

# Atlas Copco

# Instruction Manual



Instruction Manual  
for Portable Compressors  
English

**PNS 1250 Cud S3A/T3 APP** | QSX15



# **PNS 1250 Cud S3A/T3 APP**

## **Instruction Manual for**

### **Portable Compressors**

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#### **Original instructions**

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ATLAS COPCO - PORTABLE ENERGY DIVISION  
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*Congratulations on the purchase of your AC 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 trouble free operation. Please read the following instructions carefully before starting to use your machine. 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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# 1 Safety precautions for portable compressors

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

## 1.1 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, easily 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.

## **1.2 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 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.
- 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.
- 14 When working on the unit, wear safety clothing. Depending on the kind of activities these are: safety glasses, ear protection, safety helmet (including visor), safety gloves, protective clothing, safety shoes. Do not wear the hair long and loose (protect long hair with a hairnet), or wear loose clothing or jewellery.
- 15 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.



### **1.3 Safety during transport and installation**

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 deceleration 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 In case of transporting a non-trailer unit on a truck, fasten it to the truck by attaching straps via fork lift holes, via the holes in the frame at the front and back or via the lifting beam. To prevent damage, never put straps on the roof surface of the unit.
- 5 Never exceed the maximum towing speed of the unit (mind the local regulations).
- 6 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.
- 7 To lift heavy parts, a hoist of ample capacity, tested and approved according to local safety regulations, shall be used.
- 8 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.
- 9 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.

- 10 Never leave a load hanging on a hoist.
- 11 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.
- 12 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.

## 1.4 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 pipe work 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 coolant system of a hot engine. Wait until the engine has sufficiently cooled down.
- 13 Never refill fuel while the unit is running, unless otherwise stated in the Atlas Copco Instruction Book (AIB). Keep fuel away from hot parts such as air outlet pipes or the engine exhaust. Do not smoke when fuelling. When fuelling from an automatic pump, an earthing cable should be connected to the unit to discharge static electricity. Never spill nor leave oil, fuel, coolant or cleansing agent in or around the unit.
- 14 All doors shall be shut during operation so as not to disturb the cooling air flow inside the bodywork and/or render the silencing less effective. A door should be kept open for a short period only e.g. for inspection or adjustment.
- 15 Periodically carry out maintenance works according to the maintenance schedule.
- 16 Stationary housing guards are provided on all rotating or reciprocating parts not otherwise protected and which may be hazardous to personnel. Machinery shall never be put into operation, when such guards have been removed, before the guards are securely reinstalled.
- 17 Noise, even at reasonable levels, can cause irritation and disturbance which, over a long period of time, may cause severe injuries to the nervous system of human beings.  
When the sound pressure level, at any point where personnel normally has to attend, is:
  - below 70 dB(A): no action needs to be taken,
  - above 70 dB(A): noise-protective devices should be provided for people continuously being present in the room,
  - below 85 dB(A): no action needs to be taken for occasional visitors staying a limited time only,
  - above 85 dB(A): room to be classified as a noise-hazardous area and an obvious warning shall be placed permanently at each entrance to alert people entering the room, for even relatively short times, about the need to wear ear protectors,
  - above 95 dB(A): the warning(s) at the entrance(s) shall be completed with the recommendation that also occasional visitors shall wear ear protectors,

- above 105 dB(A); special ear protectors that are adequate for this noise level and the spectral composition of the noise shall be provided and a special warning to that effect shall be placed at each entrance.
- 18 The unit has parts of which the temperature can be in excess of 80 °C (176 °F), and which may be accidentally touched by personnel when opening the machine during or just after operation. Insulation or safety guards protecting these parts shall not be removed before the parts have cooled down sufficiently, and must be re-installed before operating the machine. As it is not possible to insulate or protect all hot parts by guards (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 personnel 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 When operating the compressor in Remote or Auto mode, observe all relevant local legislation.

## **1.5 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 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.
- 19 Maintenance and repair work should be recorded in an operator's logbook for all machinery. Frequency and nature of repairs can reveal unsafe conditions.
- 20 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.
- 21 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.
- 22 Make sure that oil, solvents and other substances likely to pollute the environment are properly disposed of.
- 23 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.

## 1.6 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.

## 1.7 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.

### Piping and coolers (according to directive 97/23)

#### Safety valves

All adjustments or repairs are to be done by an authorized representative of the valve supplier (see "Maintenance schedule").

## 2 About this manual

### 2.1 Description of safety pictograms



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



This symbol is followed by supplementary information.

### 2.2 Abbreviations

AC	Atlas Copco
AIB	Atlas Copco Instruction Book
ASB	Service Bulletin
ASL	Atlas Copco List
CAC	Charge Air Cooler
CAN	Controller Area Network Interface
DDR	Diagnostic Data Reader
ECM	Engine Control Module
EOM	Engine Operation Manual
HP	High-pressure
LP	Low-pressure
MAX	Maximum
MIN	Minimum
MP	Medium-pressure
PAR	Portable Energy Division
PC	Personal Computer
RPM	Revolutions Per Minute

### 2.3 Definitions

Control panel	This is the panel on the unit where the User Interface, power switch, DDR connector, PC connector, remote control connector, heater switch, light switch and pressure setpoint buttons are situated.
Technician	AC personnel allowed to change settings of the control and safety system.
Operator	AC personnel or user allowed to operate the compressor unit with the push-buttons.
Load	Operating condition with inlet compressor open and engine speed regulated between minimum and maximum.
Not loaded	Operating condition with inlet compressor forced to closed position by operator command. The engine speed is held at minimum.
Unload	Operating condition with inlet compressor forced to closed position by working pressure command. The engine speed is held at minimum.

DDR	Diagnostic Data Reader. This is a tool that can be connected to the ECM to read and calibrate engine parameters.
ECM	Engine Control Module. This is the basic engine control module used by DDC for the engine controls (emissions, safeties, fuel injection, ...).
Pc4003™	Compressor Control Module. This module is linked with the ECM and is used for speed regulation and for the compressor controls (unloading system, safeties, ...). It can be operated via PC or User Interface.
User Interface setpoint	Max. working pressure setpoint calibrated in the Pc4003™. At this max. setpoint the engine speed will be regulated between max. and min. speed when running in manual or automatic operation.

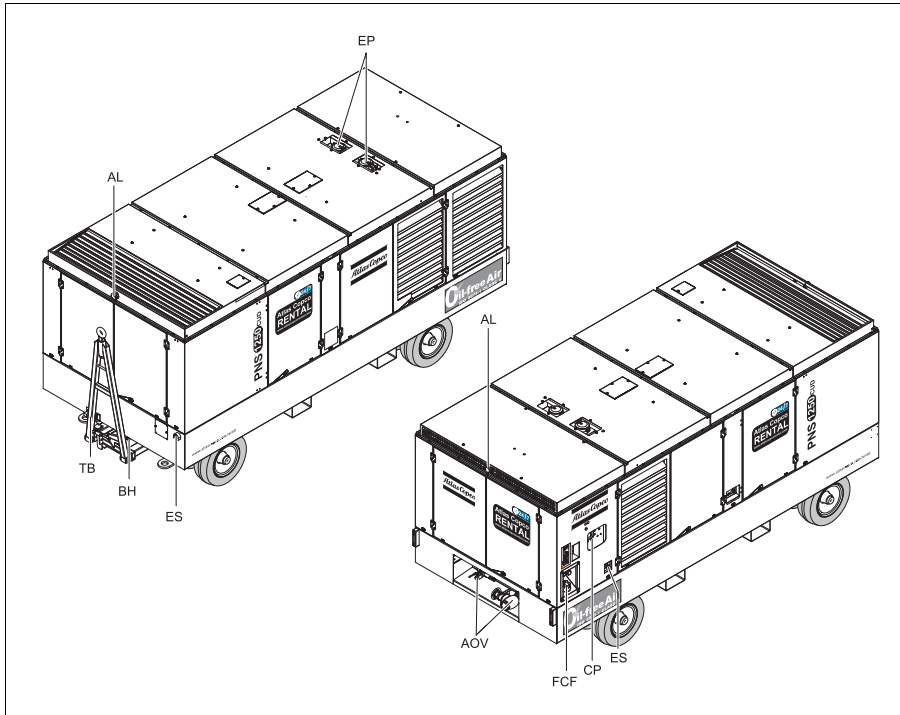
## **2.4 Directions**

The driving direction has always been originated with, when the sides of the unit are denoted. E.g. the towbar is at the front and the User Interface is at the rear right-hand side of the unit.

### 3 Main parts

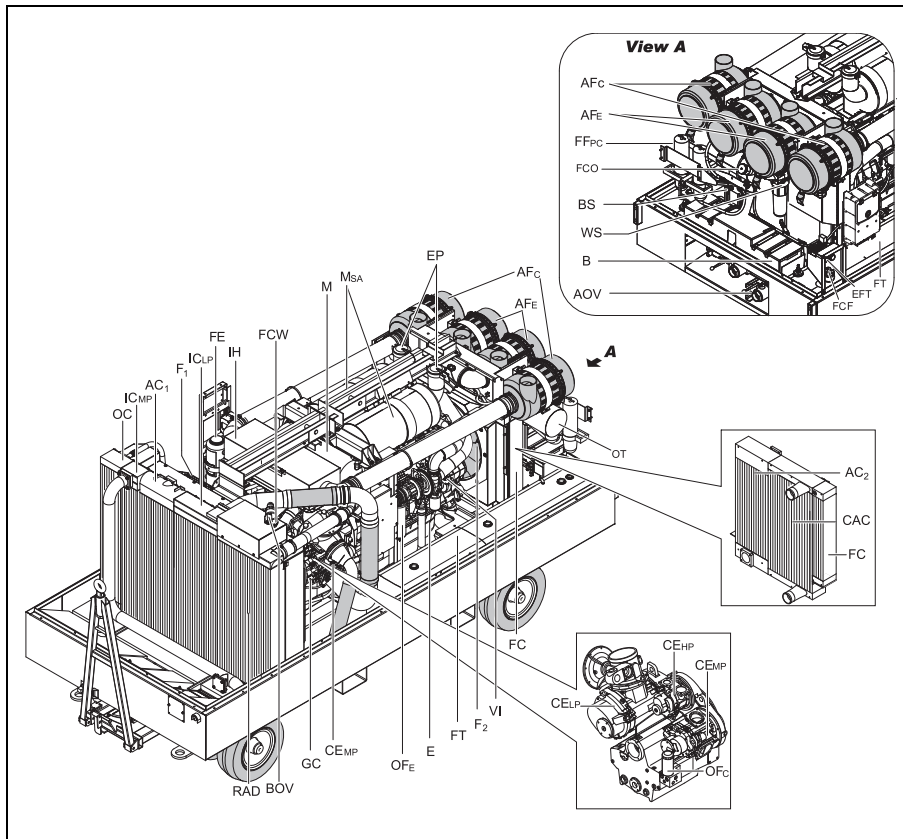
#### 3.1 General description

The PNS 1250 Cud is a portable, three-stage screw compressor unit, which delivers oil-free air. The PNS 1250 Cud is built for a nominal effective working pressure of 20 bar at 1800 rpm and 24 bar at 1750 rpm. An overview of the main parts is given in the diagram below.



AL	Alarm lamp
AOV	Air outlet valve
BH	Brake handle
CP	Control panel
EP	Exhaust pipe
ES	Emergency stop
FCF	Filler cap fuel
TB	Towbar



















AC <sub>1</sub>	Aftercooler 1
AC <sub>2</sub>	Aftercooler 2
AF <sub>C</sub>	Air intake filter (compressor)
AF <sub>E</sub>	Air intake filter (engine)
AOV	Air outlet valve
B	Battery
BOV	Blow off valve
BS	Battery Switch
CAC	Charge air cooler
CE <sub>LP</sub>	LP compressor element
CE <sub>MP</sub>	MP compressor element
CE <sub>HP</sub>	HP compressor element
E	Engine
EFT	External fuel tank connections
EP	Exhaust pipe
F <sub>1</sub>	Cooling fan 1
F <sub>2</sub>	Cooling fan 2
FCF	Filler cap fuel
FCO	Filler cap oil
FCW	Filler cap cooling water
FC	Fuel cooler
FE	Fire extinguisher
FF <sub>PC</sub>	Primary coarse fuel filter / Water separator
FT	Fuel tank
GC	Gear casing
IC <sub>LP/MP</sub>	Intercooler <sub>LP/MP</sub>
IH	Air inlet housing (compressor)
M	Muffler
M <sub>SA</sub>	Muffler (integrated spark arrestor)
OC	Oil cooler
OF <sub>C</sub>	Oil filters (compressor)
OF <sub>E</sub>	Oil filter (engine)
OT	Oil tank
RAD	Radiator
VI	Vacuum indicator
WS	Water separator






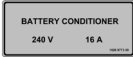
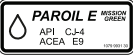
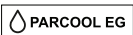
## 3.2 Markings

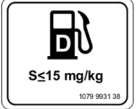




Markings provide instructions and information. They also warn of hazards. For convenience and safety, keep all markings in legible condition, replacing them when damaged or missing. Replacement markings are available from the factory.



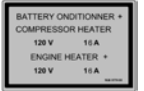
A brief description of all markings provided on the compressor is given hereafter. The precise location of all markings can be found in the parts manual of this compressor.

	Danger, heat flat
	Risk of fire. This label is required for On Road transport
	Prohibition to open air valves without connected hoses
	Rotation direction
	Air suction
	Lifting point

	The guiding rods may not be used to lift the compressor. Always use the indicated lifting points for lifting.
	Forklift slots
	Release brake and raise locking pad before towing.
	Compressor oil drain
	Engine oil drain
	Engine coolant drain
	Fuel drain
	Warning! Part under pressure

	Do not stand on outlet valves
	Switch enable pre-heater and switch internal lights
	Do not open doors while the motor is running
	Air discharged from this unit is not suitable for human consumption without the installation of special equipment. Inhalation may cause serious injury or death.
	Battery switch.
	Battery conditioner
	Atlas Copco engine oil
	Atlas Copco coolant

	<p>Low sulphur fuel (EU only)</p>
	<p>Low sulphur fuel (US only)</p>
	<p>Do not switch the fuel lever while the unit is in operation</p>
	<p>Sound power level in accordance with Directive 84/533/EC (expressed in dB (A))</p>
	<p>Compressor noise emission control information: this compressor conforms to U.S. E.P.A. regulations for noise emissions applicable for portable compressors (US only)</p>

	<p>California Proposition 65 Warning (US only)</p>
	<p>Battery conditioner / compressor and engine heater (EU only)</p>
	<p>Battery conditioner / compressor heater (US only)</p>

## **3.3 Mechanical features**

### **3.3.1 Engine**

The compressor is driven by a liquid-cooled diesel engine, manufactured by Cummins. This engine has the following characteristics: direct fuel injection, electronic unit injection that is mechanically actuated, turbocharged, and air-to-air aftercooled.

For general description, see Engine Operation Manual (EOM).

### **3.3.2 Compressor**

The compressor has one low-pressure, one medium pressure and one high-pressure compressor element, individually bolted to the housing of a common step up gear. The step up gear is bolted directly to the engine flywheel housing. The power from the engine is transmitted to the step up gear shaft through a flexible coupling.

### **3.3.3 Compressor elements**

Each compressor element houses two screw-type rotors, mounted on ball and roller bearings. The male rotor, driven by the step up gear, and the female rotor are synchronized through timing gears, which maintain the slight clearance between the rotors.

The male rotors have four lobes and the female rotors six flutes. Thus, the male rotors revolve at 1 1/2 times the speed of the female rotors. The absence of contact between the rotors and between the rotor crests and the compressor casings eliminates wear and power loss. The elements deliver pulsation-free air.

Air and oil sealing rings are fitted on the rotor shafts. The air seals are located next to the compression space, the oil seals next to the rotor bearings. The leak air from the air seals is evacuated to the atmosphere through vent-holes. Any oil that might gather between the oil and air seals is prevented from entering the compression space, as it is drained through the same vent holes.

### **3.3.4 Cooling and lubrication**

The radiator, intercoolers, aftercooler and oil cooler are installed side by side in the front of the unit. These coolers are air-cooled by an axial fan, which is belt-driven from the compressor main-shaft.

The unit is provided with a second aftercooler, with water separator, CAC (= charge air cooler) / fuel cooler placed in the back of the unit. The cooling air is generated by an axial fan, which is belt-driven from the engine crank shaft.

Water condensate from the water separator is drained through a nipple in the bottom of the frame in the back of the unit.

Oil is used for jacket-cooling of the compressor elements, as well as for lubricating the rotor bearings, timing and drive gears. The system includes an oil pump and an oil filter.

### **3.3.5 Speed regulation and unloading system**

The regulation of the unit is governed by the Engine Control Module (ECM) and the Compressor Control Module (Pc4003™), which will vary engine speed and operate the compressor throttle valve and unloading valve through a 3-way loading valve.

### **3.3.6 Safety devices**

Two relief valves and a MP/HP safety valve protect the LP, MP and HP sides of the compressor respectively.

A check valve prevents blow-back of compressed air when the compressor is unloaded or stopped.

To protect the compressor against abnormal operating conditions, pressure and temperature sensors transmit pressure and temperature data to the Pc4003™ control module.

### 3.3.7 Frame and axles

The compressor/engine unit is supported on a frame which also carries the compressor cooling block.

The front axle is provided with a steering gear and a hinged towbar with towing eye. The towbar can be locked in the raised position.

The unit is equipped with a parking brake, operated by a handle close to the towbar.

### 3.3.8 Bodywork

The bodywork has openings for the intake, cooling and exhaust air and specially hinged doors for maintenance and service operations. The bodywork is internally lined with sound-absorbing material. The air outlet valves are in the frame, at the back.

### 3.3.9 Fuel tanks

The unit has two interconnected fuel tanks, but can also be connected to an external fuel tank.

### 3.3.10 Control panel

The control panel is located behind a small door at the rear right-hand side of the unit.

### 3.3.11 Data plate

The compressor is furnished with a data plate showing among others type, serial number and nominal working pressure.

### 3.3.12 Automatic fire suppression system

The PNS 1250 is fitted with an automatic fire suppression system. This installation will respond automatically to a fire in the engine compartment by switching off the engine and spreading extinguishing powder throughout the engine compartment.

In case of an extinguishing powder release by the fire suppression system, please be careful when opening the doors of the compressor. Although this fire suppression system is designed and tested to extinguish most common compressor fires, there is always a chance that not all flames are extinguished.

After activation of the system always contact Atlas Copco immediately to investigate and repair the machine.

For more detailed information on the Automatic fire suppression system, refer to “Operating the automatic fire suppression system” on page 49.



**Repairs and maintenance must be done by authorized personnel only. Please contact Atlas Copco if the fire suppression system shows any irregularities.**



**To avoid battery drainage during long-term storage, please remove the internal battery from the Ansul controller. After restoring the power supply, push the reset button to reactivate the system.**

### 3.4 Electrical features

The electrical features described in this chapter are standard provided on this compressor.

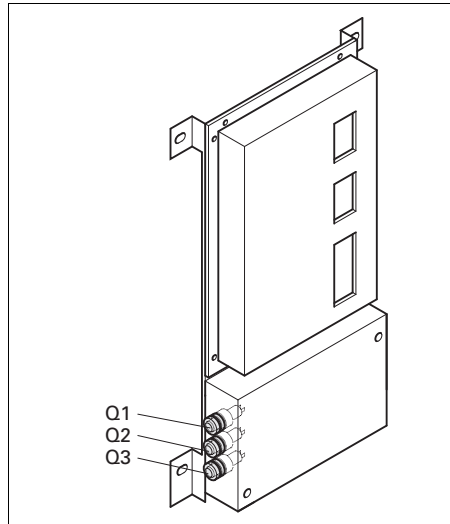
#### 3.4.1 Pc4003™ controller

The Pc4003™ module is built into the side of the rear right corner panel, with an emergency stop button directly underneath, for maximum safety during the cranking procedure. It communicates with a display unit, located in front of the control panel. The control module will carry out all necessary tasks to control and protect the compressor, regardless of the use of the compressor

This means that the Pc4003™ module can be used for several applications.



#### 3.4.2 Fuses



The Pc4003™ is equipped with the following three fuses:

Q1	Fuse 20 A ECM
Q2	Fuse 20 A Emergency stop
Q3	Fuse 10 A Main

## 3.5 Operation flows

### 3.5.1 Air flow system

#### Description

Air drawn through the air intake filters (AF<sub>C</sub>), and unloader (UA) into LP compressor element (CE<sub>LP</sub>) is compressed and discharged to the LP intercooler (IC<sub>LP</sub>) where the heat of first-stage compression is removed by the cooling air flow.

The cooled air then enters MP compressor element (CE<sub>MP</sub>) where it is further compressed and discharged through MP intercooler (IC<sub>MP</sub>) to HP compressor element (CE<sub>HP</sub>). The compressed air is then led via check valve (CV), aftercooler 1 (AC<sub>1</sub>), aftercooler 2 (AC<sub>2</sub>) and water separator (WS) to air outlet valves (AOV).

During loaded operation air inlet throttle valve (TV) is open and unloading valve (UV) closed. These valves are simultaneously closed and opened respectively by loading solenoid valve (LSV) through unloader piston (UP) when the working pressure reaches its preset maximum. The pressure of the HP compressor element is then released to the atmosphere through the unloading valve and the blow-off silencers (BOS), resulting in closing of the check valve. The throttle valve leaves an air passage in the closed position. Thus air remains drawn into the compressor to maintain a reasonable pressure ratio over the elements.

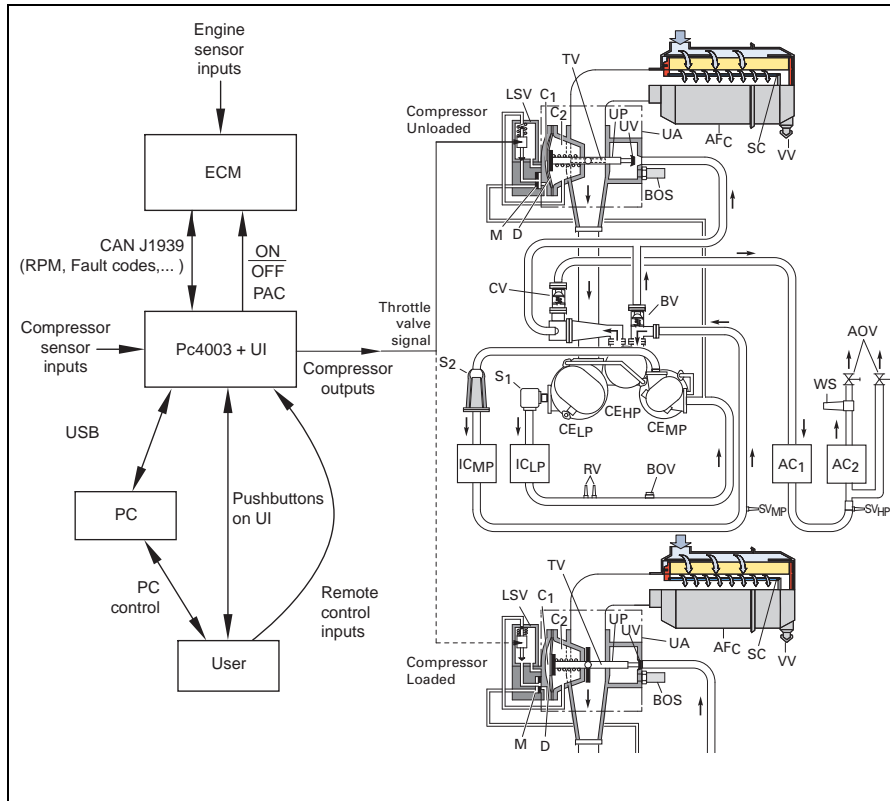
An air-operated balancing piston is fitted behind the male rotor rear thrust bearing of MP and HP compressor element. The piston decreases the load on the male rotor front thrust bearing during loaded operation. During loading the MP and HP compressor element balancing piston is actuated by working pressure, while during unloading the pressure on the piston equals the atmospheric pressure.

The bypass valve (BV), which is connected between the inlet and outlet pipes of the HP compressor element, serves to safeguard the element in case the HP outlet pressure falls below the HP intercooler pressure. This happens when the air consumption exceeds the capacity of the compressor, or when the compressor is started with the air outlet valve(s) fully or partial open.

Intercooler pressure sensors, a discharge pressure sensor, temperature sensors, two intercooler relief valves (RV), an electric blow-off valve (BOV), a MP safety valve (SV<sub>MP</sub>) and a HP safety valve (SV<sub>HP</sub>) are comprised in the system.

Temperature shutdowns (outlet compressor elements) will occur if max. air temperature limit is reached.

## Overview



AC <sub>1</sub>	Aftercooler 1
AC <sub>2</sub>	Aftercooler 2
AF <sub>C</sub>	Air intake filter (compressor)
AOV	Air outlet valve
BOS	Blow-off silencer
BOV	Blow-off valve
BV	By-pass valve
C <sub>1</sub>	Chamber (unloader assembly)
C <sub>2</sub>	Chamber (unloader assembly)
CE <sub>HP</sub>	HP compressor element
CE <sub>LP</sub>	LP compressor element
CE <sub>MP</sub>	MP compressor element
CV	Check valve
D	Diaphragm (unloader assembly)
IC <sub>LP</sub>	LP Intercooler
IC <sub>MP</sub>	MP Intercooler
LSV	Loading solenoid valve
M	Membrane (unloader assembly)
RV	Intercooler relief valve
S <sub>1</sub>	Air outlet silencer (compressor element)
S <sub>2</sub>	Air outlet silencer (compressor element)
SC	Safety cartridge
SV <sub>MP</sub>	MP safety valve
SV <sub>HP</sub>	HP safety valve
TV	Throttle valve (unloader assembly)
UA	Unloader assembly
UP	Unloader piston (unloader assembly)
UV	Unloading valve (unloader assembly)
VV	Vacuator valve (dust ejector)
WS	Water separator



### 3.5.2 Cooling and lubricating oil system

#### Description

Oil from the oil sump (OS) of gear casing (GC) is circulated by an oil pump (OP), mounted on the front of the gear casing. The pump is driven from the main drive shaft. The oil is pumped to the MP compressor element (CE<sub>MP</sub>), the HP compressor element (CE<sub>HP</sub>) and the LP compressor element (CE<sub>LP</sub>) respectively, and from there through the air-cooled oil cooler (OC). From the oil cooler (OC) the oil passes through the oil filter (OF<sub>C</sub>) on the gear casing before entering the LP, MP and HP element oil pipes and ducts to lubricate the rotor bearings, driving and timing gears. The oil then flows back to the oil drains, to the oil sump.

The gear casing is vented to the atmosphere through a breather pot assembly.

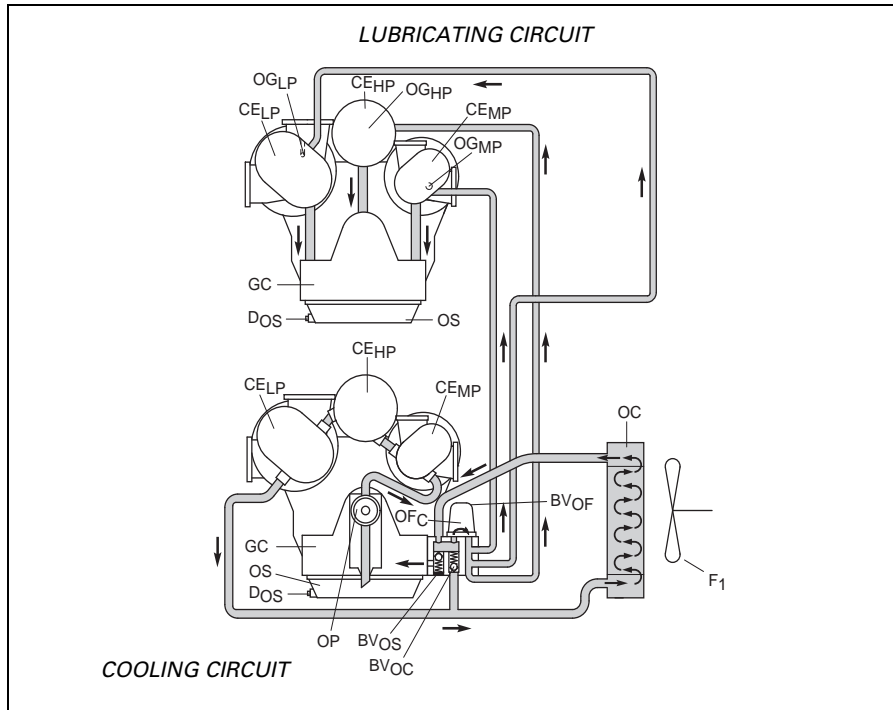
The bypass valve (BV<sub>OF</sub>) of the oil filter opens when the pressure drop over the filter is above normal due to clogging of the element. The oil is then circulated without being filtered. For this reason, it is imperative to replace the oil filter at regular intervals.

Bypass valve (BV<sub>OS</sub>) opens when the pressure drop over the filter and lubricating circuit is above normal. The oil is then returned to the oil sump.

Bypass valve (BV<sub>OC</sub>) opens when the pressure rise over the oil cooler is above normal. This will happen mainly when starting the compressor from cold in low ambient temperatures. The bypassing of the oil cooler will ensure rapid warming of the oil to the normal working temperature.

A pressure and temperature sensor are comprised in the system.

## Overview



BV <sub>OC</sub>	Bypass valve (oil cooler)
BV <sub>OF</sub>	Bypass valve (oil filter)
BV <sub>OS</sub>	Bypass valve (oil sump)
CE <sub>HP</sub>	HP compressor element
CE <sub>LP</sub>	LP compressor element
CE <sub>MP</sub>	MP compressor element
D <sub>OS</sub>	Drain (oil sump)
F <sub>1</sub>	Cooling fan 1 (RAD, IC, AC <sub>1</sub> , OC)
GC	Gear casing
OC	Oil cooler
OF <sub>C</sub>	Compressor oil filter (with bypass valve)
OG <sub>HP</sub>	Oil gallery (HP compressor element)
OG <sub>LP</sub>	Oil gallery (LP compressor element)
OG <sub>MP</sub>	Oil gallery (MP compressor element)
OP	Oil pump
OS	Oil sump

### 3.5.3 Fuel system

#### Description

In case of internal fuel supply, fuel from the fuel tanks (FT) is circulated by the engine fuel pump (FP<sub>E</sub>). The fuel is pumped through a 3-way valve (TWV) to two primary coarse fuel filters (FF<sub>PC</sub>).

The fuel then passes through the secondary fuel filters (FF<sub>SE</sub>) and enters the engine (E).

The fuel, which is not used by the engine to combust, returns via the air-cooled fuel cooler (FC) and the 3-way valve to the fuel tanks.

Normally the primary fuel filters are in parallel. By means of the fuel shut-off cock (FSC), seated on the housing of the filters, one of the filters can be shut off when it has to be serviced. This can even be done while the engine is running.



**Do not put the fuel shut-off cock in the lowered position (the handle pointer points up) when the engine is running, because both filters will be shut off and no fuel will flow to the engine.**

An electrical priming pump (EPP) is comprised in the system to fill up filters and fuel lines after maintenance and servicing. A description of this procedure can be found on page 61.

Instead of internal fuel supply via the fuel tanks, external fuel supply is possible.



**The unit must be stopped before switching from the internal to an external fuel source.**

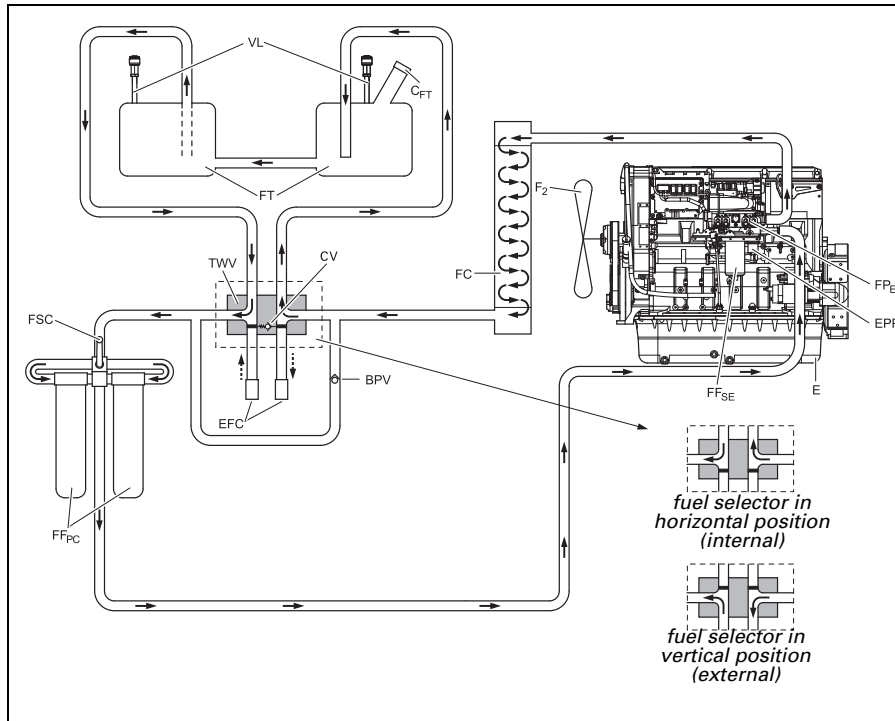
When using external fuel, both the supply and the return hose must be connected to the external fuel supply couplings (EFC).

No restrictions are allowed in those hoses.

Take the necessary precautions to keep the fuel return hose opened and connected, while the unit is running. Check that the primary fuel filters are not both shut off.

Restart the unit.

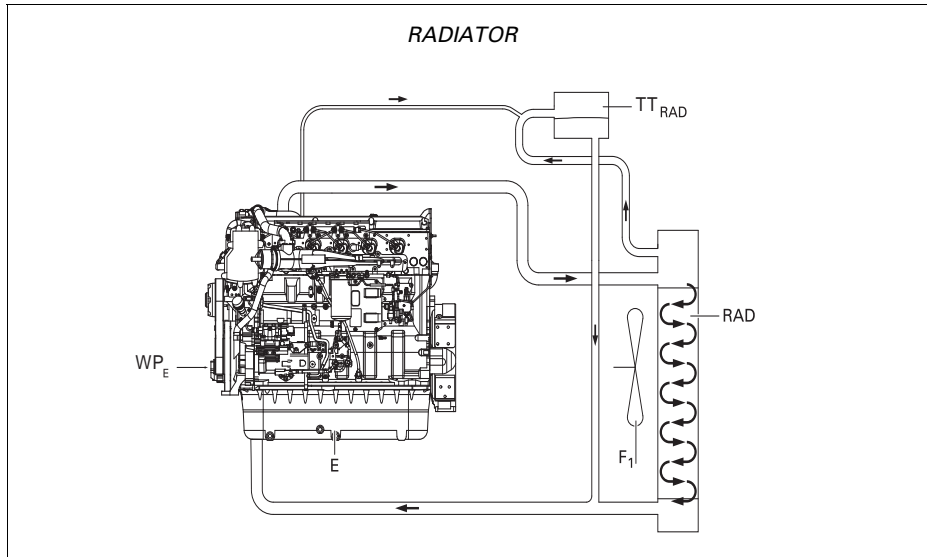
## Overview



BPV	Bypass valve
C <sub>FT</sub>	Filler cap (fuel tank)
CV	Check valve
E	Engine
EFC	External fuel supply coupling
EPP	Electrical priming pump
F <sub>2</sub>	Cooling fan 2 (AC <sub>2</sub> , CAC/FC)
FC	Fuel cooler
FF <sub>PC</sub>	Primary coarse fuel filter / water separator
FF <sub>SE</sub>	Secondary engine fuel filter
FP <sub>E</sub>	Engine fuel pump
FSC	Fuel shut-off cock
FT	Fuel tank
TWV	3-way valve
VL	Venting line

### 3.5.4 Water system

#### Overview



E	Engine
F <sub>1</sub>	Cooling fan 1 (RAD, IC, AC <sub>1</sub> , OC)
RAD	Radiator
TT <sub>RAD</sub>	Top tank (radiator)
WP <sub>E</sub>	Engine water pump (radiator)

#### Description

The water system contains a coolant flow to cool the engine's cylinders.

The coolant is circulated by the engine water pump (WP<sub>E</sub>), seated on the front of the engine (E). When the coolant returns from the engine, it passes through the radiator (RAD), which is air-cooled by the cooler fan (F<sub>1</sub>).

The radiator top tank (TT<sub>RAD</sub>) supplies the coolant to the system and gives the coolant in the system room to expand.

## 4 Installation



The operator is expected to apply all relevant safety precautions, including those mentioned on pages 7-10 of this book.

### 4.1 Transporting and lifting

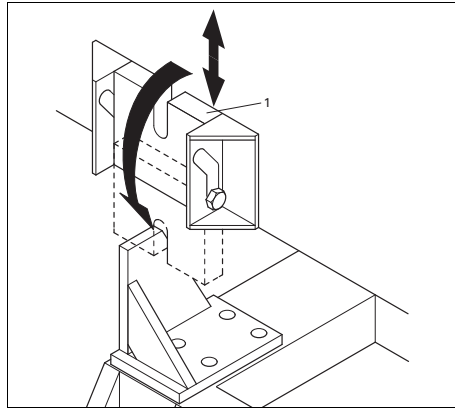
#### 4.1.1 Transporting

Road transport is only allowed on a trailer, with sufficient capacity.

Before towing the unit on the trailer, block the towbar by locking the blocking device (1) in downward position. The blocking device has to be pulled up first, before it can be turned over.



**Release brake before towing.**



- Leave the towbar in blocked position on the trailer and secure the unit (see section 4.2).
- Lock blockage device in upward position when unit is manoeuvred to its working location.
- Lock all service doors.

#### 4.1.2 Lifting

To lift the unit, use a lift truck or crane with sufficient capacity.

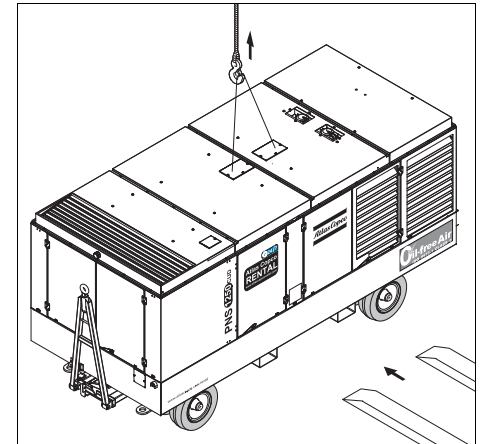
Use the lifting positions of the unit as shown in the figure below.

See to it that the unit will be lifted vertically and remains level.



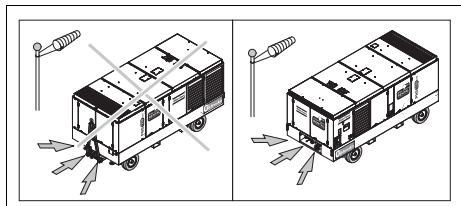
**Lifting acceleration and deceleration must be kept within safe limits (max. 4g).**

**Helicopter lifting is not allowed.**



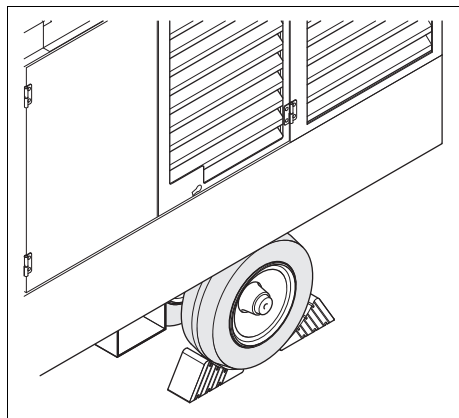
## 4.2 Parking

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

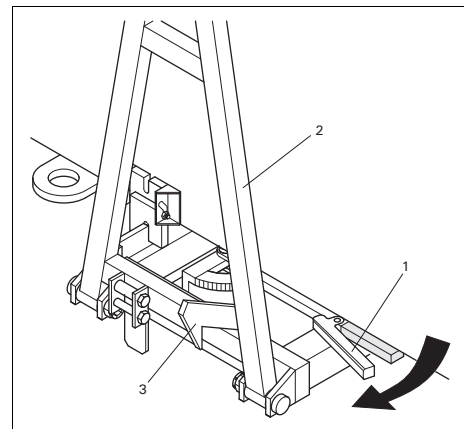


- Park the unit on solid level ground. The compressor can operate in a slant position not exceeding 5° (in both senses: front/rear and left/right).
- Engage the parking brake by pulling parking brake handle (1).

- Place wheel chocks in front of and behind the wheels before the unit is disconnected from the towing or lifting vehicle.



- Lock the towbar (2) in the raised position with catcher (3).



## 5 Operating instructions

### 5.1 Before starting

- With the unit standing level, check the engine and compressor oil levels (see section 6.2.1 and 6.3.1). Add oil if necessary. See section 6.5 for the types of oil to be used.  
Normally, there is no need to add oil between two oil changes; if there is, check the source of oil consumption.



**Only use the automatic engine oiler when the unit is standing level. When operating the unit in a slant position, the automatic engine oiler should be switched off.**

- Attach the air line(s) to the closed air outlet valve(s) (AOV).



**The air line end connected to the outlet valve must be safeguarded with a safety cable, attached next to the valve.**

**No external force may be applied to the air outlet valves, e.g. by pulling hoses or by connecting equipment directly to the valves (e.g. a water separator, a lubricator, pipe extensions, etc.).**

- Select fuel source (internal/external) and lock the selector valve.
- Turn ON the battery switch (BS).
- Move the power switch on the control panel (CP) to the ON position and read the fuel level on the display. Top up the fuel tanks (FT), if necessary. Consult the Engine Operation Manual for the type of fuel. Move the control panel power switch to OFF again after filling.
- Check the level of the coolant in the engine radiator (RAD). See section 6.4.1.1. Add coolant if necessary. Consult the Engine Operation Manual for the coolant solutions to be used.
- Press the vacuator valves of the air filters (AF<sub>C</sub> and AF<sub>E</sub>) to remove dust. See section 6.4.2.2.
- Check the air filter vacuum indicators (VI). If the yellow piston reaches the red marked service range (see section 6.4.2.3), clean or replace the filter elements (see sections 6.4.2.3 and 6.4.2.4). Reset the indicator by pushing the reset button.
- Check the electrolyte level in the batteries (B). Top up if necessary, with distilled water (see section 6.4.8.1).
- Put the fuel shut-off cock, which is seated on the primary fuel filter housing in the back of the unit, in the raised position (the handle pointer points down/filter selection "ALL ON").
- Drain any water and sediment from the primary coarse fuel filters (FF<sub>PC</sub>).



**Make sure that nobody is in the unit and all doors are closed prior to starting the unit.**



**In cold ambient conditions (temperature below -10°C (14°F)), the engine must be preheated before starting.**




**In auto mode, connect the engine and compressor block heater and the battery charger to the 220 Volt/ 110 Volt receptacle.**










## 5.2 Operating and setting the Pc4003™ controller

### 5.2.1 Pc4003™ button overview



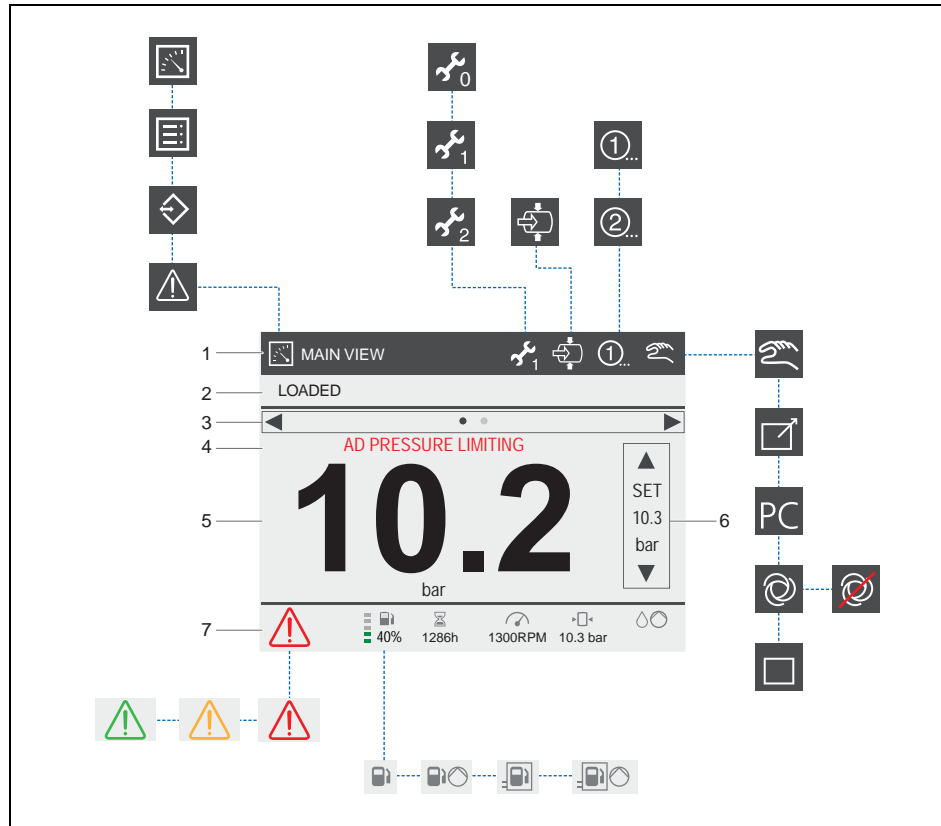
- 1  **POWER OFF / ON switch**  
To switch the control panel on and off.
- 2  **START button**  
To start the compressor.
- 3  **STOP button**  
To stop the compressor in a controlled way.

- 4  **LOAD button.** Pressing this button will:
  - initiate the Auto Load function, or commands the compressor to load (depending on actual status).
  - command the compressor to switch to Not Loaded (when in Load).
- 5  **MEASUREMENTS VIEW button**  
To toggle between Measurements View and Main View.
- 6  **SETTINGS VIEW button**  
To toggle between Settings View and Main View.
- 7  **ALARMS VIEW button**  
To toggle between Alarms View and Main View.
- 8  **NAVIGATION buttons**  
To navigate through the display menus.
- 9  **ENTER button**  
To confirms/store the selection/change.

- 10  **BACK button**  
To moves back one level or ignore the change.

## 5.2.2 Pc4003™ display icons

### Primary Main view



- 1 View, Overhaul, Auto load, Preset, Active operation mode indication
- 2 Active compressor status
- 3 Navigation: toggle between main view and engine view
- 4 Regulator overrule indication
- 5 Regulator pressure value or info text
- 6 Set active pressure setpoint
- 7 Alarm indication and compressor info



Main view indication



Measuring view indication



Settings view indication



Alarm view indication



OVERHAUL  
Initial Overhaul required.



OVERHAUL  
Minor Overhaul required.



#### OVERHAUL

Major Overhaul required.



#### AUTO LOAD

This icon will be shown if the Auto Load functionality is enabled, or by means of a parameter setting, or by means of pressing the Load button before the machine is ready to be loaded.



#### PRESET

Depending on which Pressure (and/or Flow) setting is active, the controller will show its dedicated icon.



#### OPERATION MODE

Local



#### OPERATION MODE

Remote



#### OPERATION MODE

PC Control



#### OPERATION MODE

Automatic



#### OPERATION MODE

Automatic Mode is active, but the Auto Start and Auto Stop function are both inactive.



#### OPERATION MODE

Block Mode



#### ALARM

Active and not-acknowledged Shutdown Alarm.



#### ALARM

Active and not-acknowledged Non-Shutdown Alarm.



#### ALARM

Active and acknowledged Alarm.



#### FUEL TANK

Running at internal fuel tank.



#### FUEL TANK

Running at internal fuel tank and fuel pump is energized.



#### FUEL TANK

Running at external fuel tank, but internal fuel tank level is shown.



#### FUEL TANK

Running at external fuel tank, but internal fuel tank level is shown and fuel pump is energized.



#### RUNNING HOURS



#### ENGINE RPM



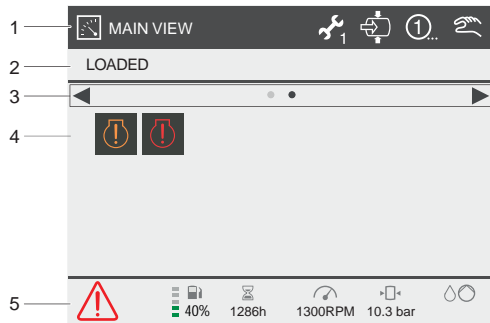
#### AD PRESSURE





#### OIL FILL

The engine oil level as dropped under a set level. The oil fill pump will be activated.

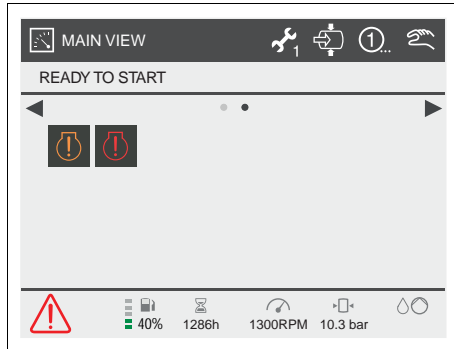
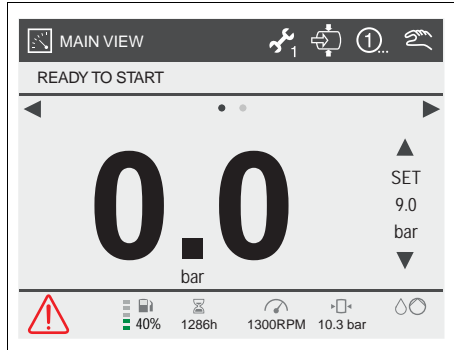
## Secondary Main view - Engine view



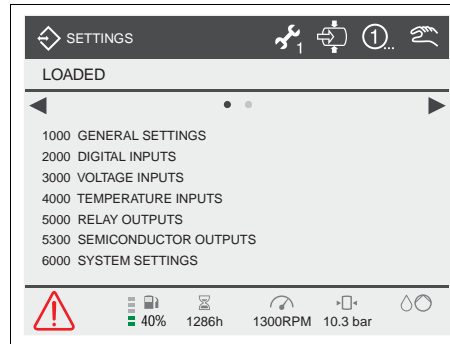
- 1 View, Overhaul, Auto load, Preset, Active operation mode indication
  - 2 Active compressor status
  - 3 Navigation: toggle between main view and engine view
  - 4 Engine info
  - 5 Alarm indication and compressor info
-  ENGINE WARNING LAMP - AMBER  
**LED steady on:** low alarm  
**LED flashing slow:** medium alarm  
**LED flashing fast:** high alarm
-  ENGINE SHUTDOWN LAMP - RED  
**LED steady on:** low alarm  
**LED flashing slow:** medium alarm  
**LED flashing fast:** high alarm

## 5.2.3 Possible views

### Main view

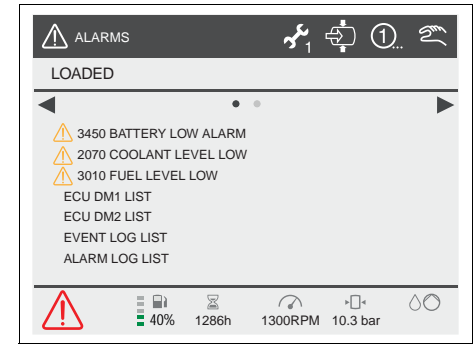


### Setup view



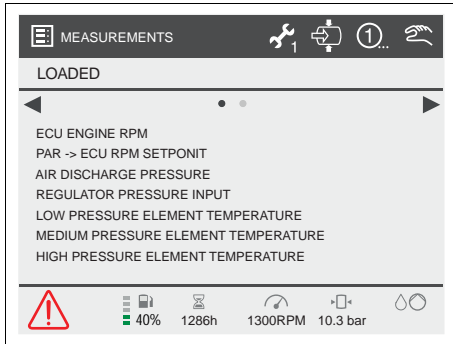
1. Use the Up and Down navigation buttons to scroll through the full list of settings.
2. Use the Enter button to enter the selected submenu.
3. Use the Back button to leave the entered (sub)menu.

### Alarm view



1. Use the Up and Down navigation buttons to scroll through the full list of alarms.
2. The DM Lists and the Log Lists can be selected and entered to access the sublist.

## Measuring view



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

## 5.2.4 Operations overview

It is possible to control the compressor:

- locally, directly operating the Pc4003™ control module (Local Operation Mode),
- automatically, by setting triggers based on pressure sensor data in the customer's installation (Automatic Operation Mode), or
- by using software running on a PC (PC Operation Mode).

## 5.2.5 Starting

1. Switch on the battery switch.
2. Switch on the machine by switching the Pc4003™ Power Switch to the ON position.

While the machine gets powered up, the controller will perform a self-test and enter the INITIALIZING SEQUENCE.

During the entire INITIALIZING SEQUENCE, which takes about 2 seconds) the following view is shown on the PC display:



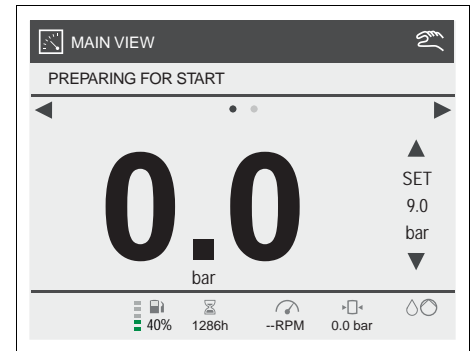
This view shows the controller version (e.g. 'Pc4003') and the application software version (e.g. 'v1.00.0').



**Except for a controller power down, nothing can interrupt the INITIALIZING SEQUENCE. During the INITIALIZING SEQUENCE, all buttons / inputs / outputs / alarms are inactive.**

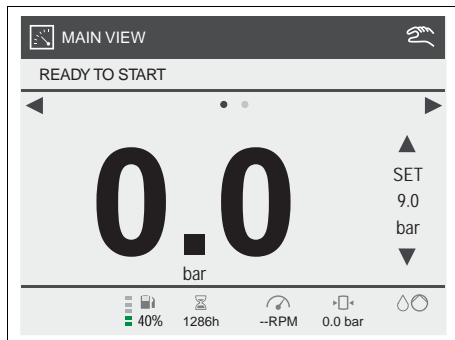
When initialization of the controller is finished, the INITIALIZING SEQUENCE is ended.

The display shows the Main View.



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

The following view is shown.

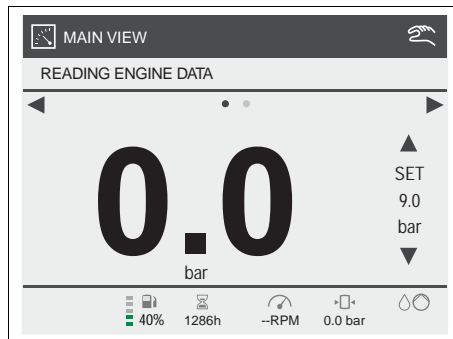


**Active Buttons:**

	Start Button (to initiate Start command)
	Load Button (to activate Automatic Load)
	Measurement View Button
	Settings View Button
	Alarms View Button

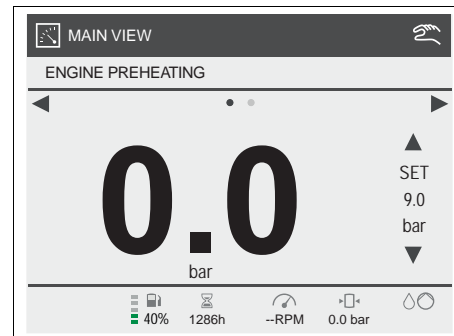
3. Press the START button.

The machine activates its horn and flasher light for 5 seconds, to notify that it is starting.



The engine electronics (ECU) is powered up.

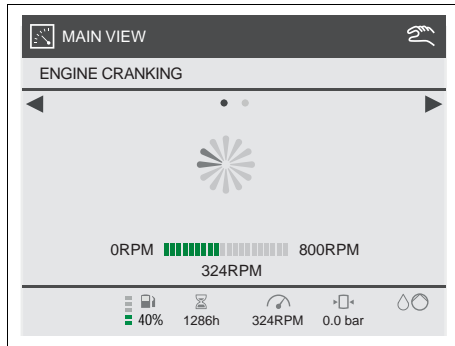
As soon as the communication between compressor controller and engine controller is established, the machine starts pre-heating according to the parameters of the engine controller.



**Active Buttons:**

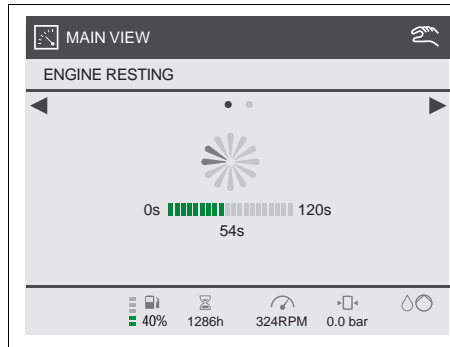
	Stop Button (to initiate Stop command)
	Load Button (to activate Automatic Load)
	Measurement View Button
	Settings View Button
	Alarms View Button

The engine starts cranking.








The engine cranks until 800 RPM is reached.

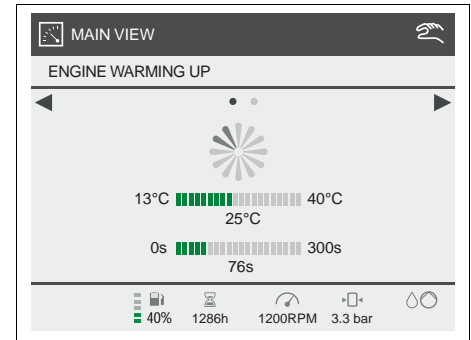
If 800 RPM is not reached within 30 seconds, the starting procedure is cancelled and the engine will rest for some time. (Resting time depends on cranking time.)



**Active Buttons:**

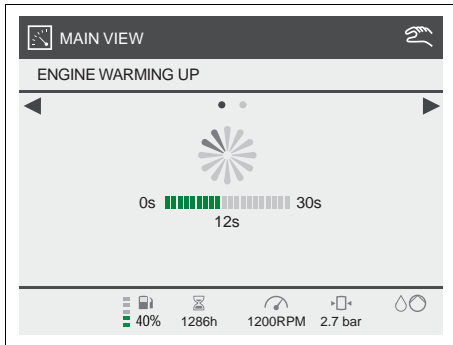
	Stop Button (to initiate Stop command)
	Load Button (to activate Automatic Load)
	Measurement View Button
	Settings View Button
	Alarms View Button

The engine starts running at idle speed.

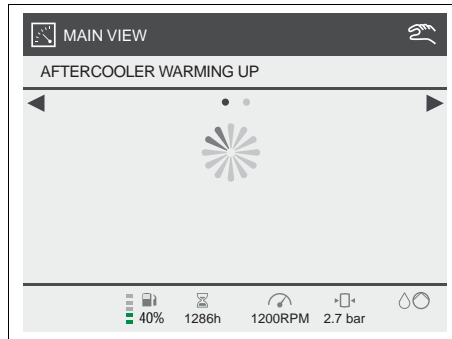







The engine runs at minimum RPM until the engine's coolant temperature reaches 40°C, with a minimum time of 30 seconds and a maximum time of 300 seconds.



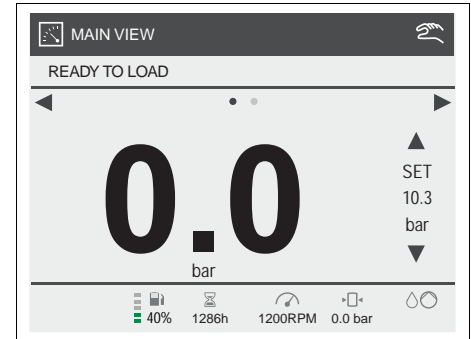







If during the WARMING UP SEQUENCE, all conditions are met to end the WARMING UP SEQUENCE, but the WARMING UP SEQUENCE is blocked by the AD TEMPERATURE CONTROL function, the following view is shown.



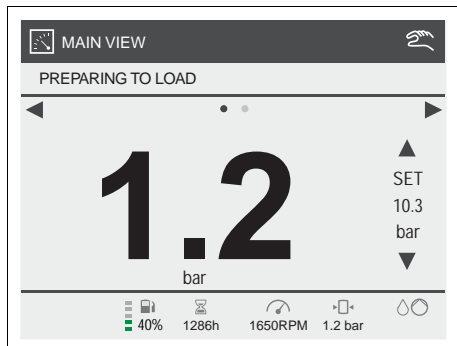
Active Buttons:	
	Stop Button (to initiate Stop command)
	Load Button (to activate Automatic Load)
	Measurement View Button
	Settings View Button
	Alarms View Button

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



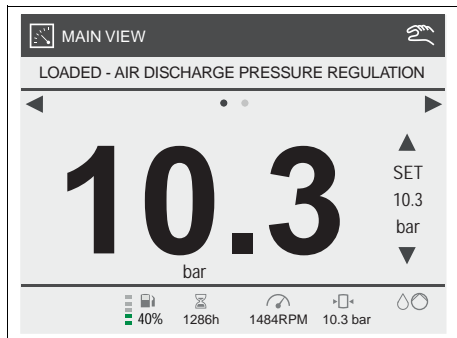
Active Buttons:	
	Stop Button (to initiate Stop command)
	Load Button (to activate Automatic Load)
	Measurement View Button
	Settings View Button
	Alarms View Button






4. Press the LOAD button.



The loading valve is energized and pressure starts building up.

While loading the following display is shown (default display).



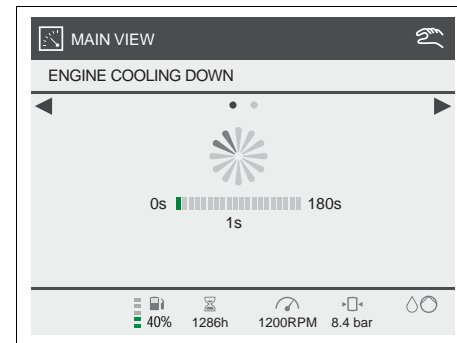
Active Buttons:	
	Stop Button (to initiate Stop command)
	Load Button (to activate Automatic Load)
	Measurement View Button
	Settings View Button
	Alarms View Button





During the LOADED SEQUENCE, the RPM SETPOINT continuously follows the CALCULATED RPM value (if applicable).

## 5.2.6 Stopping

Press the STOP button.

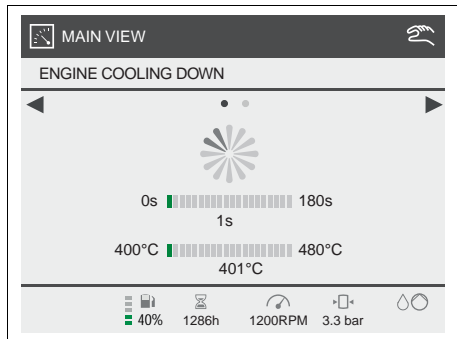
The engine will go into COOLDOWN SEQUENCE. The following view is shown.



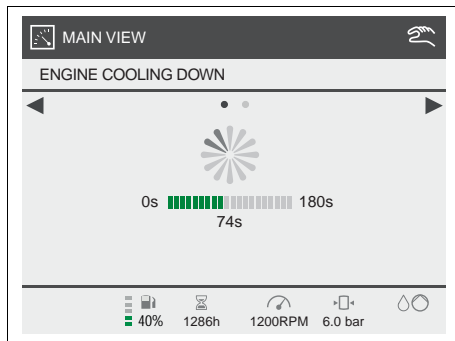
Active Buttons:	
	Start Button (to initiate Start command)
	Measurement View Button
	Settings View Button
	Alarms View Button

Following condition is taken into account, before the COOLDOWN SEQUENCE can be ended:  
 $COOLDOWN\ TIMER \geq COOLDOWN\ TIME$

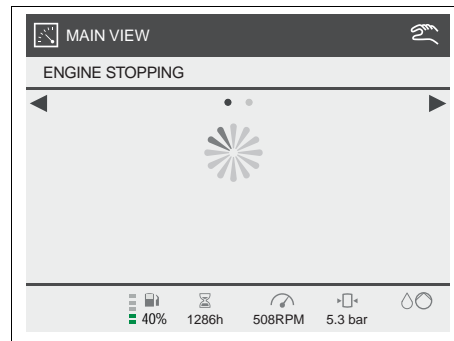
During the COOLDOWN SEQUENCE, if the COOLDOWN 'MODE' is set to 'timer and temperature based' the following view is shown:



During the COOLDOWN SEQUENCE, if the COOLDOWN 'MODE' is set to 'timer based', or if the temperature condition has been met, the following view is shown:



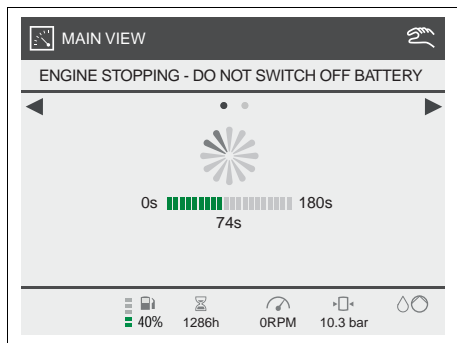
After cooling down, the engine enters the STOP SEQUENCE. During the STOP SEQUENCE, before the ENGINE RPM is being re-read, the following view is shown:



**Active Buttons:**

	Start Button (to initiate Start command)
	Measurement View Button
	Settings View Button
	Alarms View Button

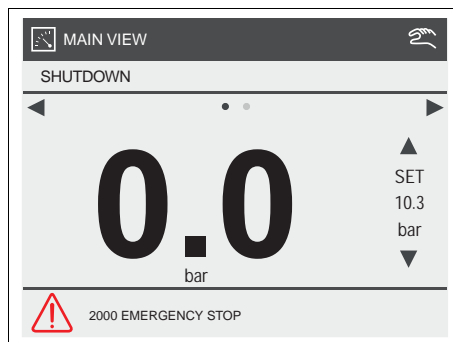
When the controller is waiting for the STOP DETECTION 'MINIMUM START DELAY' to elapse, an additional timer is shown on the display:







When the STOP SEQUENCE has been completely terminated, the engine will stop. The controller will always double check to make sure that the engine has really stopped.

## 5.2.7 Shutdown

When the machine is shut down due to a critical alarm or an emergency stop, the following view is shown.



Active Buttons:	
	Measurement View Button
	Settings View Button
	Alarms View Button
	Enter Button (to acknowledge the shown alarm))

## 5.2.8 Power off

The compressor is equipped with a battery switch.

When the compressor is not in use, this switch must always be in the "OFF" position.



**Never use the battery switch for stopping, as this can cause damage in the Pc4003™ or the engine's Electronic Control Unit.**

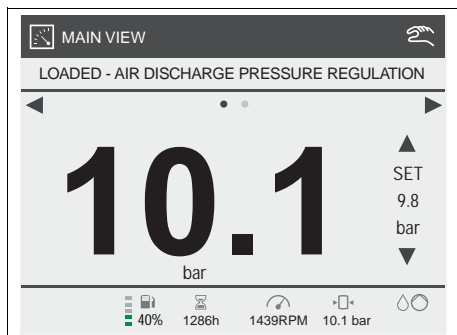
**Always first shut off the Pc4003™ and wait until the display is dark before switching the battery switch to the OFF position.**

## 5.2.9 Settings

For buttons to be used see “Pc4003™ button overview”.

### 5.2.9.1 Set Pressure Setpoint

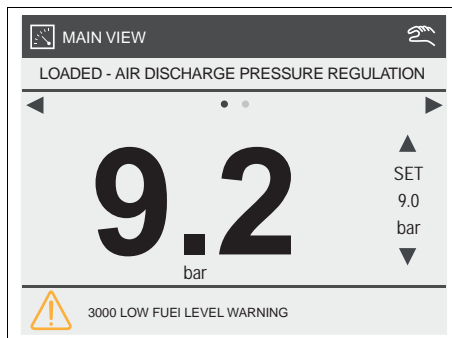
When in Main View, the following display is shown.



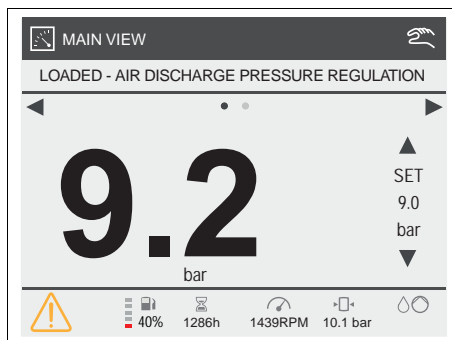
Press the Up/Down arrows to set the requested pressure.

### 5.2.9.2 Acknowledge an Alarm

If an alarm becomes active, for example a Low Fuel Level Warning, press the Enter button to acknowledge this alarm.



Then, if the fuel level is still low, the view changes to:



As soon as the fuel level is higher than the warning level again, the alarm icon will automatically disappear.

As long as there is an alarm icon in the middle of the bottom part of the view, all active acknowledged / unacknowledged alarms can be consulted by pressing the Alarm View button.

Pressing the Alarm View button again, will bring you back to the Main View.

### 5.2.9.3 Set Clock

1. Press the Settings View button.
2. Scroll to the '1000 GENERAL SETTINGS' menu.
3. Press Enter.
4. Scroll to the '1290 DATE/TIME' menu.
5. Enter the Date/Time menu.
6. Scroll to the parameter you want to change.
7. Enter this parameter.

To change the 'RTC Month', scroll to the preferred month and press Enter.

To change any other RTC setting, the red figure is editable. Scroll up/down and press enter to change. Use left/right to shift between editable figures.

8. Now press BACK until you are back in the Main View (or in the menu you require).

### 5.2.9.4 Set Language

1. Press the SETTINGS VIEW button.
2. Scroll to '1000 GENERAL SETTINGS'.
3. Press ENTER.
4. Scroll to '1300 LANGUAGES'.
5. ENTER the LANGUAGES menu.
6. ENTER the 'SETTINGS' parameter.
7. Scroll to the preferred language.
8. Press ENTER.
9. Now press BACK until you are back in the Main View (or in the menu you require).

### 5.2.9.5 Set Units

1. Press the SETTINGS VIEW button.
2. Scroll to '1000 GENERAL SETTINGS'.
3. Press ENTER.
4. Scroll to the unit you would like to change:  
'1340 TEMPERATURE UNITS'  
'1350 PRESSURE UNITS'  
'1360 FUEL FLOW UNITS'  
'1370 AIR FLOW UNITS'
5. ENTER the preferred menu.
6. ENTER the 'SETTINGS' parameter.
7. Scroll to the preferred setting.
8. Press ENTER.
9. Now press BACK until you are back in the Main View (or in the menu you require).

### 5.2.9.6 Change Display Settings

1. Press the SETTINGS VIEW button.
2. Scroll to '1000 GENERAL SETTINGS'.
3. Press ENTER.
4. Scroll to '1310 DISPLAY BACKLIGHT'.
5. ENTER the DISPLAY BACKLIGHT menu.
6. Scroll to the setting you would like to change.
7. Press ENTER.  
  
To change a setting, the red figure is editable. Scroll up/down and press ENTER to change. Use left/right to shift between editable figure.
8. Now press BACK until you are back in the Main View (or in the menu you require).

### 5.2.9.7 Go To Diagnostics

1. Press the SETTINGS VIEW button.
2. Scroll to '1000 GENERAL SETTINGS'.
3. Press ENTER.
4. Scroll to '1150 DIAGNOSTICS'.
5. ENTER the Diagnostics menu.
6. ENTER the 'ENABLE' parameter.
7. Scroll to 'ON' and press ENTER.  
  
Now the ECU gets PAC (ignition) and you can perform ECU diagnostics (read DM1 List, DM2 List, ECU values, perform engine diagnostics, ...).

8. Now press BACK until you are back in the Main View (or in the menu you require).
9. To leave Diagnostics, press the STOP button.

### 5.2.9.8 Set the AutoLoad Function

1. Press the SETTINGS VIEW button.
2. Scroll to '1000 GENERAL SETTINGS'.
3. Press ENTER.
4. Scroll to '1160 AUTO LOAD'.
5. ENTER the 'FUNCTION' menu.
6. Scroll to AUTO LOAD setting.
7. Press ENTER.  
  
Now the AutoLoad function is active, and as soon as the unit is Ready To Start, the display will show the Auto Load icon.
8. Now press BACK until you are back in the Main View (or in the menu you require).

### 5.2.9.9 Override ECU Alarms

If the Override ECU Alarms function is enabled, the Pc4003™ controller will temporarily ignore all received ECU alarms. This makes it possible to start and run the unit, even if there are ECU alarms present. To protect the unit, the engine protection will still be up.

To enable OVERRULE ECU:

1. Press the SETTINGS VIEW button.
2. Scroll to '1000 GENERAL SETTINGS'.
3. Press ENTER.
4. Scroll to '1120 OVERRULE ECU'.
5. ENTER the Override ECU menu.
6. ENTER the 'ENABLE' parameter.
7. Scroll to 'ON' and press ENTER.

As soon as the OVERRULE ECU function 'Enable Setting' is set to 'On', the OVERRULE ECU timer will start counting. When the OVERRULE ECU timer has elapsed, the OVERRULE ECU 'Enable Setting' is automatically set to 'Off'.

To set the OVERRULE ECU timer:

1. Press the SETTINGS VIEW button.
2. Scroll to '1000 GENERAL SETTINGS'.
3. Press ENTER.
4. Scroll to '1120 OVERRULE ECU'.
5. ENTER the Override ECU menu.
6. ENTER the 'Timer' parameter.

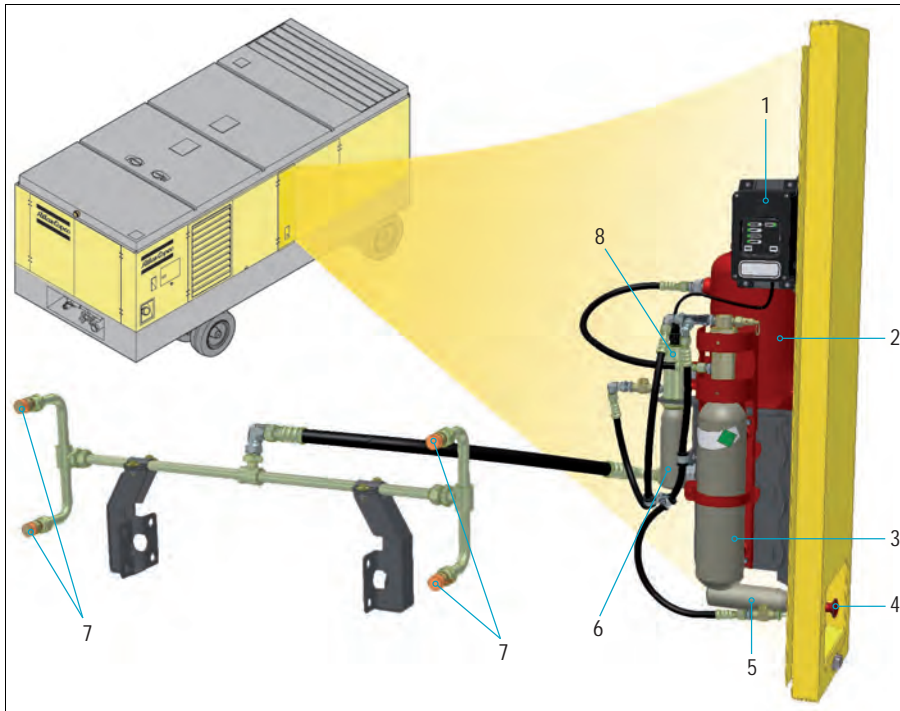
7. Set the desired time schedule (default = 5 minutes) and press ENTER.
8. Now press BACK until you are back in the Main View (or in the menu you require).

If the OVERRULE ECU 'timer' is set to '0s.', the Override ECU Alarm function is not limited in time.

When the controller gets powered down, the OVERRULE ECU 'Enable Setting' will be set to 'Off' at the next power-up.

## 5.3 Operating the automatic fire suppression system

### 5.3.1 Main components



- 1 Control module
- 2 Cylinder with extinguishing powder
- 3 Large nitrogen cylinder
- 4 Manual actuator
- 5 Small nitrogen cylinder
- 6 Small nitrogen cylinder
- 7 Nozzles
- 8 Automatic actuator



### 5.3.2 Operation

The fire suppression system is equipped with a manual and automatic activation.

The automatic activation detects a fire via a heat sensitive wire. As soon as a fire is detected, the control module (1) shuts down the compressor. After a delay of 30 seconds the automatic actuator (8) releases a small nitrogen cartridge (6), by which the larger nitrogen bottle (3) is released. The compressed gas will blow the extinguishing powder from cylinder (2) through the nozzles (7) into the engine compartment.

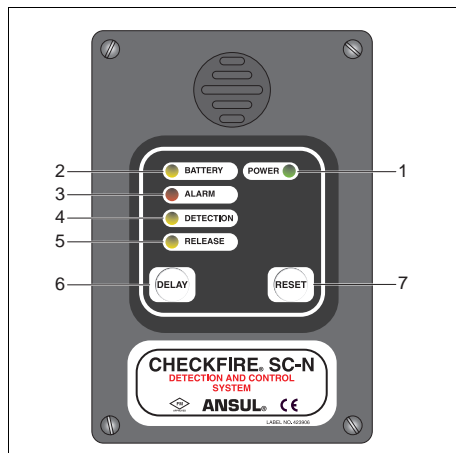
The manual activation is a push button (4) on the outside of the compressor. Removing the lock pin and pushing the button releases a separate nitrogen cartridge (5) which activates the powder release and shuts down the machine

The automatic fire suppression system is directly powered by the compressor batteries.

### 5.3.3 Control module

The automatic fire suppression installation is constantly monitored by a control module. It is powered by an internal battery.

A number of LED's indicate the system status.



1	Power	5	Release
2	Battery	6	Delay
3	Alarm	7	Reset
4	Detection		



**Staff that are not familiar with this system are not allowed to run checks on the system. Wrong handling may lead to an inactive system or release of extinguishing powder. All repairs have to be done by authorized personnel.**

#### 5.3.3.1 Indicators

##### 1. POWER

LED pulses every three seconds when indicating normal power. If the power drops below an acceptable level of either the internal or external power source, the green POWER LED will be extinguished.

##### 2. BATTERY

LED pulses every 10 seconds when low power condition is detected from either the internal or external power source. Please check the system and restore power supply.

##### 3. ALARM

The alarm LED will flash in case of an alarm condition. An alarm condition is caused by detection circuit activation.

#### **4. DETECTION**

The detection LED and the audio pulse once every 10 seconds when the control module detects a problem in the detection circuit. Please check the integrity of the detection wire.

#### **5. RELEASE**

The release LED and the audio pulse once every 10 seconds when the control module detects a problem in the release circuit. Please check the connection with the automatic actuator.

#### **5.3.3.2 Buttons**

#### **6. DELAY**

This button is used during programming and can be used for maintenance checks.

#### **7. RESET**

Pressing this button for more than 1 second will reset the controller after a fault detection or activates the system after restoring power e.g. after replacing the internal battery.

#### **5.3.4 Daily check**

The LED's status on the ANSUL control module should be checked daily prior to starting up the compressor. The green Power LED (1) should flash every three seconds, no other LED may flash and no audio alarm should be sounding! It is not allowed to start up the compressor when there are any deviations.

## 6 Maintenance

### 6.1 Maintenance schedule

Maintenance schedule	Daily	50 hrs	every 250 hrs	every 1000 hrs	every 1500hrs	every 6000 hrs	every 10000 hrs
<b>Service pak</b>	-	<b>2912 4580 04</b>	<b>2912 4581 05</b>	<b>2912 4582 06</b>	-	-	-
Check engine oil level	x		x	x	x	x	x
Check compressor oil level	x		x	x	x	x	x
Check coolant levels (radiator)	x		x	x	x	x	x
Check coolant additive and antifreeze concentration			x	x	x	x	x
Check routing and condition of flexible hoses	x		x	x	x	x	x
Drain prefilters (water separators) 30µ	x		x	x	x	x	x
Change fuel prefilter 30µ		x	x	x	x	x	x
Check fan cooling	x		x	x	x	x	x
Check on abnormal noise and smoke	x		x	x	x	x	x
Change engine fuel filter		x	x	x	x	x	x
Add engine oil	x	x					
Change engine oil			x(2)	x	x	x	x
Replace engine oil filters			x	x	x	x	x
Change coolant filter				x		x	
Coolant fan belt tensioner					x		
Check engine compressor drive belt			x	x	x	x	x
Check engine fan drive belt			x	x	x	x	x

Maintenance schedule	Daily	50 hrs	every 250 hrs	every 1000 hrs	every 1500hrs	every 6000 hrs	every 10000 hrs
<b>Service pak</b>	-	<b>2912 4580 04</b>	<b>2912 4581 05</b>	<b>2912 4582 06</b>	-	-	-
Clean service filter water separator			x	x	x	x	x
Grease turntable			x	x	x	x	x
Check tension and condition of poly V-belts	x		x		x	x	
Check electrolyte and terminals on batteries				x	x	x	x
Drain water and sediment in fuel tanks			x		x	x	
Clean air filters elements (1)	x		x		x	x	x
Replace air filter elements (1)				x		x	x
Replace air filter safety cartridge				x		x	x
Change engine air filter and cartridge				x		x	x
Check air intake piping	x						
Check charge air piping	x						
Test safety / relief valves					x	x	
Check coolant condition				x	x	x	
Drain air tanks and reservoirs	x		x		x	x	x
Check crankcase breather tube						x	
Replace the crank case breather internal						Only Cummins	
Clean gear casing breather pot					x	x	
Replace compressor oil filter				x		x	
Inspect / Adjust engine valve clearance						x	
Grease engine fan drive						x	

Maintenance schedule	Daily	50 hrs	every 250 hrs	every 1000 hrs	every 1500hrs	every 6000 hrs	every 10000 hrs
<b>Service pak</b>	-	<b>2912 4580 04</b>	<b>2912 4581 05</b>	<b>2912 4582 06</b>	-	-	-
Grease fan drive						X	
Replace cooler system water temperature regulator						X	
Change compressor oil				X		X	
Replace silencers glass wool and insert (every 2 years)						X	
Replace roller diaphragm of unloader cylinder						X	
Replace parts of unloader cylinder						X	
Replace diaphragm of the balancing pistons						X	
Replace check valve in compressed-air system						X	
Replace coolant							X

## Notes:

- The initial service pak, which has been supplied with the unit, should be performed after the first 50 hours.
  - For grey-marked service activity intervals, new parts are included in the service pak mentioned on top of the column.
- (1) More frequently when operating in a dusty environment.
  - (2) Engine oil change interval can be increased until 500 hrs depending on fuel consumption over that period of time.



**Contact your local Cummins support for more information and make sure to have their agreement to increase oil change interval.**



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

**Refer to “Technical specifications” on page 83 and to “Torque values” on page 83.**

## 6.1.1 Use of preventive maintenance schedule

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

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

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

## 6.1.2 Service paks and kits

### 6.1.2.1 Service paks

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

Service paks minimise downtime and keep your maintenance budget low.

Order service paks at your local Atlas Copco dealer.

### 6.1.2.2 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.

Atlas Copco service kits offer you all the benefits of genuine Atlas Copco parts, save on administration costs and are offered at a reduced price compared to the loose components.

The order numbers of the service paks and kits are listed in the Atlas Copco Parts List (ASL).



**Contact Atlas Copco.**

## 6.2 Engine maintenance procedures

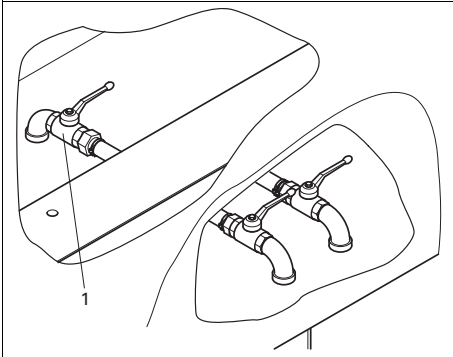
Refer to the engine's operator manual for full maintenance schedule.

### 6.2.1 Engine oil level check

The engine oil level is measured by an oil level sensor. Check the oil level daily or before every use of the unit.

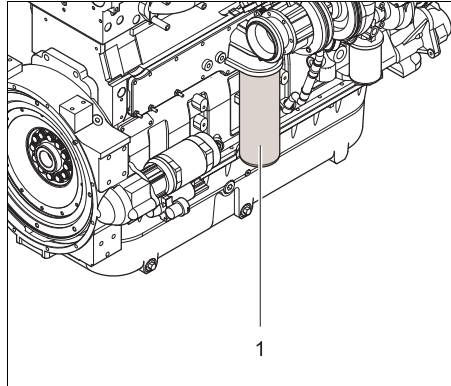
Add correct oil (see section 6.5), if necessary.

### 6.2.2 Engine oil and oil filter change



- Consult, besides the maintenance schedule, the Engine Operation Manual as well for oil and oil filter change intervals.

- To drain oil from system, open the oil filler cap, remove the drain plug, located at the right-hand side under the unit and open the drain cock (1).
- Use a proper drain pan.

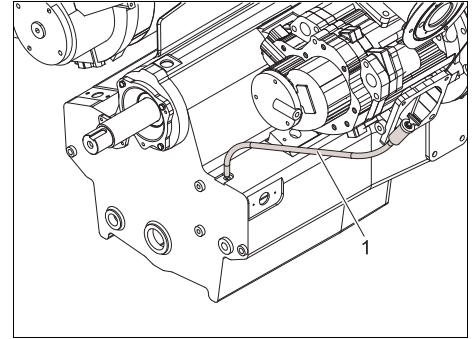


The engine oil filters (1) are located at the unit's left-hand side.

- Put a proper drain pan under the engine oil filters and replace the oil filters.
- Close the drain cock and tighten all drain plugs before filling the system with fresh oil.
- Reinstall the oil filler cap.
- Check on leakages.

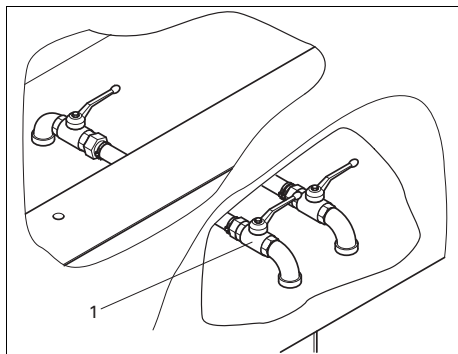
## 6.3 Compressor maintenance procedures

### 6.3.1 Compressor oil level check

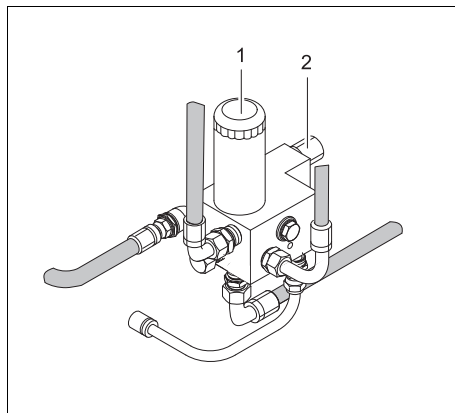


- Close the outlet valve(s) and stop the unit. Before checking the compressor oil level, wait approx. 10 minutes to allow oil to return to the oil sump.
- Check the oil level with the dipstick (1).
- Add correct oil (see section 6.5), if necessary.

### 6.3.2 Compressor oil and oil filter change



- Run the compressor until warm. Close the outlet valve(s) and stop the compressor.
- Drain the oil by removing the drain plug and opening the drain cock (1). The drain plug is located at the left-hand side under the unit. Catch the oil in a drain pan. Screw out the filler plug to speed up draining. Close the drain cock and tighten the plugs after draining.



- Loosen the bypass plug (2) (bypass to the oil sump) to allow the oil in the oil filter (1) to be drained.
- Remove the oil filter, e.g. by means of the handle of a spanner in the slot at the top.
- Clean the filter seat on the manifold, see to it that no dirt drops into the system. Oil the gasket of the new filter element. Screw the element into place until the gasket contacts its seat, then tighten one half turn only.

- Run the unit at Not Loaded for a few minutes to circulate the oil. Stop and depressurize the unit. Screw out the filler plug, add oil, if necessary, until the oil level registers between markings A and B (see section 6.5). Reinstall and tighten the filler plug. Never add more oil. Overfilling results in oil consumption.

### 6.3.3 Compressor element overhaul

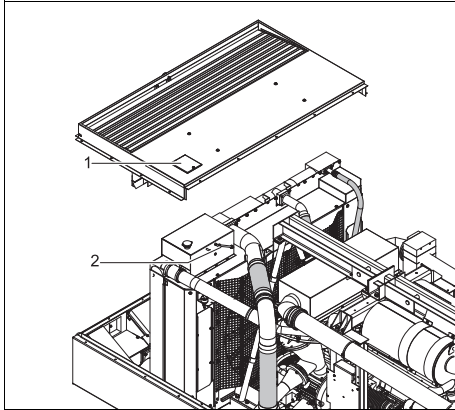
When a compressor element is due for overhaul, it is recommended to have it done by Atlas Copco. This guarantees the use of genuine parts and correct tools with care and precision.



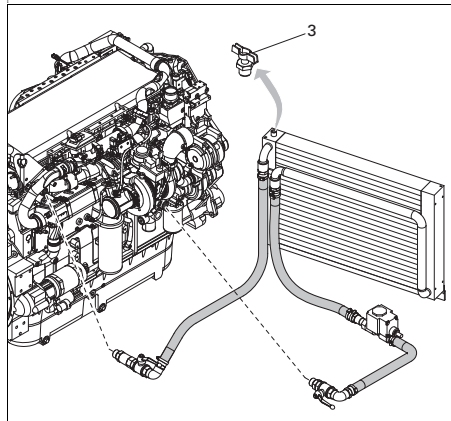
## 6.4 Adjustment and servicing procedures

### 6.4.1 Coolant

#### 6.4.1.1 Coolant level check



- Check the levels of the coolant in the radiator cooler (2). The levels show in transparent tubes fitted at the radiator top tank. The levels should normally be at the bottom of the filler pipes as they go into the tanks.
- Add coolant, if necessary. The location of the radiator filler cap (1) is shown in figure above.
- Use PARCOOL EG as coolant.



**Make sure to open the preheater drain point (3) during filling of the coolant. This way air can be vented out of the cooler.**

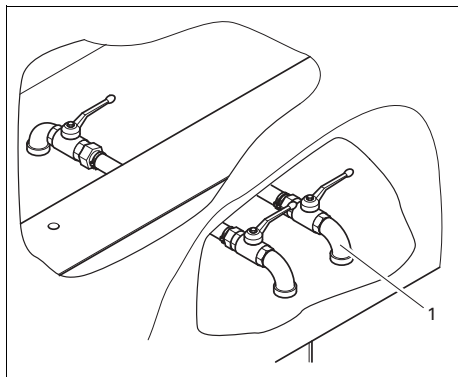
#### 6.4.1.2 Testing coolant inhibitor level

Use coolant test strips to measure, chloride nitrite and glycol concentrations. Cavitation/corrosion protection is indicated on the strip by the level of nitrite concentration. Freeze/boil over protection is determined by glycol concentration. Use the test strips as follows:

- Dip the strip into coolant for one second. Remove and shake briskly to eliminate excess fluid.
- Immediately compare end pad (% glycol) to the color chart.
- Sixty seconds (one minute) after dipping, compare the nitrite pad.

For the best results make the tests while the coolant is between 10°C - 60°C (50°F - 140°F). Wait at least 60 seconds, but not longer than 75 seconds, before reading the nitrite level.

### 6.4.1.3 Replacing the coolant

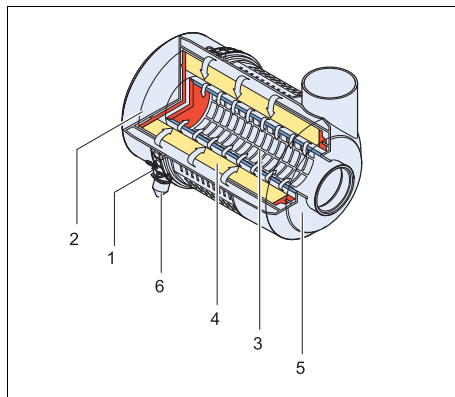


Consult the Engine Operation Manual and section 6.4.1.2 for coolant specifications.

- To drain coolant from system, remove drain plugs. Drain plugs are located at the right- and left-hand side under the unit and open the drain cocks (1).
- Use a proper drain pan.
- Before filling the system, close the drain cocks and tighten all plugs.

## 6.4.2 Air filter

### 6.4.2.1 Main parts



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



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

### 6.4.2.2 Cleaning the dust trap

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

### 6.4.2.3 Replacing the air filter element and the safety cartridge

The instructions that apply to one air filter should be repeated for both air filters engine and air filters compressor.

- Release the snap clips (1) and remove the dust trap cover (2). Clean the inside of the cover.
- Withdraw the filter element (4) and safety cartridge (3) from the housing (5).

Discard the filter element when damaged.

A dirty safety cartridge is an indication of a malfunctioning filter element.

Replace the filter element and the safety cartridge at the same time.

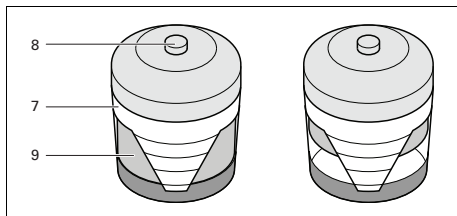


**New elements should be inspected for tears and punctures before installation.**



**The safety cartridge cannot be cleaned.**

- Reassemble in reverse order of dismantling.
- Inspect and tighten all air intake connections.
- Reset the air filter vacuum indicator by pushing the reset button (8).



- 7 | Air filter contamination indicator
- 8 | Reset button
- 9 | Yellow indicator

#### 6.4.2.4 Cleaning the filter element

- Withdraw the filter element (see section 6.4.2.3). Reinstall the dust trap cover to protect the air intake system while cleaning the element.

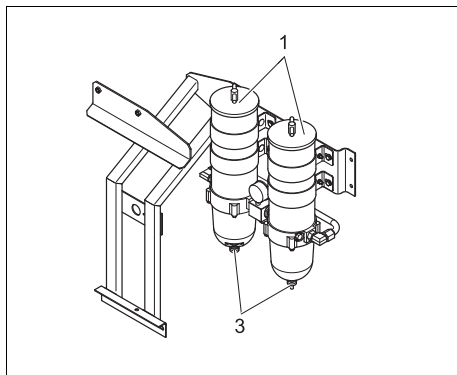


**Never run the compressor without air filter element.**

- Carefully knock the end faces of the filter element on a flat surface to remove the dry contaminant. Never strike on a hard surface. Then blow dry air up and down the pleats in the reverse direction of normal flow; subsequently blow up and down the pleats on both sides of the element. The air pressure may not exceed 5 bar (73 psi) and a reasonable distance must be maintained between the hose nozzle and the pleats.
- If the contaminant is oily, soak the element for 10 minutes in luke-warm water in which a non-foaming detergent is dissolved. Then, move the element to and fro in the solution for 5 minutes.
- Rinse with soft water until the drain water is clear. Let the element dry. Never use compressed air to hasten drying.
- Inspect the element by placing a light inside it. Spots or ruptures of the paper render the element unfit for further use.
- Reassemble in reverse order of dismantling.
- Reset the air filter service indicator by pushing the reset button (8).

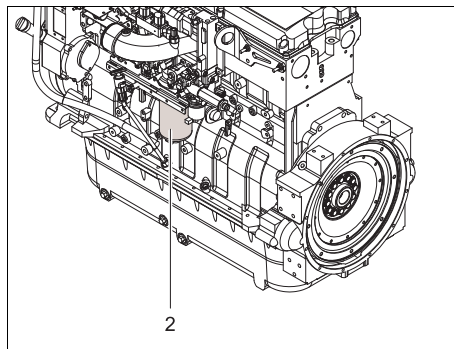
## 6.4.3 Fuel system

### 6.4.3.1 Draining primary fuel filters



The fuel system comprises:

- |   |  |
|---|--|
| 1 | Two primary coarse fuel filters / water separators |
| 2 | One secondary engine fuel filter                   |



Drain condensate from the primary coarse fuel filters / water separators regularly by loosening the drain plugs (3). Catch the condensate in a drain pan. Tighten the plugs after draining.

### 6.4.3.2 Priming the system

- Check to make sure the drain valve at the base of the fuel filter is closed.
- Remove the vent cap from the top of the clear cover. Fill the fuel filter full of clean fuel. Reinstall the vent cap and **tighten by hand only**.
- Start the engine. When the lubrication system reaches its normal operating pressure, increase engine speed to high idle for one or two minutes.

After the air is purged, loosen the vent cap until the fuel level lowers to just above the bottom of the collar. **Tighten the vent cap by hand only**.



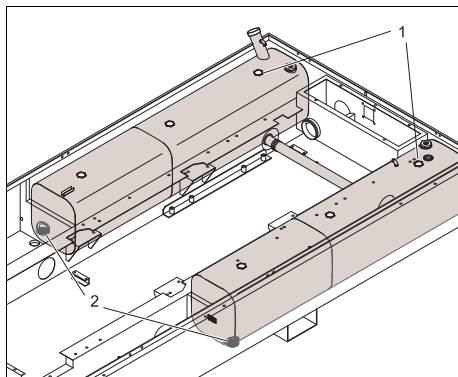
**The clear filter cover will not fill completely during engine operation. It will gradually fill over time and the fuel level will rise as the filter becomes clogged.**

- Hand tighten the collar again while the engine is running. **To avoid damage, do not use tools to tighten the collar.**



**To avoid damaging the aluminium fuel processor body, do not overtighten fuel lines or fuel line fittings.**

### 6.4.3.3 Cleaning fuel tanks



To drain sediment and water from the fuel tanks (1), remove the drain plug (2) of both fuel tanks and frame.

For a better drainage slightly slope the unit.

Use water to clean the inside of the fuel tanks, use a high-pressure purifier if necessary. Spurt the sediment and water to the drain side of the tank.



**After cleaning or heavy rains, drain the spillage-free frame.**

### 6.4.4 Cleaning coolers

Keep all coolers clean to maintain the cooling efficiency.

The fan side surface of the radiator, intercooler, aftercooler 1 and oil cooler is accessible by opening the service doors.

The CAC/Charge air cooler, fuel cooler and aftercooler 2 are located at the rear end of the unit, under the air filters.

- Remove any dirt from the coolers with a fibre brush. Never use a wire brush or metal objects. Then clean by air jet in reverse direction of normal flow.
- If the dirt is oily, wash the coolers with fuel or a cleansing agent.



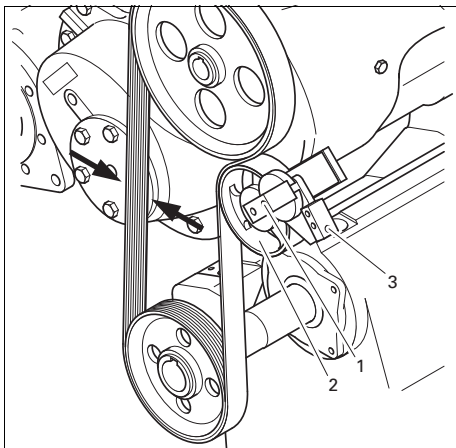
**Protect the electrical and controlling equipment, air filters, etc. against penetration of moisture.**

- A spray gun should preferably be used to apply the solvent to the cooler block. Rinse the block by means of a water jet after a soaking-in period. Steam-cleaning may also be applied.
- Close the service doors.
- Do not leave liquids behind.

### 6.4.5 Poly V-belt tension adjustment

To check the cooler fan poly V-belt tension, measure the belt frequency. Use tensioning tool 2913 0022 00. The arrows show where the frequency should be measured.

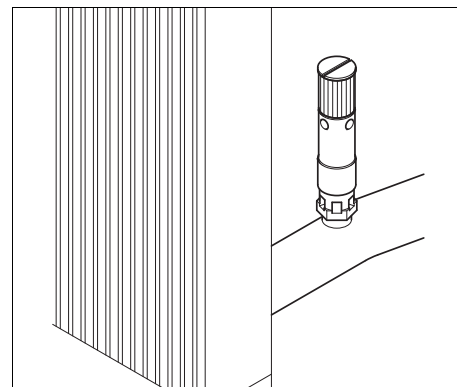
The correct belt frequency is 50 Hz  $\pm$ 2.5 Hz.



Correct the V-belt tension by loosening the fixing screw (1) of V-belt tensioner (2). Loosen the lock nut on the adjusting screw (3). Turn the adjusting screw clockwise to increase V-belt tension or counter-clockwise to decrease V-belt tension.

After adjusting the V-belt tension, retighten the adjusting screw lock nut and the fixing screw.

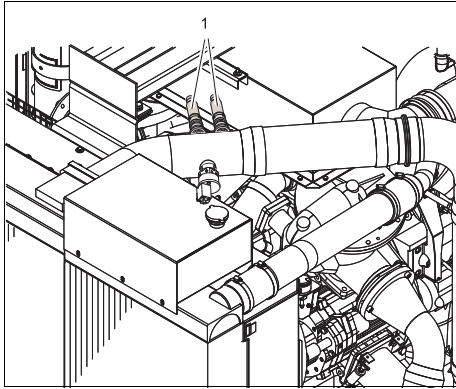
### 6.4.6 MP safety valve adjustment



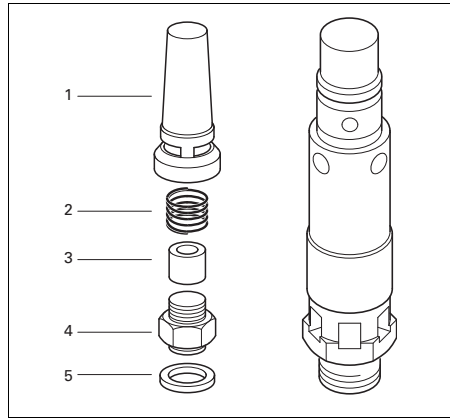
**All adjustments and repairs and following checks must be done by an authorized representative of the valve supplier.**

- A check of the opening of the lifting gear, once a year.
- A check of the set pressure once a year according to the local regulations. This check cannot be done on the unit and must be carried out on a proper test bench.

## 6.4.7 Checking intercooler relief valves



**Test the two intercooler relief valves (1), which are fitted on the MP air inlet pipe, statically on a compressed air line at least once a year.**



- |   |  |                |
|---|--|----------------|
| 1 |  | Valve housing  |
| 2 |  | Spring         |
| 3 |  | Valve          |
| 4 |  | Valve seat     |
| 5 |  | Washer, copper |

The valves should open at a pressure as specified in the chapter Technical specifications.

If the valves open too soon: remove a washer, if installed, between valve seat (4) and housing (1) or add a washer between spring (2) and housing.

If the valves open too late: remove a washer, if installed, between spring and housing or add a washer between valve seat and housing.

## 6.4.8 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 6.4.8.2.

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

### 6.4.8.1 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.

### 6.4.8.2 Activating a dry-charged battery

- Take out the battery.
- Battery and electrolyte must be at equal temperature above 10°C.
- Remove cover and/or plug from each cell.
- Fill each cell with electrolyte until the level reaches 10 to 15 mm above the plates, or reaches 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.

#### 6.4.8.3 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.**

Apply with preference 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.

To keep a battery charged, use the unit's battery charger.

Do not use this battery charger to charge an empty battery.

#### 6.4.8.4 Maintaining the battery voltage

To maintain the battery voltage, use the unit's automatic battery charger.

- Battery charger EEC/AUS: 240 VAC / 24 VDC - 100 VA
- Battery charger USA: 120 VAC / 24 VDC - 100 VA

When power is supplied to the charger, the battery voltage will be kept within preset limits.

Three LEDs on top of the battery charger show the charging condition:

- Green: AC supply voltage present
- Yellow: Battery voltage high
- Red: DC voltage present / unit charging



**Do not use the unit's automatic battery charger to charge an empty battery. In this case use a commercial automatic battery charger (see section 6.4.8.3).**

#### 6.4.8.5 Battery maintenance

- 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.
- Keep the terminals and clamps tight, clean, and lightly covered with petroleum jelly.



### 6.4.9 Servicing air inlet shut-down valve

The air shut-off valve is part of the refinery equipment and is mounted on the piping between the engine inlet and the motor charge air cooler outlet. The valve prevents combustion air to enter the engine. When an overspeed is detected, the engine will shutdown (emergency stop) and the air shut-off valve will close.

To reset the air shut-off valve, pull the handle of the valve up until a click is heard.

### 6.4.10 Servicing water separator

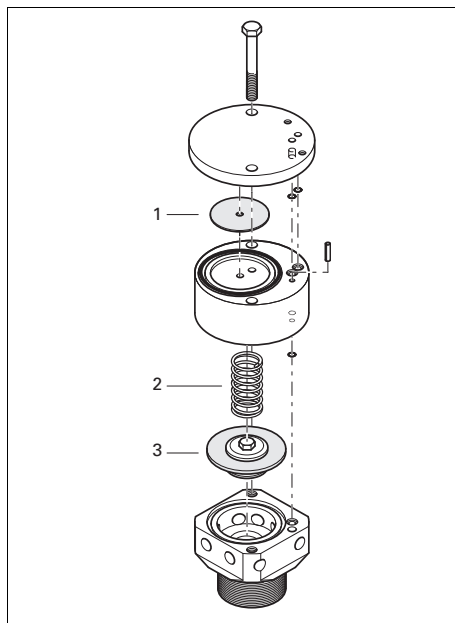
The water separator in the back of the unit filters water condensate out of the compressed air, before the air is discharged through the outlet valves.

Water condensate from the water separator is drained through a nipple in the bottom of the frame. Connect a drain hose to the nipple and make sure that the condensate is properly disposed of.

Service the filter of the water separator every 500 hours.

### 6.4.11 Servicing electric blow-off valve

The blow-off valve, fitted on the MP air inlet pipe, is opened to release air when the air inlet throttle valve is closed; it closes when the throttle valve is opened.



Replace the membrane, the diaphragm valve assembly (1) and the spring every 2000 hours (kit 2906 0568 00).

### 6.4.12 Servicing automatic fire suppression system



**Do not use a high pressure cleaner to clean the fire suppressing system or parts of it.**

#### Preventive maintenance

Check the heat sensitive detection wire for actual damage. A damaged detection wire can lead to a false release of the fire suppression system.

#### Periodic maintenance

To give maximum assurance that the system will operate as intended, maintenance must be performed every six months or sooner, depending on the operating and/or environment conditions.

Maintenance must be performed by authorized personnel only. Please contact Atlas Copco.

All maintenance activities are to be recorded in a logbook.

## 6.5 Engine consumable specifications

### 6.5.1 Engine fuel specifications

For fuel specifications, please contact your Atlas Copco Customer Center.

### 6.5.2 Engine oil specifications



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

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.

Ambient temperature range	Type of lubricant
between -10°C and 50°C	PAROIL E Mission Green



**Never mix synthetic with mineral oil.**



**If you want to use another brand of oil, consult Atlas Copco for more information concerning the recommended oil and service intervals.**

#### Specifications PAROIL

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 & IV engines running on low sulphur diesel for lower oil and fuel consumption.

## PAROIL E Mission Green

PAROIL E Mission Green is a mineral based high performance diesel engine oil with a high viscosity-index. Atlas Copco PAROIL E Mission Green is designed to provide a high level of performance and protection in standard ambient conditions as from -10°C.

	Liter	US gal	Imp gal	cu.ft	Order number
can	5	1.3	1.1	0.175	1630 0471 00
can	20	5.3	4.4	0.7	1630 0472 00
barrel	209	55.2	46	7.32	1630 0473 00

## 6.5.3 Engine coolant specifications



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

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

**It is strongly recommended to use Atlas Copco branded coolant.**

The use of the correct coolant is important for good heat transfer and protection of liquid-cooled engines. Coolants used in these engines must be mixtures of good quality water (distilled or de-ionised), special coolant additives and if necessary freeze protection. 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. 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.**

## Specifications PARCOOL EG

PARCOOL EG is the only coolant that has been tested and approved by all engine manufacturers currently in use 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.

Because PARCOOL EG inhibits corrosion, deposit formation is minimized. This effectively eliminates the problem of restricted flow through the engine coolant ducts and the radiator, minimizing the risk for 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 needing disposal to minimise environmental impact.

	Liter	US gal	Imp gal	cu.ft	Order number
can	5	1.3	1.1	0.175	1604 5308 00
can	20	5.3	4.4	0.7	1604 5307 01
barrel	210	55.2	46	7.35	1604 5306 00

To ensure protection against corrosion, cavitation and formation of deposits, the concentration of the additives in the coolant must be kept between 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.

## 7 Checks and trouble shooting

### 7.1 Problem solving chart

The chart helps to solve mechanical and electrical problems.

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.

### 7.2 Battery and alternator precautions

- Never reverse the polarity of the battery or the alternator.
- Never break any alternator or battery connections while the engine is running.
- 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.
- Never operate the engine without the main or voltage sensing cables connected in the circuit.

### 7.3 Trouble shooting

<i>Symptom</i>	<i>Possible cause</i>	<i>Corrective action</i>
<i>Compressor loaded automatically to full capacity after starting</i>	Loading solenoid valve stuck in loaded position.	Remove and check loading solenoid valve. Replace valve if necessary.
	Air intake throttle valve in open position.	Check position throttle valve. Disconnect loading solenoid valve from throttle valve housing and connect independent compressed-air line to throttle valve housing. Repeatedly admit air and listen for opening and closing sound of throttle valve. If sound is not evident, remove unloader valve assembly, dismantle and inspect. Replace parts where necessary.
<i>Compressor does not deliver air or not immediately after loading solenoid valve has been energized.</i>	Diaphragm of unloader piston cracked.	If air blows from venting device, open unloader piston cover and replace diaphragm.
	Air intake throttle valve stuck in closed position.	Disconnect loading solenoid valve from throttle valve housing and connect independent compressed-air line to throttle valve housing. Repeatedly admit air and listen for opening and closing sound of throttle valve. If sound is not evident, remove unloader valve assembly, dismantle and inspect. Replace parts where necessary.
	Air leaks in regulating system.	Same action as above.
	Loading solenoid valve out of order.	Check loading solenoid valve and electric wiring. Replace valve, if necessary.

<i>Symptom</i>	<i>Possible cause</i>	<i>Corrective action</i>
<i>Compressor capacity or pressure below normal</i>	Air consumption exceeds capacity of compressor.	Check equipment connected.
	Choked air filter element.	Remove and inspect air filter element. Clean or replace element, if necessary.
	Working pressure setpoint incorrect.	Adjust setting.
	Engine not up to max. load speed.	Check engine and correct if necessary.
	Electric blow-off valve malfunctioning.	Check interstage pressure. Check functioning of loading solenoid valve. Replace diaphragm of blow-off valve if necessary.
	Loading solenoid valve leakage.	With unit running at max. load speed, disconnect pipe from loading solenoid valve. If air leaks, remove and inspect loading solenoid valve. Replace valve, if necessary.
	Compressor element(s) not in order.	Check interstage pressure and have compressor element(s) inspected by Atlas Copco.
<i>Compressor capacity or pressure below normal</i>	Air intake throttle valve remains partially closed.	Disconnect loading solenoid valve from throttle valve housing and connect independent compressed-air line to throttle valve housing. Repeatedly admit air and listen for opening and closing sound of throttle valve. If sound is not evident, remove unloader valve assembly, dismantle and inspect. Replace parts where necessary.
	Safety valve or relief valve(s) leaking.	Remove and inspect safety valve or relief valve(s). Replace valve(s) if not airtight after reinstallation.
	Unloading valve leaking.	Remove and inspect unloading valve. Replace valve, if necessary.
	Pipe connections leaking.	Check connections and repair if necessary.

<i>Symptom</i>	<i>Possible cause</i>	<i>Corrective action</i>
<i>Air pressure rises above maximum and causes safety valve to blow off</i>	Working pressure setpoint incorrect.	Adjust setting.
	Air intake throttle valve does not close for some reason.	Check position throttle valve. Disconnect loading solenoid valve from throttle valve housing and connect independent compressed-air line to throttle valve housing. Repeatedly admit air and listen for opening and closing sound of throttle valve. If sound is not evident, remove unloader valve assembly, dismantle and inspect. Replace parts where necessary.
	Unloading valve malfunctioning.	Remove and inspect unloading valve and blow-off silencers.
<i>Compressor overheating</i>	Insufficient compressor cooling.	Move unit away from walls; when banked with other units, leave space between them.
	Oil cooler clogged externally.	Clean oil cooler.
	Oil cooler clogged internally.	Consult Atlas Copco.
	Compressor oil filter clogged.	Replace oil filter.
	Compressor oil level too low.	Before checking compressor oil level, wait approx. 10 minutes after unit has stopped. Add correct oil, if necessary. Never overfill.
	Fan blade broken or fan drive defective.	Check and correct, if necessary.
	Working pressure too high.	Adjust setting.
	Pressure ratio over compressor element(s) too high.	Consult Atlas Copco.
	Electric blow-off valve malfunctioning.	Check interstage pressure. Check functioning of loading solenoid valve. Replace diaphragm of blow-off valve if necessary.
	Bypass valve of oil cooler remains stuck in open position.	Remove bypass valve, clean and inspect.

<i>Symptom</i>	<i>Possible cause</i>	<i>Corrective action</i>
<i>Engine running but compressor does not load when 'Load' button is pressed</i>	Loading solenoid valve inoperative.	Check loading solenoid valve and electric wiring. Replace valve, if necessary.
	Diaphragm of unloader piston perforated or throttle valve remains closed for some reason.	Remove unloader piston cover and inspect rolling diaphragm. If in order, check piston for free axial movement by hand. If jammed, remove throttle valve housing, dismantle and replace defective parts.
	Control panel 'Load' button inoperative.	Consult Atlas Copco.
<i>Compressor oil pressure too low</i>	Compressor oil level too low.	Before checking compressor oil level, wait approx. 10 minutes after unit has stopped. Add correct oil, if necessary. Never overfill.
	Compressor oil filter clogged.	Replace compressor oil filter.
	Bypass valve in oil pump stuck in open position.	Remove bypass valve, clean and inspect.
	Oil pump failure.	Remove oil pump and inspect parts for wear.
	Bypass valve of oil sump stuck in open position.	Remove bypass valve, clean and inspect.
	Ambient temperature too low.	Use heaters, check oil viscosity.
	Compressor oil pressure sensor disconnected.	Connect wiring.



<i>Symptom</i>	<i>Possible cause</i>	<i>Corrective action</i>
<i>Engine does not start</i>	Engine oil pressure does not build up.	See Engine Operation Manual.
	Compressor oil pressure does not build up.	See problem “Compressor oil pressure too low”.
	Faulty compressor oil pressure shutdown switch.	Remove and test switch. Replace, if out of order.
	ECM fault.	Consult Atlas Copco.
	Coolant level(s) too low.	Check and adjust coolant level(s), if necessary.
	Crank time too short.	Adjust crank time on User Interface.
	Ambient temperature too low.	Connect engine heaters.
	Speed sensor inoperative.	Check speed sensor and electric wiring.
	Insufficient fuel supply.	Check fuel lines or bleed.
<i>After working for some time, the unit keeps shutting down</i>	Temperature or pressure sensor missing or malfunctioning.	Check via the User Interface display and replace sensor.
	Restriction in fuel supply to engine.	Check fuel lines and fuel filters.
	Air leak in fuel suction line or fuel filters.	Check suction side of electric fuel pump and fuel filters for air leaks.
	Compressor oil pressure too low.	See problem “Compressor oil pressure too low”.
	Engine oil pressure too low.	See Engine Operation Manual.
	Compressor overheating.	See “Compressor overheating”
<i>Excessive oil fumes or air flow coming from breather pot assembly on gear casing.</i>	Engine overheating.	See Engine Operation Manual.
	Compressor element(s) seals defective.	Have compressor element(s) inspected by Atlas Copco.

<i>Symptom</i>	<i>Possible cause</i>	<i>Corrective action</i>
<i>LP intercooler pressure below normal</i>	Choked air filter elements.	Remove and inspect air filter elements. Clean or replace elements, if necessary.
	Intercooler relief valve(s) leaking.	Remove valve(s), clean and inspect.
	Electric blow-off valve malfunctioning.	Check interstage pressure. Check functioning of loading solenoid valve. Replace diaphragm of blow-off valve if necessary.
	Air leak between LP and HP compressor element.	Inspect pipe connections and intercooler. Replace leaking O-rings, gaskets or intercooler, if necessary.
	LP compressor element not in order. Intercooler clogged internally.	Have LP compressor element inspected by Atlas Copco. Consult Atlas Copco.
<i>LP intercooler pressure above normal</i>	Aftercooler clogged internally.	Consult Atlas Copco.
	HP compressor element not in order.	Have HP compressor element inspected by Atlas Copco.
	HP silencer and/or check valve give restriction.	Check and take corrective action.
<i>MP intercooler pressure below or above normal</i>	MP or HP element is failing.	Consult Atlas Copco.
	MP safety valve is leaking.	Remove valve, clean and inspect parts.

## 7.4 Compressor control module trouble shooting

### 7.4.1 Process information

While the compressor is running, the operator can take a brief look at all the incoming compressor and engine data, by pressing the Process Info button.

This can be very useful for trouble shooting over the phone.

### 7.4.2 Fault codes

There are several parameters that are continuously watched.

When one of these parameters exceeds its specified limit the compressor will react depending the present status of the control box.

Alarm code	Alarm text	Fail class	Trigger
1231	FUEL FILL CHECK	Warning	PC
1503	INITIAL OVERHAUL REQUIRED	Warning	PC
1522	MINOR OVERHAUL WITHIN ** H	Warning	PC
1523	MINOR OVERHAUL WITHIN ** D	Warning	PC
1524	MINOR OVERHAUL REQUIRED	Warning	PC
1552	MAJOR OVERHAUL WITHIN ** H	Warning	PC
1553	MAJOR OVERHAUL WITHIN ** D	Warning	PC
1554	MAJOR OVERHAUL REQUIRED	Warning	PC
2000	EMERGENCY STOP INPUT	Shutdown	PC
2040	REMOTE EMERGENCY STOP	Shutdown	PC
2070	COOLANT LEVEL LOW WARNING	Warning	PC
2080	COOLANT LEVEL LOW SHUTDOWN	Shutdown	PC
2090	$\Delta$ P AIRFILTERS HIGH	Warning	PC
2100	NO PROJECTFILE DOWNLOADED	Warning	PC
3000	FUEL LEVEL LOW WARNING	Warning	PC
3010	FUEL LEVEL LOW SHUTDOWN	Controlled Stop	PC
3020	FUEL LEVEL SENSOR CIRCUIT	Warning	PC
3150	AIR DISCHARGE WARNING	Warning	PC
3160	AIR DISCHARGE SHUTDOWN	Shutdown	PC
3170	AIR DISCHARGE PRESSURE SENSOR CIRCUIT	Warning	PC

Alarm code	Alarm text	Fail class	Trigger
3200	ENGINE OIL LEVEL WARNING	Warning	PC
3210	ENGINE OIL LEVEL SHUTDOWN	Shutdown	PC
3220	ENGINE OIL LEVEL SENSOR CIRCUIT	Shutdown	PC
3450	BATTERY LOW ALARM	Indication	PC
3460	BATTERY HIGH ALARM	Warning	PC
3720	INTERSTAGE PRESSURE SENSOR CIRCUIT	Warning	PC
4000	L.P. ELEMENT TEMPERATURE HIGH	Warning	PC
4010	L.P. ELEMENT TEMP. ALARM 2	Controlled Stop	PC
4020	L.P. ELEMENT TEMP. ALARM 3	Shutdown	PC
4040	L.P. ELEMENT TEMP. SENSOR CIRCUIT	Shutdown	PC
4070	AMBIENT TEMPERATURE SENSOR CIRCUIT	Warning	PC
4100	AIR DISCHARGE TEMPERATURE ALARM 1	Warning	PC
4110	AIR DISCHARGE TEMPERATURE ALARM 2	Controlled Stop	PC
4120	A.D. TEMPERATURE SENSOR CIRCUIT	Warning	PC
4150	H.P. ELEMENT TEMPERATURE ALARM 1	Warning	PC
4160	H.P. ELEMENT TEMPERATURE ALARM 2	Controlled Stop	PC
4170	H.P. ELEMENT TEMPERATURE ALARM 3	Shutdown	PC
4190	H.P. ELEMENT TEMP. SENSOR CIRCUIT	Shutdown	PC
4450	AFTERCOOLER AIR DISCHARGE TEMP. WARNING	Warning	PC
4460	AFTERCOOLER AIR DISCHARGE TEMP. SHUTDOWN	Shutdown	PC
4470	AFTERCOOLER AIR DISCHARGE TEMP. SENSOR CIRCUIT	Shutdown	PC
5200	AIR SHUT OFF	Shutdown	PC
6161	OIL FILL ALARM	Warning	PC
6190	CHARGE MONITORING FAIL	Indication	PC
6201	AIR DISCHARGE PRESSURE LIMITING ALARM	Warning	PC
6327	START FAILURE	Shutdown	PC
6329	STARTER SPEED TOO LOW	Shutdown	PC
6388	VESSEL PRESSURE TOO LOW TO LOAD	Indication	PC
6426	UNINTENTIONAL RUN	Shutdown	PC
6427	RUN FAILURE	Shutdown	PC
6428	STOP FAILURE	Shutdown	PC

Alarm code	Alarm text	Fail class	Trigger
7002	ECU COMMUNICATION	Shutdown	PC
7007	ECU RED LAMP	Shutdown	ECU
7008	ECU AMBER LAMP	Warning	ECU
7009	ECU PROTECT LAMP	Warning	ECU
7010	ECU ENGINE SPEED TOO LOW	Shutdown	PC
7020	ECU ENGINE SPEED ALARM 2	Shutdown	PC
7030	ECU ENGINE COOLANT TEMP. ALARM	Shutdown	PC
7040	ECU ENGINE AIR INLET TEMP. ALARM 1	Controlled Stop	PC
7050	ECU OIL PRESSURE LOW	Warning	PC

Details of ECU triggered alarms can be monitored via the ECU DM1 LIST menus.

In case of ECU AMBER LAMP or ECU PROTECT LAMP:

Only possible when engine is running or if Diagnostics Mode is active.

Access the ECU DM1 LIST menu via Alarm View.

In case of ECU RED LAMP:

Do NOT acknowledge the ECU RED LAMP alarm.

DM1 alarms are automatically copied into the Alarm View, and can be read there.

For all ECU triggered alarms, the respective SPN code is shown in the ECU DM1 LIST. A full list of supported SPN codes is provided by the engine manufacturer.

For following alarms, the Pc controller also shows full text next to the SPN code:

- ECU - FUEL FILTER TEMPERATURE
- ECU - INTERCOOLER TEMPERATURE
- ECU - FUEL PRESSURE
- ECU - FUEL FILTER PRESSURE
- ECU - WATER IN FUEL
- ECU - OIL LEVEL
- ECU - OIL FILTER PRESSURE
- ECU - OIL PRESSURE
- ECU - TURBO BOOST PRESSURE
- ECU - TURBO OIL PRESSURE
- ECU - INTAKE MANIFOLD TEMPERATURE
- ECU - AIR INLET PRESSURE
- ECU - COOLANT TEMPERATURE
- ECU - COOLANT LEVEL
- ECU - SUPPLY VOLTAGE
- ECU - AMBIENT AIR TEMPERATURE
- ECU - AIR INLET TEMPERATURE
- ECU - FUEL TEMPERATURE
- ECU - OIL TEMPERATURE
- ECU - ENGINE SPEED
- ECU - INJECTOR 1
- ECU - INJECTOR 2
- ECU - INJECTOR 3
- ECU - INJECTOR 4
- ECU - INJECTOR 5
- ECU - INJECTOR 6
- ECU - INJECTOR 7
- ECU - INJECTOR 8
- ECU - SOOT LOAD

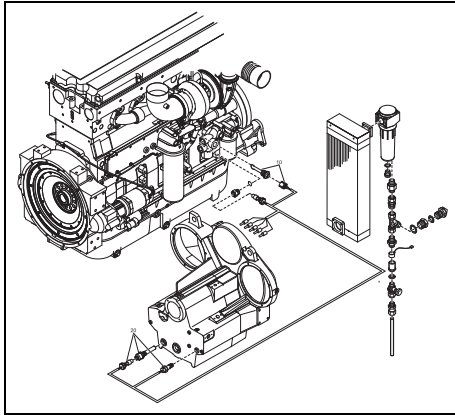
## 7.5 Shutdown sensors

The unit comprises several shutdown sensors:

- Engine shutdowns (by ECM):
  - Engine Coolant Level Sensor Failure
  - Engine Coolant Temp. Sensor Failure
  - Engine Oil Temperature Sensor Failure
  - Engine Fuel Temperature Sensor Failure
  - Engine Air Inlet Temp. Sensor Failure
  - Engine Turbo Boost Press. Sensor Failure
  - Engine Oil Pressure Sensor Failure
  - Engine Fuel Pressure Sensor Failure
  - Engine Coolant Level Low
  - Engine Coolant Temperature Too High
  - Engine Air Inlet Temperature High
  - Engine Oil Pressure Too Low
  - Turbo Boost Pressure High
  - Engine Fuel Pressure Too Low
  - Engine Injector X Failure
  - Fuel Temperature Too High
  - Engine RPM Sensor Failure
- Fuel level shutdown
- Engine oil level shutdown
- Engine oil level overfill shutdown
- LP element temperature shutdown
- MP element temperature shutdown
- HP element temperature shutdown
- Compressor oil pressure shutdown
- Apparatus shutdown:
  - Air discharge pressure sensor
  - LP element temperature sensor
  - MP element temperature sensor
  - HP element temperature sensor
  - Loaded solenoid valve output
  - ECM communication link
  - CAN communication link

## 8 Available options

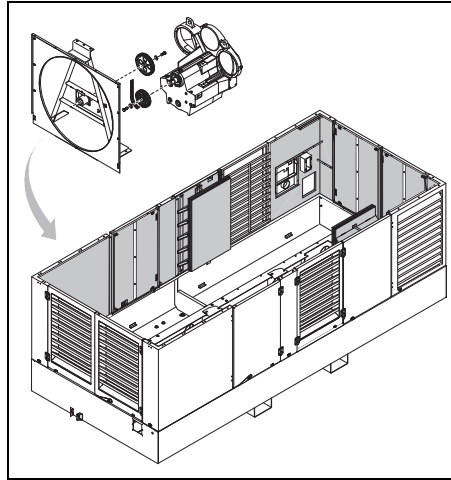
### 8.1 Heating kit



The heating kit is a cold start option.

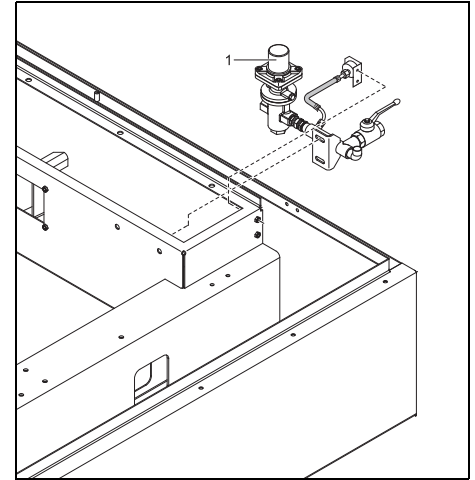
It consists of heater plugs that are to be installed in engine and gearbox, making sure that the engine starts at temperatures as low as -25°C (-13°F).

### 8.2 Hot weather pack



The hot weather pack option allows the compressor to run in ambient conditions up to 50°C (122°F) (45°C (113°F) is standard).

### 8.3 Pressure reducer



A pressure reducer (1) limits the operating pressure to 7 bar (102 psi) and thus allows the operation of hand held pneumatic tools.

### 8.4 Cold climate fuel

Cold climate diesel fuel can be used in ambient conditions as low as -25°C (-13°F).

## **9 Storage of the compressor**

### **9.1 Storage instructions**

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 unit is going to be stored without running from time to time, protective measures must be taken.**



## 10 Disposal

### 10.1 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, and used, as well as at their disposal.

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

Selecting materials the substantial recyclability, the disassembly possibilities and the separability of materials and assemblies are considered as well as the environmental perils and dangers to health during the recycling and disposal of the unavoidable rates of not recyclable materials.

Your Atlas Copco compressor consists for the most part of metallic materials, that can be remelted in steelworks and smelting works and that is therefore almost infinite 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 a correct disposal of the product you help to prevent possible negative consequences for environment and health, that can occur with an inappropriate waste handling.**

**Recycling and re-usage of material helps to preserve natural resources.**

### 10.2 Disposal of materials

Dispose contaminated substances and material separately, according to local applicable environmental legislation.

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

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

Dispose all components according to the applicable disposal regulations.

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

# 11 Technical specifications

## 11.1 Torque values

### 11.1.1 For general applications

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

For hexagon screws and nuts with strength grade 8.8:

Thread size	M6	M8	M10	M12	M14	M16
Nm	9	23	46	80	125	205

For hexagon screws and nuts with strength grade 12.9:

Thread size	M6	M8	M10	M12	M14	M16
Nm	15	39	78	135	210	345

### 11.1.2 For important assemblies

Assemblies	Unit	Torque values
Axles to frame:		
Wheel nuts	Nm	80 + 10/- 0
Bolts, towing eye/towbar	Nm	80 ± 10
Bolts, towbar/turntable	Nm	80 ± 10
Bolts, front axle/frame	Nm	80 ± 10
Bolts, rear axle/frame	Nm	205 ± 20
Compressor to frame:		
Bolts, elements/gear casing	Nm	80 ± 10
Bolts, gear casing/support	Nm	205 ± 20
Bolts, support/buffer	Nm	205 ± 20
Bolts, buffer/frame	Nm	80 ± 10
Engine to frame:		
Bolts, engine/support	Nm	205 ± 20
Bolts, support/buffer	Nm	205 ± 20
Bolts, buffer/frame	Nm	80 ± 10
Lifting beam to frame:		
Bolts, lifting beams/yoke (M12)	Nm	80 ± 10
Bolts, lifting beams/yoke (M16)	Nm	205 ± 20
Bolts, yoke/lifting supports	Nm	205 ± 20
Bolts, lifting supports/frame	Nm	205 ± 20

## 11.2 Settings of shutdowns and safety valves

Designation	Value
Engine shutdowns (see EOM)	
Fuel level	5%
LP element temperature	250°C
MP element temperature	250°C
HP element temperature	250°C
Compressor oil pressure	1.2 bar(e)
MP safety valve opening pressure	15.0 bar(e)
HP safety valve opening pressure	28.0 bar(e)
Relief valves opening pressure	3.7 bar(e)

### 11.3 Compressor/engine specifications for standard units

<i>Designation</i>	<i>Unit</i>	<i>Value</i>		
<i>Reference conditions</i>				
Absolute inlet pressure	bar(e)		1	
Relative air humidity	%		1	
Air inlet temperature	°C		20	
Normal effective working pressure	bar(e)	20	24	0
The inlet conditions are specified at the air inlet grating outside the canopy				
<i>Limitations</i>				
Minimum effective receiver pressure	bar(e)	10.3	10.3	0
Maximum effective receiver pressure, compressor unloaded	bar(e)	21	25	0
Maximum ambient temperature	°C	45	45	0
Minimum starting temperature	°C	-25	-25	0
<i>Performance data</i> <sup>1)</sup>				
Engine shaft speed, normal and maximum	r/min	1800	1750	0
Engine shaft speed, compressor unloaded	r/min	1300	1400	0
Free air delivery <sup>2)</sup>	l/s	575	553	0
Fuel consumption at full load (Std)	kg/h	83.82	85.62	
Fuel consumption at full load (Hot Env)	kg/h	85,71	87.24	
Fuel consumption at unload (Std)	kg/h	13.20	15.60	
Fuel consumption at unload (Hot Env)	kg/h	13.68	16.13	
Specific fuel consumption (Std)	g/m <sup>3</sup>	40.85	43.24	
Specific fuel consumption (Hot Env)	g/m <sup>3</sup>	41.73	43.74	
Typical oil content of compressed air	mg/m <sup>3</sup>	0	0	0
	free air			
Engine oil consumption (maximum)	g/h	0	0	0
Compressed air temperature at outlet valves	°C	30-70	30-70	<sup>5)</sup>
Noise level				

Sound pressure level (LP), measured according to EPA with a tolerance of $\pm 3$ dB(A) under free field conditions at 7 m distance	dB(A)	0
Sound power level (LW) complies with 84/532/533/EEC and 85/406/EEC limits	dB(A)	112

### *Design data*

#### **Compressor**

Number of compressor stages 3 in serial

#### **Engine**

Make Cummins

Type QSX15

Coolant Liquid

Number of cylinders 6

Bore mm 137

Stroke mm 169

Swept volume l 15.0

Output according to SAEJ1995 at normal shaft speed kW 406

Load factor % intermittent

Capacity of oil sump:

Initial fill 1 90

Refill (max.)<sup>4)</sup> 1 86

Capacity of cooling system (intercooler) 1 0

Capacity of cooling system (engine jackets) 1 90

#### **Unit**

Capacity of compressor oil system 1 92

Net capacity of air receiver 1 0

Capacity of fuel tanks 1 900

Air volume at inlet grating (approx.)<sup>3)</sup> m<sup>3</sup>/s 15

### *Unit dimensions*

Length	mm	5240
(with towbar in towing position)	mm	6770
Width	mm	2210
Height	mm	2350
Weight (ready to operate)	kg	TBD*
Weight (without fuel)	kg	TBD*

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### *Notes*

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\*) TBD = Data to be defined

1) At reference conditions, if applicable, and in normal shaft speed, unless otherwise stated.

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

3) Air required for engine and compressor cooling, combustion and for compression

4) With filter change

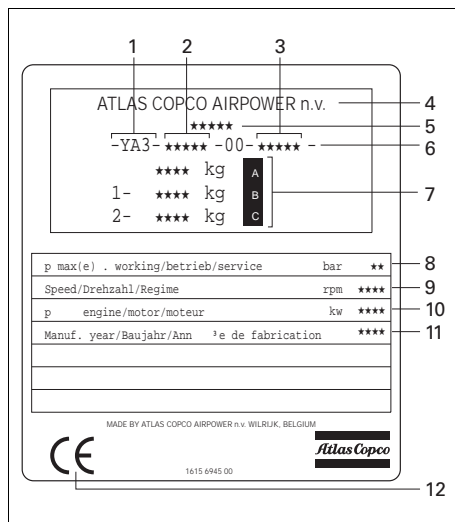
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## 11.4 Conversion list of SI units into British units

1 bar	=	14.504 psi
1 g	=	0.035 oz
1 kg	=	2.205 lbs
1 km/h	=	0.621 mile/h
1 kW	=	1.341 hp (UK and US)
1 l	=	0.264 US gal
1 l	=	0.220 imp gal (UK)
1 l	=	0.035 cu.ft
1 m	=	3.281 ft
1 mm	=	0.039 in
1 m <sup>3</sup> /min	=	35.315 cfm
1 mbar	=	0.401 in wc
1 N	=	0.225 lbf
1 Nm	=	0.738 lbf.ft
$t_{°F}$	=	$32 + (1.8 \times t_{°C})$
$t_{°C}$	=	$(t_{°F} - 32)/1.8$

A temperature difference of 1°C = a temperature difference of 1.8°F.

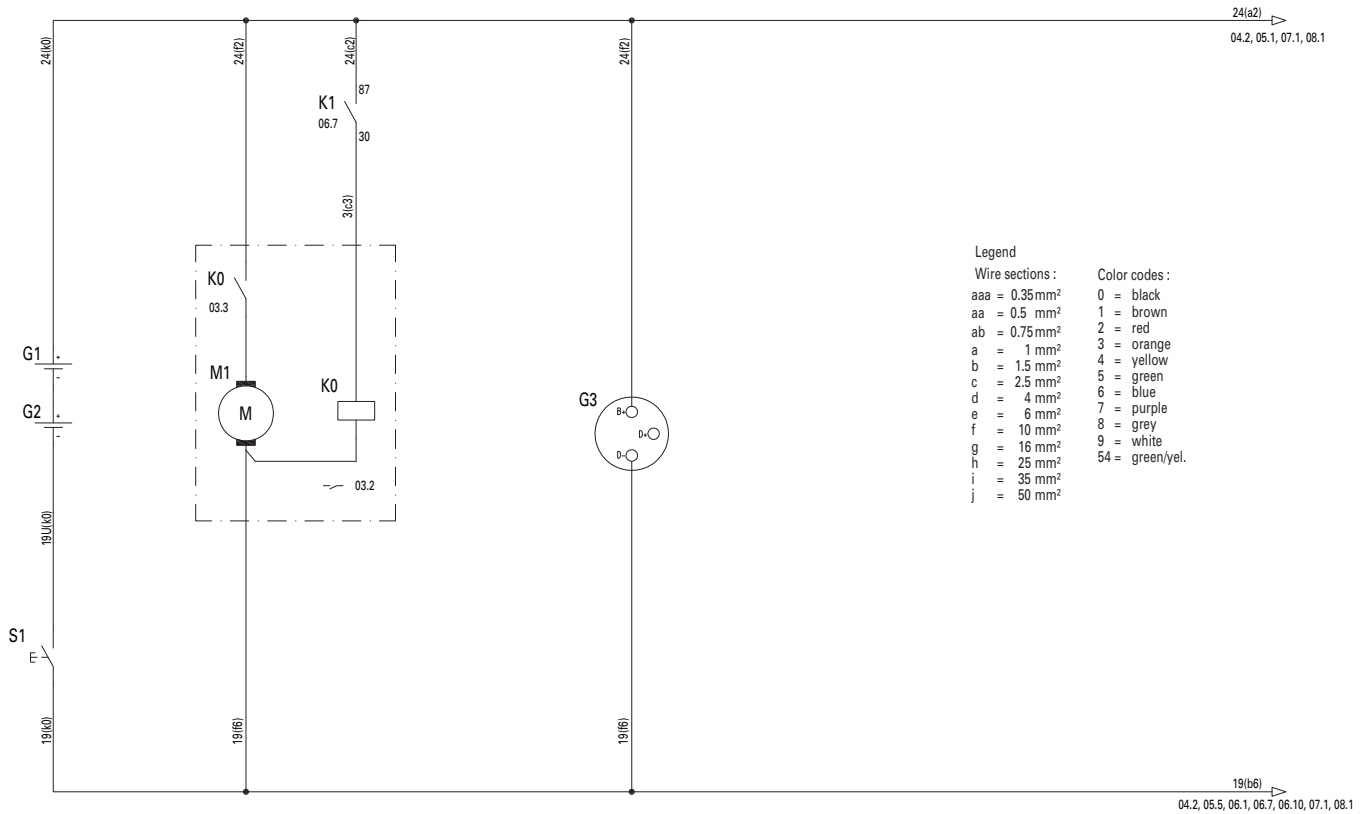
## 11.5 Data plate

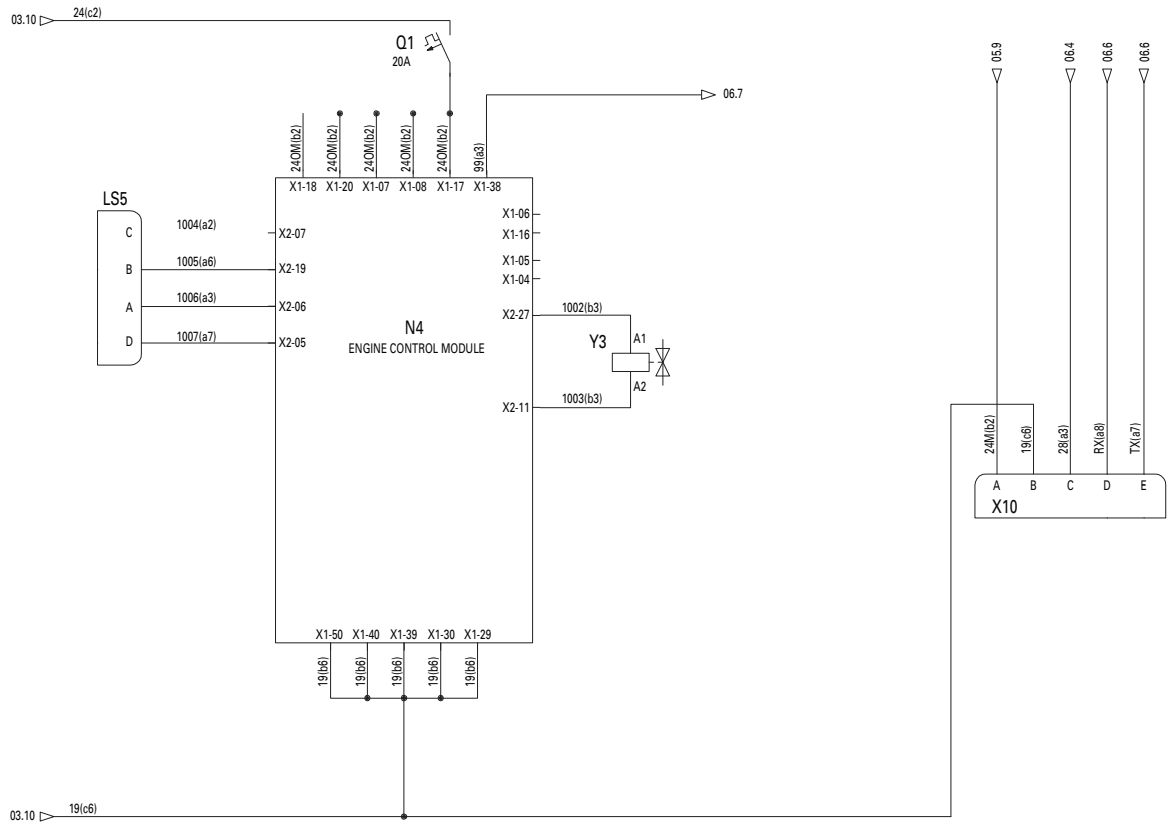


- 1 Company code
- 2 Product code
- 3 Unit serial number
- 4 Name of manufacturer
- 5 EEC or national type approved number
- 6 Vehicle identification number
- 7 A. Maximum permitted laden weight of the vehicle  
B. Maximum permitted road weight of the front axle  
C. Maximum permitted road weight of the rear axle
- 8 Working pressure
- 9 Speed
- 10 Engine power
- 11 Manufacturing year
- 12 EC mark in accordance with Machine Directive 89/392 EEC

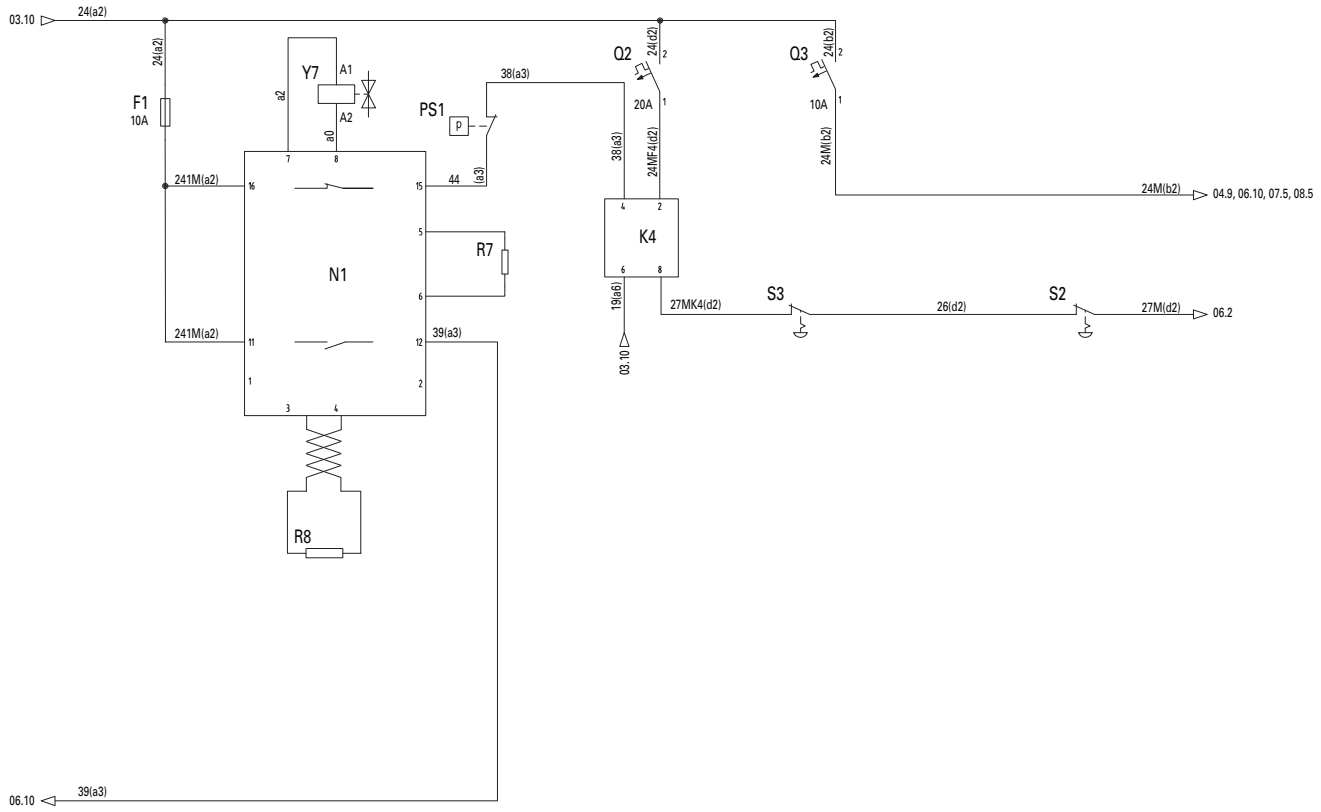
9822 0900 21/01

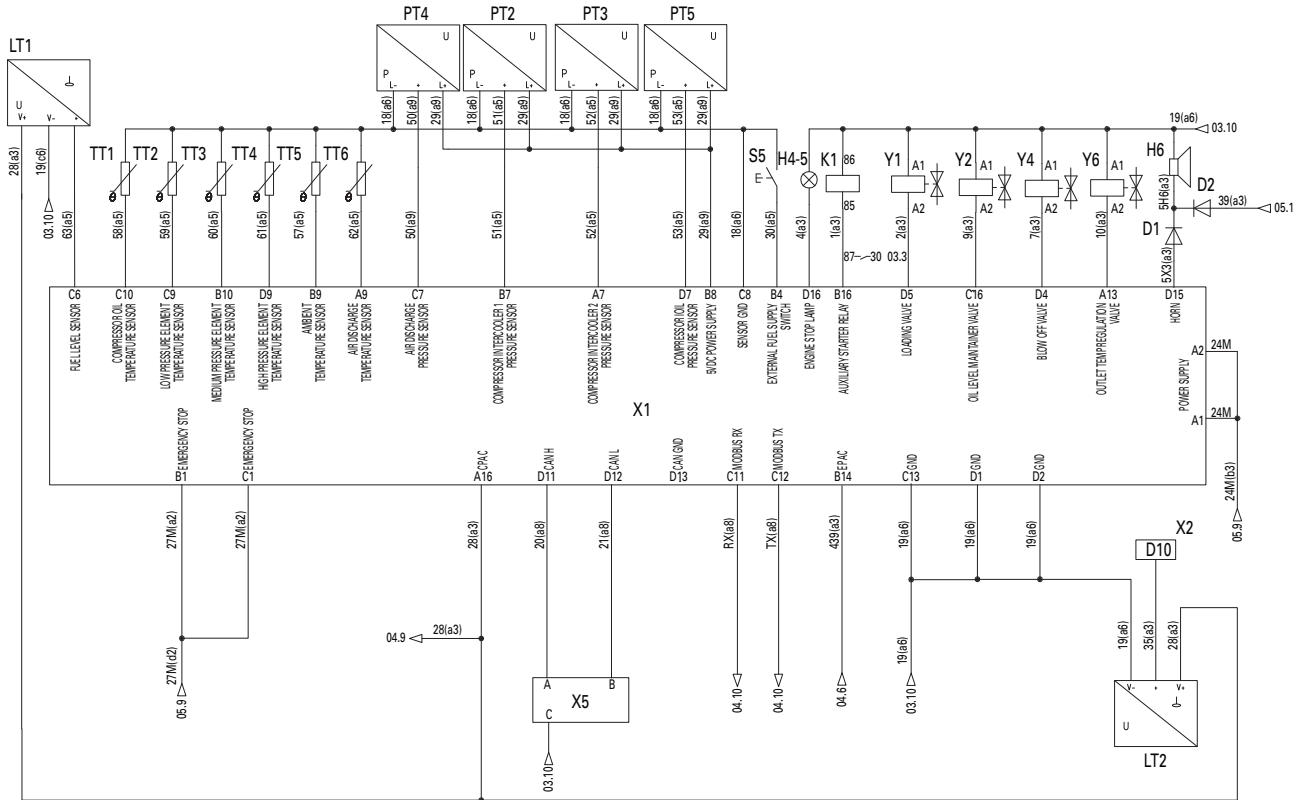
Applicable for PNS 1250 T3, Circuit diagram Engine and Controller



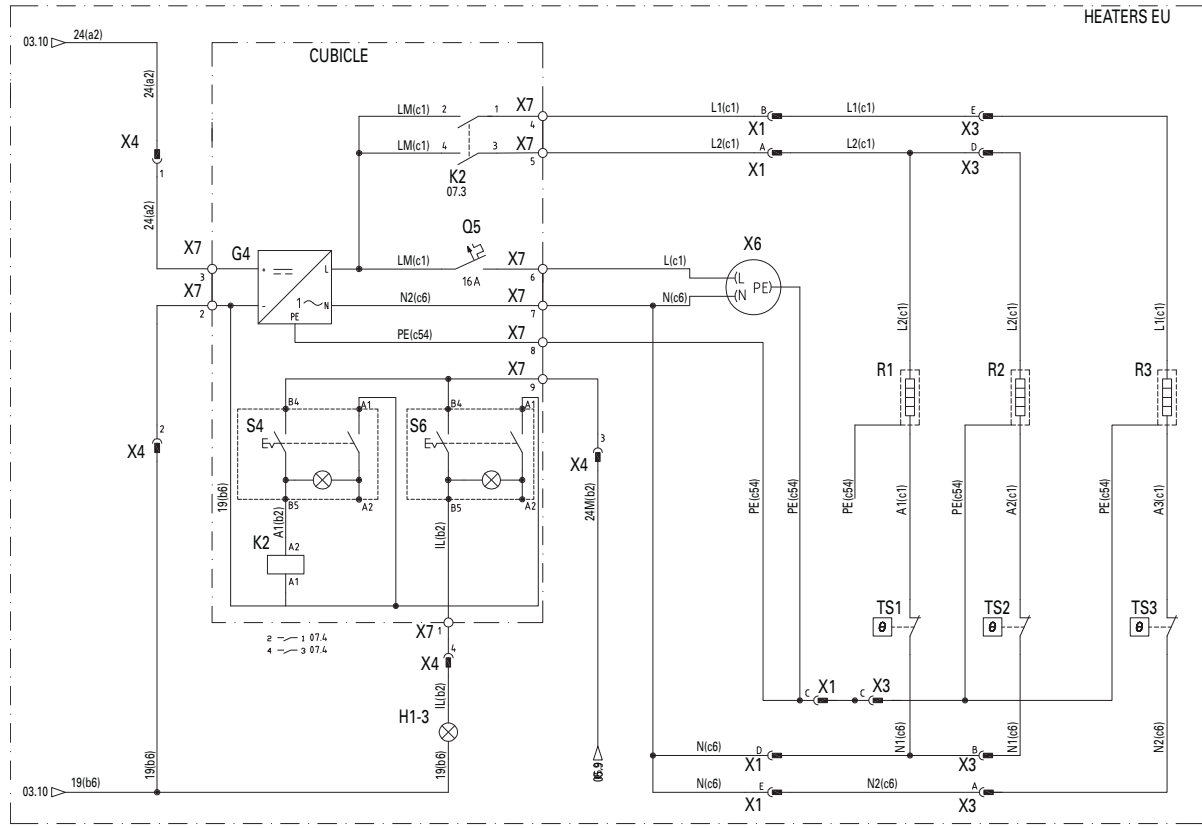


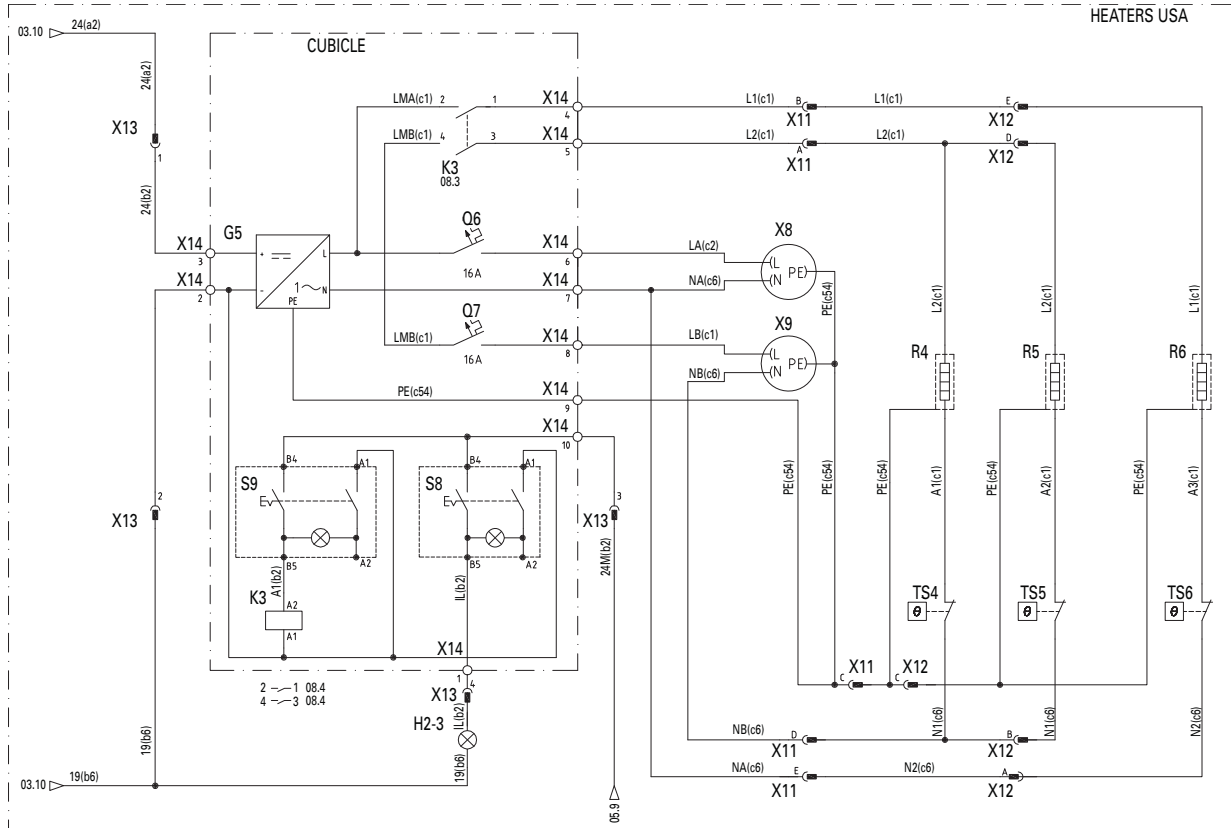






HEATERS EU

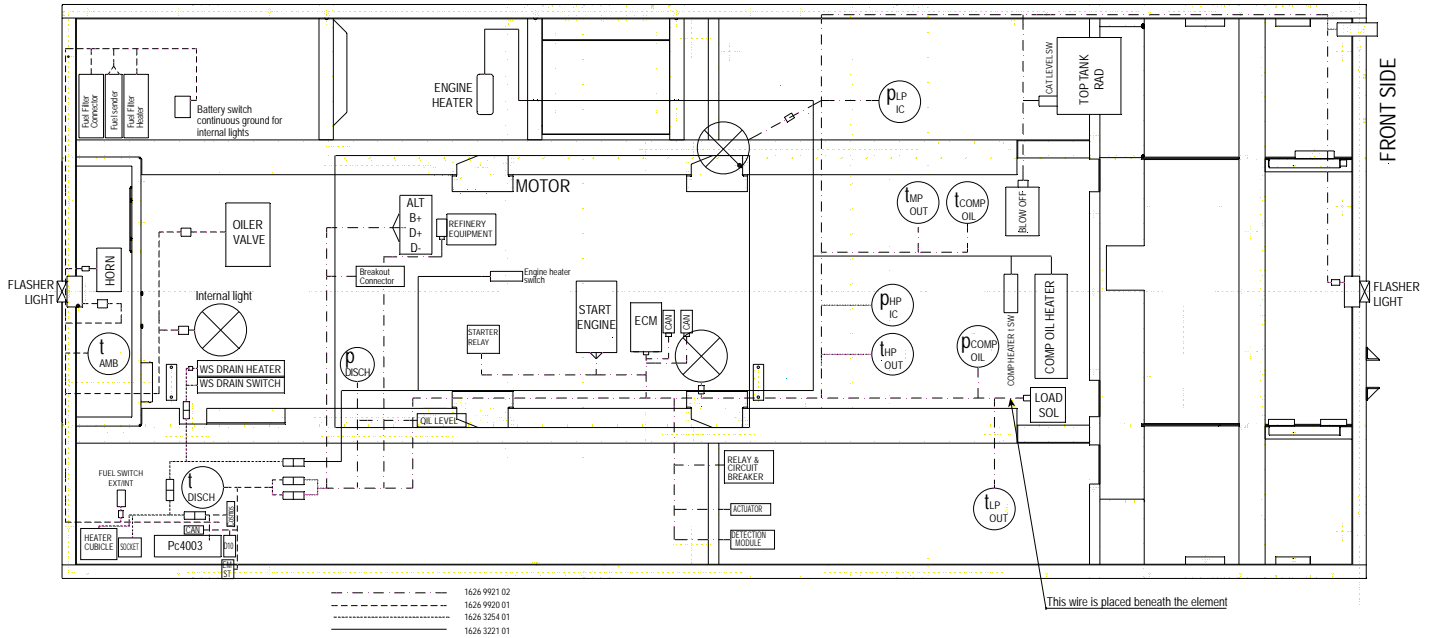




D1	Diode	Q1	Circuit Breaker - ECM, 20A	TT2	Temperature Sensor - Low Pressure Element Temperature
D2	Diode	Q2	Circuit Breaker - Emergency Stop, 20A	TT3	Temperature Sensor - Medium Pressure Element Temperature
F1	Fuse - Fire Extinguisher, 10A	Q3	Circuit Breaker - Main, 10A	TT4	Temperature Sensor - High Pressure Element Temperature
G1	Battery	Q5	Circuit Breaker - Heater EU, 16A	TT5	Temperature Sensor - Ambient Temperature
G2	Battery	Q6	Circuit Breaker - Heater USA, 16A	TT6	Temperature Sensor - Air Discharge Temperature
G3	Alternator - Charging	Q7	Circuit Breaker - Heater USA, 16A	X1	Connector - Heaters EU
G4	Battery Charger - EU	R1	Heater - EU	X10	Connector - Cosmos
G4	Battery Charger - USA	R2	Heater - EU	X11	Connector - Heater USA
H1-3	Lamp - Internal Lights	R3	Heater - EU	X12	Connector - Heater USA
H2-3	Lamps - Internal Lights	R4	Heater - USA	X13	Connector - To Rear Wiring USA
H4-5	Lamp - Engine Warning	R5	Heater - USA	X14	Connector - Terminal Block USA
H6	Horn	R6	Heater - USA	X2	Connector - Secondary Connector PC4003
K0	Relay - Starter Motor	R7	Resistor - 4.7 kOhm, Fire Extinguisher	X3	Connector - Heaters EU
K1	Relay - Auxiliary Starter	R8	Resistor - 4.7 kOhm, End Detection Wire	X4	Connector - To Rear Wiring EU
K2	Relay - Heater EU	S1	Switch - Battery	X5	Connector - Can Engine
K3	Relay - Heater USA	S2	Switch - Emergency Stop	X6	Socket - Power EU
K4	Relay - Solid State	S3	Switch - Emergency Stop	X7	Connector - Terminal Block EU
LS5	Level Switch - Coolant	S4	Switch - Internal Lights EU	X8	Socket - Power USA
LT1	Level Sensor - Fuel Level	S5	Switch - External Fuel Supply	X9	Socket - Power USA
LT2	Level Sensor - Oil Level	S6	Switch - Heaters EU	Y1	Solenoid - Loading Valve
M1	Motor - Starter	S8	Switch - Heaters USA	Y2	Solenoid - Oil Level Maintainer Valve
N1	Detection Module	S9	Switch - Internal Lights USA	Y3	Refinery Equipment - Air Shut-off Valve
N4	Engine Control Module	TS1	Temperature Switch - Heater EU	Y4	Solenoid - Blow-off Valve
PS1	Pressure Switch - Manual Actuator	TS2	Temperature Switch - Heater EU	Y6	Solenoid - Automatic Actuator
PT2	Pressure Sensor - Compressor Intercooler Pressure 2	TS3	Temperature Switch - Heater EU	Y7	Solenoid - Automatic Actuator
PT3	Pressure Sensor - Compressor Intercooler Pressure 1	TS4	Temperature Switch - Heater USA		
PT4	Pressure Sensor - Air Discharge Pressure	TS5	Temperature Switch - Heater USA		
PT5	Pressure Sensor - Compressor Oil Pressure	TS6	Temperature Switch - Heater USA		
		TT1	Temperature Sensor - Compressor Oil Temperature		

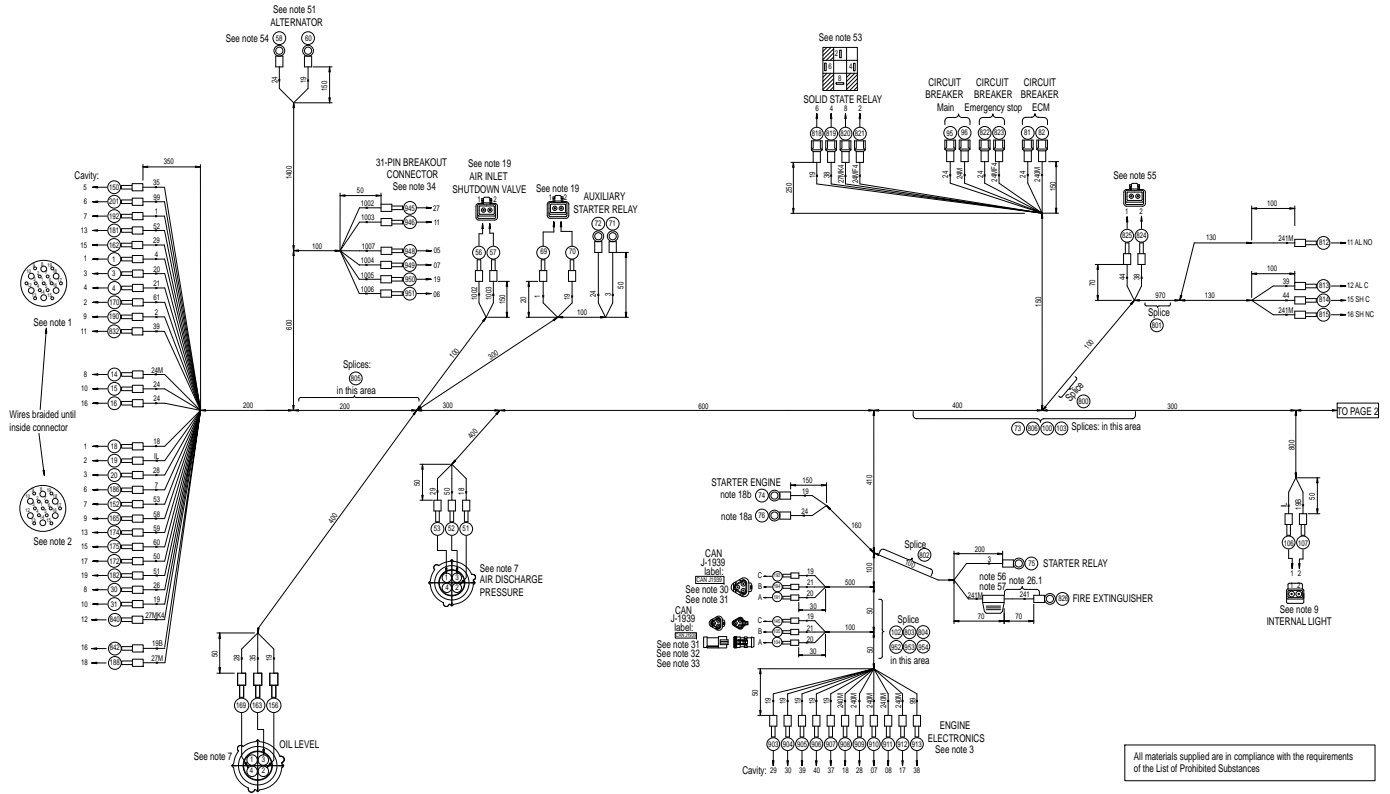
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Applicable for PNS 1250 T3 - Circuit wiring

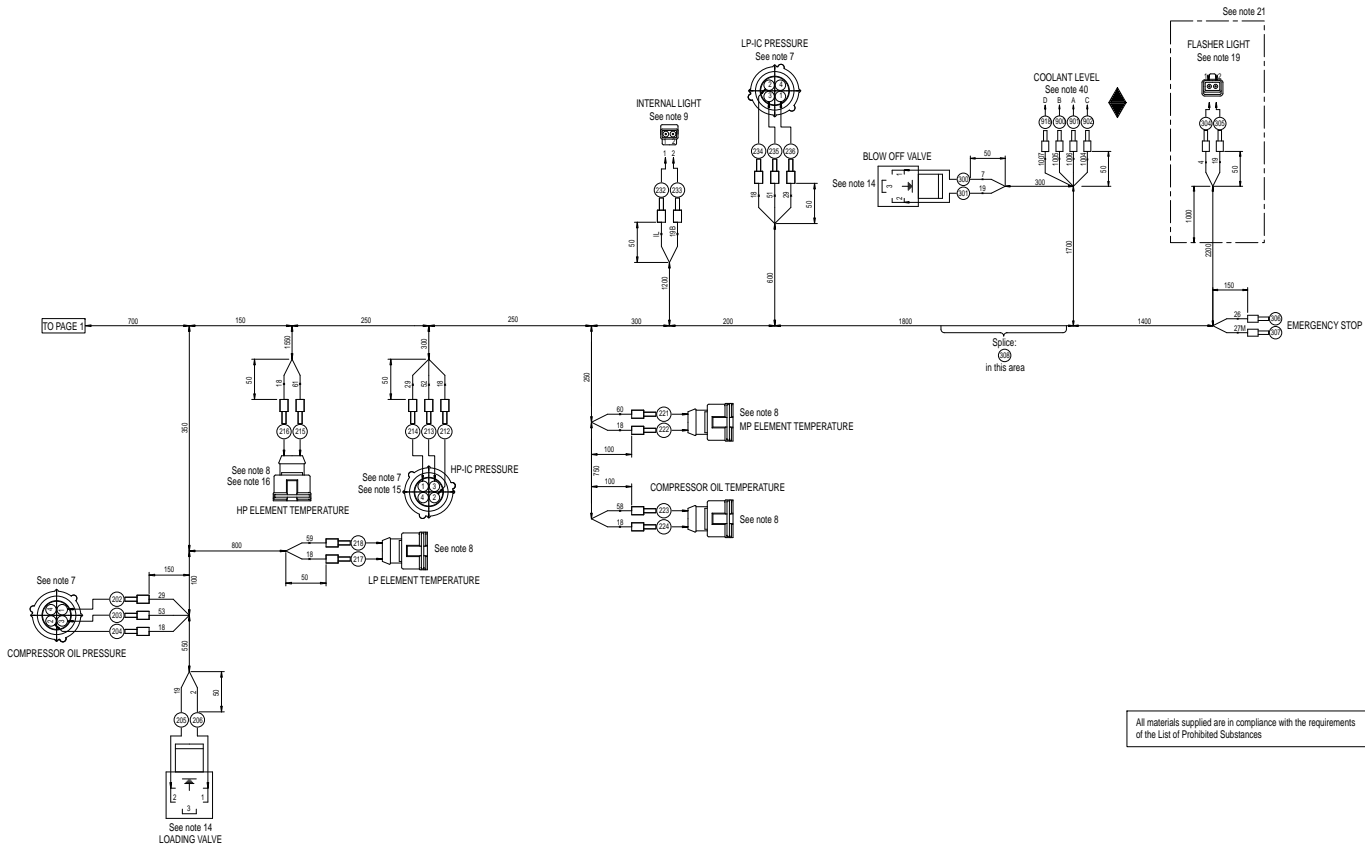


1626 9921 02/00

Applicable for PNS 1250 T3 - Wire harness front



All materials supplied are in compliance with the requirements of the List of Prohibited Substances



All materials supplied are in compliance with the requirements of the List of Prohibited Substances



TERMINAL END A		TERMINAL END B		WIRE				
NR.	TERMINAL	NR.	TERMINAL	NR.	MM <sup>2</sup>	COLOR		
69	see note 19	192	see note 1	1	1	orange		
190	see note 1	206	see note 14	2	1	orange		
71	AMP 342145-1	75	AMP 130090-0	3	2.5	orange		
304	see note 19	1	see note 1	4	1	orange		
186	see note 2	300	see note 14	7	1	orange		
51	see note 7	73	splice	18	1	blue		
212	see note 7			18	1	blue		
224	see note 8			18	1	blue		
222	see note 8			18	1	blue		
234	see note 7			18	1	blue		
216	see note 8			18	1	blue		
217	see note 8			18	1	blue		
204	see note 7			18	1	blue		
18	see note 2			18	1	blue		
31	see note 2			74	see note 18	19	4	blue
193	see note 30			954	splice	19	1	blue
145	see note 32	19	1			blue		
74	see note 18	19	1			blue		
60	AMP 165034-0	74	see note 18	19	10	blue		
205	see note 14	74	see note 18	19	1	blue		
803	splice	903	see note 3	19	1.5	blue		
		904	see note 3	19	1.5	blue		
		74	see note 18	19	2.5	blue		
804	splice	905	see note 3	19	1.5	blue		
		906	see note 3	19	1.5	blue		
		907	see note 3	19	1.5	blue		
		74	see note 18	19	2.5	blue		
156	see note 7	805	splice	19	1	blue		
818	faston AMP 5-160446-2			19	1	blue		
74	see note 18			19	1	blue		
70	see note 19			19	1	blue		

TERMINAL END A		TERMINAL END B		WIRE		
NR.	TERMINAL	NR.	TERMINAL	NR.	MM <sup>2</sup>	COLOR
308	splice	74	see note 18	19	2,5	blue
		301	see note 14	19	1	blue
		305	see note 19	19	1	blue
842	see note 2	103	splice	19B	1	blue
107	see note 9			19B	1	blue
233	see note 9			19B	1	blue
3	see note 1, 31	952	splice	20	1	grey
191	see note 30, 31			20	1	grey
104	see note 32, 31			20	1	grey
4	see note 1, 31	953	splice	21	1	purple
194	see note 30, 31			21	1	purple
105	see note 32, 31			21	1	purple
19	see note 2	100	splice	IL	1	orange
106	see note 9			IL	1	orange
232	see note 9			IL	1	orange
15	see note 1	76	see note 18	24	4	red
16	see note 1	76	see note 18	24	4	red
58	AMP 33466, see note 54	76	see note 18	24	10	red
95	AMP 3-520117-2	76	see note 18	24	1,5	red
72	AMP 342145-1	76	see note 18	24	2,5	red
822	insulated faston 6,3 x 0,8	76	see note 18	24	4	red
81	AMP 3-520117-2	76	see note 18	24	2,5	red
908	see note 3	102	splice	240M	1,5	red
909	see note 3			240M	1,5	red
82	AMP 3-520117-2			240M	2,5	red
910	see note 3			240M	1,5	purple
911	see note 3			240M	1,5	purple
912	see note 3			240M	1,5	purple

TERMINAL END A		TERMINAL END B		WIRE		
NR.	TERMINAL	NR.	TERMINAL	NR.	MM <sup>2</sup>	COLOR
826	eye M12	802	splice	241	inline fuse; see notes 56, 57	red
801	splice			241M	1	red
				241M	1	red
				241M	1	red
				241M	1	red
14	see note 1	96	AMP 3-520117-2	24M	1.5	red
30	see note 2	306	terminal end	26	4	red
307	terminal end	188	see note 2	27M	4	red
823	insulated faston 6,3 x 0,8	821	faston AMP 160913-4	24MF4	4	red
820	faston AMP 160913-4	840	see note 2	27MK4	4	red
20	see note 2	169	see note 7	28	1	orange
150	see note 1	163	see note 7	35	1	green
819	faston AMP 5-160446-2	824	socket Deutsch 0462-201-16141	38	1	orange
813	uninsulated wire ferrule AMP 0-925856-1	832	see note 1	39	1	orange
806	splice	162	see note 1	29		
		53	see note 7	29	1	orange
		236	see note 7	29	1	white
		214	see note 7	29	1	white
		202	see note 7	29	1	white
814	uninsulated wire ferrule AMP 0-925856-1	825	see note 55	44	1	orange
52	see note 7	172	see note 2	50	1	white
182	see note 2	235	see note 7	51	1	green
181	see note 1	213	see note 7	52	1	green
152	see note 2	203	see note 7	53	1	green
165	see note 2	223	see note 8	58	1	green
174	see note 2	218	see note 8	59	1	green
175	see note 2	221	see note 8	60	1	green
170	see note 1	215	see note 8	61	1	green
913	see note 3	201	see note 1	99	1	orange
56	see note 19	945	see note 34	1002	1.5	orange
57	see note 19	946	see note 34	1003	1.5	orange
949	see note 34	902	see note 40	1004	1	red

TERMINAL END A		TERMINAL END B		WIRE		
NR.	TERMINAL	NR.	TERMINAL	NR.	MM <sup>2</sup>	COLOR
950	see note 34	900	see note 40	1005	1	blue
951	see note 34	901	see note 40	1006	1	orange
918	see note 40	948	see note 34	1007	1	purple

## NOTES

Note 1: Connector: Amphenol PT06 A 22-41 S SR  
Terminals: Size 16 (large):  
Amphenol 800 635  
Size 20 (small):  
Amphenol 800 615

Unused cavities shall be sealed with:  
Amphenol 900 021 or 900 020

OR

Connector: Deutsch HD N 36 - 24-19 SN  
- 059

Terminals: Size 12 (large):  
Deutsch 0462-203-12141  
Size 16 (small):  
Deutsch 0462-201-16141

Unused cavities shall be sealed with:  
Deutsch 114017

Note 2: Connector: Amphenol PT07 A 22-41 P SR  
Terminals: Size 16 (large):  
Amphenol 800 620  
Size 20 (small):  
Amphenol 800 600

Unused cavities shall be sealed with:  
Amphenol 900 021 or 900 020

OR

Connector: Deutsch HD N 34 - 24-19 PN  
- 059

Terminals: Size 12 (large):  
Deutsch 0460-204-12141  
Size 16 (small):  
Deutsch 0460-202-16141

Nut: Deutsch 112263-90

Lockwasher: Deutsch 112264

Unused cavities shall be sealed with:  
Deutsch 114017

Note 1 and 2 need to be from the same supplier and the same as on 1626992000.

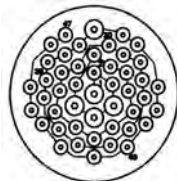
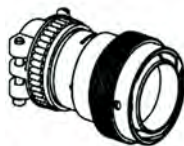
Note 3: Connector: Deutsch HD36-24-47SE  
Terminals 1.5 mm<sup>2</sup>:

Deutsch 1062-16-0122

Terminals 1 mm<sup>2</sup>:

Deutsch 1062-20-0122

Unused cavities shall be sealed with:  
Deutsch 114017 (1 mm<sup>2</sup>)  
Deutsch 0413-204-2005  
(1.5 mm<sup>2</sup>)



Note 7: Connector: G&H 17984.000.002  
(DIN 72585 - 4 pins)

Terminals: G&H 26570.201.184

Wire seal: G&H 14414.627.626

Unused cavities to be sealed with:  
G&H 14416.627.646

Wiring braided until connector, and attached to strain relief with nylon strap.

Note 8: Connector: AMP 0-963040-3

Terminals: AMP 0-929939-1

Wire seal: AMP 828904-1

Seal grommet:

Bosch 1280 703 26026

Note 9: Connector: Deutsch DTM 06-2S  
Terminals: Deutsch 1062-20-0122  
Secondary Lock:  
Deutsch W 2S

Note 11: Connector: Deutsch DRC 16-40S  
Terminals: Deutsch 0462-201-16141  
Unused cavities to be sealed with:  
Deutsch 11407

Note 12: Connector: Deutsch DRC 16-24S  
Terminals: Deutsch 0462-201-16141  
Unused cavities to be sealed with:  
Deutsch 11407

Note 13: Connector: Deutsch DRC 16-24SB  
Terminals: Deutsch 0462-201-16141  
Unused cavities to be sealed with:  
Deutsch 11407

Note 14: Connector: Hirschmann GDM-2009J  
Seal: Hirschmann GDM3-16

Note 15: Connector: G&H 14730.598.696  
Use this connector for sealing the  
G&H 17984.000.002

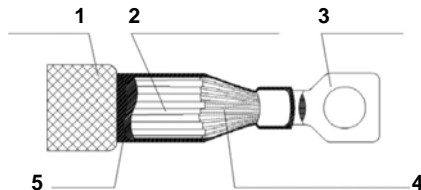
Note 16: Connector: AMP 106462-1  
Use this connector for sealing the  
AMP 0-963040-3

Note 18: AMP 133544-4

Shrinkable sleeve to be attached as in drawing.

Wall thickness: min. 1 mm.

Wires may be divided over two terminals if necessary.



- 1: Braiding
- 2: Insulated wires
- 3: Terminal
- 4: Non-insulated wires
- 5: Sleeve

Note 18a: The colour of the shrinkable sleeve should be red

Note 18b: The colour of the shrinkable sleeve should be blue

Note 19: Connector: Deutsch DT 06-2S

Terminals: Deutsch 0462-201-16141

Wedge: Deutsch W 2S

Note 21: This part of the harness should be resistant to temperatures up to 105 °C.

Note 22: Wire insulation should be resistant to oil, fuel and coolant.

Note 27: All wire type H05V-K/H07V-K according to AC standard 0995 2000 00 unless specified otherwise

Note 30: Connector: Deutsch DT 04-3P

Terminals: Deutsch 0460-202-16141

Secondary lock:  
Deutsch W3P

Note 31: Twisted cables 3 turns each 100 mm

	Terminal A	Terminal B	
Group 1	3	splice 952	grey
	4	splice 953	purple
Group 2	191	splice 952	grey
	194	splice 953	purple
Group 3	104	splice 952	grey
	105	splice 953	purple

Note 32: Connector: Deutsch DT 06-3S

Terminals: Deutsch 0462-201-16141

Secondary lock:  
Deutsch W3S-1939

Note 33: Connector: Deutsch DT 04-3P-P006

Secondary lock:  
Deutsch W3P-1939

Plug for note 32

Note 34: Connector: Deutsch HD36-24-31SE-059

Terminals: Deutsch 1062-16-0122

Unused cavities to be sealed with:  
Deutsch HD10-114017

Note 40: Connector body:

Packard Electric 12065298

Terminals: Packard Electric 12048074

Wire Seals: Packard Electric 12089678

Secondary lock:  
Packard Electric 12066176

Note 41: Relay socket

Housing: E-T-A R20-4B5-0 + BS-01

Faston: 6,3 x 0,8

Note 51: Protection cap: 1612 0846 00 (or equal)

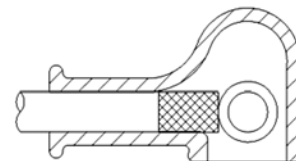
**ORIENTATION AS STATED BELOW**

Harness to be fixed on the protection cap.

Rubber cap dimensioned according to cable section and ring terminal diameter.

Note 52: Rubber cap mounted over eye terminal.

Use nylon strap to prevent rubber cap from falling off.



Note 53: Relay socket

Housing: Bosch 3 334 485 008

Faston: AMP 5-160446-2

Faston: AMP 160913-4

Note 54: Terminal provided with a red shrinkable sleeve

Note 55: Deutsch DT Series  
 Housing Deutsch DT 06-2S  
 Socket Deutsch 0462-201-16141  
 Wedge Deutsch W2S

Note 56: Fuse holder Multicomp MCCQ-211C  
 (or equal)

Note 57: Fuse (10A) Littelfuse 0257010 (or equal)  
 or  
 Multicomp MCATQ 10A  
 Fuse holder's wires to be cut to appropriate length.

Note 60: Wire harness shall be provided with a marking label with AC part number and edition

Note 61: Scan test to be performed on every conductor

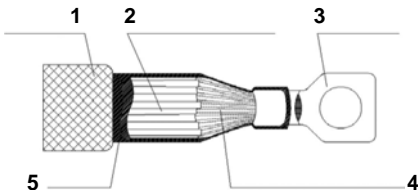
Note 62: Marking to be printed on each end of all wires

Note 63: All plugs seen from wire connecting side

Note 64: Wire harness finishing: black braiding, unless stated otherwise

Note 65: Diodes positioned as on drawing

Note 66: Terminal and shrinkable sleeve to be mounted as in drawing  
 Wire number printed on shrinkable sleeve



- 1: Braiding
- 2: Insulated wires
- 3: Terminal
- 4: Non-insulated wires
- 5: Sleeve

Note 66.1 shrinkable sleeve color = red  
 Note 66.2 shrinkable sleeve color = blue

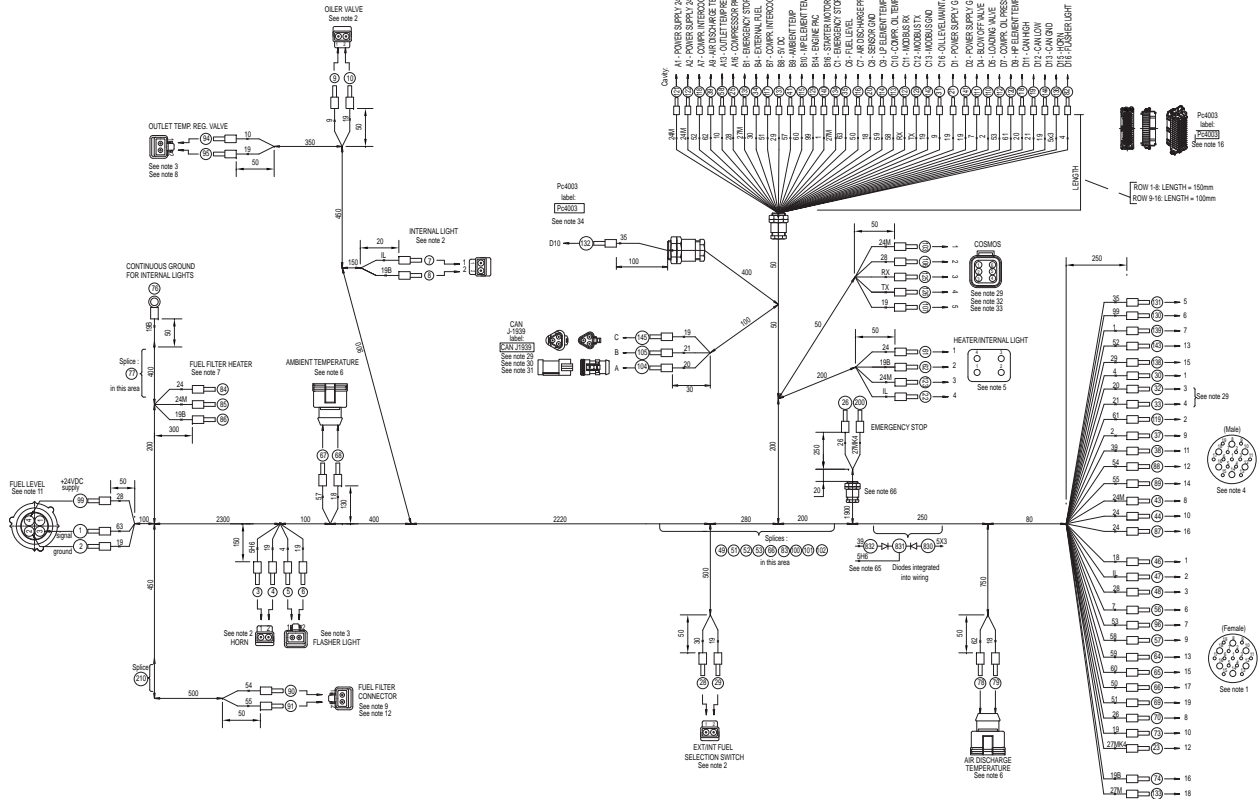
Note 67: Label indicating AC part. Nr. and edition, testing and/or production date, supplier reference  
 Black text on white background

Note 68: Braiding end at connector fitted with label  
 See drawing for text



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Applicable for PNS 1250 T3 - Wire harness rear





TERMINAL END A		TERMINAL END B		WIRE				
NR.	TERMINAL	NR.	TERMINAL	NR.	MM <sup>2</sup>	COLOR		
1	See note 11	35	See note 16	63	1	Green		
30	See note 4	83	Splice	4	1	Orange		
82	See note 16			4	1	Orange		
5	See note 3			4	1	Orange		
4	See note 2	49	Splice	19	1	Blue		
2	See note 11			19	1	Blue		
141	See note 16			19	1.5	Blue		
142	See note 16			19	1	Blue		
6	See note 3			19	1	Blue		
10	See note 2			19	1	Blue		
21	See note 16			19	1.5	Blue		
73	See note 1			19	4	Blue		
95	See note 3			19	1	Blue		
144	See note 16			19	1	Blue		
145	See note 30			19	1	Blue		
29	See note 2			19	1	Blue		
107	See note 32			19	1	Blue		
7	See note 2			52	Splice	IL	1	Orange
47	See note 1					IL	1	Orange
22	See note 5	IL	1.5			Orange		
9	See note 2	31	See note 16	9	1	Orange		
84	See note 7	87	See note 4	24	4	Red		
44	See note 4	61	See note 5	24	4	Red		
43	See note 4	51	Splice	24M	1.5	Red		
121	See note 16			24M	1.5	Red		
122	See note 16			24M	1.5	Red		
123	See note 5			24M	1	Red		
85	See note 7			24M	1	Red		
103	See note 32					24M	1.5	Red

TERMINAL END A		TERMINAL END B		WIRE		
NR.	TERMINAL	NR.	TERMINAL	NR.	MM <sup>2</sup>	COLOR
18	See note 16 & 29	101	Splice	20	1	Grey
32	See note 4 & 29			20	1	Grey
104	See note 30 & 29			20	1	Grey
19	See note 16 & 29	102	Splice	21	1	Purple
33	See note 4 & 29			21	1	Purple
105	See note 30 & 29			21	1	Purple
20	See note 16	53	Splice	18	1	Blue
79	See note 6			18	1	Blue
68	See note 6			18	1	Blue
46	See note 1			18	1	Blue
23	See note 1	200	Terminal end	27MK4	4	Red
26	Terminal end	70	See note 1	26	4	Red
28	See note 2	34	See note 16	30	1	Green
67	See note 6	41	See note 16	57	1	Green
76	AMP 160136-0	77	Splice	See note 26		
8	See note 2			19B	1.5	Blue
74	See note 1			19B	1.5	Blue
62	See note 5			19B	1.5	Blue
86	See note 7			19B	4	Blue
78	See note 6	39	See note 16	62	1	Green
94	See note 3	58	See note 16	10	1	Orange
99	See note 11	100	Splice	28	1	Orange
25	See note 16			28	1	Orange
48	See note 1			28	1	Orange
106	See note 32			28	1	Orange
90	See note 9	88	See note 4	54	1	Orange
91	See note 9	89	See note 4	55	1	Orange

TERMINAL END A		TERMINAL END B		WIRE		
NR.	TERMINAL	NR.	TERMINAL	NR.	MM <sup>2</sup>	COLOR
38	See note 4	832	Splice	39	1	Orange
831	Splice			diode 1N5402 (3A, 100V)		
				3	See note 2	5H6
136	See note 16	830	Splice	diode 1N5402 (3A, 100V)		
127	See note 16	125	See note 32	5X3	1	Orange
128	See note 16	126	See note 32	Rx	1	Grey
128	See note 16	126	See note 32	Tx	1	Purple
37	See note 4	110	See note 16	2	1	Orange
56	See note 1	111	See note 16	7	1	Orange
96	See note 1	112	See note 16	53	1	Green
57	See note 1	113	See note 16	58	1	Green
64	See note 1	114	See note 16	59	1	Green
65	See note 1	115	See note 16	60	1	Green
66	See note 1	116	See note 16	50	1	White
69	See note 1	117	See note 16	51	1	Green
143	See note 4	118	See note 16	52	1	Green
119	See note 4	120	See note 16	61	1	Green
129	See note 16	130	See note 4	99	1	Orange
131	See note 4	132	See note 34	35	1	Green
133	See note 1	66	Splice	27M	4	Red
134	See note 16			27M	1.5	Red
135	See note 16			27M	1.5	Red
137	See note 16	138	See note 4	29	1	Red
139	See note 4	140	See note 16	1	1	Orange

## NOTES

Note 1 and 4 need to be from the same supplier and the same as on 1626991900 and 1626992100.

Note 1: Connector: Amphenol PT06 A 22-41 S SR  
 Terminals: Size 16 (large): Amphenol 800 635  
 Size 20 (small): Amphenol 800 615

Unused cavities shall be sealed with:  
 Amphenol 900 021 or 900 020

OR

Connector: Deutsch HD 36 - 24-19 SN - 059

Terminals: Size 12 (large): Deutsch 0462-203-12141  
 Size 16 (small): Deutsch 0462-201-16141

Unused cavities to be sealed with:  
 Deutsch 114017

Wiring braided until connector, and attached to strain relief with nylon strap.

Note 2: Connector: Deutsch DTM 06-2S  
 Terminals: Deutsch 1062-20-0122  
 Secondary Lock: Deutsch WM2S

Note 3: Connector: Deutsch DT 06-2S  
 Terminals: Deutsch 0460-201-16141  
 Secondary Lock: Deutsch W2S

Note 4: Connector: Amphenol PT07 A 22-41 P SR  
 Terminals: Size 16 (large): Amphenol 800 620

Size 20 (small): Amphenol 800 600

Unused cavities shall be sealed with:  
 Amphenol 900 021 or 900 020

OR

Connector: Deutsch HD 34 - 24-19 - PN - 059

Terminals: Size 12 (large): Deutsch 0460-204-12141  
 Size 16 (small): Deutsch 0460-202-16141

Nut: Deutsch 11263-90

Lockwasher: Deutsch 112264

Unused cavities to be sealed with:  
 Deutsch 114017

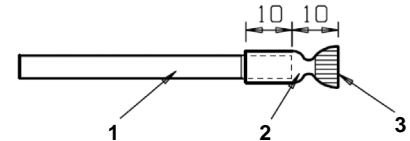
Wiring braided until connector, and attached to strain relief with nylon strap.

Note 5: Connector: Deutsch DTP 06 - 4S  
 Terminals: Deutsch 0462-203-12141  
 Unused cavities to be sealed with:  
 Deutsch 114017  
 Secondary Lock: Deutsch WP 4S

Note 6: Connector: AMP 0-963040-3  
 Terminals: AMP 0-929939-1  
 Wire seal: AMP 828904-1  
 Seal Grommet: Bosch 1280 703 26026

Note 7: - Terminals 84, 85 shall be equipped with a label with printing:  
 "ALWAYS INSULATE WIRE".

- Terminals 84, 85, 86 shall be equipped with a shrinkable sleeve with a layer of glue, as in drawing below, and strapped to the harness with nylon straps to prevent it from moving.



1: Wire  
 2: Sleeve  
 3: Squeezed tight when hot

Note 8: Connector: Deutsch DTP 04 - 2P  
 Secondary Lock: Deutsch W2P  
 Unused cavities to be sealed with:  
 Deutsch 114017  
 Plug for note 3

Note 9: Connector: Deutsch DT06-2S  
 Terminals: 1062-16-0144  
 Wedge: W2SA

Note 10: Wire insulation should be resistant to oil, diesel fuel and coolant.

Note 11: Connector according to DIN 72585 4 pins  
 Connector: G&H 17984.000.002  
 Terminals: G&H 26570.201.184  
 Wire seal: G&H 14414.627.626  
 Unused cavities to be sealed with:  
 G&H 14416.627.646  
 Strain relief of fuel level:  
 G&H 14830.625.699  
 Wiring braided until connector, and  
 attached to strain relief with nylon strap.

Note 12: Connector: Deutsch DT04-2P  
 Wedge: W2PA  
 Unused cavities to be plugged with  
 Deutsch 114017  
 Plug for note 9

Note 16: Insert: Tyco 2-1103113-3  
 (HN.D.64.Bu.C)  
 Harting 09 21 064 3101  
 Socket: Tyco 2-1105051-1 (0.5mm<sup>2</sup>)  
 Harting 09 15 000 6203  
 Socket: Tyco 3-1105051-1 (1mm<sup>2</sup>)  
 Harting 09 15 000 6202  
 Socket: Tyco 4-1105051-1 (1.5mm<sup>2</sup>)  
 Harting 09 15 000 6201  
 Socket: Tyco 5-1105051-1 (2.5mm<sup>2</sup>)  
 Harting 09 15 000 6206  
 Hood: Tyco 0-1106465-5  
 (HB.24.STS-GR.1.M32.G)  
 Harting 19 30 024 1542  
 Metal cable gland M32/IP68 mounted over  
 100 mm shrinkable sleeve.  
 Hood entry at row 16.

Note 19: Braiding end at connector fitted with label  
 See drawing for text



Note 20: Wire harness shall be provided with a  
 marking label with AC part number and  
 edition

Note 21: Scan test to be performed on every  
 conductor

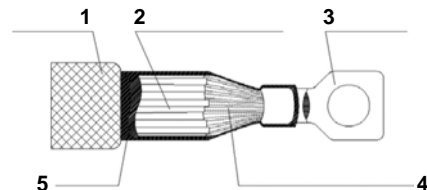
Note 22: Marking to be printed on each end of all  
 wires

Note 23: All plugs seen from wire connecting side

Note 24: Wire harness finishing: black braiding,  
 unless stated otherwise

Note 25: Diodes positioned as on drawing

Note 26: Terminal and shrinkable sleeve to be  
 mounted as in drawing  
 Wire number printed on shrinkable sleeve



- 1: Braiding
- 2: Insulated wires
- 3: Terminal
- 4: Non-insulated wires
- 5: Sleeve

Note 26.1: shrinkable sleeve color = red  
 Note 26.2: shrinkable sleeve color = blue

Note 27: All wire type H05V-K/H07V-K according  
 to AC standard 0995 2000 00 unless  
 specified otherwise

Note 28: Label indicating AC part. Nr. and edition,  
 testing and/or production date, supplier  
 reference  
 Black text on white background

Note 29: Twisted cables 3 turns each 100 mm

	Terminal A	Terminal B	
Group 1	18	splice 100	grey
	19	splice 102	purple
Group 2	32	splice 100	grey
	33	splice 102	purple
Group 3	104	splice 100	grey
	105	splice 102	purple

Note 30: Connector: Deutsch DT 06-3S  
Terminals: Deutsch 0462-201-16141  
Secondary lock:  
Deutsch W3S-1939

Note 31: Connector: Deutsch DT 04-3P-P006  
Secondary lock:  
Deutsch W3P-1939  
Plug for note 30

Note 32: Connector: Deutsch DT 04-6P  
Terminals: Deutsch 0460-202-16141  
Secondary lock:  
Deutsch W6P  
Unused cavities to be plugged with:  
Deutsch 114017

Note 33: Connector: Deutsch: DT06-6S-EP04  
Secondary lock:  
Deutsch W6S  
Unused cavities to be plugged with:  
Deutsch 114017  
Connector used as blind plug


Note 34: Insert: Tyco 2-1103111-3  
(HN,D.40,Bu,C)  
Harting 09 21 040 3101  
Socket: Tyco 2-1105051-1 (0.5mm<sup>2</sup>)  
Harting 09 15 000 6203  
Socket: Tyco 3-1105051-1 (1mm<sup>2</sup>)  
Harting 09 15 000 6202  
Socket: Tyco 4-1105051-1 (1.5mm<sup>2</sup>)  
Harting 09 15 000 6201  
Socket: Tyco 5-1105051-1 (2.5mm<sup>2</sup>)  
Harting 09 15 000 6206  
Hood: Tyco 0-1106449-5  
(HB.16.STS-GR.1.M32.G)  
Harting 19 30 016 1542  
Metal cable gland M32/IP68 mounted over  
100 mm shrinkable sleeve.  
Hood entry at row 10.

Note 65: Diodes positioned as on drawing

Note 66: Cable gland: M16, IP68, plastic  
Nut: M16, plastic  
Cable gland mounted over 100mm  
shrinkable sleeve.

Following documents are provided with this unit:

- Test Certificate
- EC Declaration of Conformity:



**EC DECLARATION OF CONFORMITY**

We, Atlas Copco Airpower n.v., declare under our sole responsibility, that the product  
 Machine name : **Compressor (≥ 350 kW)**  
 Commercial name :  
 Serial number :

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

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

Directive on the approximation of laws of the Member States relating to	Harmonized and/or Technical Standards used	Att' mnt
Pressure equipment	97/23/EC	x
Machinery safety	2006/42/EC	x
Electromagnetic compatibility	2004/108/EC	x
Low voltage equipment	2006/95/EC	x

The harmonized and the technical standards used are identified in the attachments hereafter  
 Atlas Copco Airpower n.v. is authorized to compile the technical file

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

Form 00000000 08

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

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 For info, please contact your local Atlas Copco representative

Com. Rep. Artwerp 44651  
 V.A.T. 403.992.231

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**Pressure Equipment Directive 97/23/EC**

1. Conformity assessments followed : See table T.1

a. Category	b. Applicable	c. Module	d. Notified body	e. Reference certificate
I		H	(1)	
II	x	H	(1)	0038/PED/20030004/A/M
III		H	(1)	
IV		B	(1)	
		D	(1)	

Table T.1

(1) Notified body number 0038  
Lloyd's Register Verification Ltd  
71 Fenchurch street  
EC3M - 4 BF London  
United Kingdom

2 Description of the pressure equipment constituting the assembly : see table T.2

a. Equipment, subject to the Simple Pressure Vessel directive 2009/105/EC, is excluded from 97/23/EC according article 1, section 3.3.			
b. Equipment of category I, according 97/23/EC, is integrated into the machine and falls under the exclusion of article 1, section 3.6.			
c. Equipment of article 3.3 of 97/23/EC is subject to good engineering practice			
n. Category and higher	d. Equipment		e. Declaration of conformity attached (including conformity assessment procedure followed, identification of standards)
	o. Description and/or l. Part number		
	i. Safety accessories	Safety valve	x
		Safety valve	x
	j. Other	Aftercooler	x
	Aftercooler	x	

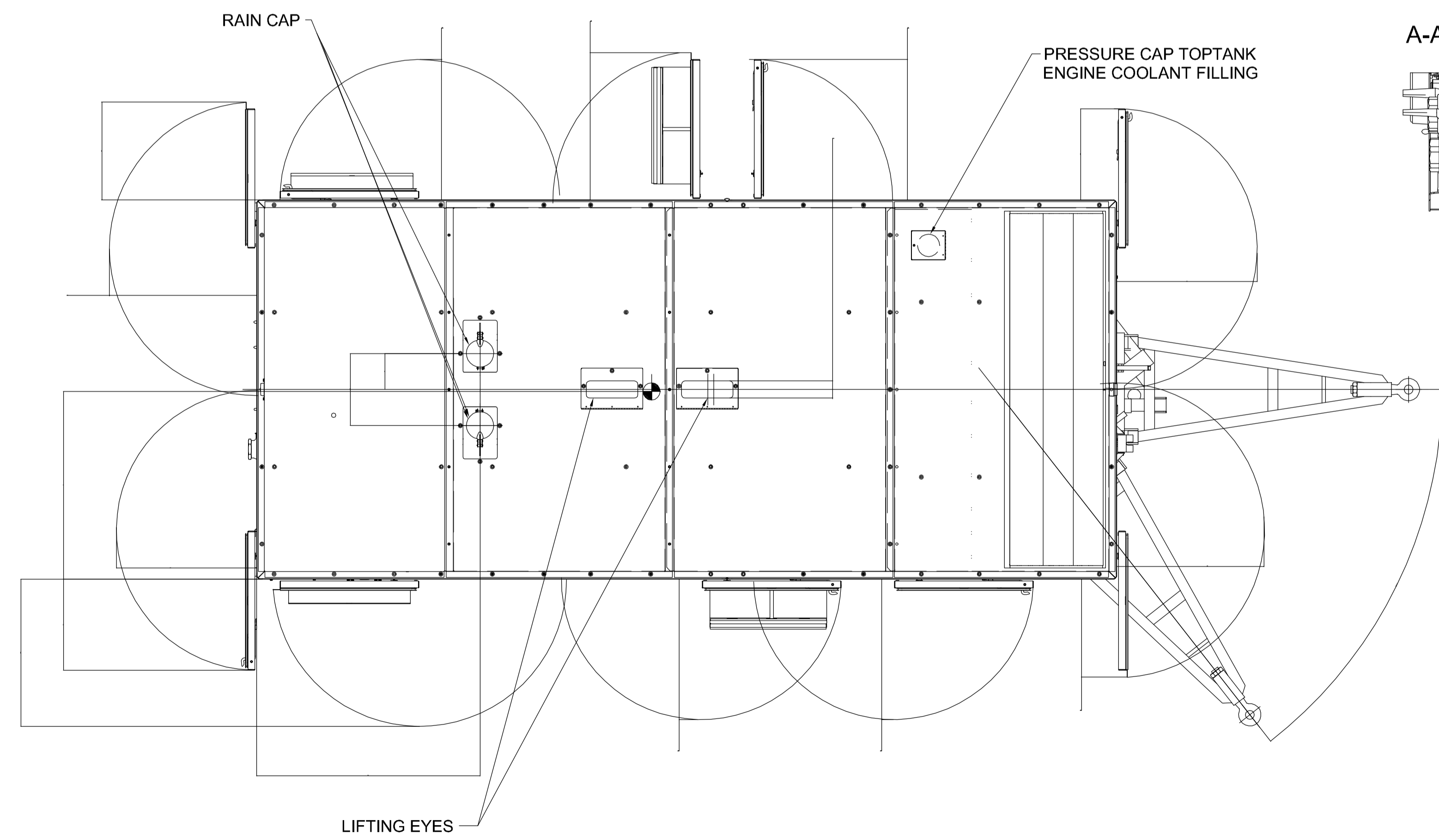
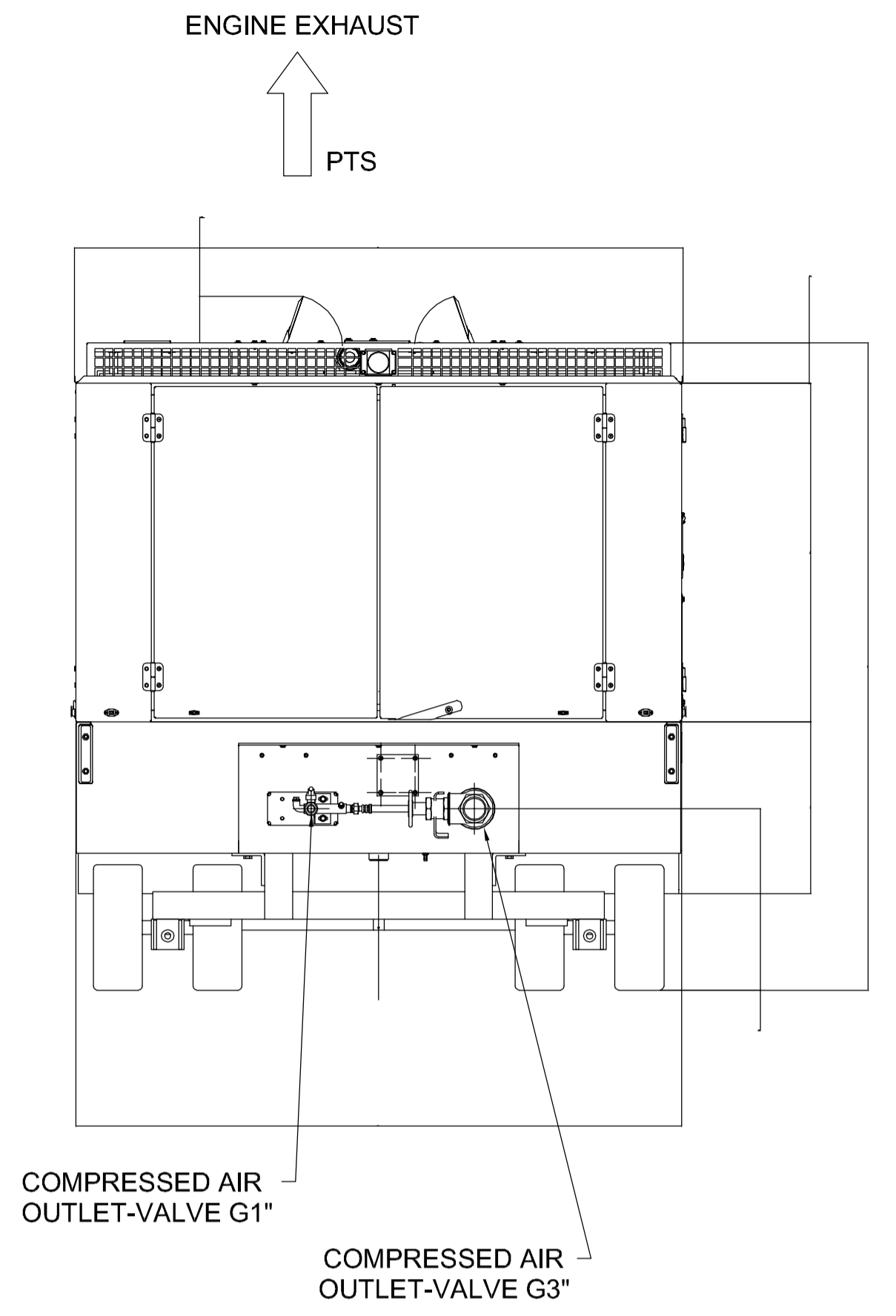
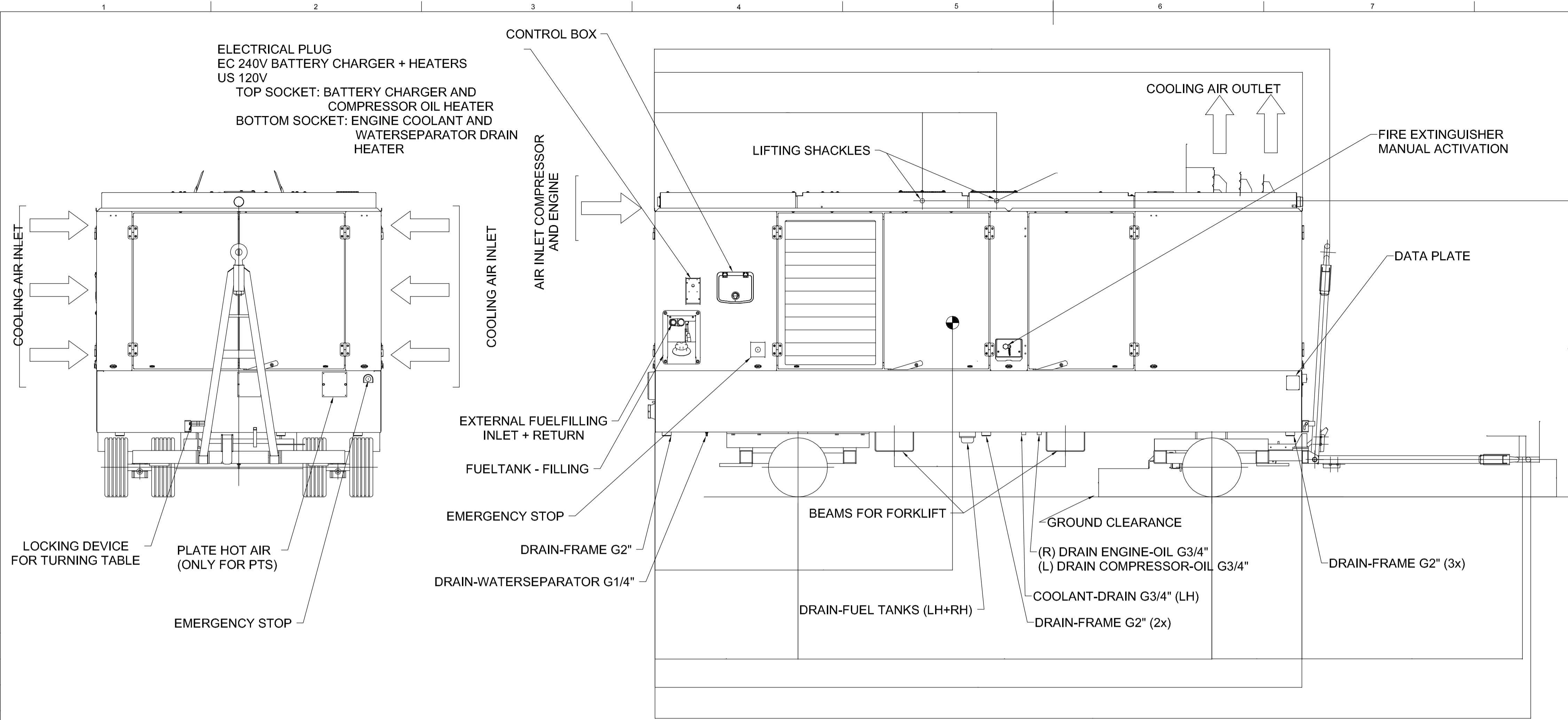
Table T.2

3. Harmonised standards used : see table T.2

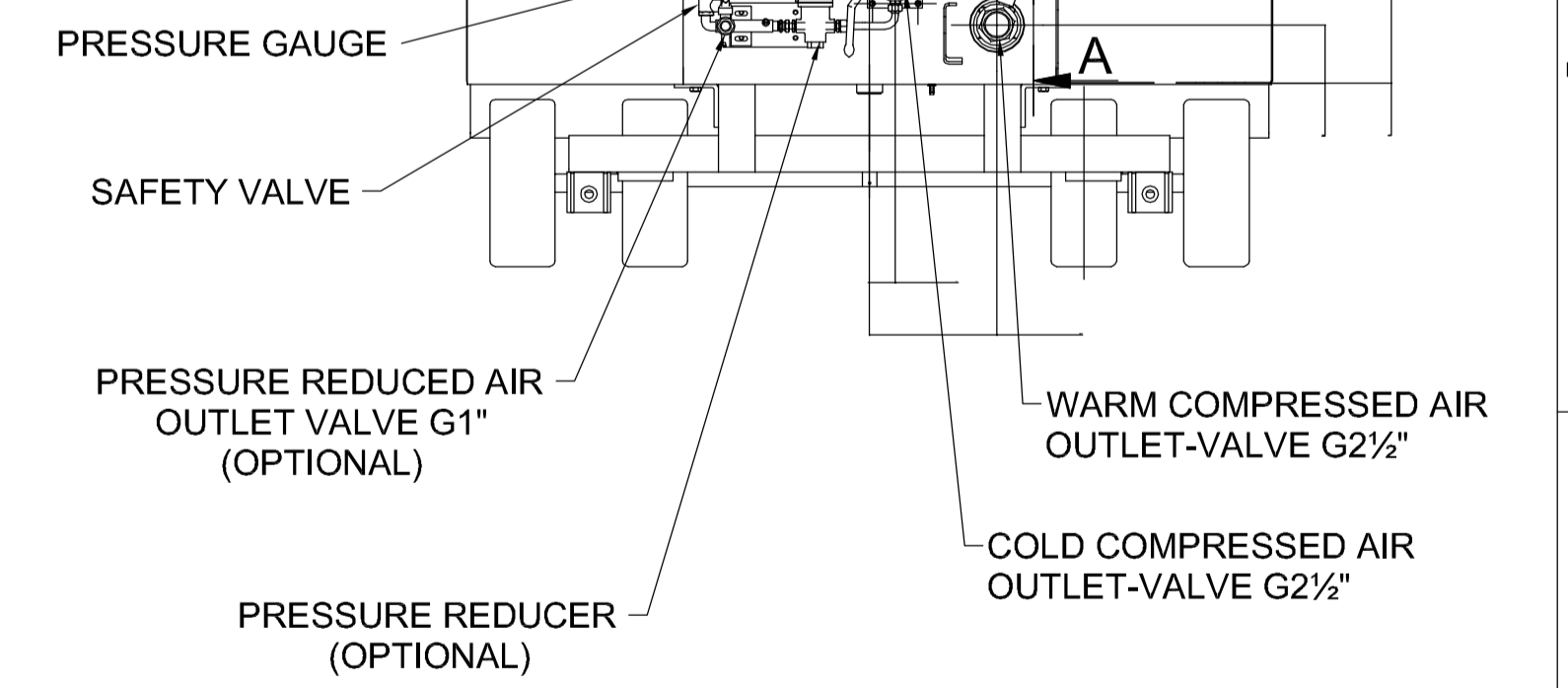
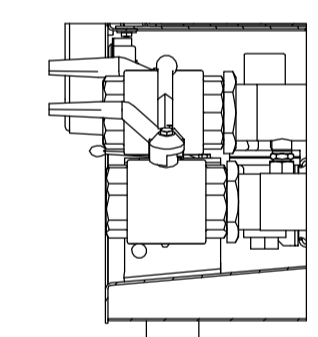
4. National technical standards and specifications used: see table T.2







A-A (1 : 10)



UNIT		MASS(KG)	AXLE-LOAD(KG)	
			REAR	FRONT
PTS 1600 CUD T3/S3A	WET W/O FUEL	7620	4570	3050
	WET WITH FUEL	8420	5320	3100

Name		DIMENS. DRWG		PTS1600CUD/PNS1250CUD T3		Confidentiality Class acc. to 1102K	
Material		NOT APPLICABLE		ACD		2	
Treatment		Not Applicable		ACD		ACD	
Scale		1:20		Family		A1	
Drawn by		rtayade		Blank nr.		Compare	
Version Dwg		00		Blank wt.		0 Kg	
Des checked.		Prod checked.		Approved.		Date	
Parent 3D Model		Ed. Version 3D		Status		Approved	
Designation		9822102509		Sheet ( )		02 03	

CONFIDENTIAL: All materials supplied are in compliance with the requirements of the List of Prohibited Substances.

CENTER OF GRAVITY		
	X	Y
WET W/O FUEL	1095	2386
WET WITH FUEL	1093	2284

00		2014-08-07	
Note	Position	Modified from	Date
			Int./Appd.

All materials supplied are in compliance with the requirements of the List of Prohibited Substances.

**Atlas Copco**

9822 1025 09