

Atlas Copco Instruction Manual



Instruction Manual
for Portable Compressors
English

XA(H,V)S 450 T3 WUX

Engine Dongfeng Cummins
QSB5.9-C210

Atlas Copco

**Instruction Manual
for Portable Compressor**

XA(H,V)S 450 T3 WUX

Original instructions

Printed matter No.
2962 2010 00

03/2025



ATLAS COPCO - PORTABLE ENERGY DIVISION
www.atlascopco.com

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Preface

Please read the following instructions carefully before starting to use your compressor.

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

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.

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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 compressor.

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 jewelry.
- 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

When towing, lifting or transporting the compressor in any way, the battery switch must always be in the "OFF" position!

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,
 - 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,
 - attach the safety break-away cable or safety chain to the towing vehicle,

- remove wheel chocks, if applied, and disengage the parking brake.
- 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.
 - 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.
- 13 If the warning light on the ABS module or in the vehicle lights up, please contact Atlas Copco.

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. 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.
 - 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, Imp gal, cu.ft).
- 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.

Safety valves

Operating & Maintenance

Only trained and technically competent personnel should consider overhaul, re-set or performance testing of safety valves.

The safety valve is supplied with either a lead security seal or crimped cover to deter unauthorised access to the pressure regulation device.

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.

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.

Safety valves must be frequently tested and regularly maintained.

The set pressure should be periodically checked for accuracy.

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.

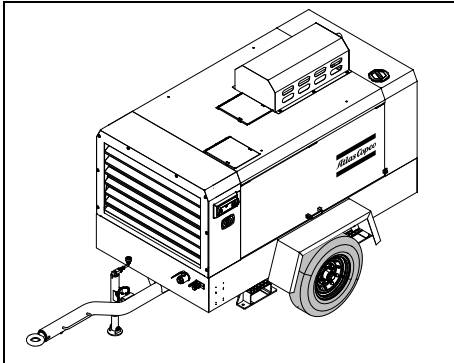
The frequency of tests is influenced by factors such as the severity of the operating environment and aggressiveness of the pressurised medium.

Soft seals and springs should be replaced as part of the maintenance procedure.

Do not paint or coat the installed safety valve (see also **Preventive maintenance schedule**).

Leading particulars

GENERAL DESCRIPTION



The XA(H,V)S 450 T3 are a silenced, single-stage, oil-injected screw compressor, built for a nominal effective working pressure from 12 bar (175 psi) up to 14 bar (200 psi). see **Technical specifications**.

Engine

The compressors XA(H,V)S 450 T3 are driven by 6 cylinder in-line liquid-cooled diesel engines.

The engine's power is transmitted through XA(H,V)S 450 T3 Coupling.

Compressor

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 compressor 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 oil separator element.

The vessel is provided with an oil level indicator.

Regulation

The compressor is provided with a continuous pneumatic regulating system and a blow-off valve which is integrated in the unloader assembly. The valve is closed during operation by air receiver pressure and opens by air receiver pressure via the compressor element 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 an electronic 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 intercooler 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 sensor 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 sensors.

The electric system is equipped with a 24V main switch.

Frame and axles

The compressor/engine unit is supported by rubber buffers in the frame.

The standard compressor has an adjustable or fixed towbar with brakes.

The braking system consists of an integrated parking brake and overrunbrake. When driving backwards the overrunbrake is not engaged automatically.

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

Lifting eye

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

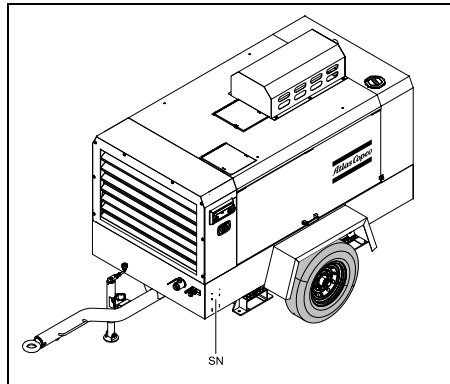
Control panel

The control panel grouping the air pressure gauge, control switch etc., is placed at the left hand/ rear end corner.

Data plate

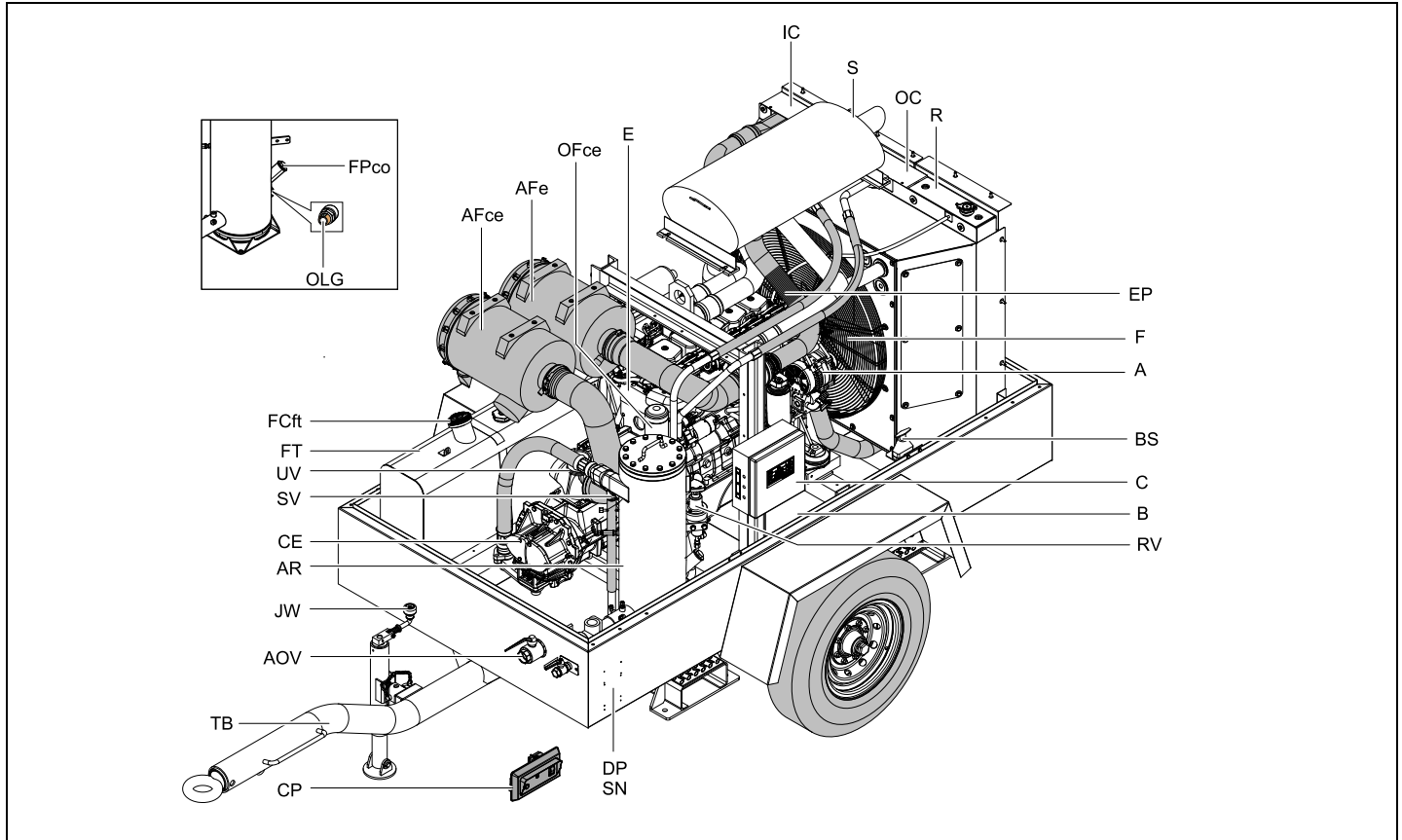
The compressor is furnished with a data plate showing the product code, the unit serial number and the working pressure (see chapter **Data plate**).

Serial number



The serial number (SN) is located on the right-hand side towards the front on the upper edge of the frame.

Main Parts

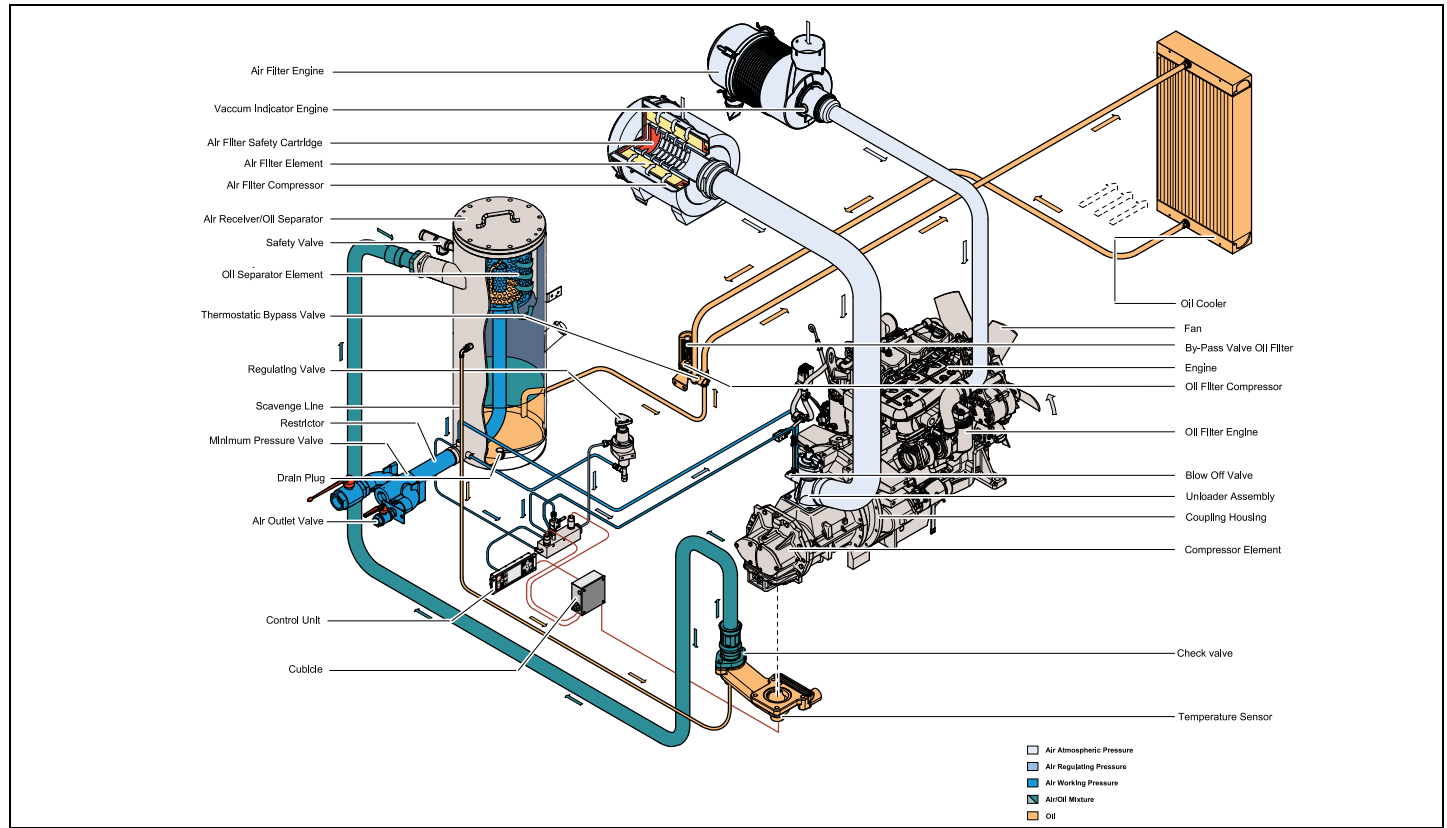


Reference	Name
A	Alternator
AFce	Air Filter (compressor element)
AFe	Air Filter (engine)
AOV	Air Outlet Valves
AR	Air Receiver
B	Battery
BS	Battery Switch
C	Cubicle
CE	Compressor Element
CP	Control Panel
DP	Data plate
E	Engine
EP	Exhaust Pipe
ES	Emergency Stop
F	Fan
FF	Fuel Filter
FCft	Filler Cap (fuel tank)
FCc	Filler Cap (coolant)
FLS	Fuel Level Sensor
FPco	Filler Plug (oil compressor element)

Reference	Name
FT	Fuel Tank
IC	Intercooler
MPV	Minimum Pressure Valve
OC	Oil Cooler
OFce	Oil Filter (compressor element)
OFe	Oil Filter (engine)
OLG	Oil Level Gauge
R	Radiator
RV	Regulating Valve
S	Silencer
SL	Support leg
SN	Serial Number
SV	Safety Valve
TB	Towbar
UV	Unloading Valve

COMPRESSOR REGULATING SYSTEM

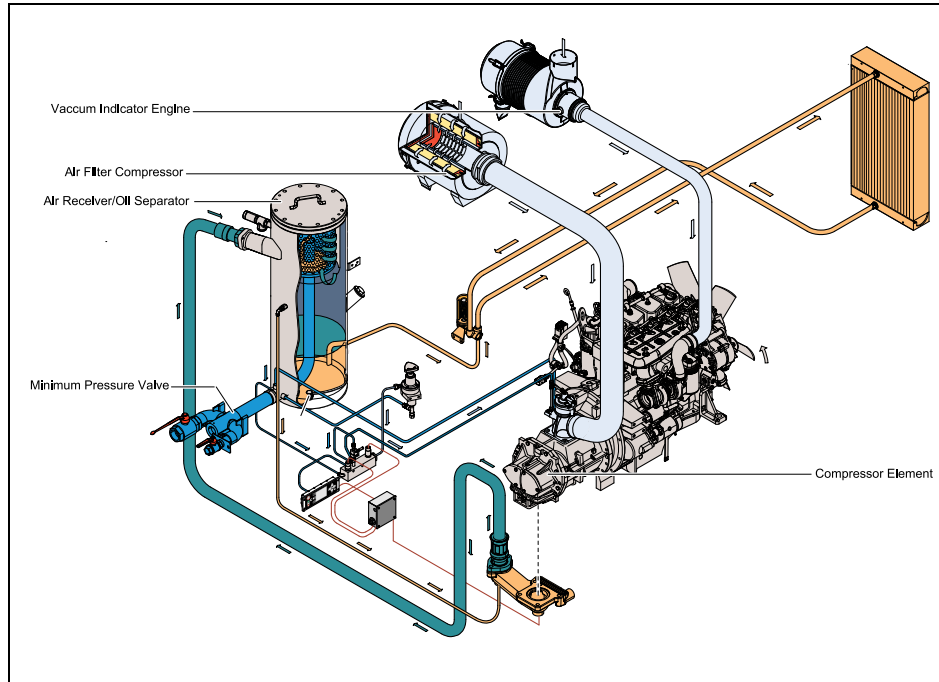
OVERVIEW



Reference	Name
AFE	Air Filter Element
AFc	Air Filter (compressor)
AFe	Air Filter (engine)
AOV	Air Outlet Valves
AR/OS	Air Receiver / Oil Separator
BOV	Blow Off Valve
BVof	Bypass Valve oil filter
CB	Cubicle
CE	Compressor Element
CH	Coupling Housing
CU	Control Unit
CV	Check Valve
DP	Drain Plug
E	Engine
EW	Electrical Wiring
F	Fan
LV	Loading Valve
MPV	Minimum Pressure Valve
OC	Oil Cooler
OFc	Oil Filter (compressor)
OLG	Oil Level Gauge
OSE	Oil Separator Element

Reference	Name
OSV/CV	Oil Stop Valve / Check Valve
RPS	Regulating Pressure Sensor
RV	Regulating Valve
SC	Safety Cartridge
SL	Scavenge Line
SV	Safety Valve
TBV	Thermostatic Bypass Valve
TS	Temperature Sensor
UA	Unloader Assembly
VI	Vacuum Indicator
WPG	Working Pressure Gauge
WPS	Working Pressure Sensor

AIR FLOW



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

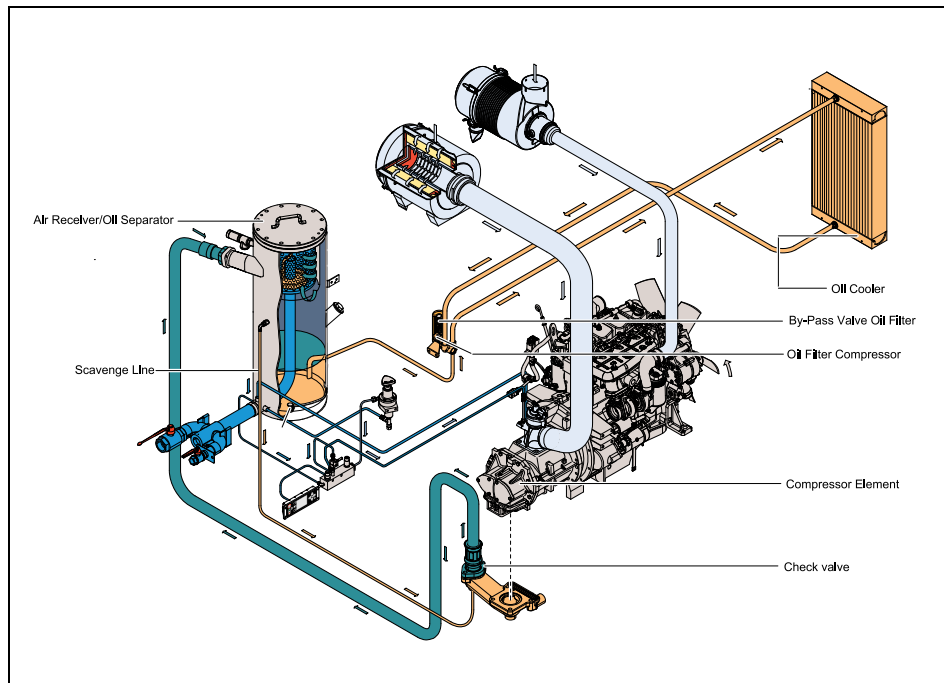
The check valve (CV) prevents blow-back of compressed air when the compressor is stopped. In the air receiver/oil separator (AR/OS), most of the oil is removed from the air/oil mixture.

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

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

The system comprises of temperature sensors (TS), regulating pressure sensors (RPS) and a working pressure sensor (WPS).

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), the oil filters (OFc) and the oil stop valve (OSV) to the compressor element (CE).

When the compressor is stopped and / or there is no pressure in the system, the oil stop valve (OSV) prevents the oil from flowing back into the compressor element.

The thermostatic by-pass valve (TBV) starts opening when the oil temperature is 70 °C (158 °F).

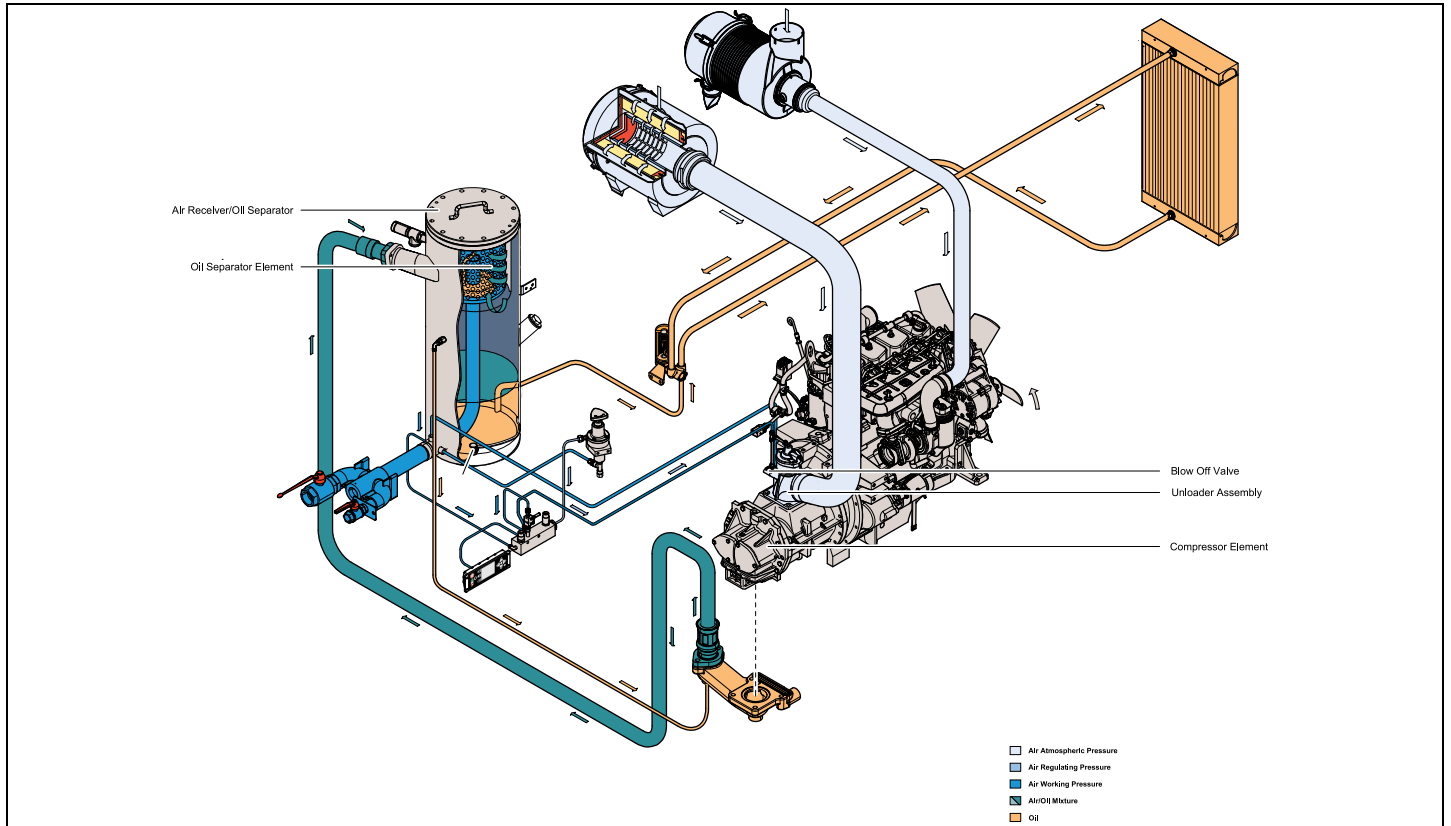
The compressor element has an oil gallery in the bottom of its casing. The oil for rotor lubrication, cooling and sealing is injected through holes in the gallery.

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**).

CONTINUOUS PNEUMATIC REGULATING SYSTEM



The compressor is provided with a continuous pneumatic regulating system and a blow-off valve (BOV), which is integrated in the unloader assembly (UA). The blow-off valve is kept closed by receiver pressure and opens by compressor element outlet 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 (RV) which, by means of control air to the unloader assembly (UA), 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 throttle valve is kept closed via receiver pressure. The compressor element (CE) takes in air and pressure builds up inside the receiver (AR). The throttle valve is closed. 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 throttle valve is fully open.

If the air consumption is less than the maximum air output, air receiver pressure increases and the regulating valve supplies control air to throttle valve to reduce the air output and holds air receiver pressure between the normal working pressure and the corresponding unloading pressure. Unloading pressure = normal working pressure + 1 bar (14.5 psi).

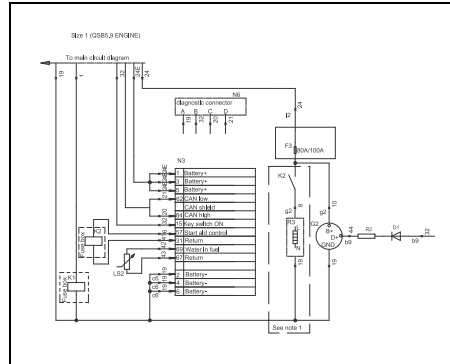
When the air consumption is resumed, the blow off valve (BOV) closes and the throttle valve gradually opens the air intake and the electronic speed regulator increases the engine speed.

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 throttle valve and the electronic speed regulator.

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

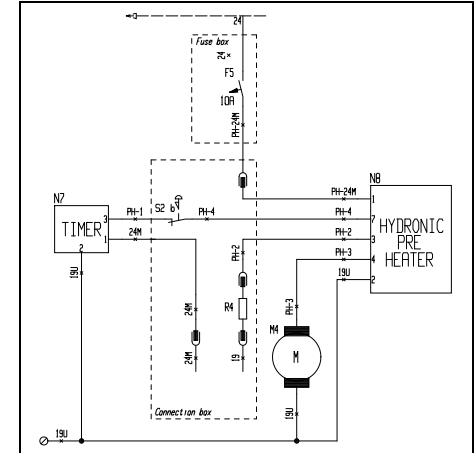
Mark	Name
F1	Circuit Breaker
F2	Circuit Breaker
G1	Battery
KO	Start Relay
LS1	Level Switch Coolant Level
LS2	Fuel Level Switch
M1	Starter Motor
N1	Control Module-Xc2004
PS1	Pressure Switch-airfilter
PT1	Pressure Sensor-regula Ting
PT2	Pressure Sensor-vessel Pressure
SO	Battery Switch
S2	Emergency Stop
TS1	Lp Element Temperature
Y1	Loading Valve

Circuit diagram Cummins QSB5.9-C180



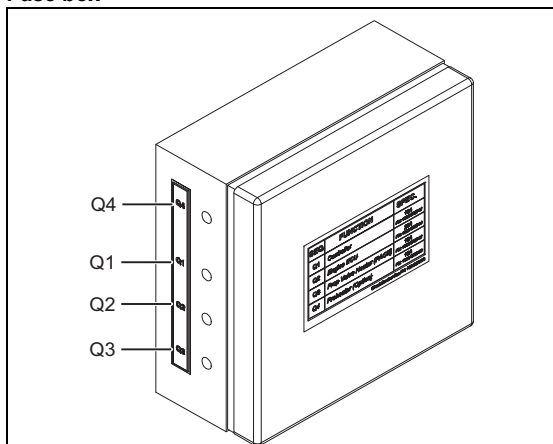
Mark	Name
F3	Fuse
G2	Alternator
K1	Relay - Starter motor
K2	K2 Glow Relay
N3	Electronic control unit - Engine
R3	Grid heater
LS2	Water in fuel switch
R2	Excitation resistor
N6	Diagnostic connector
D1	Excitation diode

Circuit Diagram PREHEATER (optional)



Mark	Name
F5	Fuse 10A
R4	Resistor 470 Ohm 3W
N7	Timer
N8	Preheater
M4	Fuel pump
S2b	Emergency stop

Fuse box

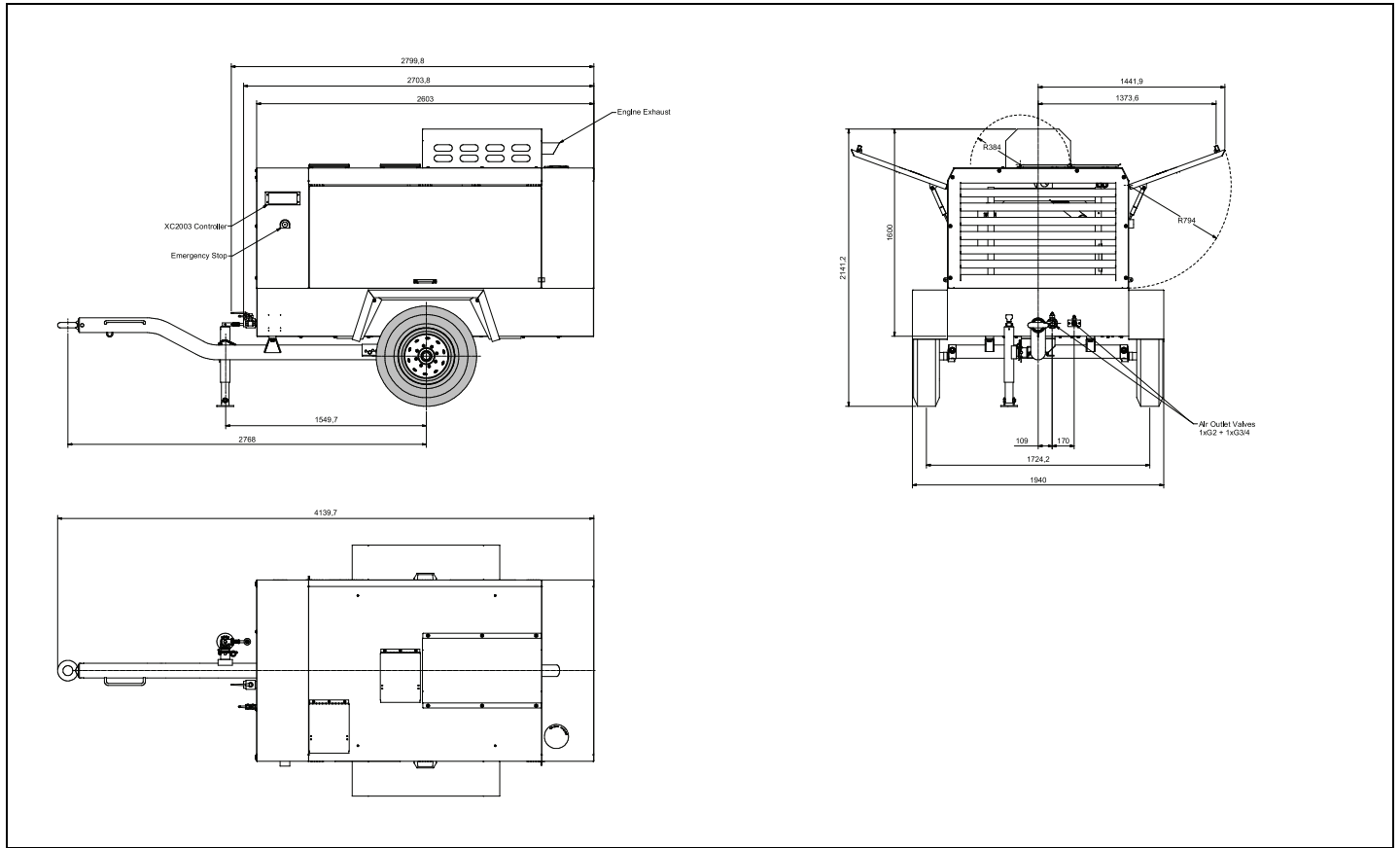


Sr Nr	Functional Description	Data
Q1	Controller	10A PN: 1089 9206 31
Q2	Engine ECU	25A PN: 1089 9206 24
Q3	Prop Valve Heater (PACE)	10A PN: 1089 9206 31
Q4	Preheater (Option)	10A PN: 1089 9206 22

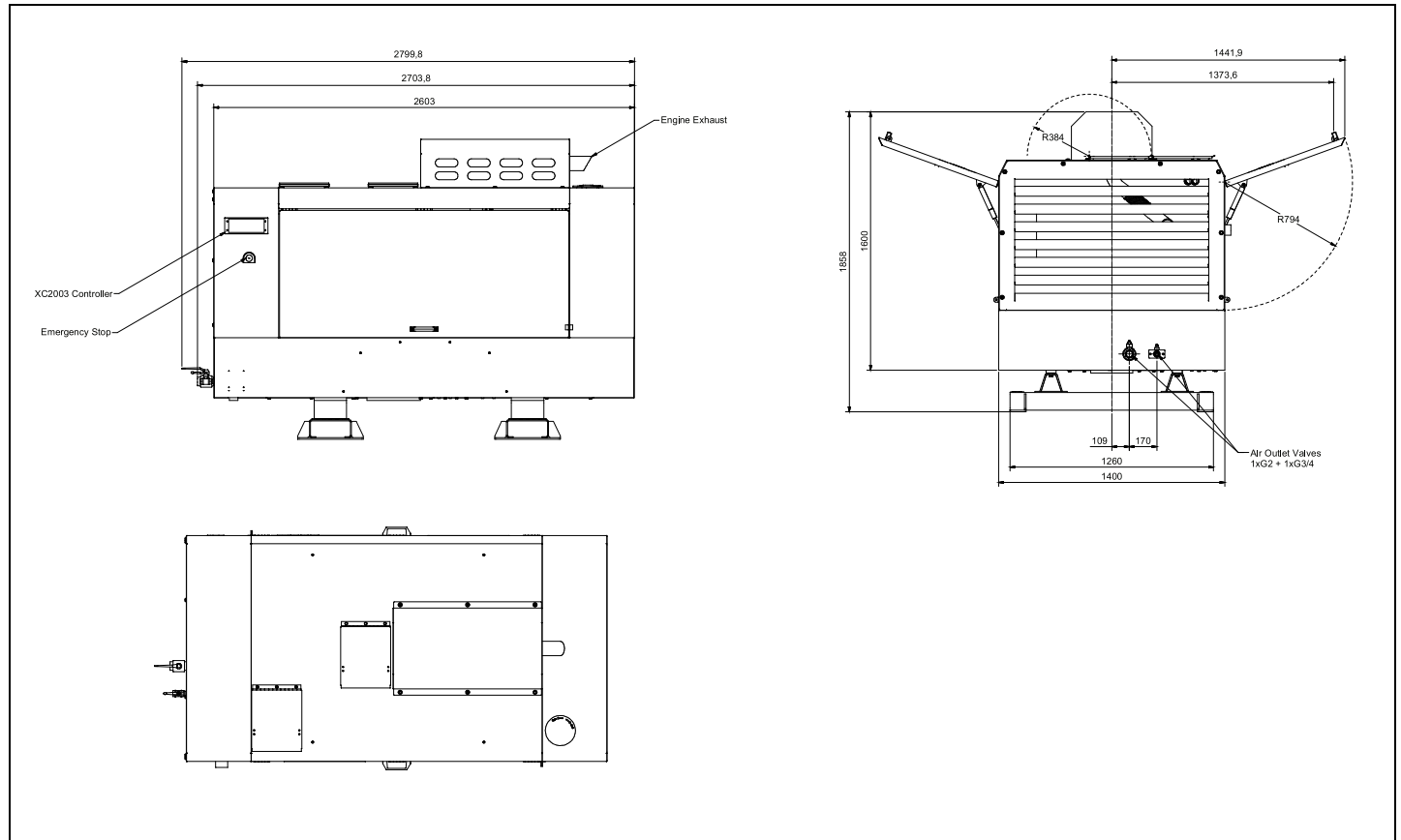
Type	Undercarriage XAVS 450 T3	Undercarriage XAHS 450 T3
Total Maximum Weight	2000 kg	2000 kg
Total Weight Without Fluids	1790 kg	1790 kg
Maximum Load On Towing Eye	90 kg	90 kg
Maximum Permissible Axle Load	1875 kg	1875 kg

Type	Support Mounted
Total Maximum Weight	1861 kg
Total Weight Without Fluids	1632 kg













DIMENSION DRAWING - UNDERCARRIAGE - 9829 3841 00






















DIMENSION DRAWING - SUPPORT MOUNTED - 9829 3841 00



MARKINGS AND INFORMATION LABELS

	Dangerous outlet gases.
	Danger, hot surface.
	Electrocution hazard.
 PAROIL S	Atlas Copco synthetic compressor oil.
 PAROIL SAE 15W40	Atlas Copco mineral engine oil.
	Manual.
	Read the instruction manual before working on the battery.
	Reset fuse.
	On / off button.
	Prohibition to open air valves without connected hoses.
	Rotation direction.
	Inlet.

	Outlet.
	Compressor oil drain.
	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 permitted.
	Use diesel fuel only.
4 bar (58 psi)	Tyre pressure.
6 bar (87 psi)	Tyre pressure.

	Sound power level in accordance with Directive 2000/14/EC (expressed in dB (A)).
	Fork lifting permitted.
	Don't lift here.
	Read the instruction manual before lifting.
	Filler cap coolant.
	Read the instruction manual before topping up with coolant.
	Service point.
	Circuit breaker.
	Do not run the compressor when the baffles are not in the right position.

Operating instructions

PARKING, TOWING AND LIFTING INSTRUCTIONS

Safety precautions



The operator is expected to apply all relevant Safety precautions.

Attention



Before putting the compressor into use, check the brake system as described in section Brake shoe adjustment.

After the first 100 km travel:

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

Check the brake adjustment. See section Brake shoe adjustment.

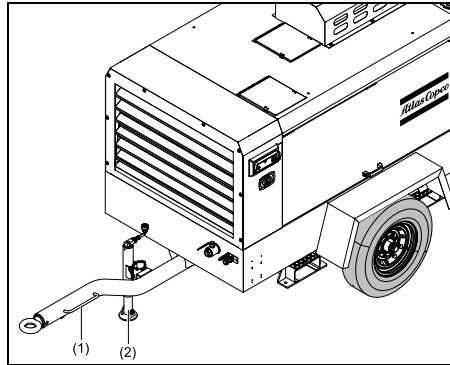


When the engine is running, the air outlet valves (ball valves) must always be put in fully opened or fully closed position.

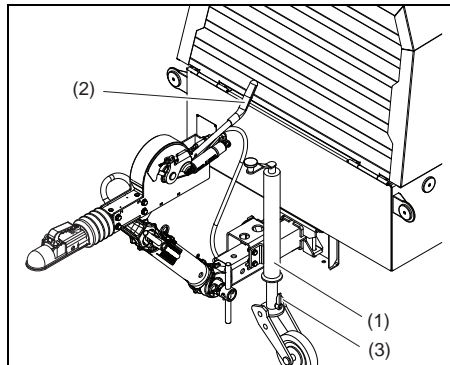


When towing, lifting or transporting the compressor in any way, the battery switch must always be in the "OFF" position!

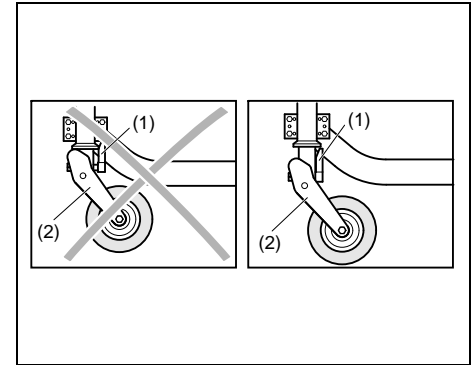
PARKING INSTRUCTIONS



Non-adjustable towbar with standard support leg without brakes



Adjustable towbar with jockey wheel and brakes



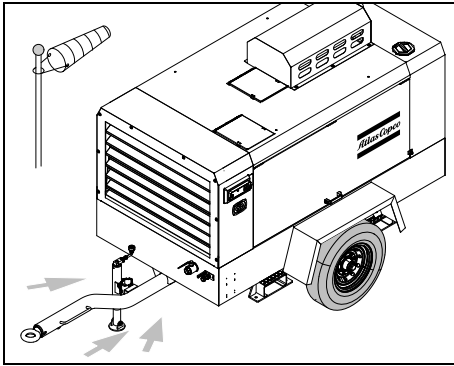
Parking position of jockey wheel



It must be noted that, with the parking brake activated, the vehicle can roll back about 30 cm until the braking force takes full effect.

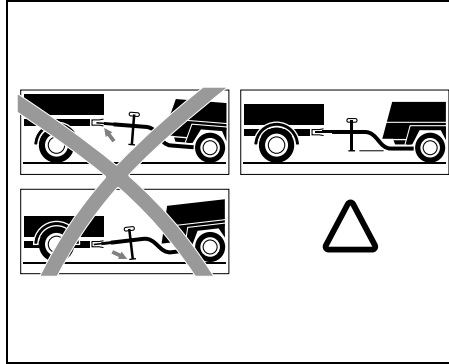
When parking a compressor, secure support leg (1) or jockey wheel (2) to support the compressor in a level position. Be sure that the jockey wheel (2) is blocked by the blocking pin (4).

Apply parking brake by pulling parking brake handle (3) upwards. 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 (available as option) in front of or behind the wheels.



Locate the rear-end of the compressor upwind, away from contaminated wind-streams and walls. Avoid recirculation of exhaust air from the engine. This causes overheating and engine power decrease.

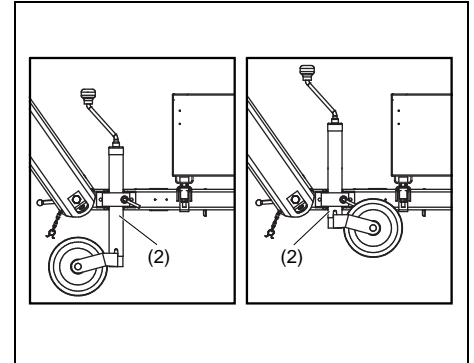
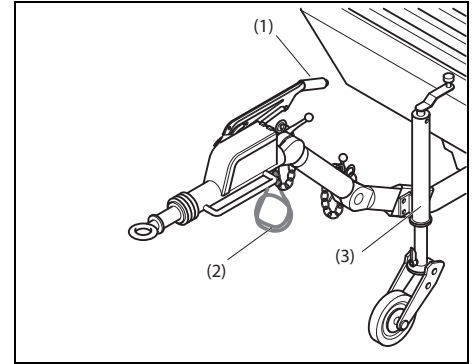
TOWING INSTRUCTIONS



Label on towbar

Inspections, prior to each run

- Check tyre pressure and tyre condition
- Check wheel fixation
- Check screwed joints on firm seating.
- Check functioning of lighting and braking systems (option)
- The jockey wheel must be parallel to the direction of travel at all times.
- Inspect the coupling. The ball joint must fully enclose the ball and be locked.
- At height adjustable towing facility (option), check the joint connection for a tight fit.



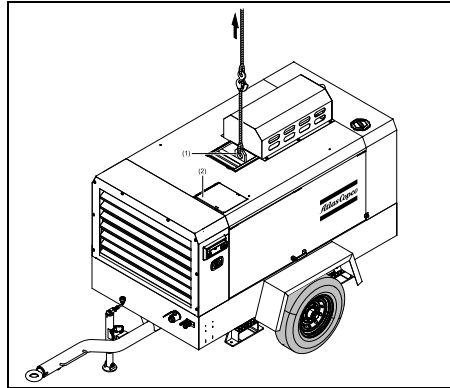


Before towing the compressor, ensure that the towing equipment of the vehicle matches the towing eye or ball connector and ensure that the service doors are closed and locked properly.

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.

Push the hand brake lever (1) completely downwards and connect breakaway cable (2) to the vehicle. Secure jockey wheel (3) or support leg in the highest possible position (see figure). The jockey wheel is prevented from turning.

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 (1) should preferably be used after opening the small door (2).



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.

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. The pointer of oil level gauge (OLG) should register in the green range. Add oil if necessary. See section **Engine oil** for the oil to be used.



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

4. Check that the fuel tank contains sufficient fuel. Top up, if necessary. Consult the Engine Operation Manual for the type of fuel.
5. Drain any water and sediment from the fuel filters until clean fuel flows from the drain cock. See section **Priming instructions**.
6. Empty the dust trap of each air filter (AF). See section **Cleaning the dust trap**.
7. Clogged air filter(s) will be indicated on the display of the control panel, see section **Fault codes**. If indicated, replace the filter elements.
8. Check coolant level in engine coolant top tank. Top up, if necessary. Consult the Engine Operation Manual for coolant specifications.

9. Attach the air line(s) to the closed air outlet valve(s). Connect the safety chain.



No external force may be applied to the air outlet valve(s), e.g. by pulling hoses or by connecting equipment directly to the valve(s).

Safety precautions

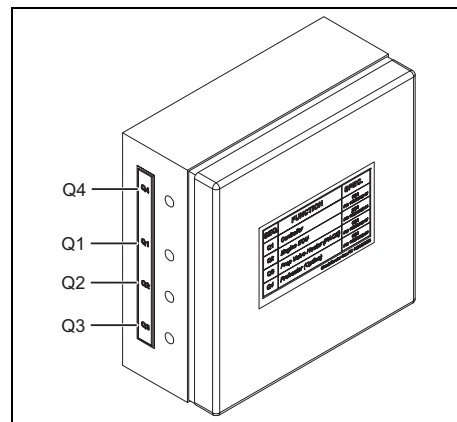


Do not disconnect power supply to control box in any way when the control box is switched on. This will cause memory loss.

Make sure the fuel tank is filled up.



When the compressor is put in operation for the first time and after running out of fuel or changing the fuel filter, follow the specific start procedure as described in section **Priming instructions.**



Do not switch off the circuit breaker when the control box is switched on. This will cause memory loss.

BATTERY SWITCH

The compressor is equipped with a battery switch.

When the compressor is not in use this switch must always be in the “OFF” position.



It is not allowed to use this switch as an emergency switch or for stopping the compressor. It will cause damage in the control unit when using this switch for stopping.

Always first shut off the control unit and wait until the display is dark before switching the battery switch to position “OFF”.

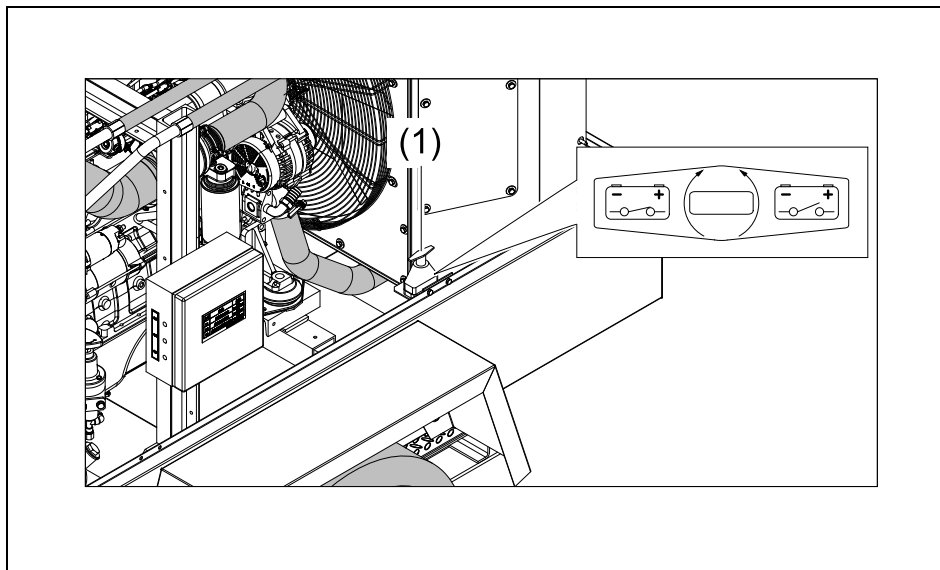
To switch the electric system “ON”, turn the handle (1) of the battery switch clockwise.

To switch the electric system “OFF”, turn the handle (1) of the battery switch counterclockwise.



Please be aware that when the electric system is switched “OFF” the batteries are still under tension.

Please be aware that the (optional) preheater unit is still “live” with the battery switch in “OFF” position.

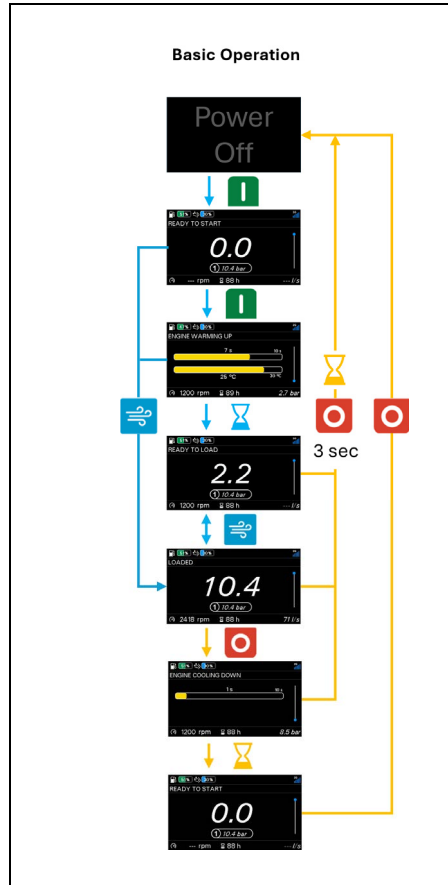


BASIC OPERATION OF THE MACHINE

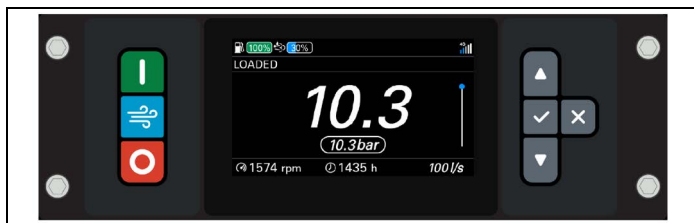
The compressor can be controlled in 4 different modes:




- Local Operation Mode: locally at the Operating Panel,
- Remote Operation Mode: via remote switch inputs located at the bottom of the Control panel,
- Automatic Operation Mode: via pressure sensor data from the customer's installation,
- PC Operation Mode: with software running on a PC.





In this section is described how to operate the machine in Local Operation Mode at the Operation Panel.



XC2004 CONTROLLER



Reference	Name
	<p>Power ON button</p> <ul style="list-style-type: none"> This button is used to Power ON the controller. <p>Start button</p> <ul style="list-style-type: none"> Press this button to start the compressor.
	<p>Power OFF button</p> <ul style="list-style-type: none"> Press this button to 'Power Off' the controller, when the unit is not running. <p>Stop button</p> <ul style="list-style-type: none"> Press this button to stop the compressor in a controlled way. Press this button for long time to stop the compressor in controlled way and power OFF the controller.
	<p>Load button</p> <ul style="list-style-type: none"> Commands the compressor to switch to load (when not loaded). Commands the compressor to switch to No Load (when loaded). Commands the compressor to Start and Load. (press once, when unit is not running).

Reference	Name
	<p>Arrow up button</p> <ul style="list-style-type: none"> This button is used to navigate through the display menus or increase a setting.
	<p>Arrow Down button</p> <ul style="list-style-type: none"> This button is used to navigate through the display menus or decrease a setting.
	<p>Enter button</p> <ul style="list-style-type: none"> Confirms/stores the selection/ change. To enter sub-menu.
	<p>Back button</p> <ul style="list-style-type: none"> Moves back one level. Ignores a settings change.

DISPLAY OVERVIEW



The graphical representation shown in the Atlas Copco Instruction Book (AIB) is for reference only. It may differ from the actual information on the unit's display. All information can be type dependant.



Reference	Icon	Description
1		Fuel level • Running with internal fuel tank. • Only applicable for engine driven compressors.
		Remote mode
		DEF level
		Automatic operation mode
		Mobile network signal strength 2G

1		Mobile network signal strength 3G and 4G	
		Block mode	
		Mobile network no connection	
		Service required	
		Automatic load	
		Access level Service	
		Generator	
	2	Machine sequence indication	
		Compressor status	
3	Main view		
	Vessel pressure indication or info text		
4	Measurements		
	For more details refer to section Main views.		
5	Scroll bar		
6		ECO mode	

The Xc2004 controller user interface provides a comprehensive view of different parameters. It presents the status of key components, including Fluid level, RPM/Alarms, Running hours and Flow and Pressure indicator. It makes easy for the operator to comprehend the current situation.

It contains the following features:

1. Status icons (Always visible)
 - Fuel level indication (if sensor is available)
 - DEF level indication (if applicable)
 - access level indication
 - Service required indicator
 - Operation mode indicator
 - Generator function indicator
 - Auto load indicator
 - Signal strength indicator
2. Machine sequence indication
 - Ready to start
 - Warming up
 - Cooling down
 - Loaded
 - Engine resting
3. Main view (view changes while navigating)
 - For more details refer to section Main Views.
4. Measurements (Always visible)
 - RPM indication (replaced by alarms counter if alarms are active)
 - Running hours
 - Pressure and flow indication
5. Scrollbar
 - It shows the position when scrolling through different views.

STARTING

Open the door and switch on the main switch. Close the door.

Switch the controller on by pressing the Power button.

The instrument panel will now perform a self-test; the following display will be shown and the controller is initialized:



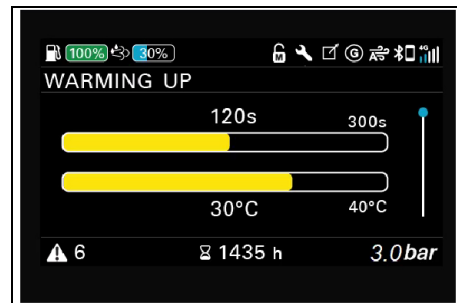
During initializing all buttons/inputs/outputs/alarms are inactive.

This view will be shown for about 2 seconds, after which the display will show the Main View.



The machine is now ready to be started and is waiting for a start command.

1. Start the compressor by pressing the 'Start' button. The compressor starts running at idle speed. The display shows warming up progress bar during warming up sequence.

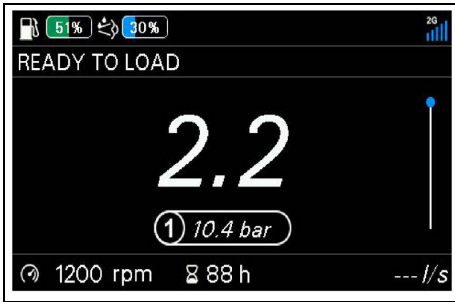


After warming up, the machine is ready to be loaded and is waiting for a load command.

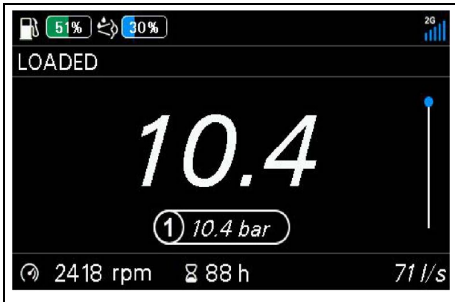


When the machine is not loaded, the vessel pressure is below the setpoint, and the machine will not deliver compressed air.

The display shows:



2. Press the load button, the display will show.



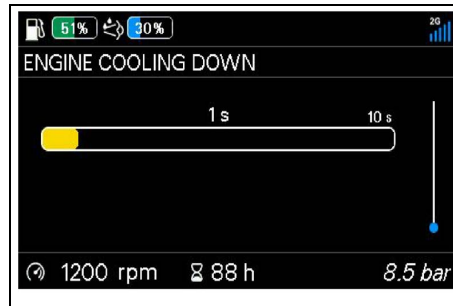
The loading valve will be energized and pressure starts building up and air is being delivered.



When the load button is pressed during warming up, the machine will automatically load once the warming up sequence has completed.

STOPPING

After pressing the 'Stop' button the display will show:



After cooling down the engine will stop.



When the Stop button is pressed for more than 3 seconds, the controller will power OFF after the cooling down progress bar is complete.

POWER OFF

Switch the controller OFF by pressing the 'Power' button.



When the compressor is not in use, the battery switch must always be switched off. If the compressor is equipped with a battery switch.

SHUTDOWN



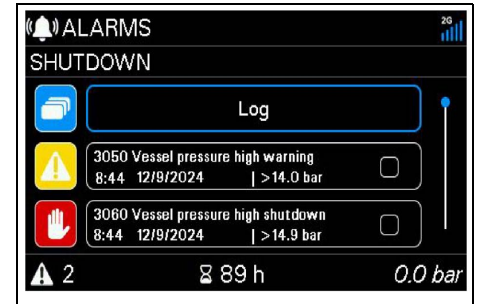
It is not allowed to use battery switch as an emergency switch or for stopping the compressor.

It can damage the controller or the engine's Electronic Control Unit when using the battery switch for stopping.

Always first shut off the controller and wait until the display is dark before switching the battery off.

When the machine is shutdown due to a critical alarm or an emergency stop, the display will show Shutdown.

Press the 'Enter' button to acknowledge the shown alarm and to be able to proceed.



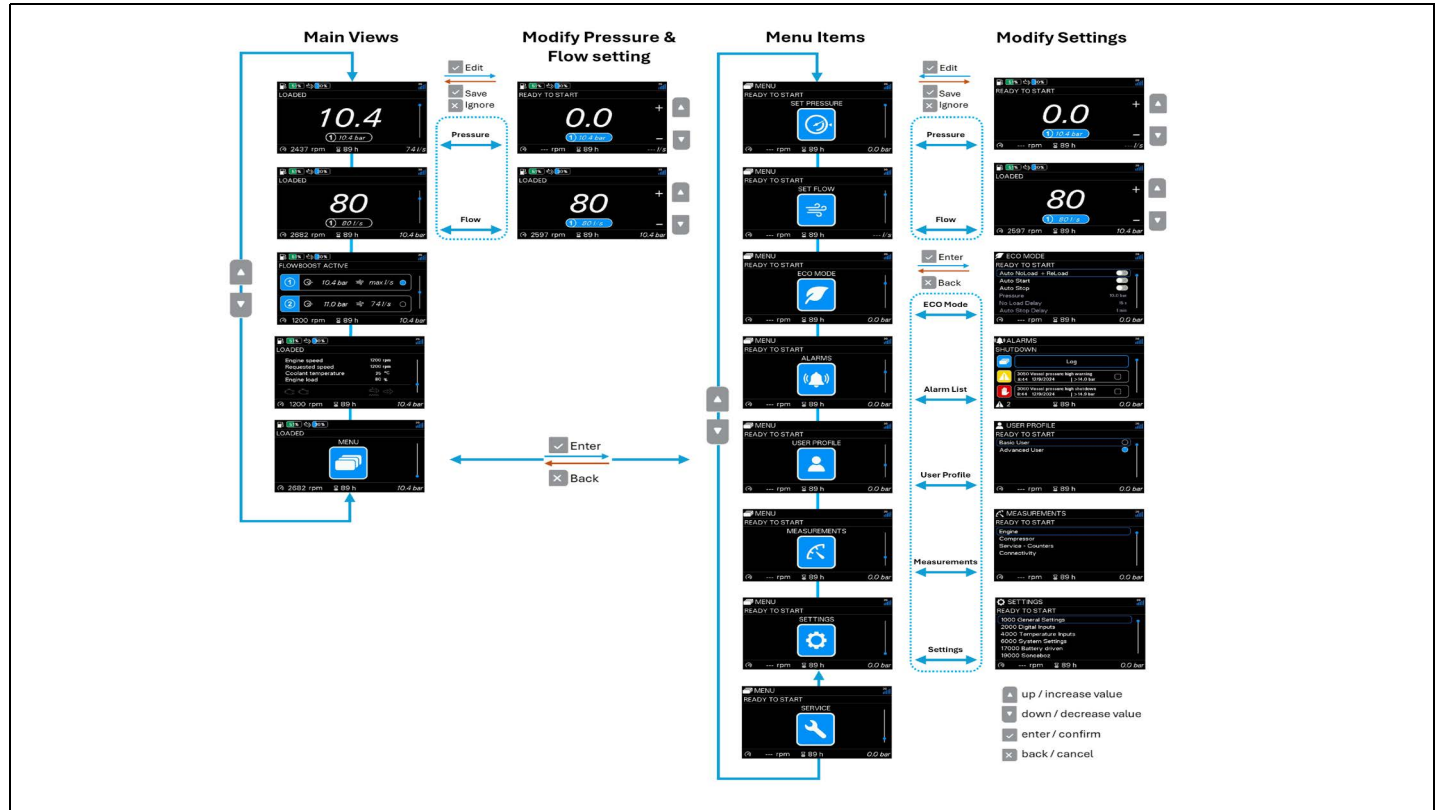
EMERGENCY SHUTDOWN



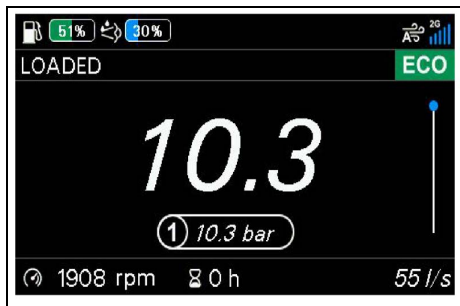
The emergency stop button must only be used in emergency situations and not for stopping the machine.

MAIN VIEWS


Overview




Pressure view




Pressure view is the default view. The operator can read the working pressure, pressure setpoint and air flow.

 **The air flow is only visible depending on the machine configuration.**

 **This view is available in Basic and Advanced profile.**


Changing pressure setpoint

 **This operation cannot be performed on the units equipped with a PRS (Pneumatic Regulating System).**

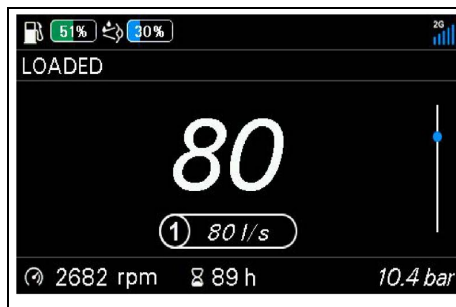
To change the pressure setpoint:

1. Press 'Enter' button.
2. Use 'Up and Down' navigation buttons to set values.
3. Press 'Enter' button to save changes.
4. Use 'Back' button to cancel the setting.

Flow view


 **This view is not available with a PRS (Pneumatic Regulating System).**

The operator can read the airflow delivered by the compressor. Also air flow, flow limit and working pressure will be shown on the display.



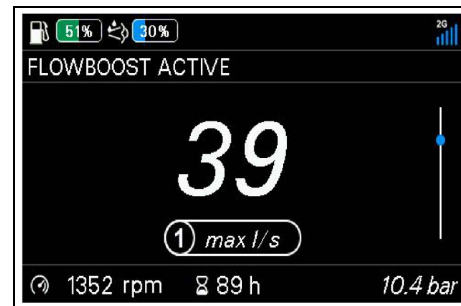
To change flow limits:

1. Press 'Enter' button.
2. Use 'Up and Down' navigation button to set values.
3. Press 'Enter' button to save changes.
4. Use 'Back' button to cancel the setting.


 **This view is only available in Advanced profile.**

Flowboost

If the flow limit is set to the maximum value, “max” is shown in the setting, and flowboost is activated. The flow limit setting can take any value within the machine’s capabilities at minimum pressure and does not take into account for flow limitations caused by the machine's capabilities when operating at higher pressures.

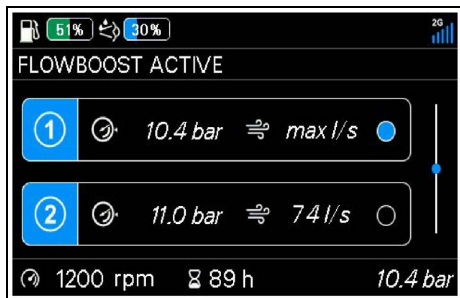


Preset view

 This view is not available on single pressure machines.

The preset configuration can be set through the preset view or selected by an (optional) switch mounted on the compressor.

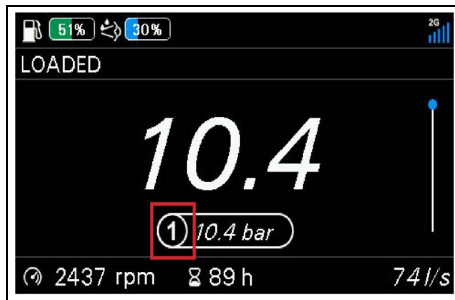
The preset view shows the values of two different preset configurations.




To change the preset selection:


1. Press 'Enter' button.
2. Use 'Up and Down' navigation button to select the desired preset.
3. Press 'Enter' button to save changes.

The selected preset setting will be indicated on the display in the Pressure and Flow view next to the setpoint.

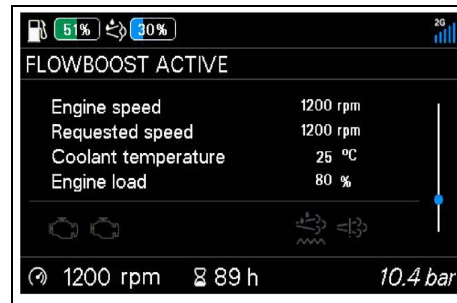


Engine view

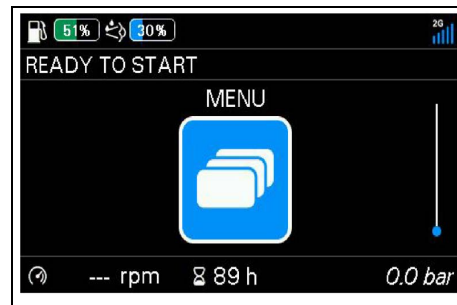
 This view is only for users with Advanced profile.

 This view is only available for engine driven compressors.

This view gives the information of the engine, engine status and after treatment system. The view and information depends on the configuration of the machine.



MENU

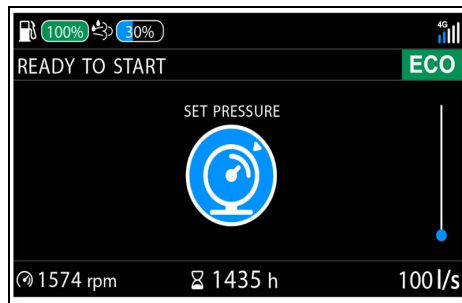


The Menu View of the controller provides a user-friendly interface to navigate and manage various system functions. The availability of menu items depends of the configuration of the machine.

1. Press 'Enter' button to start navigating through the menu.
2. Use the arrow keys to scroll.
3. Press 'Back' button to leave the menu.

Set pressure

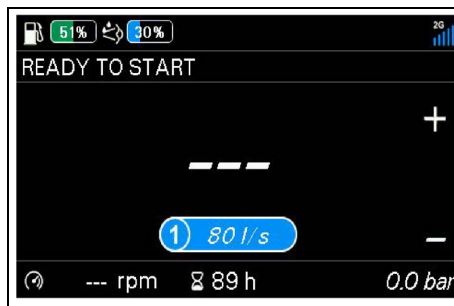
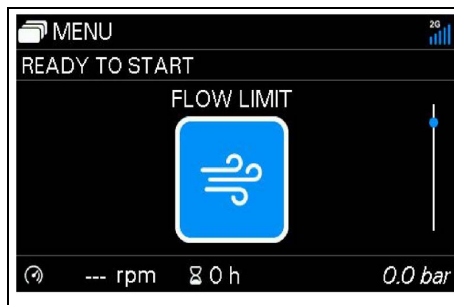
This menu can be used to adjust/change the active pressure setting of the compressor.



To change the pressure setpoint:

1. Press 'Enter' button.
2. Use 'Up' and 'Down' navigation button to set values.
3. Press 'Enter' button to save changes.
4. Use 'Back' button to cancel the setting.

Flow limit



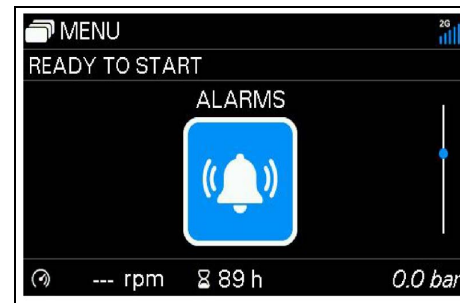
This menu can be used to adjust/change the active flow limit of the compressor.

To change flow limit:

- Press 'Enter' button.
- Use 'Up' and 'Down' navigation button to set values.
- Press 'Enter' button to save changes.
- Use 'Back' button to cancel the setting.

Alarms

This menu gives the overview of active, inactive alarms and event log.



The controller jumps to the alarm view once an alarm becomes active. The alarm can be acknowledged by pressing the 'Enter' button.

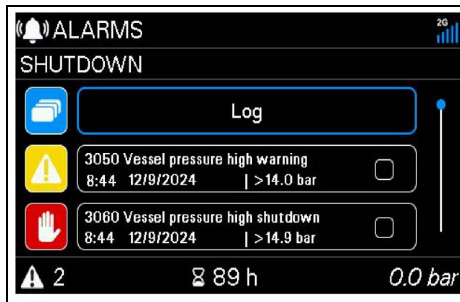
Use the 'Up' and 'Down' navigation buttons to scroll through the full list of alarms.

The list of the alarms contains:

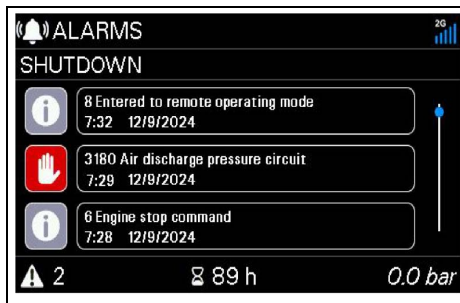
- Compressor alarms

- Engine alarms (DM1)
- Alarms from other connected devices (depending on the configuration of the machine)

The first item in the list is 'log'. It contains historical data of alarms and events.

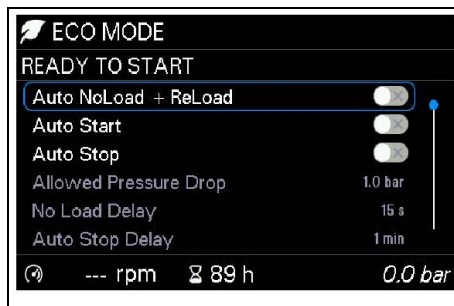
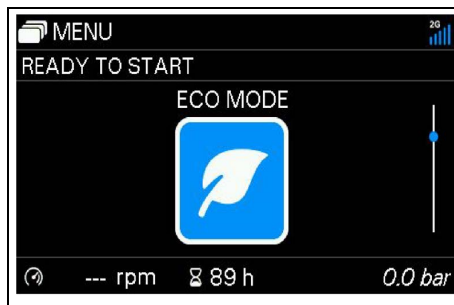


The Alarm view shown below is the (alarm) log, which also includes events.



The amount of active alarms is shown in the bottom right corner (if any, this overwrites the rpm indication).

ECO MODE



ECO mode feature is a simplification for the 'Automatic functions'.

The common settings of the automatic functions are grouped in the ECO mode menu, to make it easier for the end user to modify the settings and avoids to go into four different menus of the

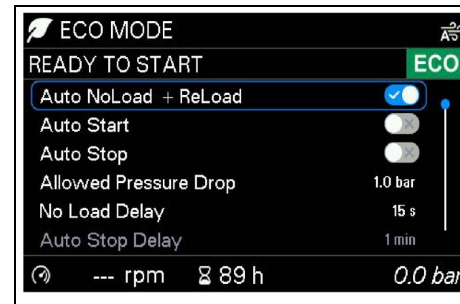
Settings Menu. Not all settings can be done in the pop-up menu. Therefore, the menu structure is still available in the background. By using the ECO mode, the customer can quickly activate the auto start,

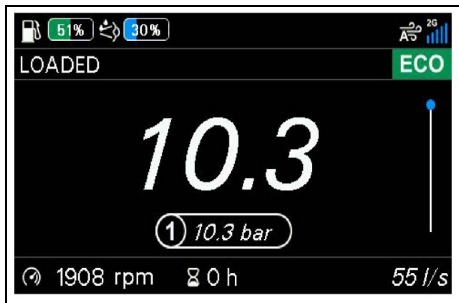
automatic no-load/re-load and automatic stop functions that will help him/her to reduce the fuel consumption. The end user can also change the timers and pressure levels at which the ECO mode functions need to react on, to optimize the settings for user application.

Overview

All the features are set to manual operation in the ECO mode pop-up menu by default (in order to avoid unexpected starting and loading of the unit).

When the ECO mode is active, an icon is displayed in the right upper corner of the controller display as shown below:





Automatic functions

To reduce energy consumption the controller can automatically start, toggle between no-load and

load or stop the compressor based on the required minimum working pressure.

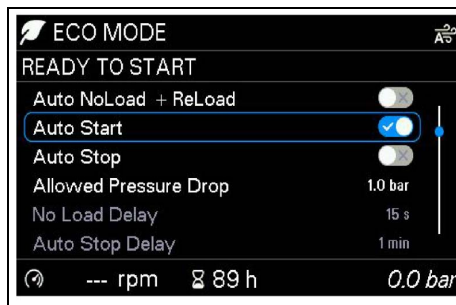
Based on the configuration of the controller, an auto start pressure or a pressure offset can be configured.

1. **Auto Start Pressure:** Automatic start & Load functions are linked to a pressure setting.
2. **Allowed Pressure Drop:** Automatic start and load functions are linked to a pressure difference (Pressure setpoint – allowed pressure drop value)



Whether auto start pressure or allowed pressure drop is used then it can be configured in the settings menu, parameter 1170 – Allowed pressure drop enable. If allowed pressure drop is enabled, then allowed pressure drop is used instead of Auto start pressure.

Auto start

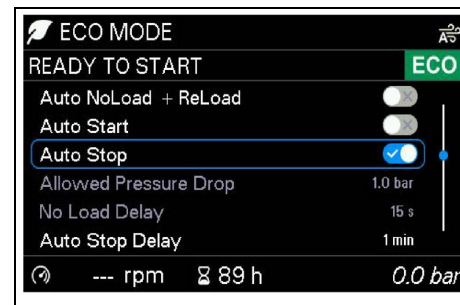


The Auto Start function is used to have the compressor automatically start, when the pressure measured by the air discharge sensor mounted between the MPV and the discharge valve pressure drops under the specified setting.

To set Auto Start function

1. Navigate to 'ECO Mode menu' and switch ON Auto start by pressing 'Enter' button.
2. Navigate to Auto Start Pressure and modify to the desired pressure at which the compressor should start or Navigate to the Pressure Offset and modify the pressure difference compared to the setpoint at which the compressor should start.
3. Once the configuration is done, Press the 'Enter' button to acknowledge.

Auto stop



The Auto Stop function is used to stop the compressor, when there is no air demand over an extended time (Auto stop delay). This function can be combined with the Auto Start and Auto Load functions. This function can be used for fuel saving.

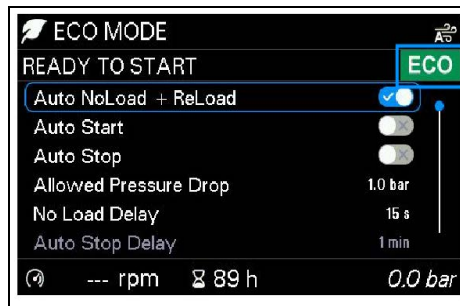


The Auto Stop must be combined (not only can be combined) with Auto Start, if you need the machine to start up again after the first stop (otherwise it remains stopped until a manual intervention).

To set Auto Stop function

- Navigate to 'ECO Mode menu' and switch ON Auto Stop by pressing the 'Enter' button.
- Set the timer Auto stop delay and then press the 'Enter' button to acknowledge.

To set Auto No-load + Reload function



After setting-up the necessary parameters for each mode, click on 'back' button to go back.



After enabling the auto-start and load functionalities, the functions are activated when the start button is pressed and deactivated when the stop button is pressed. The settings are stored.

Auto No-Load + ReLoad

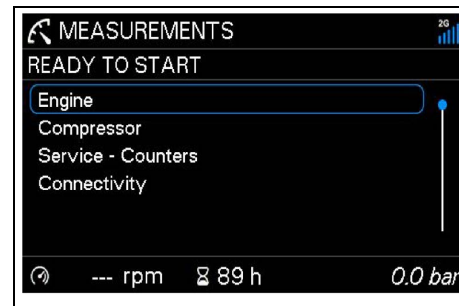
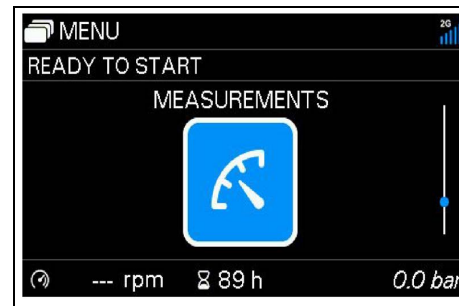
The Auto No-load function is used for saving fuel when there is no air demand from the application.

The compressor switches to No-load operation mode when there is no demand for extended time (no load delay).

With the Auto Re-load function, the compressor is loaded again, when there is an air demand.

1. Navigate to 'ECO Mode menu' and switch on Auto NoLoad + ReLoad by pressing 'Enter' button.
2. Navigate to Auto Start Pressure and modify to the desired pressure at which the compressor should Load or Navigate to the Pressure Offset and modify the pressure difference compared to the setpoint at which the compressor should Load.
3. Once the configuration is done, Press 'Enter' button to acknowledge.
4. Set the No Load delay timer and then click 'Enter' to acknowledge.

Measurements

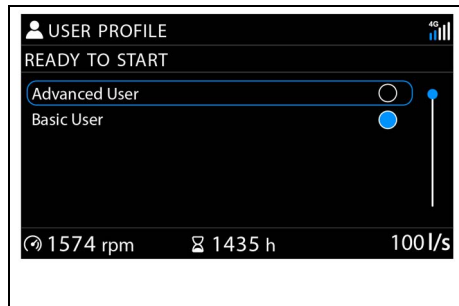
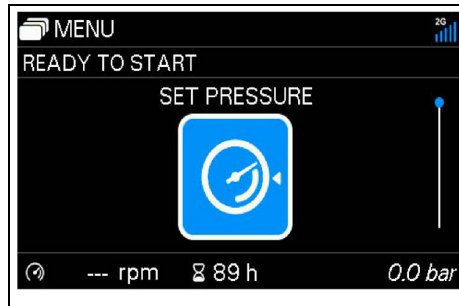


This menu provides a comprehensive overview of the system's current status.

The measurements are divided in different sub-groups. Use navigation buttons to scroll through the full list of measurements.

The amount of measurements and sub-groups are depends on the machine configuration.

User profile



This menu is used to manage user profile (Basic / Advanced). The user can switch profile from Basic to Advanced at any time.

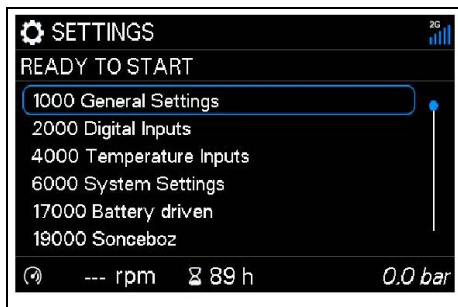
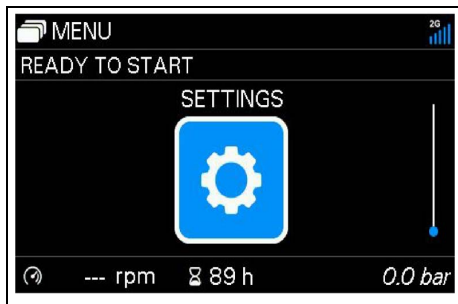
- **Basic User Profile:** Designed for standard users, this profile includes essential settings and preferences. It allows users to set and save basic operational parameters. The amount of views and options available in this profile are limited compared to the advanced profile, making it simpler and more straightforward to use.
- **Advanced User Profile:** Tailored for experienced users, this profile offers access to advanced settings and configurations.

Profiles can be configured by parameters in the settings menu:

Parameter	Description	Function
1650	User Profile	<ul style="list-style-type: none"> • Jump to Basic after reboot (On-Off): Controller will force the user profile to Basic after a reboot. • Basic user flowboost always on (On – Off): When Basic profile is active after a reboot, Flow boost is switched on. • Access Level: Block the above settings including the current selected profile by the use of a service access key (Available via AC Service).

1655	Profile Configuration	Used to select which views are available in which profile.
1660	Profile Access level	Used to block settings of user profiles by the use of a service access key (Available via AC Service).

SETTINGS



The settings are divided in sub-groups. The amount/type of sub-groups and settings are depends on the machine configuration.

Use the up and down navigation buttons to scroll through the full list of settings.

Use the enter button to enter the selected submenu.

Use the back button to leave the entered (sub) menu.

Change Parameters

To change parameters:

1. Press 'Enter' button to start editing. (Most right digit is editable)
2. Use 'Up and Down' buttons to change number.
3. Press the 'Enter' button to store each digit and move to the next digit. When storing the leftmost digit, the entire value is accepted.
4. Use 'Back' button to go to previous digit and to ignore the change. When ignoring the rightmost digit, the entire new value is ignored.

Set Clock

1. Scroll to 1000 GENERAL SETTINGS
2. Scroll to 1290 DATE/TIME
3. Now press 'Back' button until you're back in the Main View (or in the menu you require).

Set Language

1. Scroll to 1000 GENERAL SETTINGS
2. Press 'Enter' button
3. Scroll to 1300 LANGUAGES
4. Now press 'Back' button until you're back in the Main View (or in the menu you require).

Set Units

1. Scroll to 1000 GENERAL SETTINGS.
2. Press 'Enter' button.
3. Scroll to the unit you would like to change:
 - 1340 TEMPERATURE UNITS
 - 1350 PRESSURE UNITS
 - 1360 FUEL FLOW UNITS.

4. Now press 'Back' button until you're back in the Main View (or in the menu you require).

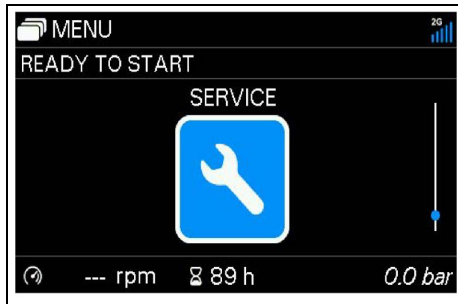
Change Display Settings

1. Scroll to 1000 GENERAL SETTINGS
2. Press 'Enter' button.
3. Scroll to 1310 DISPLAY BACKLIGHT.
4. Enter the DISPLAY BACKLIGHT menu.
5. Scroll to the setting you would like to change.
6. Now press 'Back' button until you're back in the Main View (or in the menu you require).

Go To Diagnostics

1. Scroll to 1000 GENERAL SETTINGS.
2. Press 'Enter' button.
3. Scroll to 1150 DIAGNOSTICS.
4. Enter the DIAGNOSTICS menu.
5. Enter the ENABLE parameter.
6. Scroll to ON and press 'Enter' button. Now the ECU will get PAC (ignition) and one can perform ECU diagnostics (read DMI List, ECU values, perform engine diagnostics, ...).
7. Now press 'Back' button until you're back in the Main View (or in the menu you require).
8. Press the 'Stop' button to leave the diagnostics.

SERVICE



This menu shows information related to service and service related functions. This menu is typically used by service personnel to perform diagnostics and other technical tasks. It access advanced service options for maintenance and troubleshooting.

FAULT CODES



There are several parameters that are continuously watched.

When one of these parameters exceeds its specified limit, the compressor will react depending on the present status of the controller.

Alarm code	Alarm text
1101	Twin unit Missing
1103	Twin Unit Stopped Alarm
1155	High Altitude Start Prevention
1550	Major overhaul alarm
1592	Oil Lifetime Alarm 1
1594	Oil Lifetime Alarm 2
2000	Emergency Stop
20030	Air Discharge Dewpoint Alarm 1
20040	Air Discharge Dewpoint Alarm 2
2010	Conf digital input 1 alarm
2020	Conf digital input 2 alarm
2030	Conf digital input 3 alarm
2040	Conf digital input 4 alarm
2050	Conf digital input 5 alarm
2060	Conf digital input 6 alarm
2910	MPU input alarm
3000	Fuel level low 1
3010	Fuel level low 2
3030	Fuel level sensor circuit
3050	Vessel pressure high warning
3055	Vessel pressure high warning 2
3060	Vessel pressure high shutdown
3065	Vessel pressure high shutdown 2

Alarm code	Alarm text
3080	Vessel pressure sensor circuit
3130	Regulating pressure sensor circuit
3150	Air discharge pressure alarm 1
3160	Air discharge pressure alarm 2
3180	Air discharge pressure circuit
3450	Battery low alarm
3455	Low battery voltage during last crank
3460	Battery high alarm
3470	Low sensor reference voltage
3500	Conf voltage1 in alarm1
3510	Conf voltage1 in alarm2
3520	Conf voltage in1 sensor circuit
3530	Conf voltage2 in alarm1
3540	Conf voltage2 in alarm2
3550	Conf voltage1 in alarm1
3570	Conf voltage in2 sensor circuit
3580	INLET PRESSURE SENSOR ALARM
3600	INTERSTAGE PRESSUE HIGH WARNING
3610	INTERSTAGE PRESSUE HIGH SHUTDOWN
3620	Interstage pressure sensor circuit
3640	Pressure after reducer deviation alarm 1

Alarm code	Alarm text
3650	Pressure after reducer out of limit shutdown
3660	Pressure after reducer sensor circuit
3700	Oil stop valve pressure alarm 1
3710	Oil stop valve pressure low shutdown
3720	Oil stop valve pressure sensor circuit
3750	Dryer A Pressure Sensor Circuit - Warning
3760	Dryer B Pressure Sensor Circuit - Warning
3780	Air Discharge Dewpoint Sensor Circuit
4000	L.P. Element temp. alarm 1
4010	L.P. Element temp. alarm 2
4020	L.P. Element temp. alarm 3
4040	L.P. Element temp. sensor circuit
4050	Ambient temp. alarm 1
4060	Ambient temp. alarm 2
4070	Ambient temp. sensor circuit
4100	Air discharge temp. alarm 1
4110	Air discharge temp. alarm 2
4120	Air discharge temp. sensor circuit
4150	H.P. Element temp. alarm 1

Alarm code	Alarm text
4160	H.P. Element temp. alarm 2
4170	H.P. Element temp. alarm 3
4190	H.P. Element temp. sensor circuit
4200	Aftercooler air temp. alarm 1
4210	Aftercooler air temp. alarm 2
4220	Aftercooler air temp. sensor circuit
4230	Aftercooler freezing danger
4300	Conf temp in1 alarm1
4310	Conf temp in1 alarm2
4320	Conf temp in1 sensor circuit
4350	Conf temp in2 alarm1
4360	Conf temp in2 alarm2
4370	Conf temp in2 sensor circuit
4400	COOLANT TEMP. ALARM 1
4410	COOLANT TEMP. ALARM 2
4420	Coolant temp. sensor circuit
4990	Fuel level sensor circuit
5200	Air shut off - Reset manually
6160	Possible wrong rotation
6190	Charging fail
6200	VESSEL PRESSURE LIMITTING
6309	Engine preheat failure
6327	Start failure
6329	Starter speed too low
6380	Vessel pressure too low to load
6420	Stop failure

Alarm code	Alarm text
6425	UNEXPECTED STARTER FEEDBACK
6426	Unintentional run
6427	Run failure
6580	Check compressor oil
6603	Wrong Rotation Detection
6870	REGULATING SYSTEM FAILURE
7000	ECU communication error
7007	ECU red lamp
7008	ECU protect lamp
7009	ECU protect lamp
7010	Engine speed too low
7020	Engine overspeed
7030	ECU engine coolant temp. alarm
7040	ECU engine oil pressure alarm
7050	ECU engine air inlet temp. alarm 1
7060	ECU engine air inlet temp. alarm 2
7070	ECU engine load alarm
7080	ECU ambient temp. alarm
7100	ECU DPF soot load high warning
7110	ECU DPF soot load high alarm
7120	ECU DPF soot load too high
7130	Please force DPF regeneration
7150	DEF tank level 1
7160	DEF tank level 2
7180	ECU DPF ash load alarm
7210	Engine speed alarm 3

Alarm code	Alarm text
7220	Status 3. Must initiate a stationary DPF regen at this time
7230	Status 4. Must contact a service to complete DPF parked
7240	Status 5. Must contact a service to take care of DPF service
7280	AirXpert Motor Communication Failure
7281	AirXpert Motor Operation Mode Failure
7285	AirXpert Motor Operation Fault
7320	SCR INDUCEMENT LVL 1
7330	SCR INDUCEMENT LVL 2
7340	SCR INDUCEMENT LVL 3
7350	SCR INDUCEMENT LVL 4
7360	SCR INDUCEMENT LVL 5
7370	SCR INDUCEMENT OVERRIDE
7501	ACTUATOR VOLTAGE ERROR
7502	ACTUATOR CURRENT ERROR
7503	ACTUATOR TEMPERATURE ERROR
7504	ACTUATOR POSITION ERROR
7505	ACTUATOR CALIBRATION ERROR
7700	JUNCTION TEMPERATURE ALARM 1
7710	JUNCTION TEMPERATURE ALARM 2
7720	MOTOR SPEED ALARM 1

Alarm code	Alarm text
7730	MOTOR SPEED ALARM 2
7740	MOTOR TORQUE ALARM 1
7750	MOTOR TORQUE ALARM 2
7760	MOTOR DC VOLTAGE ALARM 1
7770	MOTOR DC VOLTAGE ALARM 2
7780	MOTOR POWER ALARM 1
7790	MOTOR POWER ALARM 2
7800	MOTOR CURRENT ALARM 1
7810	MOTOR CURRENT ALARM 2
7820	MOTOR CURRENT DC BUS ALARM 1
7830	MOTOR CURRENT DC BUS ALARM 2
7840	VSD WARNING
7845	VSD WARNING
7920	4h run protection alarm

OPERATIONS OVERVIEW

During operation



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



The doors must be closed during operation.

Regularly carry out following checks:

1. That the regulating valve (RV) is correctly adjusted, i.e. starts decreasing the engine speed when reaching the pre set working pressure in the receiver.
2. Check the air outlet temperature of the compressor element.
3. Check the engine oil pressure, the coolant temperature and display of control panel.
4. Avoid the engine running out of fuel. Nevertheless, if this happens, fill the fuel tank and prime the fuel system to speed up starting.



After cleaning /draining the fuel tanks, the system is filled with air.

Before starting the engine operate the fuel pump on the fuel filter to fill the fuel system.

When under pressure the engine will start after approximately 10 seconds. If the system is not under pressure, it will take a few minutes until the engine will start.

Maintenance

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 approval in writing.

SERVICE PAKS

A Service Pak is a collection of parts to be used for a specific maintenance task, e.g. after 50, 400 and after 1000 running hours.

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

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

Use of service packs

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

Service Packs minimize downtime and keep your maintenance budget low.

Order Service Packs at your local Atlas Copco dealer.

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).



Contact Atlas Copco.

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 from time to time, protective measures must be taken.

QR CODE

Scan the QR code to access into the Atlas Copco Power Connect site. Enter the machine serial number to get the Atlas Copco Spare Parts List (ASL).



PREVENTIVE MAINTENANCE SCHEDULE



Unauthorised modifications can lead to risk for injury or machine damage.



Always keep the machine tidy in order to prevent fire hazard.



Poor maintenance can void any warranty claims.

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 compressors operating in a dusty environment typical for compressor applications. Maintenance schedule can be adapted depending on application, environment and quality of maintenance.

MAINTENANCE SCHEDULE COMPRESSOR

<i>To determine the maintenance intervals, use of service hours, or calendar time, whichever occurs first.</i>				
Maintenance schedule (running hrs)	Daily	Initially	Normal	Yearly
		50 hours after initial start-up	Every 400 hours(10)	Or every 1000 hours(10)
<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>				
Engine oil level	Check			
Compressor oil level	Check			
Coolant level ⁽³⁾	Check			
Coolant ⁽⁷⁾			Analyse	Analyse
Air filter vacuator valves	Empty			
Fuel filter water drain	Drain			
Air intake vacuum indicators	Check			
Electrolyte level and terminals of battery		Check	Check	Check
Tyre pressure		Check	Check	Check
Leaks in air, oil or fuel system		Check	Check	Check

MAINTENANCE SCHEDULE COMPRESSOR

Maintenance schedule (running hrs)	Daily	Initially	Normal	Yearly
		50 hours after initial start-up	Every 400 hours(10)	Or every 1000 hours(10)
Coolers (Oil, Coolant, Inter)			Check	Clean
Engine minimum and maximum speeds		Check	Check	Check
Torque of wheel nuts		Check	Check	Check
Brake system (if installed)		Check/Adjust	Check/Adjust	Check/Adjust
Safety valve				Test
Door hinges			Grease	Grease
Towing eye shaft or ball coupling and its shaft			Grease	Grease
Joints of height adjustment adjustable towbar		Check	Grease	Grease
Shutdown switches				Check
Pressure drop over separator element ⁽²⁾			Measure	Replace(6)
Fan V-belts ⁽³⁾			Adjust	Adjust
Fuel tank			Clean	Clean
Compressor oil				Change
Compressor oil filter		Change		Replace
Air filter elements ⁽¹⁾				Replace
Safety cartridges ⁽¹⁾				Replace
Engine oil ⁽³⁾⁽⁴⁾			Change	
Engine oil filter ⁽³⁾			Replace	
Fuel filter ⁽³⁾⁽⁵⁾			Replace	
Fuel prefilter ⁽³⁾			Replace	
Engine inlet and outlet valves ⁽³⁾			Check	
Flow restrictor in oil scavenge line				Clean
Fan adaptor and bolts				Check
Engine valve cover bolts			Check/Adjust	Check/Adjust
Engine thermostat valve				Check
Vessel water drain	Drain			

Notes



1. More frequently when operating in a dusty environment.
2. Replace the element when the pressure drop exceeds 0.8 bar.
3. Refer to the Cummins operation manual.
4. 400 hours only valid when using PAROIL SAE 15 W 40.
5. In case of poor fuel quality, replace fuel filter more frequently.
6. Clean retainer when replacing element.
7. The following part numbers can be ordered from Atlas Copco to check on inhibitors and freezing point:
 - 2913 0028 00: Refractometer
 - 2913 0029 00: pH-meter
8. Replace all rubber flexibles each 6 years, according to DIN 20066.
9. Change coolant every 2 years(Or every 2000 hours).
10. Whatever occurs first.

OIL SPECIFICATIONS



It is strongly recommended to use Atlas Copco branded lubrication oils for both compressor and engine.



Only use mineral based compressor oil PAROIL S Xtreme in XA(H,V)S 450.

High-quality, mineral, hydraulic or synthesized hydrocarbon oil with rust and oxidation inhibitors, 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.

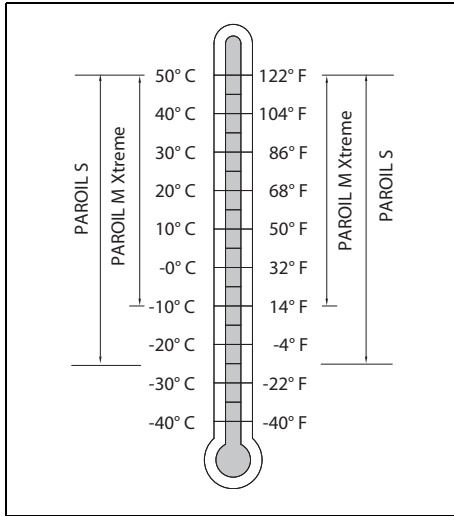
PAROIL prevents soot build-up

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 -5°C (23°F) onward.

COMPRESSOR OIL



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

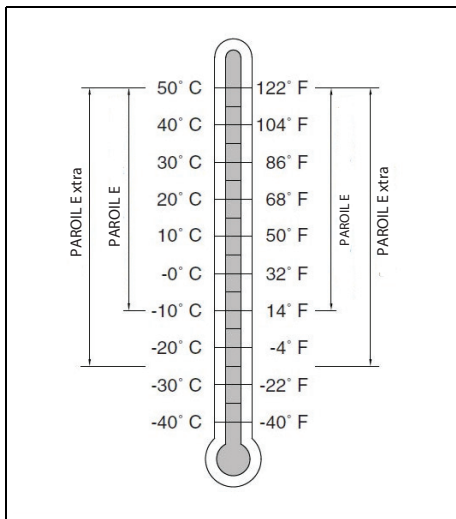
Synthetic compressor oil PAROIL S

	Liter	US gal	Order number
can	5	1.3	1630 0160 00
can	20	5.3	1630 0161 00
barrel	210	55.2	1630 0162 00
container	1000	265	1630 0163 00

Mineral compressor oil PAROIL M Xtreme

	Liter	US gal	Order number
can	5	1.3	1630 0180 00
can	20	5.3	1630 0181 00
barrel	210	55.2	1630 0182 00

ENGINE OIL



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

Synthetic engine oil PAROIL E xtra

	Liter	US gal	Order number
can	5	1.3	1630 0135 01
can	20	5.3	1630 0136 01
barrel	210	55.2	1626 0102 00

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
barrel	1000	264.17	1630 0096 00

OIL LEVEL CHECK

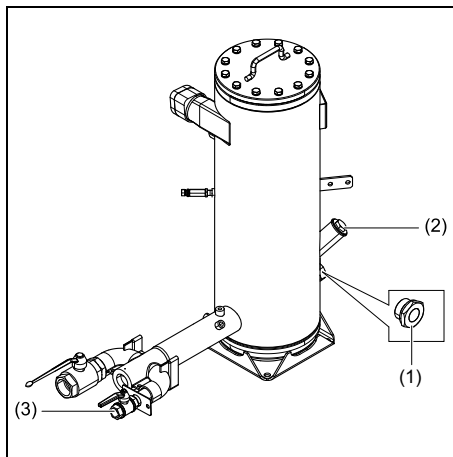
CHECK ENGINE OIL LEVEL

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

CHECK COMPRESSOR OIL LEVEL



With the unit standing horizontal, check the level of the compressor oil. The level of oil must be higher than the middle of sight glass (1). Add oil if necessary.



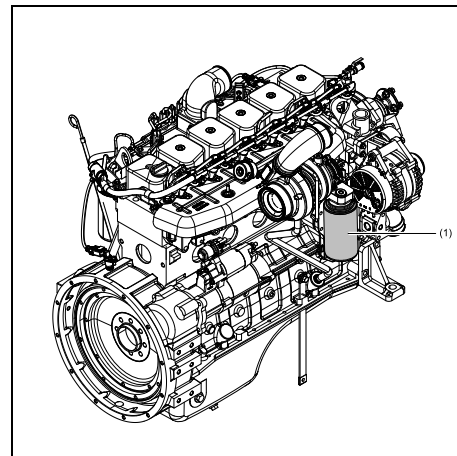
Before removing the oil filler plug (2), ensure that the pressure is released by opening the air outlet valve (3).



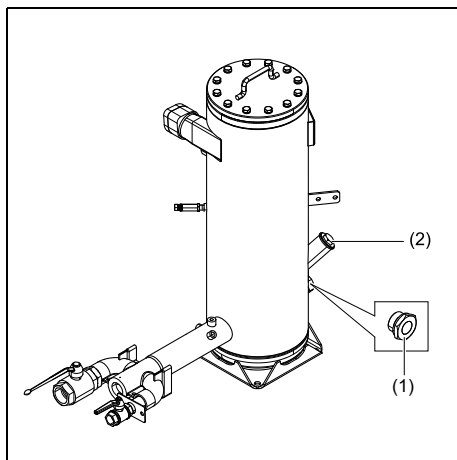
Level of the compressor oil must be higher than the middle of sight glass (1) to assure the cooling of element.

ENGINE OIL AND OIL FILTER CHANGE

See section **Preventive maintenance schedule**.



TOPPING UP THE COMPRESSOR OIL

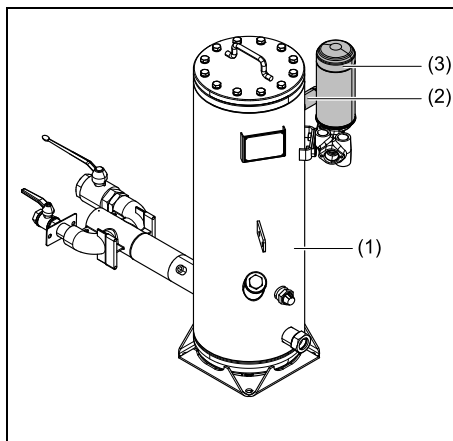


1. Stop the compressor and be sure that all pressure has been released by opening the filler plug (2) on turn.
2. Wait a few minutes until the oil level is constant.
3. Remove oil filler plug (1) and top up with oil until the level of compressor oil reaches the bottom of oil filler neck.
4. Reinstall and tighten the filler plug (2).



Never add more oil. Overfilling results in oil consumption

COMPRESSOR OIL AND OIL FILTER CHANGE



The quality and 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° (212°F). (See section **Preventive maintenance schedule**).

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) and stop the compressor. Wait until the pressure is released through the automatic blow-down valve. Unscrew the oil filler plug 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. Drain plugs are fitted at the air receiver (DPar), compressor element (DPcv, DPosv) and compressor oil cooler (DPoc). 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 filters (3), 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 bottom of oil filler neck. Be sure that no dirt gets into the system. Reinstall and tighten the filler plug.
6. Start the compressor and let it run unloaded for a few minutes.
7. Stop the compressor, wait a few minutes and top up with oil at the bottom of oil filler neck.

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 (see table) a special Compressor Oil Flushing Procedure has to be followed. The table is only valid when the replaced oil has not exceeded its lifetime. For more information consult Atlas Copco Service department.

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 department 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).

COOLANT SPECIFICATIONS

3. Open the oil vessel and remove the oil separator element.



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

4. Check the interior of the oil vessel (see pictures). If varnish deposits are discovered, contact Atlas Copco Service department 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 S	PAROIL S xtreme
PAROIL S	draining *	draining
PAROIL S xtreme	draining	draining *

 It is strongly recommended to use Atlas Copco branded coolant. When changing to a different oil during an oil changing interval, draining is sufficient.
* Change Copco branded coolant.

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).

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.

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.

PARCOOL EG Concentrate

	Liter	US gal	Order number
can	5	1.3	1604 8159 00

HANDLING PARCOOL EG

PARCOOL EG should be stored at ambient temperatures, while periods of exposure to temperatures above 35°C (95°F) should be minimized. PARCOOL EG can be stored for a minimum of 5 years in unopened containers without any effect on the product quality of performance.

PARCOOL EG is compatible with most other coolants based on ethylene glycol, but you only get the benefits of 5 years protection when its used on its own. Exclusive use of PARCOOL EG is recommended for optimum corrosion protection and sludge control.

For simple density-measuring of Ethylene Glycol and Propylene Glycol in general the standard available 'density' measuring devices are used to measure the concentration of EG. In case a device is used to measure EG, no PG can be measured afterwards as a result of the difference in the density. More specific measurements can be done by the use of a refractometer. This device can measure both EG and PG. A mix of both products will be show unreliable results!

Mixed EG coolants with identical glycol type can be measured by use of a refractometer as well as the 'density' system. The mixed coolants will be considered as one product.

The use of distilled water is recommended. If you have exceptionally soft water it would be acceptable, as well. Basically, the engine metals are going to corrode to some extent no matter what water you use, and hard water will encourage the resulting metal salts to precipitate.

PARCOOL EG comes as a pre-mixed coolant to safeguard the quality of the complete product.

It is recommended that topping up of the cooling system is always done with PARCOOL EG.

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.

TOPPING UP/REPLACING 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 Concentrate / PARCOOL EG.
- Topping up the coolant with water only, changes the concentration of additives and is therefore not allowed.

TOPPING UP WITHOUT DRAINING FROM THE COOLING SYSTEM

The quantity of PARCOOL EG Concentrate to be topped up can be estimated with the following formula and/or graph:

Corrections concentrate in measured system towards 50% volume by using PARCOOL EG Concentrate

PN: xxxx xxxx xx

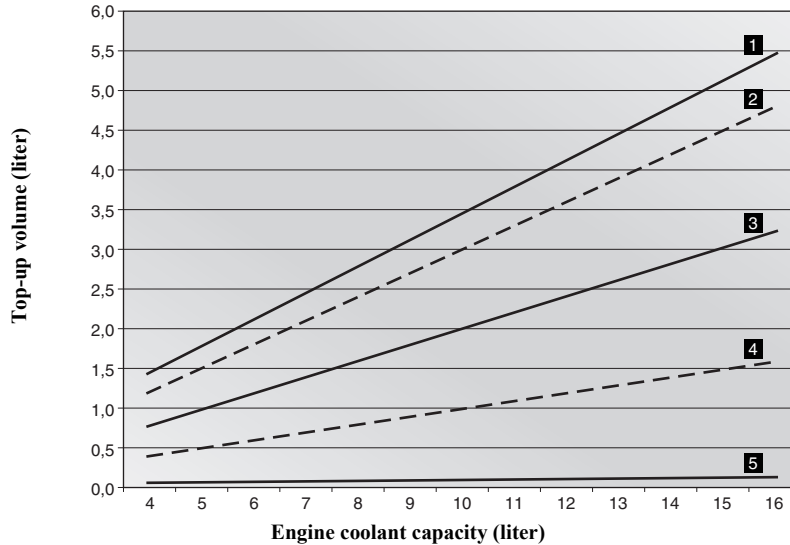
Example:

Total volume coolant = 14 Liter

Measured concentration = 33 Vol %

$$50 - \frac{33}{33} = 17 * \frac{14}{50} = 4,8 \text{ Liter PARCOOL EG Concentrate}$$

Top-up volume PARCOOL EG Concentrate without drainage



In case of expansion tank at low level, this quantity is to be filled without draining from the cooling system.

- 1 Refractometer indication -20° C (-4° F) (33%)
- 2 Refractometer indication -22° C (-7.6° F)
- 3 Refractometer indication -25° C (-13° F)
- 4 Refractometer indication -30° C (-22° F)
- 5 Refractometer indication -36° C (-32.8° F)

TOPPING UP AFTER LIMITED QUANTITY DRAINING FROM THE COOLING SYSTEM

The quantity of PARCOOL EG Concentrate to be topped up after draining a calculated volume from the cooling system, can be estimated with the following formula and/or graph:

Corrections concentrate in measured system towards 50% volume by using PARCOOL EG Concentrate

PN: xxxx xxxx xx

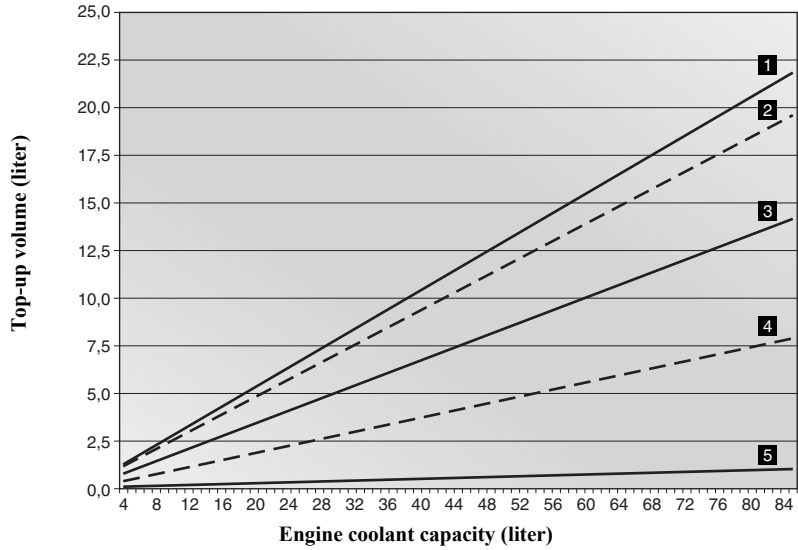
Example:

Total volume coolant = 80 Liter
 Measured concentration = 33 Vol %

$$50 - \frac{33}{33} = 17 \rightarrow \frac{80}{67} = 20 \text{ Liter PARCOOL EG Concentrate}$$

$$100 - \frac{33}{33} = 67$$

Top-up volume PARCOOL EG Concentrate with drainage



In case of expansion tank at normal level, this quantity is to be drained from the cooling system.

- 1 Refractometer indication -20° C (-4° F) (33%)
- 2 Refractometer indication -22° C (-7.6° F)
- 3 Refractometer indication -25° C (-13° F)
- 4 Refractometer indication -30° C (-22° F)
- 5 Refractometer indication -36° C (-32.8° F)

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.
- Using the Atlas Copco Instruction book, determine the amount of PARCOOL EG required and pour 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.

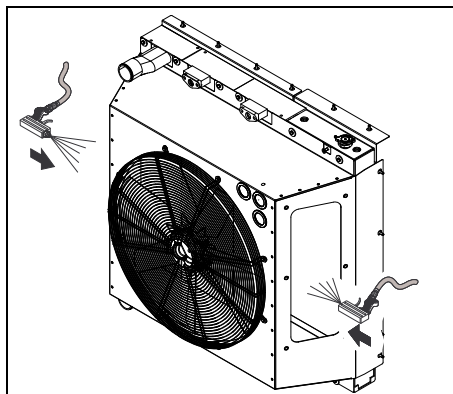
Fill

- 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.
- From the Atlas Copco Instruction book, determine the amount of PARCOOL EG required.
- Mix concentrate and water before filling.
- Fill with a maximum rate of 10 l/min (0.35 cu.ft/min).
- Recheck coolant level and add coolant mixture if necessary.



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

CLEANING COOLERS



Keep the compressor oil cooler and engine liquid cooler clean to maintain the cooling efficiency.



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

Clean by air jet in the direction of the arrow.

Steam cleaning in combination with a cleansing agent may be applied (do not use jet at max. power).



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

Close the service door(s).



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

Never leave spilled liquids such as fuel, oil, coolant 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.

ACTIVATING A DRY-CHARGED BATTERY

- Take out the battery.
- Battery and electrolyte must be at 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 according to its 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.

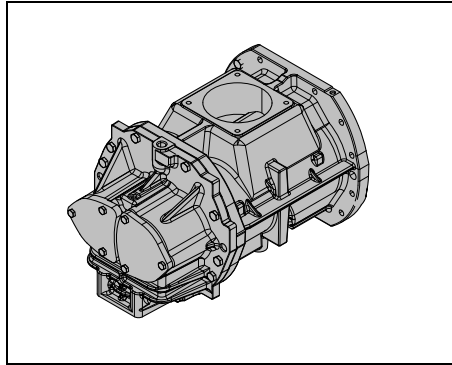
PERIODIC BATTERY SERVICE

- 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 with 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...

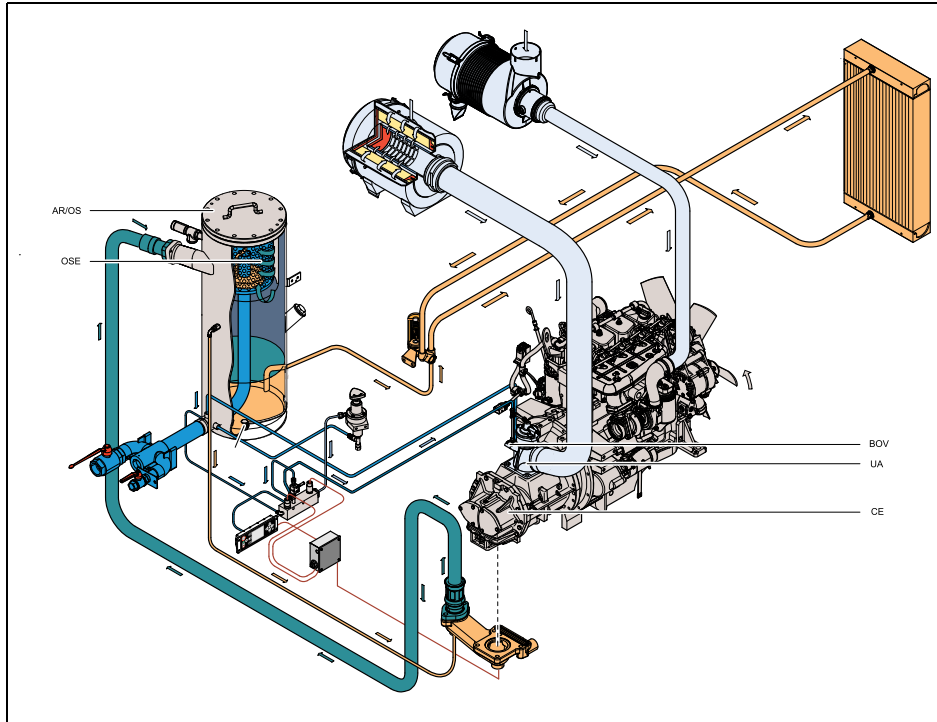
COMPRESSOR ELEMENT OVERHAUL

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.



Adjustments and servicing procedures

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 door is open.

1. Loosen the lock nut of the regulating valve.
2. Release Regulating Valve (turn out).
3. With the outlet valves (AOV) closed, adjust the regulating valve (RV), until a pressure is reached of nominal pressure + 1.5 bar (+ 22 psi).
4. Lock the regulating valve (RV) by fixing the lock nut.

AIR FILTER ENGINE/COMPRESSOR



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

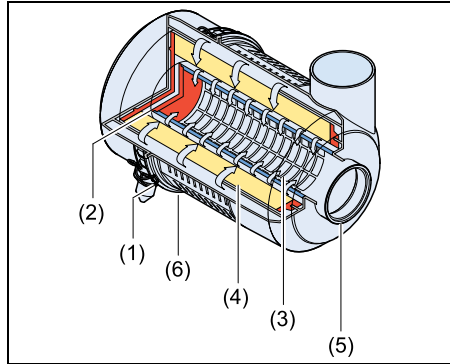
Never run the compressor without air filter element.

SERVICING

Always select the service point according to the vacuum indicator or display message. A regular inspection or cleaning as it is sometimes practiced in the field is more likely to be damaging than useful as there is a risk that the element will be damaged and dust will gain access to the engine.

Atlas Copco always recommends exchanging rather than cleaning the filter element in order to avoid damage and ensure maximum engine protection.

MAIN PARTS



- | | |
|------------------------------|-------------------|
| 1. Snap clips | 4. Filter element |
| 2. Dust trap cover | 5. Filter housing |
| 3. Safety cartridge (option) | 6. Vacuator valve |

CLEANING THE DUST TRAP

Remove dust daily.

To remove dust from the dust trap squeeze the vacuator valve (6) several times.

CLEANING INSTRUCTIONS FILTER ELEMENT

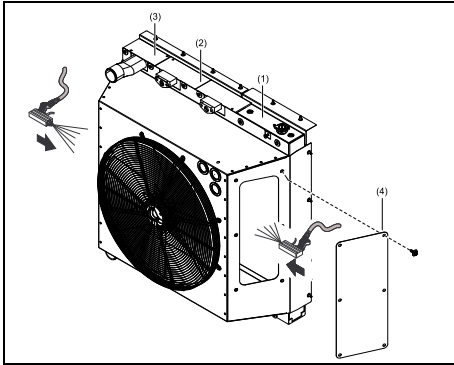
If element cleaning can not be avoided, care should be taken that the filter element (4) is not washed out. Please note that engine damage can cause considerable costs, which makes the cost of a new filter element seem insignificant.

Safety cartridges (3) can not be cleaned but must be exchanged.

Please note that a cleaned element will never match the service life and performance of a new element.

Take the element from the air filter housing (5) (see section **Replacing the air filter element**).

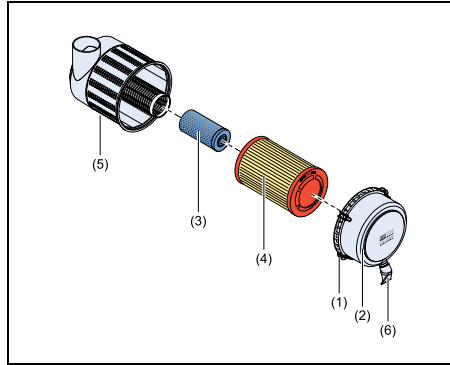
REPLACING THE AIR FILTER ELEMENT



In order to clean, position a pipe with an end bent by approx. 90° on the end of a compressed-air pistol. The pipe must be long enough to reach the bottom of the filter element. Carefully blow out the filter element with dry compressed air (max. 5 bar (72.5 psi)) from the inside to the outside until there is no more development of dust. The end of the pipe must not touch the element.

Next carefully examine the element for possible damage. Never beat or knock the element as this will damage it and there will be a danger of damage to the engine.

Carefully clean the inside of the housing and put the element in the housing (see section **Replacing the air filter element**).



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

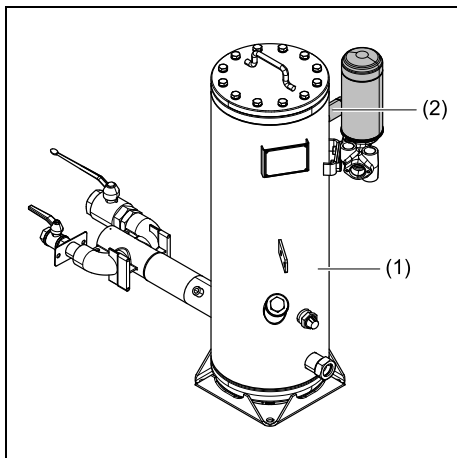
Discard the element (4) when damaged.

A dirty safety cartridge (3) is an indication of a malfunctioning air filter element. In that case replace the element and safety cartridge.

The safety cartridge cannot be cleaned.

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

AIR RECEIVER



The air receiver (1) is tested according to official standards. Carry out regular inspections in conformity with local regulations.



Daily drain condensate.

SAFETY VALVE



All adjustments or repairs are to be done by an authorized representative of the valve supplier, see section Specific safety precautions.

Following checks must be carried out on the safety valve (2):

- 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

PRIMING INSTRUCTIONS



Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire. To help prevent possible injury, turn the “ON/OFF” switch in position “OFF” when changing fuel filters or water separator elements. Clean up fuel spills immediately.

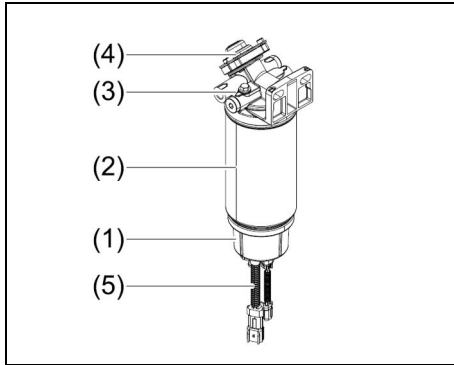
Prime the fuel system in order to fill the fuel filter. Prime the fuel system in order to purge trapped air. The fuel system should be primed under the following conditions:

- Compressor is put in operation for the first time
- Running out of fuel
- Storage
- Replacement of the fuel filter



Do not loosen the fuel lines at the fuel manifold. The fittings may be damaged and/or a loss of priming pressure may occur when the fuel lines are loosened.

DRAINING INSTRUCTIONS

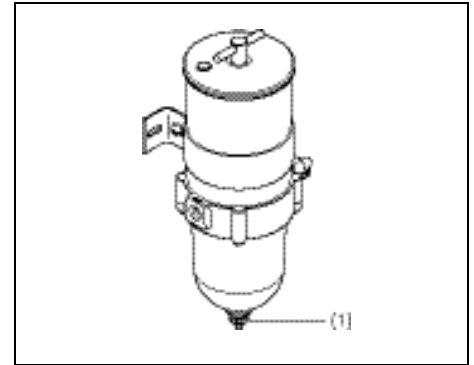


1. Open bowl drain valve (1), operate pump (5) and pump water out.
2. Close drain valve (1).

Replacing the filter elements:

Installation instructions:

1. Drain fuel from the bowl.
2. Remove filter (2, 3), filterelement (4) and separate bowl (2) from element (3).
3. Apply film of gas oil to new bowl seat.
4. Screw bowl (2) to new element (3) tightly by hand.
5. Apply film of gas oil to new element seals.
6. Screw on filter (2, 3) and filterelement (4) tightly by hand.
7. Open head vent and operate pump (5). Close vent when fuel begins to purge.
8. Check for leaks, re-tighten if necessary.



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.

For denomination of switches, relays, etc., see **Electric system**.

See also section **Control panel**.

Problem: Compressor capacity or pressure below normal.

Possible faults	Corrective actions
Air consumption exceeds capacity of compressor.	Check equipment connected.
Choked air filter elements (AF).	Remove and inspect elements. Clean or replace, if necessary.
Regulating valve (RV) defective.	Have regulating valve removed and inspected by an Atlas Copco Service representative.
Blow down valve stuck in open position.	Check and correct as necessary.
Loading valve (LV) leaking past O-ring.	With compressor running at max. load speed, disconnect hose leading to unloader. If air leaks from the hose, remove and inspect loading valve. Replace damaged or worn O-rings.
Oil separator element clogged.	Have element removed and inspected by an Atlas Copco Service representative.
Air intake throttle valve remains partially closed.	Remove air filters, air intake manifold and throttle valve spring seat. Withdraw the valve and inspect. Replace parts where necessary. Caution: the spring seat is fixed with 4 short and 2 long setscrews: first remove the short screws, then release the spring tension unscrewing the long ones.
Safety valve (SV) leaking.	Remove and inspect. Replace if not airtight after re-installation.
Blow-off valve leaking.	Remove and inspect. Replace if necessary.

Problem: Pressure in air receiver rises above maximum and causes safety valve to blow.

Possible faults	Corrective actions
Regulating valve (RV) opens too late or its ball valve spring is broken.	Have regulating valve removed and inspected by an Atlas Copco Service representative.
Air leaks in regulating system.	Check hoses and their fittings. Stop leaks; replace leaking hoses.
Air intake throttle valve does not close for some reason.	Remove air filters, air intake manifold and throttle valve spring seat. Withdraw the valve and inspect. Replace parts where necessary. Caution: the spring seat is fixed with 4 short and 2 long setscrews: first remove the short screws, then release the spring tension unscrewing the long ones.
Minimum pressure valve malfunctioning.	Remove and inspect valve.
Blow-off valve malfunctioning.	Remove and inspect valve.

Problem: After working some time, the unit stops through a shut-down switch.

Possible faults	Corrective actions
Engine oil pressure too low.	Refer to the engine instruction manual.
Compressor or engine overheating.	See corrective actions "Compressor overheating".
Fuel tank contains insufficient fuel.	Fill fuel tank.
Low coolant level.	Top up cooling system.

Problem: Air and oil mist expelles from air filters immediately after stopping.

Possible faults	Corrective actions
Check valve at element outlet.	Remove and inspect. Replace if necessary. Replace air filter elements and safety cartridges. Check the oil level and add oil if necessary. Run the compressor for a few minutes, stop and recheck oil level.
Plunger of oil stop valve jammed.	Remove and inspect. Replace if necessary. Replace air filter elements and safety cartridges. Check the oil level and add oil if necessary. Run the compressor for a few minutes, stop and recheck oil level.

Problem: Compressor overheating.

Possible faults	Corrective actions
Insufficient compressor cooling.	Locate compressor away from walls; when banked with other compressors, leave space between them.
Oil cooler clogged externally.	Clean oil cooler. Refer to section Cleaning coolers .
Oil cooler clogged internally.	Consult Atlas Copco.
Oil filters clogged.	Replace oil filters.
Oil level too low.	Check oil level. Top up with recommended oil if necessary.
Thermostatic by-pass valve remains stuck in opened position.	Remove valve and check for proper opening and closing. Replace if out of order.
Fan blade(s) broken.	Check and correct if necessary.
Oil stop valve malfunctioning.	Remove and inspect valve.
Oil separator element (OS) clogged.	Have element removed and inspected by an Atlas Copco Service representative.

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.

High altitude (option)

High altitude of engine

Engine operation at high altitude can reduce engine performance because of limited air intake by the engine. When air intake is limited, the fuel delivered to the engine will be reduced to minimize engine exhaust temperatures and thermal wear on the exhaust system and turbochargers.

High altitude of compressor element

Compressor element operation at high altitude can also reduce compressor performance because of limited air intake by the compressor element.

Conditions decide maximum altitude at which the compressor can work

- Cold start aids
- Lubricating oil grade
- Cold climate fuel



Both the compressor elements and engine that operate at high altitude need more frequent maintenance intervals in order to ensure maximum reliability and retention of full service life.

Successful start and normal operation cannot be guaranteed.

HIGH ALTITUDE PACKAGE

Part number 0000067986 and 0000067989 can be ordered as cold start/high altitude option.

High Altitude Package include following items:

- PAROIL S
- PAROIL Extra
- Diesel fuel -35#
- Coolant heater (preheater)

ALTITUDE LIMIT

Applications at altitude below 2000m.

No high altitude package is necessary

Applications at altitude between 2000-3000m.

High altitude package is compulsory.

Applications at altitude above 3000m.

Cold start (option)

Cold start of engine & compressor element

Due to high viscosity of lubricating oils in engine and compressor element under cold weather, the load on engine is higher than it under room ambient temperature.

Compressor operation in cold weather need cold start aids equipped.

Condition decide minimum ambient temperature at which the compressor can work

- Cold start aids;
- Lubricating oil grade;
- Cold climate fuel.

AMBIENT TEMPERATURE LIMIT

Applications at ambient temperature between -25 ~ -10°C

Cold start package is compulsory.

Applications at ambient temperature between -10 ~ 50°C

No cold start package is necessary.

Applications at ambient temperature above 50°C or below -25°C

Successful start and normal operation cannot be guaranteed.

COLD START PACKAGE

Part number 0000067986 and 0000067989 can be ordered as cold start option.

Cold Start Package include following items:

- PAROIL S
- PAROIL Extra
- Diesel fuel -35#
- Coolant heater (preheater)

Anti-corrosion (option)

Machines operating in a different working condition (Exterior/Interior) coated with C3 double layer option to prevent corrosion.

Different exterior and interior environmental/working conditions are listed below:

	<p>Interior: Unheated buildings where condensation may occur. e.g., depots, sports halls.</p> <p>Exterior: Atmosphere with low level of pollution. Mostly rural areas</p>	<p>Interior: Production rooms with high humidity and some air pollution, e.g. food-processing plants, laundries, breweries, dairies.</p> <p>Exterior: Urban and industrial atmospheres, moderate sulfur dioxide pollution. Coastal areas with low salinity.</p>
C3 painting	No	Yes

Preheater (option)

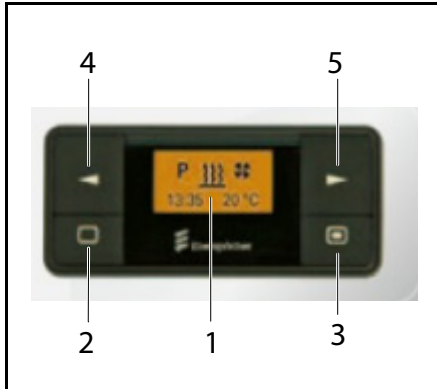
INTRODUCTION



Shut down the pre-heater prior to engine start. It is not allowed to run the pre heater together with the unit

Easy start Pro preheater is a permanently installed control unit for water heaters. When the power is interrupted (e.g the battery is disconnected). Preheater retains all the basic settings, with the exception of date and time.

When the power supply is restored, only the date and time must be set again for timer mode.



Reference	Name
1	Display shows the below parameters: <ul style="list-style-type: none">• Current operating mode• Current interior temperature• Operating mode• Timer positions• Settings• Error codes
2	Cancel button used to back to the previous step.
3	LED Rings indicates the operating Confirm button used to continue to the next step.
4	Turn the page to left/decrease the number.
5	Turn the page to right/increase the number.



Short press button 3 to open the timer, then long press button 3 (Minimum 2 sec).The standard operating time here is set at the 30 minutes.

During operation, long press button 2 (minimum 2 sec) to switch off all connected heaters.

Setting the operating time





The operating time can be set individually using the operating button.

- Turn to the right increases the operating time.
- Turn to the left decreases the operating time.
- Setting range for the operating time minimum 10 minutes to maximum 120 minutes in one minute steps.

The operating time can be prolonged to infinite. Above 120 minutes, the input is made in 60 minute steps.

OPERATION

Icon Overview

Symbol	Menu
	Heat
	Residual heat
	Setting
	Timer

HEATING

Heating immediately with long-press:

Press operating button (2) for longer than 2 sec. which starts the heating mode immediately with the last operating time used.



The function long-press ON is not available in residual heat mode.

Heating ON with settings:

1. Press operating button (2).

Select the operating time by turning the operating button and confirm the time.

RESIDUAL HEAT

Residual heat mode ON

1. Press the operating button (2) and select ON.
2. Residual heat mode starts if there is residual heat in the engine coolant.

Residual heat mode OFF

1. Press the operating button (2) and select OFF.
2. Long-press (min. 2 sec.) of operating button immediately switches off the heater.
3. Residual heat heating mode stops.

SETTINGS

In the start display, press on the flashing gear wheel in the menu bar which display the set day of the week and the current time.

Possible actions are:

1. Standard settings for day of the week, time and temperature format
2. Heating at high altitudes: ON / OFF
3. Low temperature during heating: ON / OFF
4. Fault diagnosis: Display of error messages
5. Reset user settings

TIMER

- Press the operating button (2). The timer selection menu controls up to three programmable timer positions. The timer positions can either take place on one weekday or can be distributed between different weekdays.
- To deactivate a timer position, press operating button (2). Press once and with OFF flashing, press the operating button (2) again. All operating settings of the timer remain saved.

Timer

- Press the operating button (2). The timer selection menu controls up to three programmable timer positions. The timer positions can either all take place on one weekday or can be distributed between different weekdays.
- To deactivate a timer position, press operating button (2). Press once and with OFF flashing, press the operating button (2) again. All operating settings of the timer remain saved.

PROBLEM SOLVING

Heater error

Possible faults	Corrective actions
No fuel	Check the fuel level.
Under voltage or over voltage of battery	Check the battery.
Water circuit or Pump	Check the water pump for proper function and water circulation in the water circuit.
Blocked air duct or exhaust gas duct	Check combustion air duct and exhaust gas duct.
Faulty/ Damaged heater	Contact the supplier.
Overheating	Cool down the heater. Remove the heater fuse so that heater can be reset.

Control unit error

Possible faults	Corrective actions
External temperature sensor defective	Check the wiring of external temperature sensor, short-circuit or damage. Replace if necessary.
Internal temperature sensor defective	No remedies. Replace the control unit.
Rotary knob jammed	Adjust the button by hand. If the fault cannot be remedied, contact the supplier.
Push button jammed	Adjust the button by hand. If the fault cannot be remedied, contact the supplier.
Timer mode not allowed	Check the configuration.
Operation not supported	Terminate the auxiliary heating mode via switching plus.
CAN Communication	Check the wiring cable breakages or short circuit.

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)
Axles to frame:	
Wheel nuts	270 (199.26)
Bolts, front axle/frame	205 (151.29)
Bolts, rear axle/frame	205 (151.29)
Compressor to frame:	
Bolts, elements/gear casing	46 (33.95)
Bolts, elements/support	80 (59.04)
Bolts, support/buffer	205 (151.29)
Bolts, buffer/frame	80 (59.04)
Engine to frame:	
Bolts, engine/support	205 (151.29)
Bolts, support/buffer	46 (33.95)
Bolts, buffer/frame	23 (16.97)
Lifting beams to frame:	
Bolts, lifting beams/yoke (M12)	125 (92.25)
Bolts, lifting beams/yoke (M16)	205 (151.29)
Bolts, lifting beams/A-Frames	205 (151.29)
Bolts, A-Frames/frame	205 (151.29)
Hose clamps:	
Pebra hose clamps on all IC/radiator hoses	12 (8.85)



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

**COMPRESSOR / ENGINE SPECIFICATIONS
REFERENCE CONDITIONS**

Designation	Unit	XAVS 450 T3	XAHS 450 T3
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)	14	12
	psi	203	174

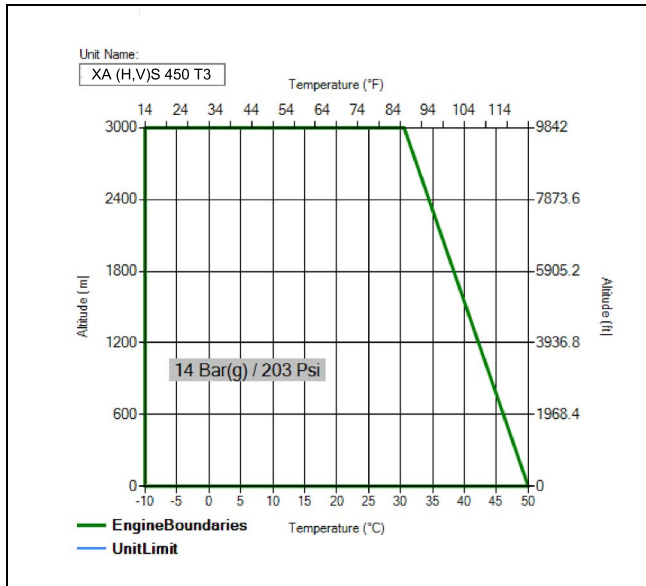
The inlet conditions are specified at the air inlet grating outside the canopy.

LIMITATIONS

Designation	Unit	XAVS 450 T3	XAHS 450 T3
Minimum effective receiver pressure	bar(e)	4	4
	psi	58	58
Maximum effective receiver pressure, compressor unloaded	bar(e)	15.5	13.5
	psi	225	195
Maximum ambient temperature at sea level ⁵⁾	°C	50	50
	°F	122	122
Minimum starting temperature	°C	-10	-10
	°F	14	14
Minimum starting temperature, with coldstart equipment	°C	NA	NA
	°F	NA	NA
Altitude capability		see curves	see curves

ALTITUDE UNIT PERFORMANCE CURVE

Max. allowable working pressure as a function altitude and ambient temperature.



PERFORMANCE DATA

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

Designation	Unit	XAVS 450 T3	XAHS 450 T3
Engine shaft speed, normal and maximum	r/min	2400	2400
Engine shaft speed, compressor unloaded	r/min	1200	1200
Free air delivery ²⁾⁶⁾	cfm	441	441
	l/s	208	208
Fuel consumption			
- at 100% FAD	kg/h	32.22	28.79
	lb/h	71.03	63.47
- at 75% FAD	kg/h	17.56	15.69
	lb/h	38.71	34.59
- at 50% FAD	kg/h	13.04	11.65
	lb/h	28.74	25.68
- at 25% FAD	kg/h	10.86	9.70
	lb/h	23.94	21.38

Designation	Unit	XAVS 450 T3	XAHS 450 T3
- at unload	kg/h	10	10
	lb/h	22.04	22.04
Specific fuel consumption at 100% FAD	g/m ³	33.38	-
	lb/1000 cu.ft	0.0026	-
Typical oil content of compressed air	mg/m ³	5	-
	oz/1000 cu.ft	0.005	-
Engine oil consumption (maximum)	g/h	19	19
	oz/h	0.67	0.67
Compressed air temperature at outlet valve ⁷⁾	°C	100	100
	°F	212	212
Noise level			
- Sound pressure level (LP), measured acc. to ISO 2151 under free field conditions at 7 m distance	dB(A)	-	-
- Sound power level (LW) complies with ISO 374 4 2000/14/EC	dB(A)	NA	NA
84/533/EEC and 85/406/EEC limits	dB(A)	NA	NA

¹⁾ Free Air Delivery (volume flow rate) is measured according to ISO 1217 ed.4 2009 annex D.

DESIGN DATA

Compressor element

Designation	Unit
Number of compression stages	-

Engine

Designation	Unit	XA(H,V)S 450 T3
Make		CUMMINS
Type		QSB5.9-C210
Coolant		Liquid (glycol 50%)
Number of cylinders		6
Bore	mm	105
	in	4.01
Stroke	mm	120
	in	4.72
Swept volume	l	6
	cu.in	366
Power output @ normal shaft speed	kW	152
	hp	203.8
- Load factor	%	87

Designation	Unit	XA(H,V)S 450 T3
Capacity of oil sump:		
- Initial fill	l	14.2
	US gal	3.75
- Refill (max.) ⁴⁾	l	NA
	US gal	NA
Capacity of cooling system	l	31
	US gal	8.1

1) With filter change.

Compressor Unit

Designation	Unit	XAVS 450 T3	XAHS 450 T3
Capacity of compressor oil system	l	34	34
	US gal	9	9
Net capacity of air receiver	l	42	42
	US gal	11	11
Air volume at inlet grating (approx.) ⁵⁾	m ³ /s	293	293
	cuft/s	77.40	77.40
Capacity of fuel tank	l	175	175
	US gal	46	46
Air volume at inlet grating (approx.) ³⁾	m ³ /s	7.5	7.5

Unit dimensions Box

Designation	Unit	XAVS 450 T3	XAHS 450 T3
Without trailer:			
Length	mm	2800	2800
Width	mm	1400	1400
Height	mm	1600	1600
Weight Box	kg	1900	1900

Unit dimensions

Designation	Unit	XAVS 450 T3	XAHS 450 T3
With trailer:			
Length	mm	4140	4140
Width	mm	1940	1940
Height	mm	2141	2141
Weight Box	kg	2200	2200

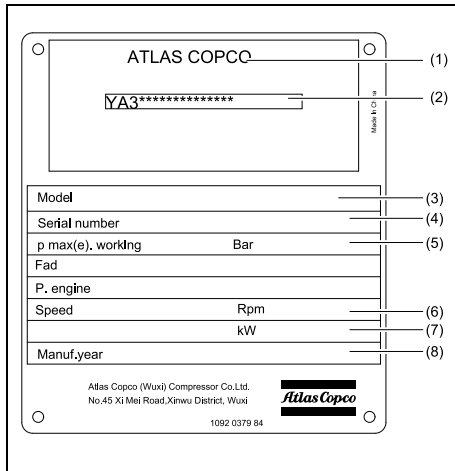
1. Reference conditions, if applicable, and at normal shaft speed unless otherwise stated .

Data	Measured according	Tolerance
Free air delivery	ISO 1217 ed. 3 1996 annex D	+/- 5% 25l/s<FAD<250l/s
		+/- 4% 250l/s <FAD

The international standard ISO 1217 corresponds to following national standards:

- British BSI 1571 part 1
 - German DIN 1945 Part 1
 - Swedish SS-ISO 1217
 - American ANSI PTC9
2. Air required for engine and compressor cooling, combustion and for compression.
 3. With filter change.
 4. With after cooler : -25°C.
 5. With after cooler: -1%.
 6. Without after cooler.

Data plate



1. Company name
2. Vehicle identification number
3. Model
4. Unit serial number
5. Working pressure
6. Engine power
7. Speed
8. Manufacturing year

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 with absorbing agent (for example sand, sawdust) and dispose of it in accordance with applicable local disposal regulations. Do not drain into the sewage system or surface water.



Scan the QR code to access into the Atlas Copco Power Connect site. Enter the machine serial number to get the Atlas Copco Spare Parts List (ASL).

