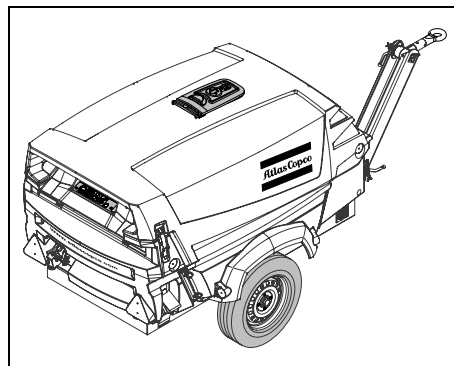


This symbol draws your attention to dangerous situations. The operation concerned may endanger persons and cause injuries.



This symbol is followed by supplementary information.

GENERAL DESCRIPTION



General view

The compressors type XAS 67 - XAS 130 and XAS 87 - XAS 175 are silenced, single-stage, oil-injected screw compressors, built for a nominal effective working pressure of 7 bar (102 psi) (see chapter **Technical specifications**).

The compressor is equipped with a PE canopy.

Engine

The compressor is driven by a liquid-cooled diesel engine.

The engine's power is transmitted to the compressor through a heavy-duty coupling.

Compressor element

The compressor casing houses two screw-type rotors, mounted on ball and roller bearings. The male rotor, driven by the engine, drives the female rotor. The element delivers pulsation-free air.

Injected oil is used for sealing, cooling and lubricating purposes.

Compressor oil system

The oil is boosted by air pressure. The system has no oil pump.

The oil is removed from the air, in the air/oil vessel first by centrifugal force, secondly by the air separator element.

Regulation

The compressor is provided with a continuous pneumatic regulating system and a blow-down valve which is integrated in the unloader assembly. The valve is closed during operation by outlet pressure of the compressor element and opens by air receiver pressure when the compressor is stopped.

When air consumption increases, the air receiver pressure will decrease and vice versa.

This receiver pressure variation is sensed by the regulating valve which, by means of control air to the unloader and engine speed regulator, matches the air output to the air consumption. The air receiver pressure is maintained between the pre-selected working pressure and the corresponding unloading pressure.

Cooling system

The engine is provided with a liquid cooler and the compressor is provided with an oil cooler.

The cooling air is generated by a fan, driven by the engine.

Safety devices

A thermal shut-down switch protects the compressor against overheating. The air receiver is provided with a safety valve.

The engine is equipped with low oil pressure and high coolant temperature shut-down switches.

Frame and axles

The compressor/engine unit is supported by rubber buffers in the frame. The standard unit has an adjustable towbar with support leg and one of the following towing eyes AC, DIN, ball, ITA, GB or NATO.

The machine is equipped with a spillage-free frame.

Bodywork

The bodywork has openings at the shaped front and rear end for the intake and outlet of cooling air and a hood for maintenance and service operations. The bodywork is internally lined with sound-absorbing material.

Lifting eye

A lifting eye is accessible when the small door at the top of the unit is unlocked.

Control panel

The control panel grouping the air pressure gauge, control switch etc., is placed in the center at the rear end.

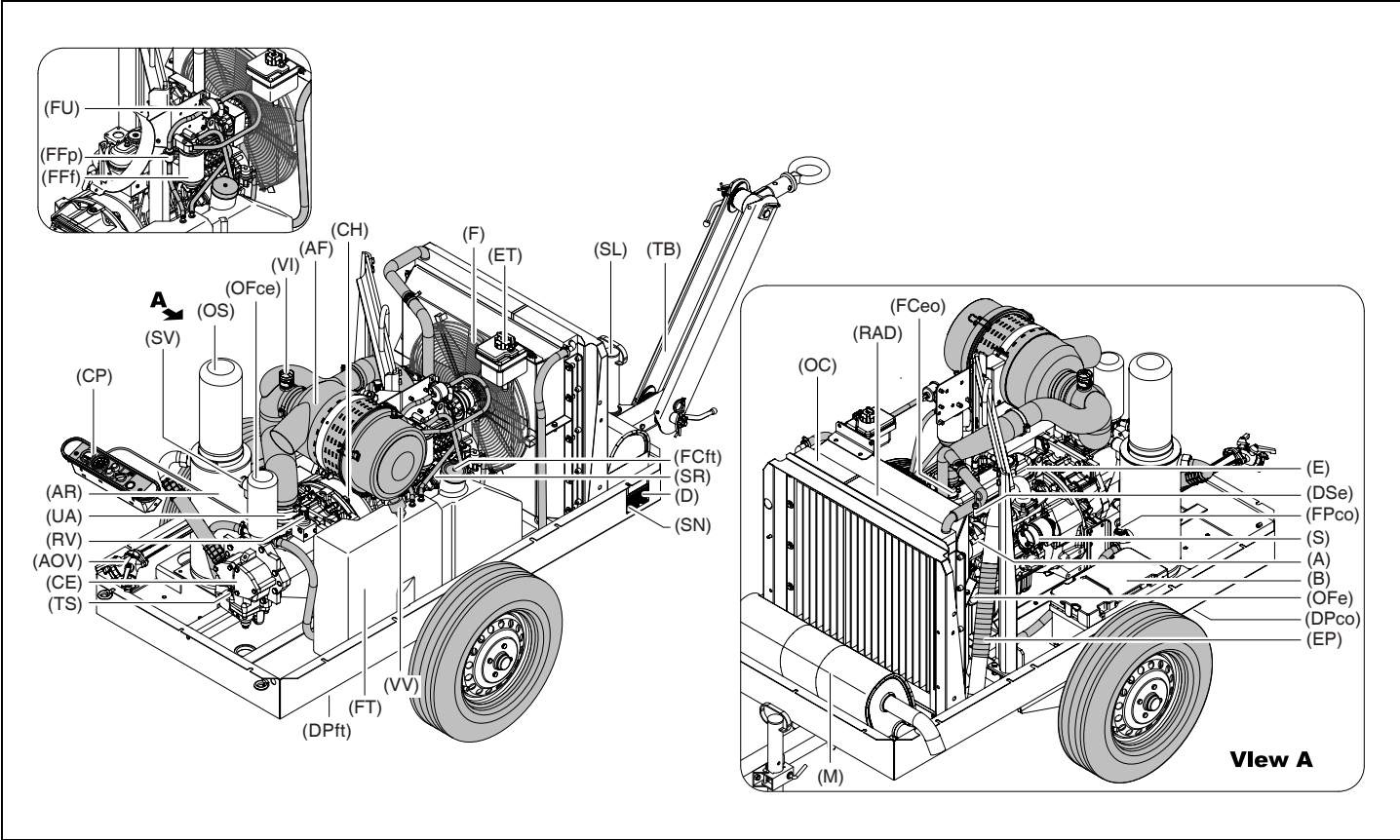
Data plate

The compressor is furnished with a data plate (D) showing the product code, the unit number and the working pressure (see chapter **Dataplate**).

Serial number

The serial number is located on the right-hand front side of the frame.

Main Parts

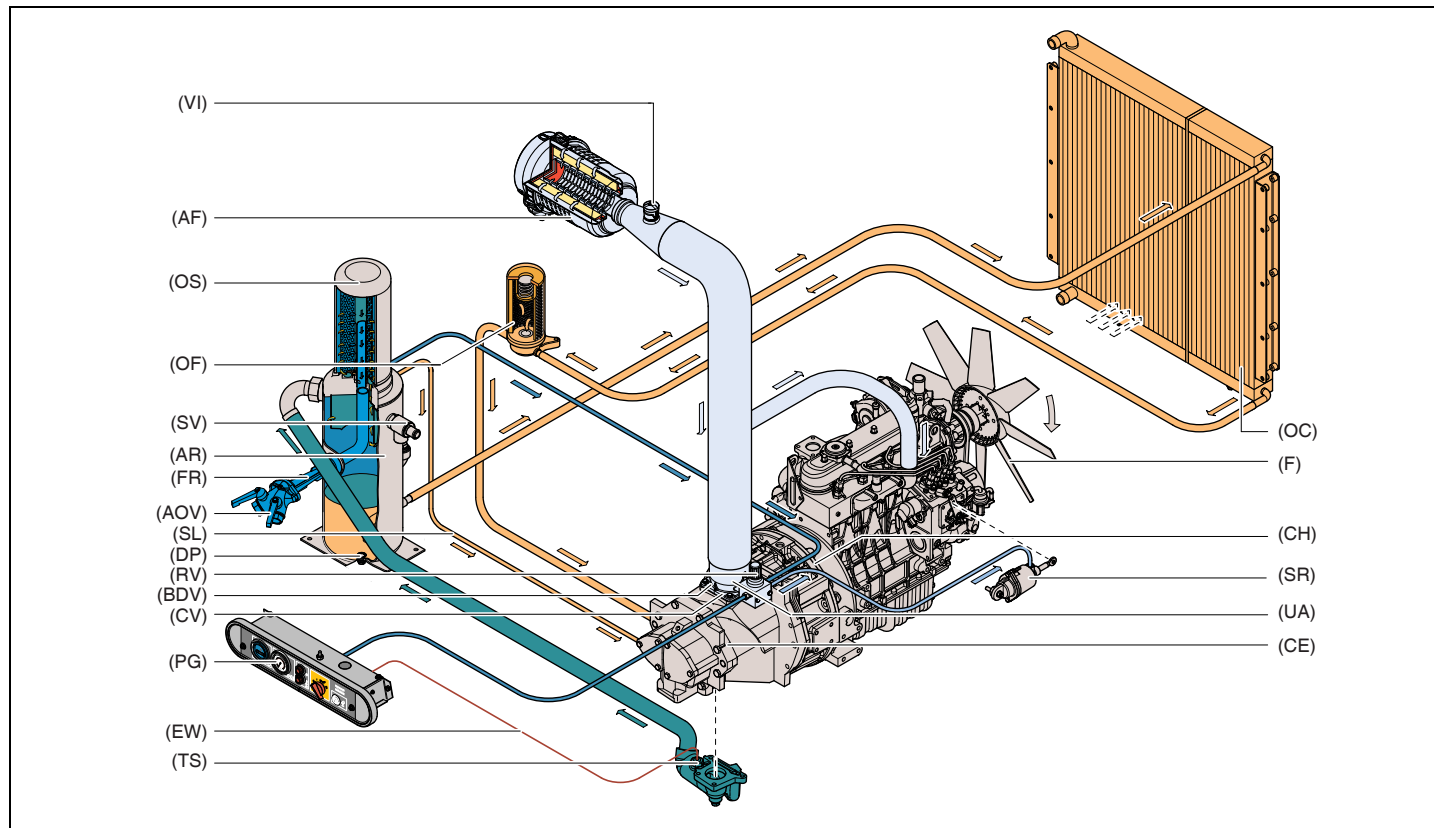


Reference	Name
A	Alternator
AF	Air Filter
AOV	Air Outlet Valves
AR	Air Receiver
B	Battery
CE	Compressor Element
CH	Coupling Housing
CP	Control Panel
D	Data Plate
DPco	Drain Plug (compressor oil)
DPft	Drain Plug Fuel Tank
Dse	Engine Oil Level Dipstick
E	Engine
EP	Exhaust Pipe
ET	Expansion Tank
F	Fan
FCeo	Filler Cap (engine oil)
FCft	Filler Cap (fuel tank)
FFf	Fuel Filter (final)
FFp	Fuel Filter (primary)
FPco	Filler Plug (compressor oil)
FT	Fuel Tank

Reference	Name
FU	Fuel Pump
M	Muffler
OC	Oil Cooler
OS	Oil Separator
OFce	Oil Filter (compressor element)
OFe	Oil Filter (engine)
RAD	Radiator
RV	Regulating Valve
S	Starting Motor
SL	Support Leg
SN	Serial Number
SR	Speed Regulator
SV	Safety Valve
TB	Towbar
TS	Temperature Switch
UA	Unloader Assembly
VI	Vacuum Indicator
VV	Vacuator Valve

COMPRESSOR REGULATING SYSTEM

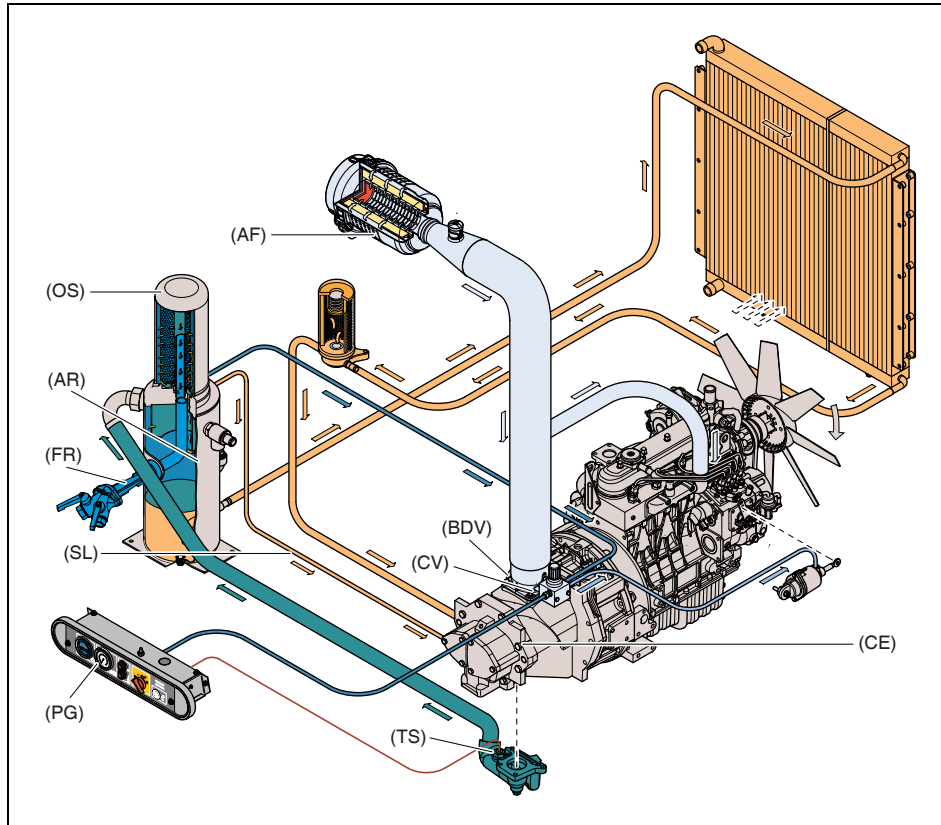
OVERVIEW



Reference	Name
AF	Air Filter
AOV	Air Outlet Valves
AR/OS	Air Receiver / Oil Separator
BDV	Blow Down Valve
CE	Compressor Element
CH	Coupling Housing
CV	Check Valve
DP	Drain Plug
EW	Electrical Wiring
F	Fan
FR	Flow Restrictor
OC	Oil Cooler
OF	Oil Filter
OS	Oil Separator
PG	Pressure Gauge
RV	Regulating Valve

Reference	Name
SL	Scavenge Line
SR	Speed Regulator
SV	Safety Valve
TS	Temperature Switch
UA	Unloader Assembly
VI	Vacuum Indicator

AIR FLOW



Air drawn through the airfilter (AF) into the compressor element (CE) is compressed. At the element outlet, compressed air and oil pass into the air receiver/oil separator (AR/OS).

The check valve (CV) prevents blow-back of compressed air when the compressor is stopped. In the air receiver/oil separator (AR/OS), most of the oil is removed from the air/oil mixture; the remaining oil is removed by the separator element.

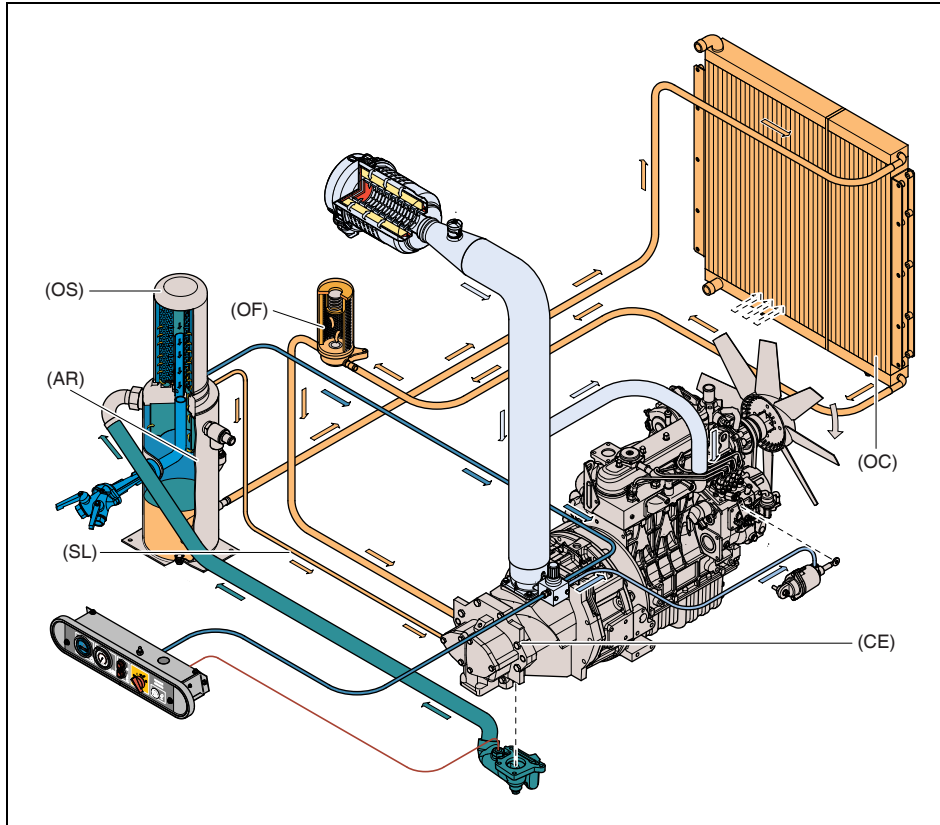
The oil collects in the receiver and on the bottom of the separator element.

The air leaves the receiver via a flow restrictor (FR) which prevents the receiver pressure from dropping below the minimum working pressure (specified in section **Limitations**), even when the air outlet valves are open. This ensures adequate oil injection and prevents oil consumption.

The system comprises of a temperature switch (TS) and a working pressure gauge (PG).

A blow-down valve (BDV) is fitted in the unloader assembly to automatically depressurize the air receiver (AR) when the compressor is stopped.

OIL SYSTEM



The lower part of the air receiver (AR) serves as an oil tank.

Air pressure forces the oil from the air receiver/oil separator (AR/OS) through the oil cooler (OC) and oil filter (OF) to the compressor element (CE).

The compressor element has an oil gallery in the bottom of its casing. The oil for rotor lubrication, cooling and sealing is injected through holes in the gallery.

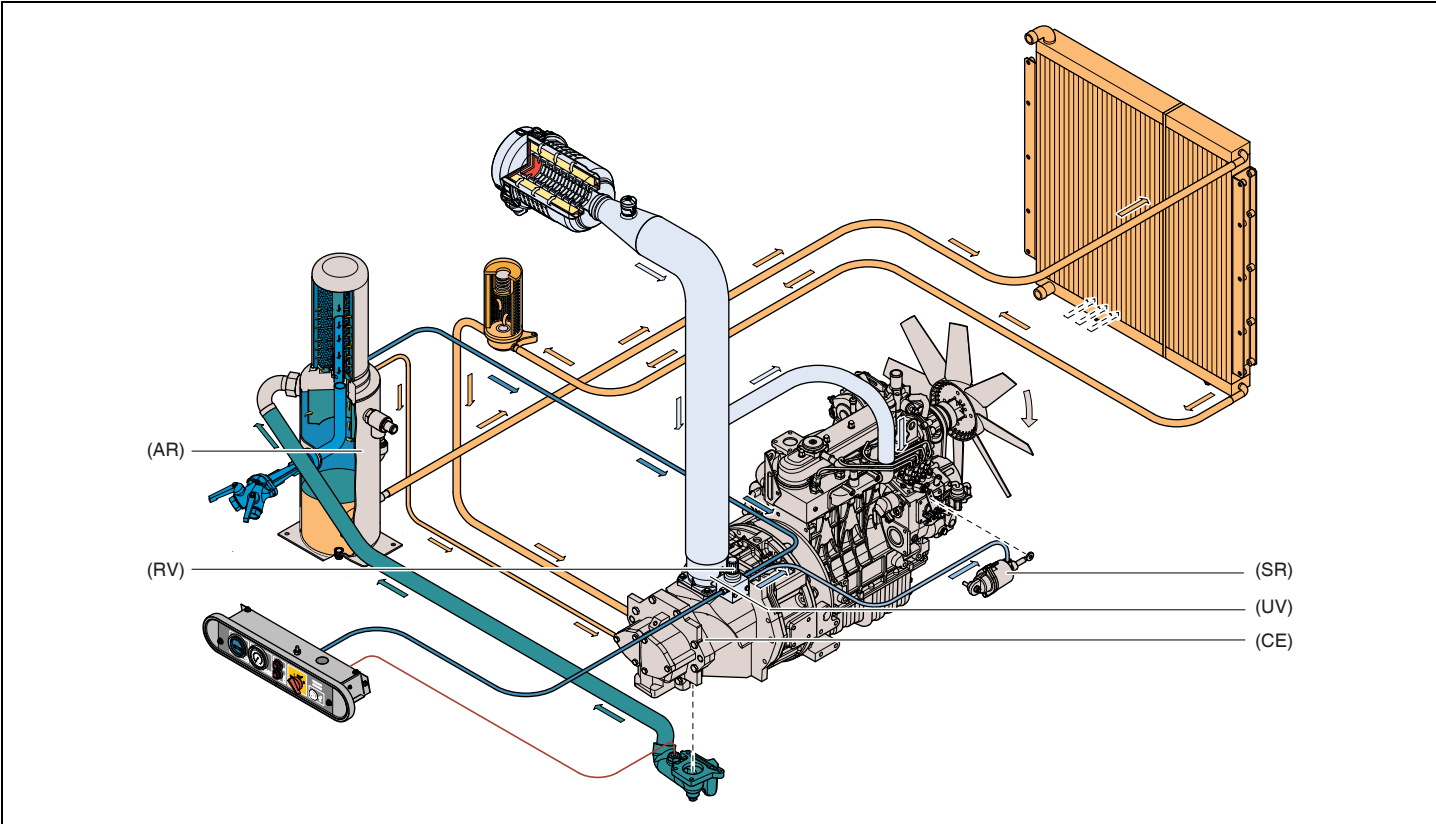
Lubrication of the bearings is ensured by oil injected into the bearing housings.

The injected oil, mixed with the compressed air, leaves the compressor element and re-enters the air receiver, where it is separated from the air as described in section **Air flow**. The oil that collects on the bottom of the oil separator element is returned to the system through a scavenging line (SL), which is provided with a flow restrictor.

The oil filter by-pass valve opens when the pressure drop over the filter is above normal because of a clogged filter. The oil then by-passes the filter without being filtered. For this reason, the oil filter must be replaced at regular intervals (see section **Preventive maintenance schedule**).

When cold start equipment is installed, a thermostatic valve will bypass the compressor oil (oil will not pass through oil cooler OC), until the working temperature is reached.

CONTINUOUS PNEUMATIC REGULATING SYSTEM



The compressor is provided with a continuous pneumatic regulating system. This system is provided with a blow-down valve, which is integrated in the unloader assembly. The valve is closed during operation by outlet pressure of the compressor element and opens by air receiver pressure when the compressor is stopped.

When the air consumption increases, the air receiver pressure will decrease and vice versa. This receiver pressure variation is sensed by the regulating valve which, by means of control air to the unloader, matches the air output to the air consumption. The air receiver pressure is maintained between the pre-selected working pressure and the corresponding unloading pressure.

When starting the compressor, the unloader valve (UV) is kept open by spring force, the engine runs at maximum speed. The compressor element (CE) takes in air and pressure builds up inside the receiver (AR).

The air output is controlled from maximum output (100%) to no output (0%) by:

1. Speed control of the engine between maximum load speed and unloading speed (the output of a screw compressor is proportional to the rotating speed).
2. Air inlet throttling.

If the air consumption is equal to or exceeds the maximum air output, the engine speed is held at maximum load speed and the unloading valve is fully open.

If the air consumption is less than the maximum air output, the regulating valve supplies control air to unloader valve (UV) to reduce the air output and holds air receiver pressure between the normal working pressure and the corresponding unloading pressure at approx. 1.5 bar (22 psi) above the normal working pressure.

When the air consumption is resumed, the unloader valve (UV) gradually opens the air intake and the speed regulator (SR) increases the engine speed.

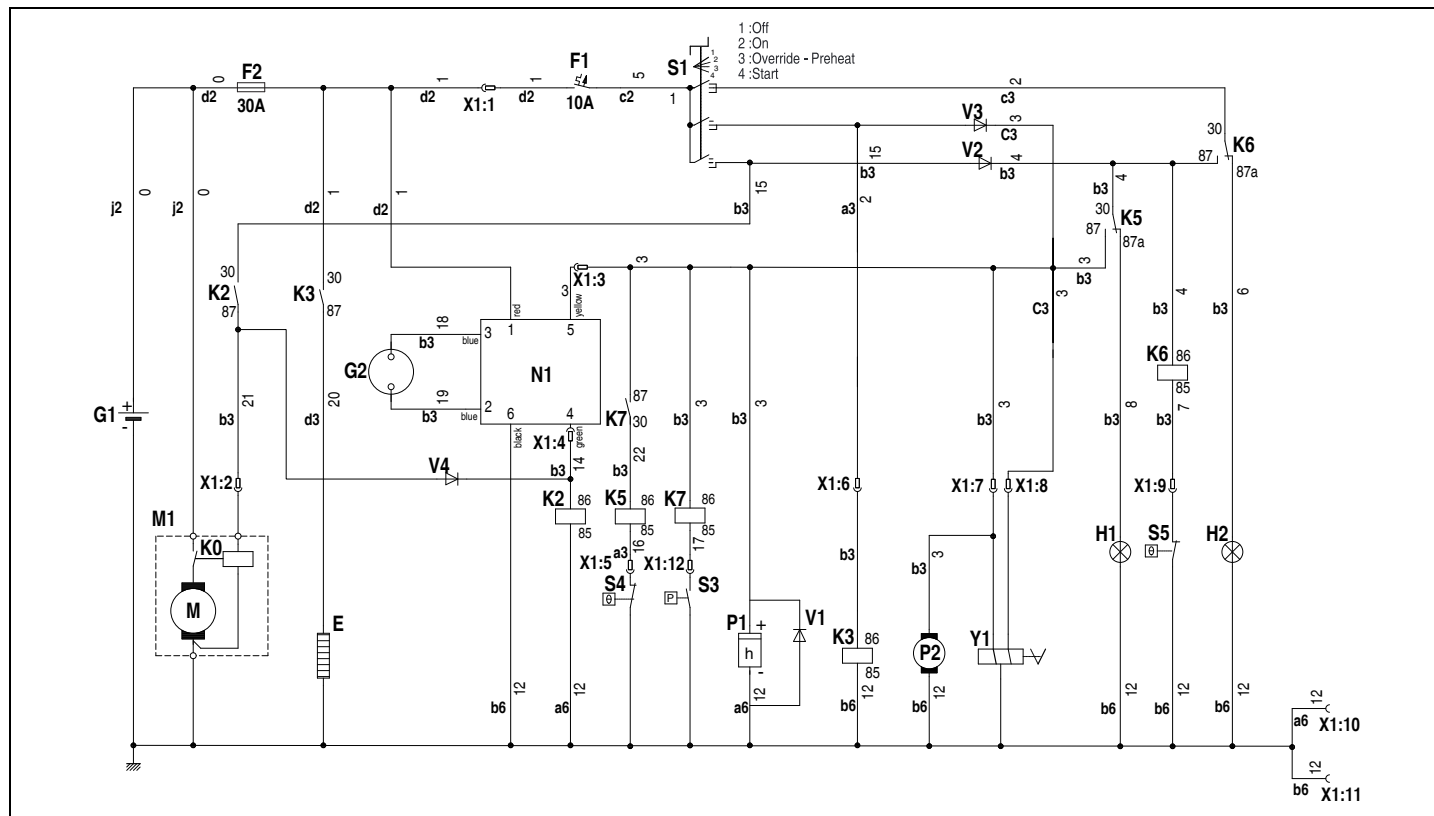
The construction of the regulating valve (RV) is such that any increase (decrease) of the air receiver pressure above the pre-set valve opening pressure results in a proportional increase (decrease) of the control pressure to the unloading valve and the speed regulator.

Part of the control air is vented into the atmosphere, and any condensate discharged, through the vent holes.

ELECTRIC SYSTEM

Circuit diagram (standard) (9822 0991 30)

The compressor is equipped with a negative earthed system.



Reference	Name
E	Glowplugs engine
F1	Circuit breaker
F2	Fuse
G1	Battery (12V - 44 Ah)
G2	Charging alternator
H1	Lamp (engine alarm)
H2	Lamp (compressor temperature alarm)
K0	Starter Solenoid
K2	Relay (starter protection)
K3	Relay (glowplugs)
K5	Relay (engine alarm)
K6	Relay (temperature oil compressor)
K7	Relay (engine pressure)
M1	Starter Motor

Reference	Name
N1	Regulator
P1	Hourmeter
P2	Electric fuel feed pump
S1	Start switch
S3	Pressure switch (engine oil)
S4	Temperature switch (engine coolant)
S5	Temperature switch (compressor)
V1	Free wheeling diode
V2	Diode
V3	Diode
V4	Diode
X1	Connector
Y1	Fuel solenoid

Wire size	Colour code
aa = 0.5 mm ²	1 = brown
a = 1 mm ²	2 = red
b = 1.5 mm ²	3 = orange
c = 2.5 mm ²	4 = yellow
d = 4 mm ²	5 = green
e = 6 mm ²	6 = blue
f = 10 mm ²	7 = purple
g = 16 mm ²	8 = grey
h = 25 mm ²	9 = white
i = 35 mm ²	0 = black
j = 50 mm ²	

MARKINGS AND INFORMATION LABELS

	Danger, outlet gases.
	Danger, hot surface.
	Electrocution hazard.
	Atlas Copco mineral compressor oil.
	Atlas Copco synthetic compressor oil.
	Atlas Copco mineral engine oil.
	Atlas Copco synthetic engine oil.
	Manual.
	Read the instruction manual before working on the battery.
	On / off button.
	Hours, time.
	Prohibition to open air valves without connected hoses.

	Runlamp.
	Airfilter.
	Compressor temperature too high.
	Compressor oil level.
	Rotation direction.
	Read the instruction manual before starting.
	Service every 24 hours.
	Warning! Part under pressure.
	Do not stand on outlet valves.
	Start-Stop indication of switch.
	Do not run the compressor with open doors.
	Lifting device.
	Service.

	Engine coolant.																																																								
	Use diesel fuel only.																																																								
2.7 bar (39 psi)	Tyre pressure.																																																								
	Sound power level in accordance with Directive 2000/14/EC (expressed in dB (A)).																																																								
	Horizontal towbar position required in case of coupling.																																																								
	Start engine.																																																								
	Preheating.																																																								
	Circuit breaker.																																																								
	Towing eye load.																																																								
<p>Zul. Stützf. max. 50 kg Mindestabst. zw. den Seilenden: 400 mm (15 7/8 Zoll) 2 x 2 Seile oder ein Drahtseilzug benutzen! Hinweis</p>																																																									
<table border="1"> <thead> <tr> <th colspan="2">Atlas Copco</th> <th colspan="2">SERVICES PART</th> <th colspan="2">Trolley Accessory</th> <th colspan="2">SEPARATOR KIT</th> </tr> <tr> <th colspan="2">XAS 87 K4 XAS 87 K4 XAS 150 K47</th> <th colspan="2">2912 6400 05</th> <th colspan="2">2912 6407 05</th> <th colspan="2">2911 6408 01</th> </tr> <tr> <th>Compressor Oil</th> <th>PAROIL S</th> <th>PAROIL E</th> <th>PAROIL Extra</th> <th>PAROIL S</th> <th>PAROIL E</th> <th>PAROIL S</th> <th>PAROIL E</th> </tr> </thead> <tbody> <tr> <td>1 L</td> <td>1915 0042 00</td> <td>1915 0043 00</td> <td>1915 0044 00</td> <td>1915 0045 00</td> <td>1915 0046 00</td> <td>1915 0047 00</td> <td>1915 0048 00</td> </tr> <tr> <td>2 L</td> <td>1915 0042 00</td> <td>1915 0043 00</td> <td>1915 0044 00</td> <td>1915 0045 00</td> <td>1915 0046 00</td> <td>1915 0047 00</td> <td>1915 0048 00</td> </tr> <tr> <td>5 L</td> <td>1915 0042 00</td> <td>1915 0043 00</td> <td>1915 0044 00</td> <td>1915 0045 00</td> <td>1915 0046 00</td> <td>1915 0047 00</td> <td>1915 0048 00</td> </tr> <tr> <td>10 L</td> <td>1915 0042 00</td> <td>1915 0043 00</td> <td>1915 0044 00</td> <td>1915 0045 00</td> <td>1915 0046 00</td> <td>1915 0047 00</td> <td>1915 0048 00</td> </tr> </tbody> </table>		Atlas Copco		SERVICES PART		Trolley Accessory		SEPARATOR KIT		XAS 87 K4 XAS 87 K4 XAS 150 K47		2912 6400 05		2912 6407 05		2911 6408 01		Compressor Oil	PAROIL S	PAROIL E	PAROIL Extra	PAROIL S	PAROIL E	PAROIL S	PAROIL E	1 L	1915 0042 00	1915 0043 00	1915 0044 00	1915 0045 00	1915 0046 00	1915 0047 00	1915 0048 00	2 L	1915 0042 00	1915 0043 00	1915 0044 00	1915 0045 00	1915 0046 00	1915 0047 00	1915 0048 00	5 L	1915 0042 00	1915 0043 00	1915 0044 00	1915 0045 00	1915 0046 00	1915 0047 00	1915 0048 00	10 L	1915 0042 00	1915 0043 00	1915 0044 00	1915 0045 00	1915 0046 00	1915 0047 00	1915 0048 00
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<p>START</p> <p>STOP</p>																																																									
Starting / stopping / service instructions.																																																									

Operating instructions

PARKING, TOWING AND LIFTING INSTRUCTIONS

Safety precautions



The operator is expected to apply all relevant Safety precautions.

Attention



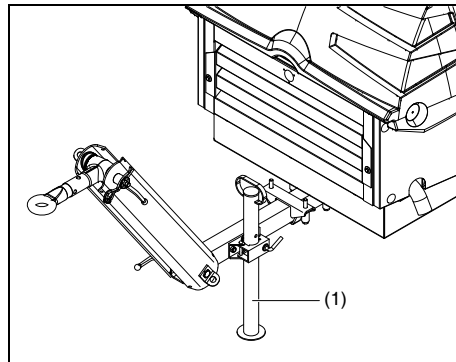
After the first 100 km travel:

Check and retighten the wheel nuts and towbar bolts to the specified torque. See section **Compressor / engine specifications**.



When using a towing vehicle to maneuver the unit, take care that the support leg is lifted maximally.

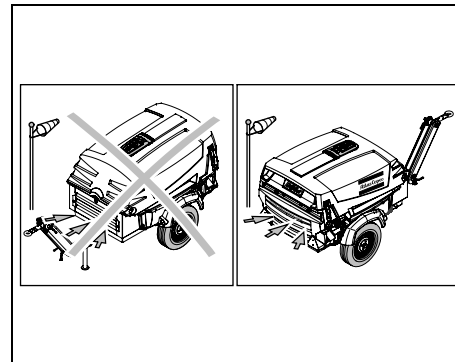
PARKING INSTRUCTIONS



Non-adjustable towbar with standard support leg

When parking a compressor, secure support leg (1) to support the compressor in a level position.

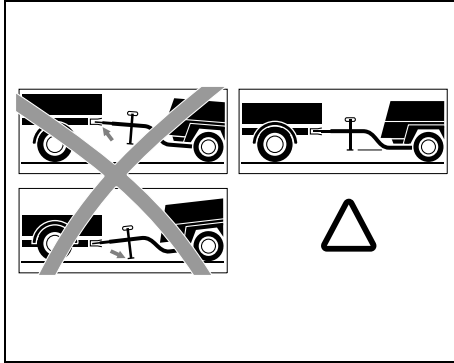
Place the compressor as level as possible; however, it can be operated temporarily in an out-of-level position not exceeding 15°. If the compressor is parked on sloping ground, immobilize the compressor by placing wheel chocks in front of or behind the wheels.



Rear-end of compressor upwind

Locate the rear-end of the compressor upwind away from contaminated wind-streams and walls. Avoid recirculation of exhaust gas and warmed-up cooling air. This causes overheating and engine power decrease. Do not obstruct air evacuation from the cooling system. The compressor oil lifetime will be shortened when the compressor inlet air is contaminated.

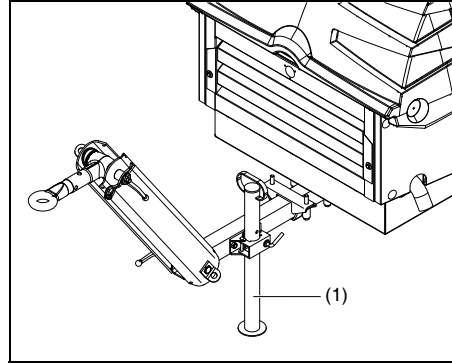
TOWING INSTRUCTIONS



Label on towbar, towing instructions



Before towing the compressor, ensure that the towing equipment of the vehicle matches the towing eye or ball connector, and ensure that the hood is closed and locked properly.

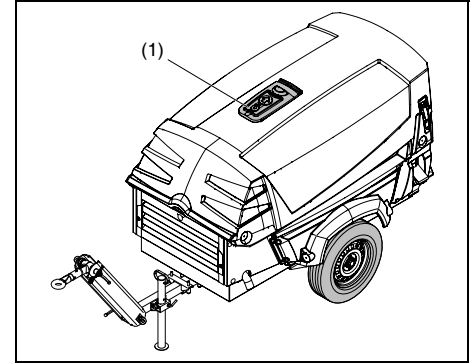


Non-adjustable towbar with standard support leg

For both non-adjustable - and adjustable towbar, the towbar should be as level as possible and the compressor and towing eye end in a level position.

Connect the breakaway cable to the vehicle. Secure the support leg (1) in the highest possible position.

LIFTING INSTRUCTIONS



When lifting the compressor, the hoist has to be placed in such a way that the compressor, which must be placed level, is lifted vertically. Keep lifting acceleration and retardation within safe limits.

The lifting eye should preferably be used after opening the small door (1).



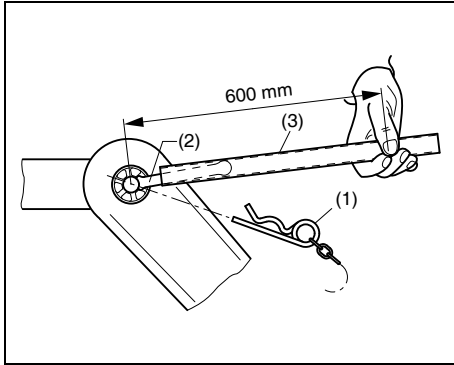
Lifting acceleration and retardation must be kept within safe limits (max. 2xg).

Helicopter lifting is not allowed.

Lifting is not allowed when the unit is running.

To prevent air from flowing back from the tool to the air vessel, a non-return valve can be installed between the air outlet valve and the tool air supply hose.

HEIGHT ADJUSTMENT (with adjustable towbar)



Before towing the compressor, make sure that the joints of the towbar are secured with maximum strength without damaging the towbar. Be sure that there is no clearance between the teeth of the joints.

- Remove spring pin (1).
- Release locking nut (2).
- Adjust required height of the towbar.
- Tighten locking nut (2) by hand.
- Secondly tighten locking nut (2) using an extension tube (3) and handforce of 45 N/ 100 lbf.
- Fix locking nut (2) with spring pin (1).



Attention:

- Height adjustment should be undertaken on levelled ground and in coupled condition.
- When readjusting, make sure that the front point of the towbar is horizontal with the coupling point.
- Before starting a trip, ensure that the adjustment shaft is secure, so that stability and safety is guaranteed while driving. If necessary, tighten the locking nut (2). See above.

SPILLAGE-FREE FRAME

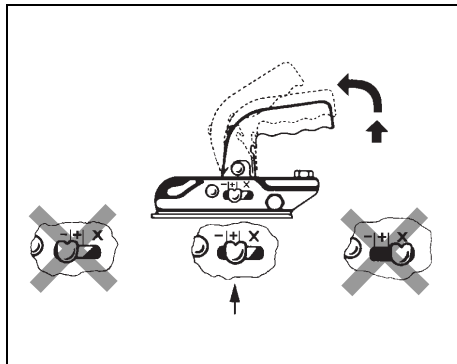
The compressor is fitted with a leak-proof undercarriage in order to protect the environment.

Any leaking fluid is collected in case of malfunctions. This fluid can be removed via outlets, normally secured by caps.

Tighten the caps firmly and check for leakages.

Please observe the locally applicable environmental regulations when removing the leaked liquid.

INSTRUCTIONS BALL COUPLING (OPTION)



The handle of the ball coupling and the handbrake lever may never be used as a manoeuvring aid; internal components may get damaged!

The coupling (ball coupling) on the tow bar is type approved. The maximum load at the coupling may not be exceeded.

When coupling lower the support leg to the ground. Reverse the car up to the compressor or, in the case of a small compressor, manoeuvre the compressor up to the car's trailer coupling.

Coupling:

Open coupling jaw by pulling the lever vigorously upwards in the direction of the arrow. Lower the opened coupling onto the ball of the vehicle coupling and the lever will automatically be lowered. Closing and locking are carried out automatically. Check the "+" (see figure) position!

Connect the breakaway cable and electrical plug (option) to the towing vehicle. Raise the support leg up fully and secure by firmly clamping it. Release parking brake before setting off.

Visual check: the ball should no longer be visible in coupled condition.

Uncoupling:

Lower the support leg. Disconnect breakaway cable and electrical plug. Pull the lever vigorously upwards in the direction of the arrow and hold. Lift the compressor off the ball of the towing vehicle.

Secure the compressor by means of a wheel chock.

STARTING / STOPPING

BEFORE STARTING

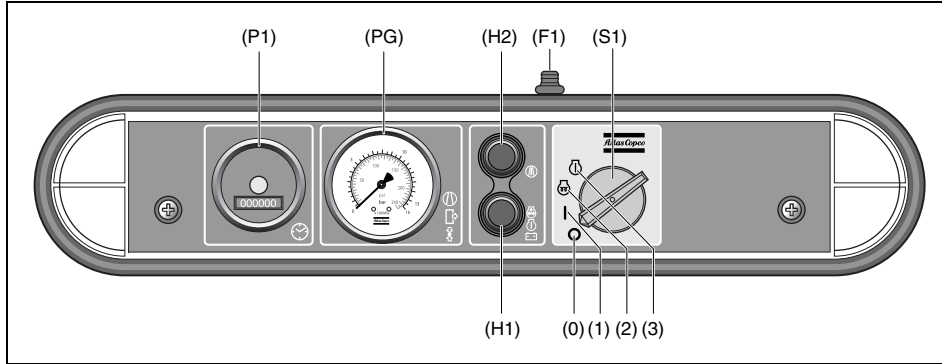
1. Before initial start-up, prepare battery for operation if not already done. See section **Recharging a battery**.
2. With the compressor standing level, check the level of the engine oil. Add oil, if necessary, up to the upper mark on the dipstick. Also check the engine coolant level. Consult the Engine Operation Manual for the type of coolant and type and viscosity grade of the engine oil.
3. Check the level of the compressor oil. Add oil if necessary, until the oil level reaches the thread of the filling neck.



Before removing oil filler plug (FP), ensure that pressure is released by opening an air outlet valve (AOV).

4. Check that the coolant level is within min. and max. level indicated on the radiator expansion tank (RET). If necessary top up with coolant according to section **Topping up of coolant**.
5. Check that the fuel tank contains sufficient fuel. Top up, if necessary. Consult the engine operation manual for the type of fuel. For priming the engine, the fuel must be electrically pumped up by holding the start switch in the "preheat" position, for max. 20 seconds. If necessary, return to "0" position and repeat. See further starting instructions.
6. Drain any water and sediment from the fuel filters until clean fuel flows from the drain cock.
7. Drain leaking fluid from the frame.
8. Press vacuator valves (VV) of the air filter to remove dust.
9. Check the air filter vacuum indicators (VI). If the yellow piston reaches the red marked service range, replace the filter element. Reset the indicator by pushing the reset button.
10. Open air outlet valve to allow air flow to the atmosphere.

STARTING PROCEDURE

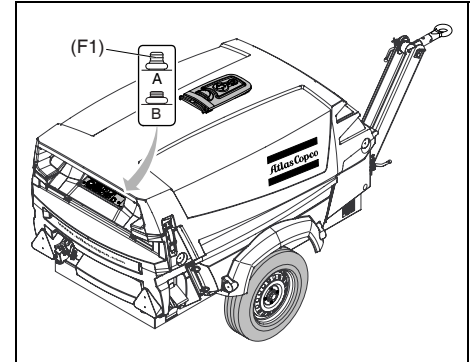


Reference	Name
P1	Hour meter
F1	Circuit breaker button
PG	Working pressure gauge
H1	General alarm lamp (red)
H2	Temperature alarm lamp (red)
S1	Start switch with pre-heating position



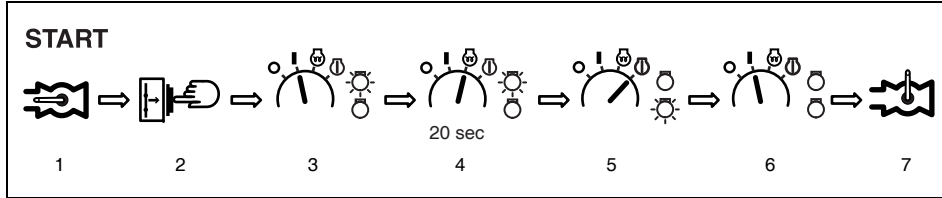
The control panel indicates receiver pressure (PG) and accumulated operating hours (P1).

Before starting, open the air outlet valve(s) (see section **Compressor regulating system**, AOV) and push circuit breaker button (F1) once (open hood first). Circuit breaker button should now be in position B.



The circuit breaker button is a protection against unintended starting of the compressor.

Starting procedure



1. Open air outlet valve.
2. Press circuit breaker F1.
3. Turn start switch S1 clockwise to position 1, lamp H2 (temperature alarm lamp) will go on.
4. To preheat turn the start switch S1 clockwise to position 2 for 20 sec (also to allow the fuel pump priming).
5. Turn start switch S1 further clockwise into position 3.

The general alarm lamp H1 will go on.

The starter motor will set the engine in motion.

The maximum allowed starter time, where the starter motor is running continuously, is 20 seconds.

If the engine does not catch, a new attempt can be made after waiting 30 seconds.

General alarm lamp H1 will go out as soon as the engine has been started.

6. The start switch automatically springs back to position 1.

Lamp H2 will only come on when the compressor outlet temperature is too high.

7. Close the air outlet valve(s) (AOV).

DURING OPERATION



When the engine is running, the air outlet valves (ball valves) must always be in a fully opened or fully closed position.



The hood must be closed during operation and may be opened for short periods only.

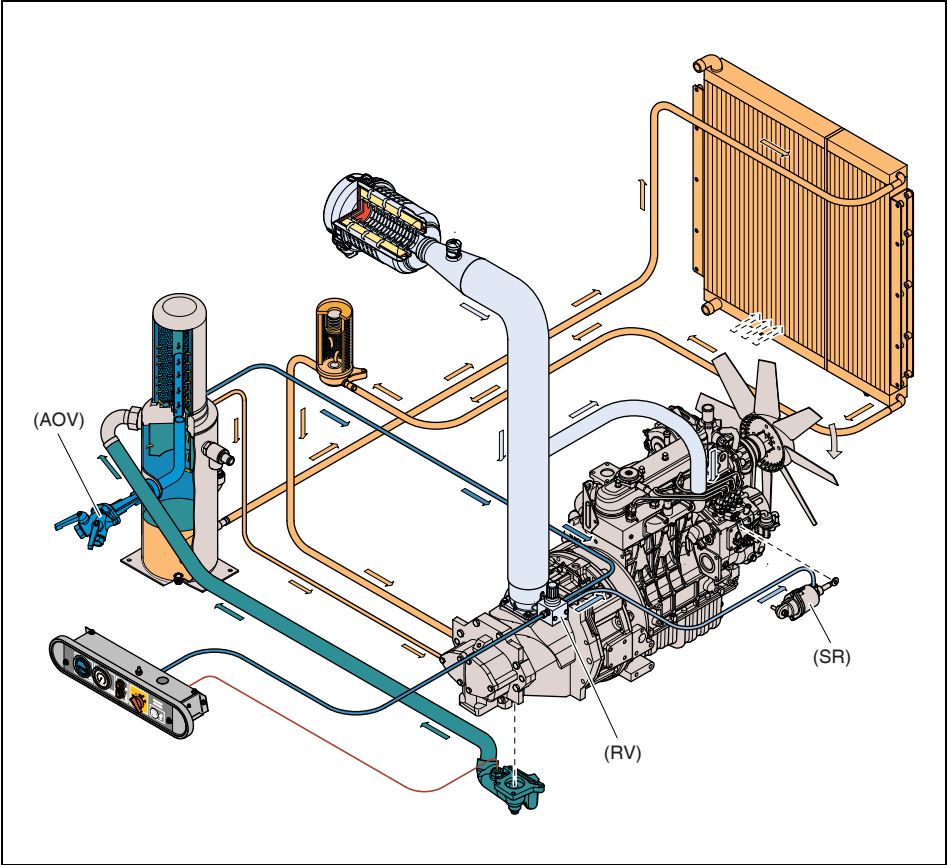


Be aware not to touch hot parts when the hood is open.

Regularly carry out following checks:

1. Ensure that the regulating valve (RV) is correctly adjusted, i.e. starts decreasing the engine speed when reaching the preset working pressure in the receiver.
2. Check the air filter vacuum indicators (VI). If the yellow piston reaches the red marked service range, replace the filter element. Reset the indicators by pushing the reset button.

ADJUSTMENT OF THE CONTINUOUS PNEUMATIC REGULATING SYSTEM



The working pressure is determined by the tension of the spring in the regulating valve (RV). This tension can be increased to raise the pressure and decreased by turning the adjusting wheel clockwise and anti-clockwise respectively.

To adjust the normal working pressure, proceed as follows:



Be aware not to touch hot parts when the hood is open.

1. Start and warm up the engine (see section **Starting / Stopping**).
2. With the outlet valves (AOV) closed, pull out the knob, adjust the regulating valve (RV) until a pressure of X bar(e) is reached (see table).
3. Check the minimum speed of the engine. Adjust minimum speed stop screw if necessary.
4. Open an outlet valve (AOV) sufficiently to let the engine (E) run at maximum speed. The working pressure must be Y bar(e) (see table); adjust if necessary with regulating valve (RV).
5. Check the engine maximum speed. Adjust the maximum speed by means of adjustable eccentric nut on top of speed regulator (SR).
6. Close the outlet valves (AOV), check that the pressure is between Z1 and Z2 bar(e) (see table). Lock the regulating valve (RV) by pushing the knob down.

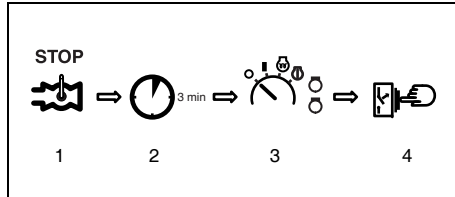
		X (pressure at unload)	Y (pressure at load)	Z1 - Z2
Factory settings	bar(e)	7.7	6.5	7.5 - 7.9
	psi	111.7	94.3	108.8 - 114.6
Settings for working pressure of 7 bar	bar(e)	8.3	7	8.1 - 8.5
	psi	120.4	101.5	117.5 - 123.3



The unit can work at 6.5 bar with 3 tools simultaneously at Ta 45°C, which is not possible at 7 bar. Therefore the factory setting of the unit is 6.5 bar.

An outlet pressure of 6.5 bar is sufficient to reach a 6 bar working pressure at the point of use.

STOPPING PROCEDURE

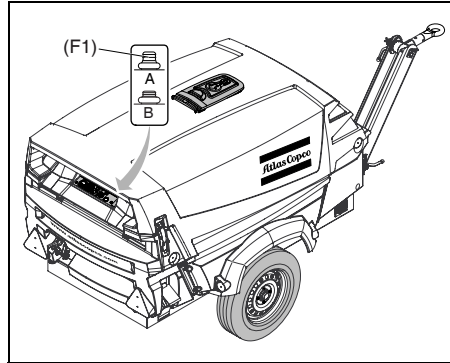


1. Close the air outlet valves (AOV).
2. Run unloaded for 3 minutes.
3. Turn the start switch S1 counterclockwise (CCW) to position 0.



Be aware not to touch hot parts when the hood is open.

4. Push the circuit breaker button (F1) once (open hood first). Circuit breaker button should now be in position A.



Do not open the air outlet valve when machine is shut down. Remaining air inside the vessel will automatically be evacuated via a blow down valve!

If pressure is released from the vessel too quickly, oil will start creating foam. This foam could reach the oil separator element resulting in oil carry over.

Failures caused by incorrectly shutting down the compressor will not be covered by warranty!

FAULT SITUATIONS AND PROTECTIVE DEVICES

- A fault involving the engine, either oil pressure (too low), coolant temperature (too high), will always and immediately cause the engine to cut out and the alarm lamp H1 will light up. By doing some simple checks, the cause of the engine failure can be determined: low oil level, clogged-up cooler.
- Alarm lamp H2 will light up. The alarm lamp will stay on, until the compressor has been restarted (start switch to position 3), or the contact is turned off (start switch to position 0; also when, due to cooling off, the thermocontact has closed again (= memory function).

Maintenance



Unauthorised modifications can result in injuries or machine damage.



Always keep the machine tidy to prevent fire hazard.



Poor maintenance can void any warranty claims.

PREVENTIVE MAINTENANCE SCHEDULE

The schedule contains a summary of the maintenance instructions. Read the respective section before taking maintenance measures.

When servicing, replace all disengaged packings, e.g. gaskets, O-rings, washers.

For engine maintenance refer to Engine Operation Manual.

The maintenance schedule has to be seen as a guideline for units operating in a dusty environment typical for compressor applications. Maintenance schedule can be adapted depending on application environment and quality of maintenance.

USE OF SERVICE PAKS

Service Paks include all genuine parts needed for normal maintenance of both compressor and engine.

Service Paks minimize downtime and keep your maintenance budget low.

Order Service Paks at your local Atlas Copco dealer.

MAINTENANCE SCHEDULE COMPRESSOR

<i>To determine the maintenance intervals, use service hours, or calendar time, whichever occurs first.</i>					
Maintenance schedule (running hrs)	Daily	50 hrs after initial start-up	Every 250 hrs	Yearly or every 500 hrs	Yearly
Service parts		2913 3112 00 Oil filter engine	2912 6406 05 PAK	2912 6407 06 PAK	
<i>For the most important subassemblies, Atlas Copco has developed service kits that combine all wear parts. These service kits offer you the benefits of genuine parts, save administration costs and are offered at a reduced price, compared to individual components. Refer to the parts list for more information on the contents of the service kits.</i>					
Drain water from fuel filter	x				
Drain condensate and water from spillage-free frame or catch basin	x				
Empty air filter vacuator valves	x				
Check engine oil level (if necessary top up)	x				
Check compressor oil level (if necessary top up)	x				

(to be continued on page 38)

Maintenance schedule (running hrs) <i>(continuation of page 37)</i>	Daily	50 hrs after initial start-up	Every 250 hrs	Yearly or every 500 hrs	Yearly
Check coolant level	x				
Check/Fill fuel level (3)	x				
Check air intake vacuum indicators	x				
Check on abnormal noise	x				
Check for leaks in engine-, compressor-, air-, oil-, or fuel system		x		x	
Check torque on critical bolt connections		x		x	
Hoses and clamps - Inspect/Replace		x		x	
Change engine oil (2)		x	x	x	
Replace engine oil filter (2)		x	x	x	
Check electrical connections		x		x	
Check electrical system cables for wear		x		x	
Clean radiator (1)			x	x	
Drain/Clean fuel tank water and sediments (1)			x	x	
Replace fuel (pre)filters (6)			x	x	
Clean oil cooler(s) (1)			x	x	
Inspection by Atlas Copco service technician			x	x	
Inspect/Adjust alternator belt			x		
Replace alternator belt				x	
Check functioning of regulating valve				x	
Check engine (minimum and maximum) speed				x	
Replace compressor oil filter(s) (5)				x	
Clean flow restrictor in oil scavenge line				x	
Grease hinges				x	
Check/Test glow plugs				x	
Replace bleed-off valve unloader				x	
Check rubber flexibles (10)				x	

(to be continued on page 39)

Maintenance schedule (running hrs) <i>(continuation of page 38)</i>	Daily	50 hrs after initial start-up	Every 250 hrs	Yearly or every 500 hrs	Yearly
Change compressor oil (1) (7)				x	
Analyse coolant (4) (8)				x	
Replace air filter element (1)				x	
Check condition of heat blanket (if necessary replace) (if equipped)				x	
Adjust engine inlet and outlet valves (2)				every 750 hrs	
Replace oil separator element				x	
Check electrolyte level and terminals of battery					x
Test safety valve (9)					x

Notes



1. More frequently when operating in a dusty environment.
2. Refer to engine operation manual.
3. After a day's work.
4. Yearly is only valid when using PARCOOL. Change coolant every 5 years.
5. Use Atlas Copco oil filters, with by-pass valve as specified in the parts list.
6. Gummed or clogged filters means fuel starvation and reduced engine performance.
7. See section **Oil specifications**.
8. The following part numbers can be ordered from Atlas Copco to check on inhibitors and freezing points
 - 2913 0028 00 : refractometer
 - 2913 0029 00 : pH meter
9. See section **Safety valve**.
10. Replace all rubber flexibles every 6 years, according to DIN 20066.
For other specific engine and alternator requirements refer to specific manuals.



For engine maintenance after 800 running hours or more, we refer to the engine operation manual.



Keep the bolts of the housing, the lifting eye, the towbar and the axle securely tightened.

Refer to section Technical specifications and section Height adjustment for the torque values.

MAINTENANCE SCHEDULE UNDERCARRIAGE

Maintenance schedule (km)	Daily	50 km after initial start-up	Every 500 km	Every 2000 km	Yearly
<i>To determine the maintenance intervals, use mileage indication in km or calendar time, whichever occurs first.</i>					
Check towbar	X	X	X		X
Check coupling head	X			X	X
Check height of adjusting facility	X				X
Check tyre pressure		X	X		X
Check torque of wheel nuts		X		X	X
Grease coupling head and towbar bearings		X		X	X
Check/Adjust lateral play of wheel bearing (conventional bearing)			X		X
Check tyres for uneven wear				X	X
Grease sliding points on height adjusting parts				X	X
Check safety cable for damage				X	X
Lubricate torsion bar axle trailing arm				X	X
Check hub cap for firm seating				X	X
Change wheel hub bearing grease					X

OIL SPECIFICATIONS



It is strongly recommended to use Atlas Copco branded lubrication oils for both compressor and engine. If you want to use another brand of oil, consult Atlas Copco.

High-quality, mineral, hydraulic or synthesized hydrocarbon oil with rust and oxidation inhibitors and anti-foam and anti-wear properties is recommended. The viscosity grade should correspond to the ambient temperature and ISO 3448, as follows:



Never mix synthetic with mineral oil.

Remark:

When changing from mineral to synthetic oil (or the other way around), you will need to do an extra rinse:

After a complete change over to synthetic oil, run the unit for a few minutes to allow proper and complete circulation of the synthetic oil.

Then drain the synthetic oil again and fill again with new synthetic oil. To set correct oil levels, follow the normal instructions.

PAROIL from Atlas Copco is the ONLY oil tested and approved for use in all engines built into Atlas Copco compressors and generators.

Extensive laboratory and field endurance tests on Atlas Copco equipment have proven PAROIL to match all lubrication demands in varied conditions. It meets stringent quality control specifications to ensure your equipment will run smoothly and reliably.

The quality lubricant additives in PAROIL allow for extended oil change intervals without any loss in performance or longevity.

PAROIL provides wear protection under extreme conditions. Powerful oxidation resistance, high chemical stability and rust-inhibiting additives help reduce corrosion, even within engines left idle for extended periods.

PAROIL contains high quality anti-oxidants to control deposits, sludge and contaminants that tend to build up under very high temperatures.

PAROIL's detergent additives keep sludge forming particles in a fine suspension, instead of allowing them to clog your filter and accumulate in the valve/rocker cover area.

PAROIL releases excess heat efficiently, whilst maintaining excellent bore-polish protection to limit oil consumption.

PAROIL has an excellent Total Base Number (TBN) retention and more alkalinity to control acid formation.

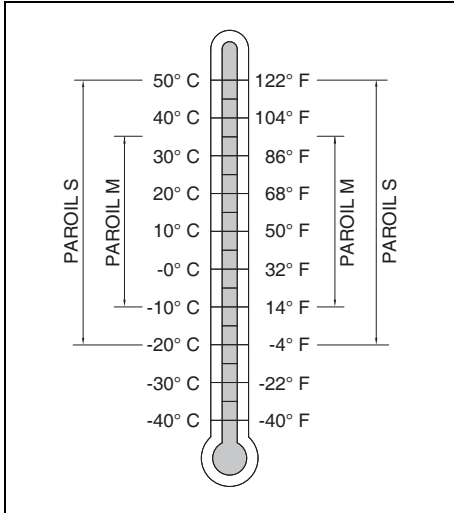
PAROIL prevents Soot build-up.

PAROIL is optimized for the latest low emission EURO -3 & -2, EPA TIER II & III engines running on low sulphur diesel for lower oil and fuel consumption.

PAROIL E xtra is a Synthetic ultra high performance diesel engine oil with a high viscosity- index. Atlas Copco PAROIL E xtra is designed to provide excellent lubrication from start-up at temperatures as low as -25°C (-13°F).

PAROIL E is a mineral based high performance diesel engine oil with a high viscosity- index. Atlas Copco PAROIL E is designed to provide a high level of performance and protection under 'standard' ambient conditions from -10°C (14°F) onward.

COMPRESSOR OIL



Choose your compressor oil based on the ambient temperatures in the actual operating area.

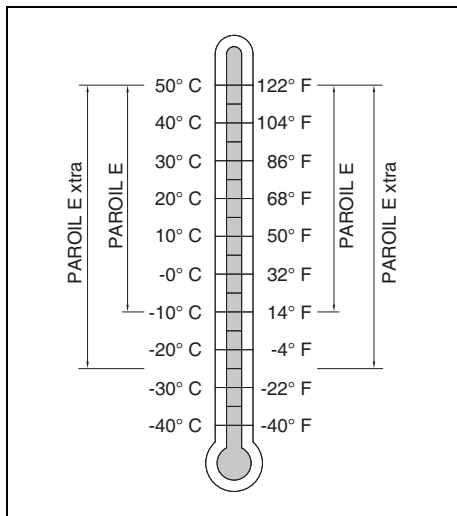
Mineral compressor oil PAROIL M

	Liter	US gal	Order number
can	5	1.3	1615 5947 00
can	20	5.3	1615 5948 00
barrel	210	55.2	1615 5949 00

Synthetic compressor oil PAROIL S

	Liter	US gal	Order number
can	5	1.3	1615 5950 01
can	20	5.3	1615 5951 01
barrel	210	55.2	1615 5952 01
container	1000	265	1604 7422 00

ENGINE OIL



Choose your engine oil based on the ambient temperatures in the actual operating area.

Mineral engine oil PAROIL E

	Liter	US gal	Order number
can	5	1.3	1615 5953 00
can	20	5.3	1615 5954 00
barrel	210	55.2	1615 5955 00

Synthetic engine oil PAROIL E xtra

	Liter	US gal	Order number
can	5	1.3	1604 6060 00
can	20	5.3	1604 6059 00

OIL LEVEL CHECK



Never mix oils of different brands or types.

Use only non-toxic oils where there is a risk of inhaling delivered air.

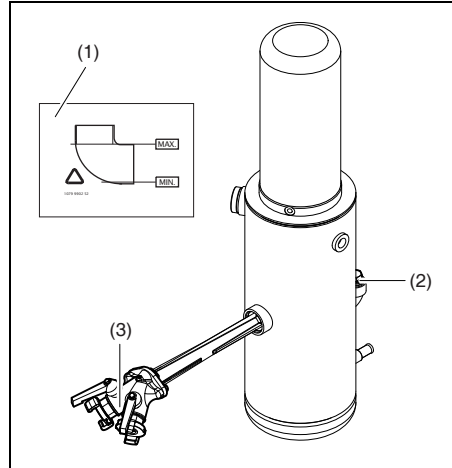
ENGINE OIL LEVEL CHECK

Also consult the Engine Operation Manual for the oil specifications, viscosity recommendations and oil change intervals.

For intervals, see **Preventive maintenance schedule**.

Check engine oil level in accordance to the instructions in the Engine Operation Manual and if necessary, top up with oil.

COMPRESSOR OIL LEVEL CHECK



DAILY CHECK

Check the compressor oil level daily, after running the compressor.



The compressor oil level needs to be checked with the compressor in an horizontal position after running the compressor to warm up so that the thermostatic valve is open.

1. Stop the compressor with closed air outlet valve (3) and let it rest for a short period, to allow the system to relief pressure inside the vessel and settle down the oil.
2. Depending on the level indicator, check the oil level via:
 - the pointer of the oil level gauge (1). The pointer must register in the green area.
 - the oil filler plug. The level must be between the two markings as indicated in the label (1) on the oil vessel.
3. If the oil level is too low, add oil via the oil filler plug (2)



Before removing the oil filler plug, ensure that the pressure is released by opening the air outlet valve (3) and checking the vessel pressure on the controller or the pressure gauge.

4. Top up with oil until:
 - the pointer of the oil level gauge is in the upper part of the green area
 - the oil level is at the upper level as indicated on the label
5. Reinstall and tighten the filler plug.

CHECK AFTER A LONGER PERIOD WITHOUT RUNNING THE COMPRESSOR

1. Depending on the level indicator, check the oil level via:
 - the pointer of the oil level gauge (1). The pointer must register in the green area.
 - the oil filler plug. The level must be between the two markings as indicated in the label (1) on the oil vessel.
2. If the oil level is too low, remove the oil filler plug (2) and check if there is still oil in the vessel
 - No oil in the vessel: Top up the compressor with oil until the pointer of the oil level gauge is in the upper part of the green area or the oil level is at the upper level as indicated on the label and follow the steps as described above in **Daily check**.
 - Oil in the vessel: Start up the unit to warm up and give time for the thermostatic valve to open. Stop the compressor with closed outlet valve (3) and follow the steps described above in **Daily check**.



At temperatures below 0°C, you have to load the compressor to be sure that the compressor thermostat will be open.

OIL AND OIL FILTER CHANGE

ENGINE OIL AND OIL FILTER CHANGE

See section **Preventive maintenance schedule**.

COMPRESSOR OIL AND OIL FILTER CHANGE

The quality and the temperature of the oil determine the oil change interval.

The prescribed interval is based on normal operating conditions and an oil temperature of up to 100°C (212°F) (see section **Preventive maintenance schedule**).



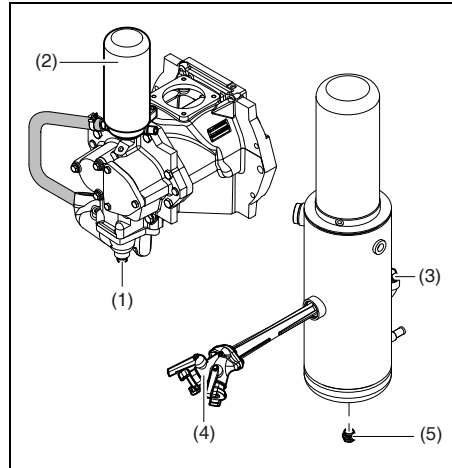
The prescribed interval for compressor oil change is not to be exceeded in any case. When the oil exchange interval is exceeded, this could lead to serious damage to the compressor.

In case the compressor oil lifetime has been exceeded please consult the Atlas Copco Customer Center for appropriate cleaning and flushing instructions.

When operating in high ambient temperatures, in very dusty or high humidity conditions, it is recommended to change the oil more frequently.



In this case, contact Atlas Copco.



1. Run the compressor until warm. Close the outlet valve(s) (4) and stop the compressor. Wait until the pressure is released through the automatic blow-down valve. Unscrew the oil filler plug (3) by a single turn. This uncovers a vent hole, which permits any pressure in the system to escape.
2. Drain the compressor oil by removing all relevant drain plugs (1) (5). Drain plugs are fitted on the air receiver and compressor element. Catch the oil in a drain pan. Unscrew the filler plug to speed up draining. After draining, reposition and tighten the drain plugs.
3. Remove the oil filter (2), e.g. by means of a special tool. Catch the oil in a drain pan.

4. Clean the filter seat on the manifold, taking care that no dirt drops into the system. Oil the gasket of the new filter element. Screw it into place until the gasket contacts its seat, then tighten one half turn only.
5. Fill the air receiver until the oil level reaches the thread. Take care that no dirt drops into the system. Reinstall and tighten the filler plug (3).
6. Run the unit unloaded for a few minutes to circulate the oil and evacuate the air trapped in the oil system.
7. Stop the compressor. Let the oil settle for a few minutes. Check that the pressure is released by opening an air outlet valve (4). Unscrew filler plug (3) and add oil until the oil level reaches the thread. Reinstall and tighten the filler plug.



Never add more oil. Overfilling results in oil consumption.

COMPRESSOR OIL FLUSHING PROCEDURE



Not respecting compressor oil changing intervals in accordance with the maintenance schedule, can lead to serious problems, including fire hazard! The manufacturer does not accept any liability for damage arising from not following the maintenance schedule or not using genuine parts.

To avoid problems when changing over to a new type of oil a special Compressor Oil Flushing Procedure has to be followed. The procedure is only valid when the replaced oil has not exceeded its lifetime. For more information consult Atlas Copco Service dept.

Aged oil can be recognized best by using an oil sampling analysis program. Indicators for aged oil are strong smell, or contamination such as sludge and varnish inside the oil vessel and oil stop valve or a brownish colour of the oil.

Whenever aged oil is discovered, eg. when changing the oil separator, contact Atlas Copco Service dept. to have your compressor cleaned and flushed.

1. First thoroughly drain the system when the oil is warm, leaving as little oil in the system as possible, especially in dead areas, if possible blow out remaining oil by pressurising the oil system. Check the instruction manual for detailed description.
2. Remove the compressor oil filter(s).
3. Open the oil vessel and remove the oil separator element.



Instructions on replacing the oil separator element are available from Atlas Copco Service dept.

4. Check the interior of the oil vessel (see pictures). If varnish deposits are discovered, contact Atlas Copco Service dept. and do not continue.
5. Put in a new oil separator, screw on new compressor oil filter(s) and close the oil vessel according to the instructions.
6. Fill the oil vessel with the minimum amount of replacement oil, run the compressor under light load conditions for 30 minutes.
7. Thoroughly drain the system when the oil is warm, leaving as little oil in the system as possible, especially in dead areas, if possible blow out remaining oil by pressurising the oil.
8. Fill the system with the final oil charge.
9. Run the compressor under light load conditions for 15 minutes and check for leakage.
10. Check the oil level and top up if necessary.
11. Collect all waste lubricant used during the flushing process and dispose of it in accordance with the applicable procedures for managing waste lubricant.



Vessel cover contaminated

clean



Vessel contaminated

clean

	PAROIL M	PAROIL S
➔	draining *	flushing
PAROIL M	draining *	flushing
PAROIL S	draining **	draining *

* When changing over to the same oil within the oil changing interval, draining is sufficient

** Change over not recommended

COOLANT SPECIFICATIONS



Never remove the cooling system filler cap while coolant is hot.

The system may be under pressure. Remove the cap slowly and only when coolant is at ambient temperature. A sudden release of pressure from a heated cooling system can result in personal injury from the splash of hot coolant.



It is strongly recommended to use Atlas Copco branded coolant.

The use of the correct coolant is important for proper heat transfer and protection of liquid-cooled engines. Coolants used in these engines must be mixtures of good quality water (distilled or de-ionised), special coolant additives and anti-freeze, if required. Coolant that is not to manufacturer's specification will result in mechanical damage of the engine.

The freezing point of the coolant must be lower than the freezing point that can occur in the area. The difference must be at least 5°C (9°F). If the coolant freezes, it may crack the cylinder block, radiator or coolant pump.

Consult the engine's operation manual and follow the manufacturer's directions.



Never mix different coolants and mix the coolant components outside the cooling system.

PARCOOL EG

PARCOOL EG is the only coolant that has been tested and approved by all manufacturers of engines currently used in Atlas Copco compressors and generators.

Atlas Copco's PARCOOL EG extended life coolant is the new range of organic coolants purpose-designed to meet the needs of modern engines. PARCOOL EG can help prevent leaks caused by corrosion. PARCOOL EG is also fully compatible with all sealants and gasket types developed to join different materials used within an engine.

PARCOOL EG is a ready to use Ethylene Glycol based coolant, premixed in an optimum 50/50 dilution ratio, for antifreeze protection guaranteed to -40°C (-40°F).

Coolant PARCOOL EG

	Liter	US gal	Order number
can	5	1.3	1604 5308 00
can	20	5.3	1604 5307 01
barrel	210	55.2	1604 5306 00

To ensure protection against corrosion, cavitation and formation of deposits, the concentration of the additives in the coolant must be kept to certain limits, as stated by the manufacturer's guidelines. Topping up the coolant with water only, changes the concentration and is therefore not allowed.

Liquid-cooled engines are factory-filled with this type of coolant mixture.

Because PARCOOL EG inhibits corrosion, deposit formation is minimized. This effectively eliminates flow restriction problems through the engine coolant ducts and the radiator, minimizing the risk of engine overheating and possible failure.

It reduces water pump seal wear and has excellent stability when subjected to sustained high operating temperatures.

PARCOOL EG is free of nitride and amines to protect your health and the environment. Longer service life reduces the amount of coolant produced and disposal requirements, which limits environmental impact.

COOLANT CHECK



Never remove the cooling system filler cap while coolant is hot.

The system may be under pressure. Remove the cap slowly and only when coolant is at ambient temperature. A sudden release of pressure from a heated cooling system can result in personal injury from the splash of hot coolant.

In order to guarantee the lifetime and quality of the product, thus optimising engine protection, regular coolant-condition-analysis is recommended.

The quality of the product can be determined by three parameters:

Visual check

- Verify the appearance of the coolant with regard to its colour and make sure that no loose particles are floating around.

pH measurement

- Check the pH value of the coolant using a pH-measuring device.
- The pH-meter can be ordered from Atlas Copco with part number 2913 0029 00.
- Typical value for EG = 8.6.
- If the pH-level is below 7 or above 9.5, the coolant should be replaced.

Glycol concentration measurement

- To optimise the unique engine protection features of the PARCOOL EG, the concentration of the Glycol in the water should always be above 33 vol.%.

- Mixtures exceeding a 68 vol.% mix ratio in water are not recommended, as this will lead to high engine operating temperatures.
- A refractometer can be ordered from Atlas Copco with part number 2913 0028 00.



In case of a mix of different coolant products this type of measuring might provide incorrect values.

COOLANT LEVEL

- Check coolant level (see section **Maintenance schedule compressor**).
- Low coolant level can lead to engine overheating, and will eventually result in permanent engine damage.

TOPPING UP OF COOLANT

- Verify whether the engine cooling system is in a good condition (no leaks, clean,...).
- Check the condition of the coolant.
- If the condition of the coolant is no longer up to standard, the complete coolant should be replaced (see section **Replacing the coolant**).
- Always top-up with PARCOOL EG.
- Topping up the coolant with water only, changes the concentration of additives and is therefore not allowed.

REPLACING THE COOLANT

Drain

- Completely drain the entire cooling system.
- Used coolant must be disposed of or recycled in accordance with legislation and local regulations.

Flush

- Flush twice with clean water. Used coolant must be disposed or recycled in accordance with laws and local regulations.
- Determine the amount of PARCOOL EG required, see **Technical specifications**, and pour it into the radiator top tank.
- It should be clearly understood that proper cleaning reduces contamination risks.
- In case of "other" coolant residues inside the system, the coolant with the lowest properties influences the quality of the 'mixed' coolant.

Fill

- To assure proper operation and the release of trapped air, run the engine until normal engine operation temperature is reached. Turn off the engine and allow to cool.
- Recheck coolant level and add coolant mixture if necessary.



Caution: do not top up when the engine is hot.

CLEANING FUEL TANK



Observe all relevant environmental and safety precautions.

The fuel tank can be easily cleaned by taking it out of the frame.

There is no need to loosen the side panel.



Never leave spilled liquids such as fuel, oil, water and cleansing agents in or around the compressor.

Refill the fuel tank with clean fuel.

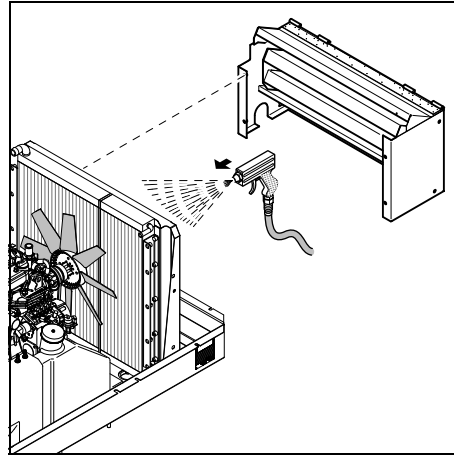
CLEANING HARDHAT

Optimal cleaning of the HardHat can be achieved by high pressure cleaning in combination with liquid soap.



Do not use water with a temperature >50°C (122°F).

CLEANING COOLERS



Keep the coolers clean to maintain the cooling efficiency.

The fan side surface of the compressor oil cooler and engine coolant cooler is accessible by removing the fan cowl upper part.

The opposite surface of the compressor oil cooler and engine coolant cooler is accessible by removing the center part of the front baffles.



Remove any dirt from the coolers with a fibre brush. Never use a wire brush or metal objects.

Steam cleaning in combination with a cleansing agent may be applied.



To avoid damaging the coolers, angle between jet and coolers should be approx. 90°.



Protect the electrical and controlling equipment, air filters, etc. against penetration of moisture.

Close the service door(s).



Never leave spilled liquids such as fuel, oil, water and cleansing agents in or around the compressor.

BATTERY CARE



Before handling batteries, read the relevant safety precautions and act accordingly.

If the battery is still dry, it must be activated as described in section **Activating a dry-charged battery**.

The battery must be in operation within 2 months from being activated; if not, it needs to be recharged first.

ELECTROLYTE



Read the safety instructions carefully.

Electrolyte in batteries is a sulphuric acid solution in distilled water.

The solution must be made up before being introduced into the battery.



Always pour the sulphuric acid carefully into the distilled water; never pour the water into the acid.

ACTIVATING A DRY-CHARGED BATTERY

- Take out the battery.
- Battery and electrolyte must be at an equal temperature above 10°C (50°F).
- Remove cover and/or plug from each cell.
- Fill each cell with electrolyte until the level reaches 10 mm (0.4 in) to 15 mm (0.6 in) above the plates, or to the level marked on the battery.
- Rock the battery a few times so that possible air bubbles can escape; wait 10 minutes and check the level in each cell once more; if required, add electrolyte.
- Refit plugs and/or cover.
- Place the battery in the compressor.

RECHARGING A BATTERY

Before and after charging a battery, always check the electrolyte level in each cell; if required, top up with distilled water only. When charging batteries, each cell must be open, i.e. plugs and/or cover removed.



Use a commercial automatic battery charger in accordance with the manufacturer's instructions.

Preferably use the slow charging method and adjust the charge current according to the following rule of thumb: battery capacity in Ah divided by 20 gives safe charging current in Amp.

MAKE-UP DISTILLED WATER

The amount of water evaporating from batteries is largely dependant on the operating conditions, i.e. temperatures, number of starts, running time between start and stop, etc...

If a battery starts to need excessive make-up water, this points to overcharging. Most common causes are high temperatures or a too high voltage regulator setting.

If a battery does not need any make-up water at all over a considerable time of operation, an undercharged battery condition may be caused by poor cable connections or a too low voltage regulator setting.

PERIODIC BATTERY SERVICE

- Keep the battery clean and dry.
- Keep the electrolyte level at 10 to 15 mm above the plates or at the indicated level; top up with distilled water only. Never overfill, as this will cause poor performance and excessive corrosion.
- Record the quantity of distilled water added.
- Keep the terminals and clamps tight, clean, and lightly covered in petroleum jelly.
- Carry out periodic condition tests. Test intervals of 1 to 3 months, depending on climate and operating conditions, are recommended.

If doubtful conditions are noticed or malfunctions arise, keep in mind that the cause may be in the electrical system, e.g. loose terminals, voltage regulator maladjusted, poor performance of compressor, etc...

STORAGE

Run the compressor regularly, e.g. twice a week, until warm.

Load and unload the compressor a few times to operate the unloading and regulating components. Close the air outlet valves after stopping.



If the compressor is going to be stored without running regularly, protective measures must be taken.

Contact Atlas Copco for correct measures.

SERVICE PAKS

A Service Pak is a collection of parts to be used for a specific maintenance measure.

It guarantees that all necessary parts are replaced at the same time keeping down time to a minimum.

The order number of the Service Paks are listed in the Atlas Copco Parts List (ASL).

SERVICE KITS

A Service Kit is a collection of parts to fit a specific repair or rebuilding task.

It guarantees that all necessary parts are replaced at the same time, which improves the uptime of the unit.

The order numbers of the Service Kits are listed in the Atlas Copco Parts List (ASL).

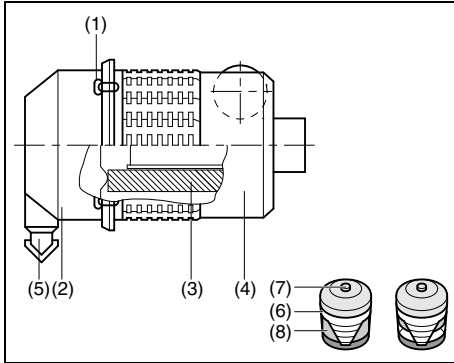
COMPRESSOR ELEMENT OVERHAUL

When a compressor element is due for overhaul, it needs to be done by Atlas Copco. This guarantees the use of genuine parts and correct tools with care and precision.

LIABILITY

The manufacturer does not accept any liability for any damage arising from the use of non-original parts and for modifications, additions or conversions made without the manufacturer's written approval.

AIR FILTER ENGINE/COMPRESSOR



1. Snap clips
2. Dust trap cover
3. Filter element
4. Filter housing
5. Vacuator valve
6. Vacuum indicator
7. Reset button
8. Yellow indicator

CLEANING THE DUST TRAP

To remove dust from the dust trap squeeze the vacuator valve (5) several times.

RECOMMENDATIONS



The Atlas Copco air filters are specially designed for the application. The use of non-original air filters may lead to severe damage of engine and/or compressor element.

Never run the compressor without air filter element.



The filter element must be cleaned or replaced when the yellow indicator (8) has reached the bottom of the vacuum indicator.

New elements must also be inspected for tears or punctures before installation.

Discard the element (3) when damaged.

REPLACING THE AIR FILTER ELEMENT

1. Release the snap clips (1) and remove the dust trap (2). Clean the trap.
2. Remove the element (3) from the housing (4).
3. Reassemble in reverse order of dismantling. Make sure the vacuator valve (5) points down.
4. Inspect and tighten all air intake connections.
5. Reset the vacuum indicator (6).

AIR RECEIVER

The air receiver is tested according to official standards. Carry out regular inspections in conformity with local regulations.

SAFETY VALVE

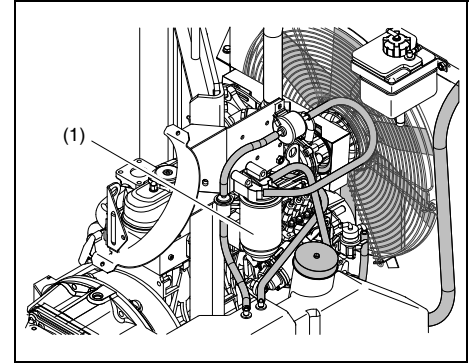


All adjustments or repairs are to be done by an authorized representative of the valve supplier.

Following checks must be carried out:

- a check of the opening of the lifting gear, twice a year. This can be done by screwing the cap of the valve anti-clockwise.
- an annual check of the set pressure according to local regulations. This check cannot be done on the machine and must be carried out on a proper test bench.

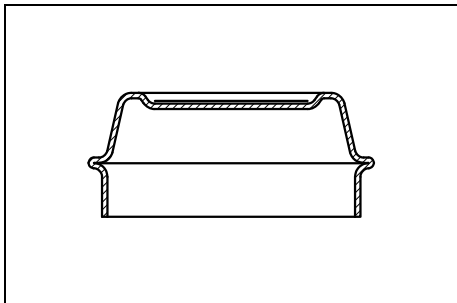
FUEL SYSTEM



Replacing the filter element

1. Unscrew the filter element (1) from the adapter head.
2. Clean the adapter head sealing surface. Lightly oil the gasket of the new element and screw the latter onto the header until the gasket is properly seated, then tighten with both hands.
3. Check for fuel leaks once the engine has been restarted.

WHEEL BEARING LUBRICATION



Tapered type hub cap

Taper roller bearings and deep groove ball bearing

Axles fitted with taper roller bearings are recognizable by a tapered type hub cap, see Figure.

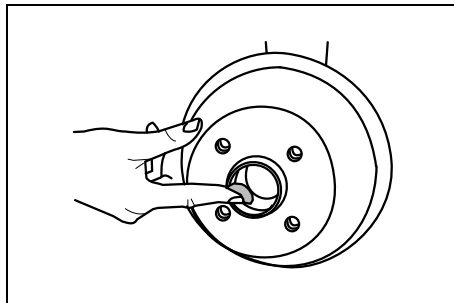
Remove wheels and wheel hubs.

Mark dismantled wheel hubs and bearing races so that their identity is not mistaken during reassembly.

Clean wheel hubs thoroughly inside and outside. Remove old grease totally.

Clean taper roller bearings and seals (using diesel oil) and check for reusability.

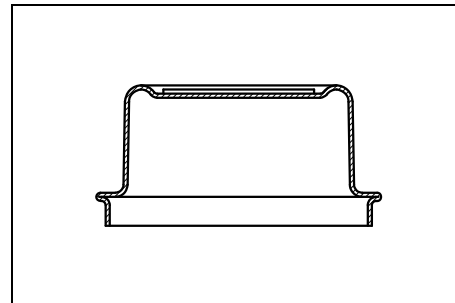
Work BPW special longlife grease ECO_Li 91 into the cavities between the taper roller and cage. Smear grease into the hub's outer bearing race.



Greasing bearing race

Fill the hub caps to 3/4 full with grease.

Fit wheel hubs, adjust the bearing play and fit the hub caps.



Cylindrical hub cap shape

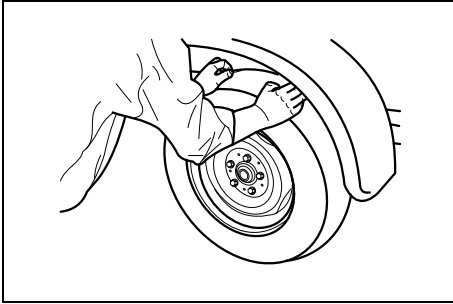
Compact bearings

Compact bearings are recognizable by cylindrical hub cap shape, see Figure.

Compact bearings are maintenance-free due to permanent lubrication and are designed for high mileages.

Therefore, there is no grease change or regreasing necessary.

WHEEL BEARING ADJUSTMENT



Bearing play

Jack up the compressor, release brakes.

Turn wheels manually and rock.

If any bearing play is noticeable, report.

Compact bearings

Compact bearings are recognizable by their cylindrical hub cap shape.



If noticeable bearing play is felt, the compact bearings should be replaced.

Conventional taper roller bearings

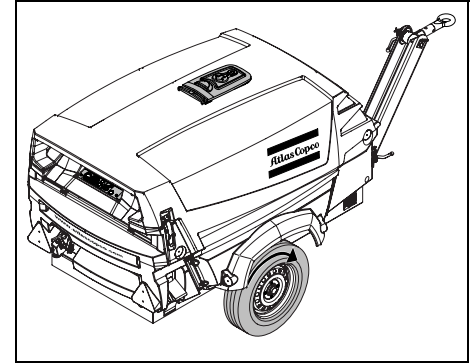
Taper roller bearings are recognisable by the conical profile of the hub cap.

- Lever off hub cap. Remove split pin from axle nut and tighten so that rotation of the wheel is slightly braked.
- Turn back the axle nut to the next possible split pin hole, by a maximum of 30 degrees.
- Insert split pin and bend ends slightly outwards.
- Check wheel rotation, fit hub cap.

Important:

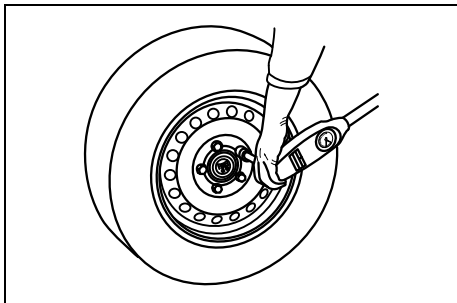
The grease in the hub cap and bearing must not be contaminated with dirt during this job!

CHANGING TYRES



When changing a tyre, please observe that the arrow on the tyre in top position points in the driving direction (towards the towbar).

WHEEL BOLTS CHECK



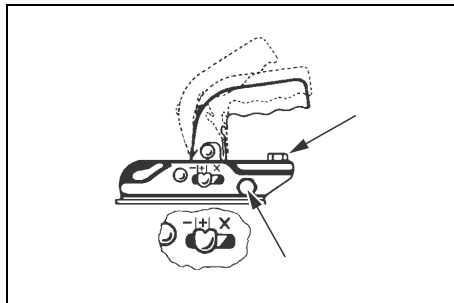
Wheel bolts tightening



After the first run, likewise after each wheel change.

Tighten wheel bolts crosswise using a torque wrench and tightening torque in compliance with the **Technical specifications**.

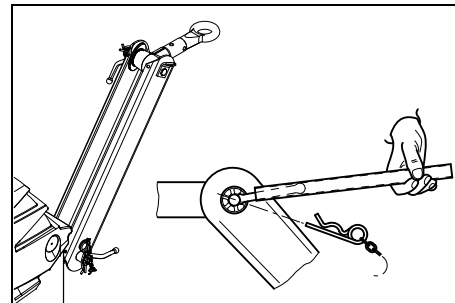
TOWBAR CHECK



Check the coupling head fastenings

Check coupling head

Check coupling head for wear and correct operation.
Check the wear indicator (use within the "+" range only).
Check the coupling head fastenings (see arrows, Figure) at regular intervals for firm seating.

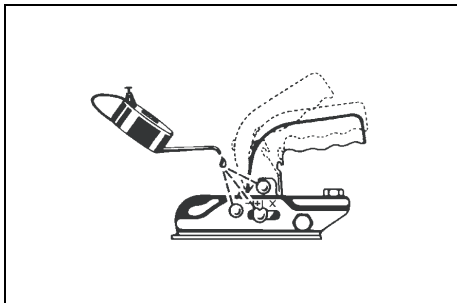


Height adjustment

Check height adjustment facility

After every adjustment the clamping nuts must be tightened and secured with the spring elements.
Tightening torque:
M 24 = 250 - 350 Nm
M 32 = 350 - 400 Nm
Check tight fit of the clamping nuts and correct positioning of the adjustment facility.
See also **Height adjustment**.

TOWBAR LUBRICATION



Lubrication coupling head

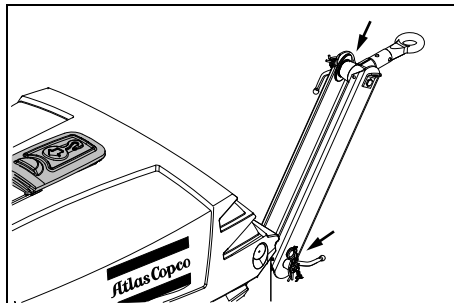
Lubricate the coupling head



At regular intervals.

Oil ball coupling at regular intervals in the specified locations and moving parts.

Grease the contact surface of the ball of the towing vehicle.



Height adjusting device

Grease sliding locations on the height-adjusting device



Every 2,000 kilometres or annually.

Oil threaded parts and grease toothed parts.

Problem solving

It is assumed that the engine is in good condition and that there is adequate fuel flow to the filter and injection equipment.



An electrical fault must be traced by an electrician.

Make sure that the wires are not damaged and that they are clamped tight to their terminals.



If it's not possible to solve the problem with this problem solving table, please consult Atlas Copco.

Alternator precautions

1. Never reverse the polarity of the battery or the alternator.
2. Never break any alternator or battery connections while the engine is running.
3. When recharging the battery, disconnect it from the alternator. Before using booster cables to start the engine, be sure of the polarity and connect the batteries correctly.
4. Never operate the engine without the main or voltage sensing cables connected in the circuit.

Problem	Possible faults	Corrective actions
1. Lamp H2 does not light up when turning (S1) to position 1.	<ol style="list-style-type: none"> a. Discharged or defective battery. b. Loose battery cable(s) or oxidised terminals. c. Loose connection or damaged wiring. d. Start switch (S1) defective. e. Circuit breaker (F1) defective. 	<ol style="list-style-type: none"> a. Check electrolyte level and charge battery. If no cells are shorted and battery is discharged, trace cause and correct. b. Check and correct if necessary. c. Check wiring and connections; correct if necessary. d. With (S1) switched in "I", check voltage between earth and each of the terminals of (S1) respectively. Voltage must register at each of the terminals; if not, replace (S1). e. Replace circuit breaker.
2. General alarm lamp (H1) does not light up when turning (S1) to position 2.	<ol style="list-style-type: none"> a. Lamp (H2) blown. b. Alternator (A)/regulator defective. 	<ol style="list-style-type: none"> a. Replace lamp. b. Disconnect the wire from alternator terminal D+ and connect it to terminal D-. If (H1) lights up, replace the alternator; if not, test (S1); see remedy 1d.

Problem	Possible faults	Corrective actions
3. Engine does not start after turning (S1) to position 1.	<ul style="list-style-type: none"> a. Low battery output. b. Circuit breaker button (F1) not pressed. c. Loose or damaged electric wiring. d. Fuel tank empty. e. Start switch (S1) defective. f. Starter motor defective. 	<ul style="list-style-type: none"> a. See remedy 1a. b. Press circuit breaker button. c. Repair electric wiring. d. Refuel and prime fuel pump. e. Repair (S1). f. Repair starter motor.
4. Starter motor cranks engine when turning start switch (S1) to position 3, but engine does not fire.	<ul style="list-style-type: none"> a. Start switch (S1) defective. b. Fuel solenoid (Y1) defective. c. Low battery output. 	<ul style="list-style-type: none"> a. See remedy 1d. b. Check solenoid and its valve, correct or replace if necessary. c. See 1a.
5. Engine is running, but shuts down immediately after (S1) has been released.	<ul style="list-style-type: none"> a. Start switch (S1) released too soon. b. Insufficient engine oil pressure. c. Fuel tank contains insufficient fuel. 	<ul style="list-style-type: none"> a. Release button after engine oil pressure has built up above the minimum allowed value. b. Stop at once, consult the Engine Operation Manual. c. Fill fuel tank.
6. General alarm lamp (H1) remains alight for over 5 seconds after starting.	<ul style="list-style-type: none"> a. Insufficient engine oil pressure or too high engine coolant temperature. b. Engine oil pressure switch (S3), or compressor temperature switch (S5) defective. c. Relay (K5) and/or (K7) defective. 	<ul style="list-style-type: none"> a. Stop at once, consult Engine Operation Manual. b. Stop at once, test switches, replace as necessary. c. Replace relay (K5) and/or (K7).
7. Hourmeter (P1) does not count running time.	<ul style="list-style-type: none"> a. Hourmeter (P1) defective. 	<ul style="list-style-type: none"> a. Replace.
8. Compressor does not unload and engine keeps running at maximum speed when closing the air outlet valves; safety valve blows.	<ul style="list-style-type: none"> a. Air leaks in regulating system. b. Regulating valve (RV) incorrectly set or defective. c. Unloader valve (UV) or its actuating piston stuck. 	<ul style="list-style-type: none"> a. Check and repair. b. Adjust or repair regulating valve; see section Adjustment of the continuous pneumatic regulating system. c. Repair unloader valve assembly.

Problem	Possible faults	Corrective actions
9. Compressor capacity or pressure below normal.	<ul style="list-style-type: none"> a. Air consumption exceeds capacity of compressor. b. Choked air filter elements (AF). c. Unloader valve (UV) not completely open. d. Engine does not run at max. speed. e. Oil separator element (OS) clogged. 	<ul style="list-style-type: none"> a. Check equipment connected. b. Replace air filter element (AF). c. Check unloader valve; replace if necessary. d. Check the maximum speed, service the fuel filter. e. Have element removed and inspected by an Atlas Copco Service representative.
10. Working pressure rises during operation and causes safety valve to blow.	<ul style="list-style-type: none"> a. See faults 10. b. Safety valve (SV) opens too soon. 	<ul style="list-style-type: none"> a. See remedies 10. b. Have safety valve adjusted; consult Atlas Copco.
11. Excessive compressor oil consumption. Oil mist being discharged from air outlet valve(s).	<ul style="list-style-type: none"> a. Restrictor in oil scavenging line (SL) clogged. b. Oil separator element (OS) defective. c. Oil level too high. d. Non return valve missing in scavenge line. 	<ul style="list-style-type: none"> a. Dismount, clean and refit restrictor. b. Replace element. c. Check for overfilling. Release pressure and drain oil to correct level. d. Install non return valve.
12. Compressor shuts down through a shutdown switch.	<ul style="list-style-type: none"> a. Alternator V-belt broken or slipping. b. Compressor overheating. c. Engine oil pressure too low. d. Engine temperature too high. e. Low coolant level. 	<ul style="list-style-type: none"> a. Re-tense or replace V-belt. b. See condition 16. c. Check lubricating system. d. Check engine coolant system; see Engine Operation Manual. e. Top up cooling system.
13. Air and oil mist expelled from air filter after stopping.	<ul style="list-style-type: none"> a. Unloader valve (UV) blocked. b. Wrong oil type (without foam-retarding additives). 	<ul style="list-style-type: none"> a. Repair valve. b. Consult Atlas Copco.

Problem	Possible faults	Corrective actions
14. Compressor overheating; alarm lamp (H2) goes on.	<ul style="list-style-type: none"> a. Insufficient compressor cooling. b. Oil cooler (OC) clogged externally. c. Oil system clogged internally. d. Oil level too low. e. Incorrect working of temperature safety switch. f. Cooling fan defect. g. Incorrect oil specification. 	<ul style="list-style-type: none"> a. Relocate compressor. b. Clean cooler; see section Cleaning coolers. c. Consult Atlas Copco. d. See section Oil level check. e. Check temperature safety switch; if necessary replace. f. Replace cooling fan. g. Observe recommended oil specification.
15. Engine overheating; alarm lamp (H1) goes on.	<ul style="list-style-type: none"> a. Insufficient engine cooling. b. Engine coolant cooler clogged externally. c. Incorrect working of temperature safety switch. d. Cooling fan defect. 	<ul style="list-style-type: none"> a. Relocate compressor. b. Clean engine coolant cooler. Refer to section Cleaning coolers. c. Check temperature safety switch; if necessary replace. d. Replace cooling fan.

Available options

Towing eyes:	AC
	Ball coupling no brakes
	DIN
	GB
	ITA
	NATO
	BNA
Road lights system:	Road signalisation
Documentation:	Additional literature set

Technical specifications

TORQUE VALUES

GENERAL TORQUE VALUES

The following tables list the recommended torques applied for general applications during assembly of the compressor.

For hexagon screws and nuts with strength grade 8.8

Thread size	Torque value (Nm / lbf.ft)
M6	8 (6) +/-25 %
M8	20 (15) +/-25 %
M10	41 (30) +/-25 %
M12	73 (54) +/-25 %
M14	115 (85) +/-25 %
M16	185 (137) +/-25 %

For hexagon screws and nuts with strength grade 12.9

Thread size	Torque value (Nm / lbf.ft)
M6	14 (10) +/-21 %
M8	34 (25) +/-23 %
M10	70 (52) +/-24 %
M12	120 (89) +/-25 %
M14	195 (144) +/-23 %
M16	315 (233) +/-23 %

CRITICAL TORQUE VALUES

Assemblies	Torque value (Nm / lbf.ft)
Wheel bolts	See section Wheel bolts check
Bolts, axle/beams	80 (59) +/- 10 %
Bolts, towbar/axle	80 (59) +/- 10 %
Bolts, towbar/bottom	80 (59) +/- 10 %
Bolts, towing eye/towbar	80 (59) +/- 10 %
Bolts, lifting eye/flywheel housing	80 (59) +/- 10 %
Bolts, engine/drive housing (M12)	80 (59) +/- 10 %
Bolts, engine/drive housing (M14)	125 (92) +/- 10 %
Bolts, compressor element/drive housing	80 (59) +/- 5 %
Safety switches	35 (26) +/- 5 %
Joints adjustable towbar (M24)	275 (205) +/- 10 %
Joints adjustable towbar (M32)	375 (280) +/- 10 %



Secure the drain cock and tank cap of the fuel tank handtight.

SETTINGS OF SHUTDOWN SWITCHES AND SAFETY VALVES

Designation		XAS 67 - XAS 130	XAS 87 - XAS 175
Engine oil pressure	bar(e)	1.2	1.2
	psi	17.4	17.4
Engine oil temperature	°C	107 - 113	107 - 113
	°F	225 - 236	225 - 236
Compressor temperature	°C	116 - 120	116 - 120
	°F	241 - 248	241 - 248
Safety valve opening pressure			
- EC type	bar(e)	10.5	10.5
- ASME type	psi	160	160

COMPRESSOR / ENGINE SPECIFICATIONS

REFERENCE CONDITIONS

Designation		XAS 67 - XAS 130	XAS 87 - XAS 175
Absolute inlet pressure	bar(e)	1	1
	psi	14.5	14.5
Relative air humidity	%	0	0
Air inlet temperature	°C	20	20
	°F	68	68
Nominal effective working pressure	bar(e)	7	7
	psi	102	102

The inlet conditions are specified at the air inlet grating outside the canopy.

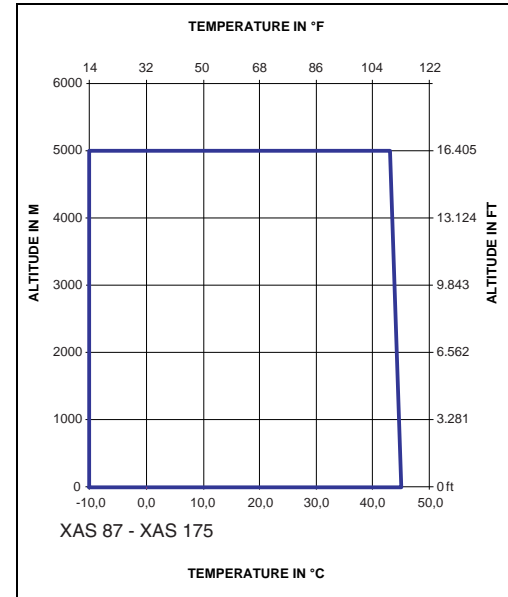
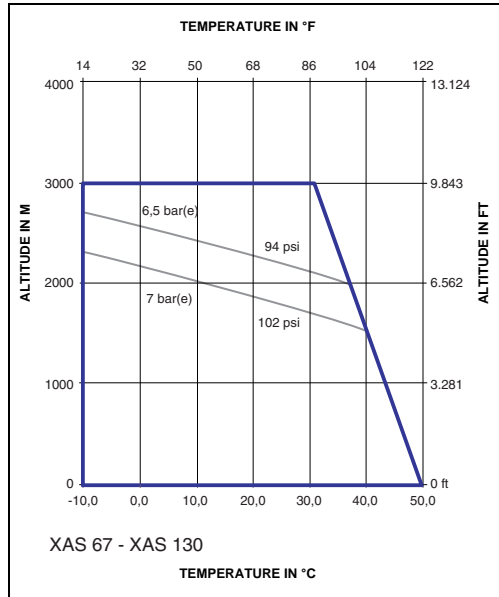
LIMITATIONS

Designation		XAS 67 - XAS 130		XAS 87 - XAS 175	
Minimum effective receiver pressure	bar(e)	7	6.5	7	6.5
	psi	102	95	102	95
Maximum effective receiver pressure, compressor unloaded	bar(e)	8.5	8	8.5	8
	psi	123	116	123	116
Maximum ambient temperature at sea level	°C	50		38	45
	°F	122		100	113
Minimum starting temperature	°C	-10		-10	
	°F	14		14	
Minimum starting temperature, with coldstart equipment ¹⁾	°C	-20		-20	
	°F	-4		-4	
Altitude capability		see curves			

¹⁾ Coldstart: compressor oil PAROIL S instead of PAROIL M;
engine oil PAROIL Extra instead of E

ALTITUDE UNIT PERFORMANCE CURVES

Max. achievable working pressure in relation to altitude and ambient temperature.



Graph represents working conditions, for starting conditions please contact your Atlas Copco contact.

PERFORMANCE DATA

At reference conditions, if applicable, and at normal shaft speed, unless otherwise stated.

Designation		XAS 67 - XAS 130		XAS 87 - XAS 175	
		Engine shaft speed, normal and maximum	r/min	3000	
Engine shaft speed, compressor unloaded	r/min	1850		1850	
Free air delivery ¹⁾	l/s	60		80	
	cfm	127		169	
Fuel consumption at	bar(e)	7	6.5	7	6.5
	psi	102	95	102	95
- at 100% FAD	kg/h	6.18	6.13	8.22	7.89
	lb/h	13.62	13.51	18.12	17.39
- at 75% FAD	kg/h	4.95	4.86	6.46	6.39
	lb/h	10.91	10.71	14.24	14.09
- at 50% FAD	kg/h	3.84	3.63	4.93	4.62
	lb/h	8.74	8.00	10.87	10.19
- at 25% FAD	kg/h	2.88	2.82	3.47	3.42
	lb/h	6.35	6.22	7.65	7.54
- at unload	kg/h	2.52	2.48	2.95	2.85
	lb/h	5.56	5.47	6.50	6.28
Specific fuel consumption					
- at 100% FAD	g/m ³	27.53	27.13	28.5	27.4
	lb/1000 cu.ft	1.71	1.69	1.78	1.71

Designation		XAS 67 - XAS 130	XAS 87 - XAS 175
		Typical oil content of compressed air	mg/m ³
	oz/1000 cu.ft	< 0.01	< 0.01
Engine oil consumption (maximum)	g/h	18	18
	oz/h	0.63	0.63
Compressed air temperature at outlet valves	°C	90	90
	°F	194	194
Noise level			
- Sound pressure level (Lp), measured according to ISO 2151 under free field conditions at 7 m distance	dB(A)	73	73
- Sound power level (Lw) complies with 2000/14/EC	dB(A)	98	98

DESIGN DATA

Compressor

Designation	
Number of compression stages	1

Engine

Designation		XAS 67 - XAS 130	XAS 87 - XAS 175
Make		Kubota	Kubota
Type		V1505	V1505-T
Coolant		Liquid	Liquid
Number of cylinders		4	4
Bore	mm	78	78
	in	3.07	3.07
Stroke	mm	78.4	78.4
	in	3.09	3.09
Swept volume	l	1.498	1.498
	cu in	91.41	91.41
Output according to ISO 9249 G at normal shaft speed	kW	26.5	33
	BHP	35.5	44.25
- Load factor	%	50	50
Capacity of oil sump:			
- Initial fill	l	5	5
	US gal	1.32	1.32
- Refill (max.) with filter change	l	4.5	4.5
	US gal	1.19	1.19
Capacity of cooling system	l	7.5	7.5
	US gal	1.98	1.98

Unit

Designation		XAS 67 - XAS 130	XAS 87 - XAS 175
Capacity of compressor oil system	l	10	10
	US gal	2.64	2.64
Net capacity of air receiver	l	12	12
	US gal	3.17	3.17
Capacity of fuel tank	l	40	40
	US gal	10.6	10.6
Air volume at inlet grating (approx.) ¹⁾	m ³ /s	1.3	2.5
	cuft/s	45.9	88.29

1) Air required for engine and compressor cooling, for combustion and for compression.

Tyres

Tyre pressure	bar	2.7
	psi	39.2

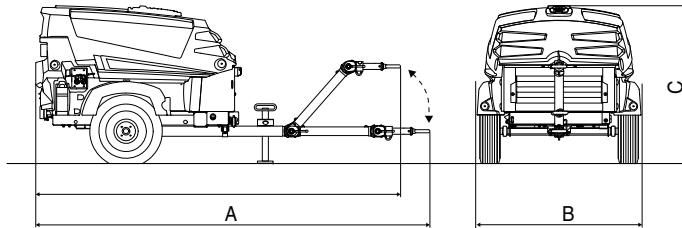
Unit dimensions

Designation		all units
Max. length with extended tow bar (with towing eye DIN)	mm	3310
	in	130.3
Min. length with raised tow bar (with ball coupling)	mm	2967
	in	116.8
Width	mm	1336
	in	52.6
Height	mm	1421
	in	56.0
Weight ready to operate	see dataplate	
Air outlet valves	2 x 3/4	

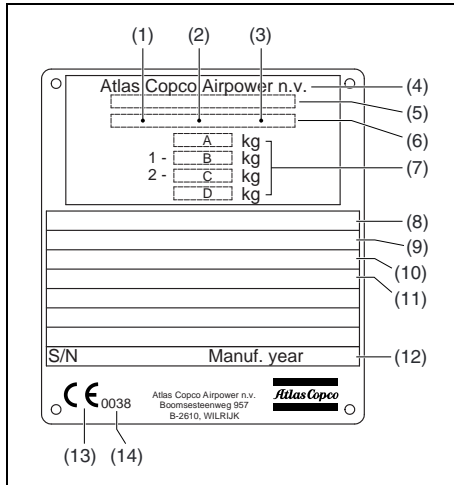
¹⁾ Dimensions without towing eye

Tightening torques of wheel bolts

Spanner width (mm)	Thread	Tightening torque Nm (lbf.ft)
19	M 12 x 1.5	85 (63)



Dataplate



- 1 Company code
- 2 Product code
- 3 Unit serial number
- 4 Name of the manufacturer
- 5 EEC or national type approval number
- 6 Vehicle identification number
- 7 Undercarriage
 - A** Maximum permitted total weight of the vehicle
 - B** Maximum permitted load on towing eye
 - C** Maximum permitted load on axle (or front axle on dual axle units)
 - D** Maximum permitted load on rear axle (on dual axle units)
- 8 Model
- 9 Working pressure
- 10 Speed
- 11 Engine power
- 12 Manufacturing year
- 13 CE mark in accordance with Machine Directive 89/392 EC
- 14 Register number or number of notified body

Disposal

GENERAL

When developing products and services, Atlas Copco tries to understand, address, and minimize the negative environmental effects that the products and services may have, when being manufactured, distributed, used and disposed.

Recycling and disposal policy are part of the development of all Atlas Copco products. Atlas Copco company standards determine strict requirements.

Material selection, substantial recyclability, disassembly possibilities and separability of materials and assemblies are considered, as well as environmental perils and dangers to health during the recycling and disposal of the unavoidable rates of non-recyclable materials.

Your Atlas Copco compressor consists for the most part of metallic materials, that can be remelted in steelworks and smelting works and are therefore almost infinitely recyclable. The plastic used is labelled; sorting and fractioning of the materials for recycling in the future is foreseen.



This concept can only succeed with your help. Support us by disposing professionally. By assuring correct disposal of the product you help prevent possible negative consequences for environment and health as a result of inappropriate waste handling.

Recycling and re-usage of material help preserve natural resources.

DISPOSAL OF MATERIALS

Dispose of contaminated substances and material separately, in accordance with locally applicable environmental legislation.

Before dismantling a machine at the end of its operating lifetime drain and dispose of all fluids of according the applicable local disposal regulations.


Remove the batteries. Do not throw batteries into the fire (explosion risk) or residual waste. Separate the machine into metal, electronics, wiring, hoses, insulation and plastic parts.

Dispose of all components in accordance with applicable disposal regulations.

Remove spilled fluid mechanically; pick up the rest using an absorbing agent (for example sand, sawdust) and dispose of it in accordance with local disposal regulations. Do not drain into the sewage system or surface water.

Following documents are provided with this unit:

- Test Certificate
- EC Declaration of Conformity:



EC DECLARATION OF CONFORMITY

1 We, Atlas Copco Airpower n.v., declare under our sole responsibility, that the product

2 Machine name : **Compressor (< 350 kW)**

3 Commercial name :

4 Serial number :

5 Which falls under the provisions of article 12.2 of the EC Directive 2006/42/EC on the approximation of the laws of the Member States relating to machinery, is in conformity with the relevant Essential Health and Safety Requirements of this directive.

The machinery complies also with the requirements of the following directives and their amendments as indicated.

Directive on the approximation of laws of the Member States relating to	Harmonized and/or Technical Standards used	Att'mnt
Pressure equipment	97/23/EC	X
Machinery safety	2006/42/EC EN ISO 12100-1 EN ISO 12100-2 EN 1012-1	
Simple pressure vessel	87/404/EEC	X
Electromagnetic compatibility	2004/108/EC EN 61000-6-2 EN 61000-6-4	
Low voltage equipment	2006/95/EC EN 60034 EN 60204-1 EN 60439	
Outdoor noise emission	2000/14/EC	X

6 The harmonized and the technical standards used are identified in the attachments hereafter

7 Atlas Copco Airpower n.v. is authorized to compile the technical file

Conformity of the specification to the Directives	Conformity of the product to the specification and by implication to the directives
Issued by Product engineering	Manufacturing
Name	
Signature	
Place , Date	

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Atlas Copco Airpower n.v. A company within the Atlas Copco Group

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