

Instruction Manual for CP Compressor
English

CPS 400-150 KOD

Engine KDI3404TCR

CALIFORNIA Proposition 65

 WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov/diesel.

Instruction Manual for Portable Compressor

CPS 400-150 KOD

Original instructions

Printed matter No.
1317 0080 04

05/2023



CHICAGO PNEUMATIC - PORTABLE ENERGY DIVISION
www.cp.com

Warranty and Liability Limitation

Use only authorized parts.

Any damage or malfunction caused by the use of unauthorized parts is not covered by Warranty or Product Liability.

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

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

While every effort has been made to ensure that the information in this manual is correct, Chicago Pneumatic does not assume responsibility for possible errors.

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Preface

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

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

Always keep the manual available near the machine.

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

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

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Safety precautions for portable compressor

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

INTRODUCTION

The policy of Chicago Pneumatic 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,

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.

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

When handling, operating, overhauling and/or performing maintenance or repair on Chicago Pneumatic 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 Chicago Pneumatic equipment.

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

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 Chicago Pneumatic.

If any statement does not comply with local legislation, the stricter of the two shall be applied. Statements in this manual should not be interpreted as suggestions, recommendations or inducements that it should be used in violation of any applicable laws or regulations.

GENERAL SAFETY PRECAUTIONS

- 1 The owner is responsible for maintaining the unit in a safe operating condition. Unit parts and accessories must be replaced if missing or unsuitable for safe operation.
- 2 Use only lubricating oils and greases recommended or approved by Chicago Pneumatic 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.
- 3 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.
- 4 Maintenance, overhaul and repair work shall only be carried out by adequately trained personnel; if required, under supervision of someone qualified for the job.
- 5 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.
- 6 Maintenance work, other than routine attention, shall only be undertaken when the machine is turned off.
- 7 Before dismantling any pressurized component, the compressor or the equipment shall be effectively isolated from all sources of pressure and be completely vented to atmosphere. In addition, a warning sign bearing a legend such as "work in progress; do not open" shall be attached to each of the isolating valves.
- 8 Before a machine is being repaired, 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. The battery shall be disconnected and removed or the terminals covered by insulating caps.
- 9 Normal ratings (pressures, temperatures, speeds, etc.) shall be durably marked.
- 10 Never operate a machine or equipment beyond its rated limits (pressure, temperature, speed, etc.).
- 11 Maintenance and repair work should be recorded in an operator's logbook for all machinery. Frequency and nature of repairs can reveal unsafe conditions.
- 12 The machinery and pneumatic equipment shall be kept clean, i.e. as free as possible from oil, dust or other deposits.
- 13 To prevent an increase in working temperature, inspect and clean heat transfer surfaces (cooler fins, intercoolers, water jackets, etc.) regularly. For every machine establish a suitable time interval for cleaning operations.
- 14 All regulating and safety devices shall be maintained with due care to ensure that they function properly. They may not be bypassed.
- 15 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.
- 16 Pressure and temperature gauges shall be checked regularly with regard to their accuracy. They shall be replaced whenever outside acceptable tolerances.
- 17 Parts shall only be replaced by genuine Chicago Pneumatic replacement parts.
- 18 Safety devices shall be tested as described in the maintenance schedule of the instruction book(s) to determine that they are in good operating condition.
- 19 Never use flammable solvents or carbon tetrachloride for cleaning parts. Take safety precautions against toxic vapours when cleaning parts in or with cleaning products.
- 20 Observe scrupulous cleanliness during maintenance and repair. Keep away dirt by covering the parts and exposed openings with clean cloth, paper or tape.
- 21 Protect the engine, alternator, air intake filter, electrical and regulating components, etc. to prevent moisture ingress, e.g. when steam-cleaning.

- 22 When performing any operation involving heat, flames or sparks on a machine, the surrounding components shall first be screened with non-flammable material.
- 23 Never use a light source with open flame for inspecting the interior of a machine, pressure vessel, etc.
- 24 On portable units, support the drawbar and axle(s) securely if working underneath the units or when removing a wheel. Do not rely on jacks.
- 25 Prior to stripping a compressor, engine or other machine or undertaking major overhaul on it, prevent all movable parts with a mass exceeding 15 kg (30 lbs) from rolling over or moving.
- 26 When repair has been completed, make sure that no tools, loose parts or rags are left in, or on, the machine, the prime mover or the driving gear. The machine shall be barred several revolutions to ensure that there is no mechanical interference within the machine or driver.

SAFETY DURING USE AND OPERATION

To lift a unit, all loose or pivoting parts, e.g. doors 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 rules.

Helicopter lifting using the lifting eye is forbidden.

It is strictly forbidden to dwell or stay in the risk zone under a lifted load. Never lift the unit over people or residential areas.

Lifting acceleration and retardation shall be kept within safe limits.

1 Before towing the unit:

- ascertain that the pressure vessel is de pressurized,
- check the draw bar, the brake system and the towing eye. Also check the coupling of the towing vehicle,
- check that the pivot 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 tires are in good condition and inflated correctly,
- attach the safety break-away cable to the towing vehicle,
- remove wheel chocks, if applied, and disengage the parking brake.
- Apply safety chains to tow vehicle.

2 If the unit is to be backed up by the towing vehicle,

- disengage the overrun brake mechanism (if equipped).
- 3 Never exceed the maximum towing speed of the unit.
- 4 Place the unit on level ground and chock the wheels before disconnecting the unit from the towing vehicle. Unclip the safety break-away cable
- 5 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.
- 6 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 (minimum. 4 inches); do this in such a way that no extra back pressure is created for the engine. If necessary, install an extractor.
- 7 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.
- 8 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.
- 9 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.
- 10 Distribution pipework and air hoses must be of correct size and suitable for the working pressure. Never use frayed, damaged or deteriorated hoses. Replace hoses and flexible of which the lifetime expired. Use only the correct type and size of hose end fittings and connections. Install safety pins on quick type hose connections. A hose connected to a 2 inch (50 mm) valve must be provided with a safety wire (8 mm) fixed to the hose for effective pressures as from 145 psi (10 bar) up, although it is recommended to apply such safeguard already from (60 psi) 4 bar up.

The safety wire ends have to be attached, one to the eye provided next to the compressor air outlet valve, the other one to a point near to the air inlet of the applied equipment. Finally a wire mesh hose can be fixed over

the hose ends to dampen the blast in case a connection starts leaking or should become undone.

Close the compressor air outlet valve before connecting or disconnecting a hose. Ascertain that a hose is fully de-pressurized before disconnecting it.

When blowing through a hose or air line, ensure that the open end is held securely. A free end will whip and may cause injury.

Never play with compressed air. Never apply it to your skin or direct an air stream at people. Never use it to clean dirt from your clothes. When using it to clean down equipment, do so with extreme caution and use eye protection.

- 11 Never move a unit when external lines or hoses are connected to the outlet valves, to avoid damage to valves and/or manifold and hoses.
- 12 Never refill fuel while the unit is running. Keep fuel away from hot parts such as air outlet pipes or the engine exhaust. Do not smoke when fuelling. When fuelling from an automatic pump, a ground 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.
- 13 Never operate the unit in surroundings where there is a possibility of taking in flammable or toxic fumes.
- 14 Never operate the unit at pressures or speeds below or in excess of the limit ratings stated on the Principal Data sheet.
- 15 On liquid-cooled engines with closed cooling circuit: allow the unit to cool before removing a pressure cap.
- 16 All doors shall be shut during operation so as not to disturb the cooling air flow inside the body-work and/or render the silencing less effective. A door should be kept open for a short period only, e.g. for inspection or adjustment.
- 17 Wear ear protectors when environmental noise can reach or exceed 85 dB(A). Beware of long-time exposure to noise.
- 18 Periodically check that:
 - all safety equipment is in good working order,
 - all guards and air conducting baffles are in place and securely fastened,
 - all hoses and/or pipes inside the unit are in good condition, secure and not rubbing,

- there are no fuel, oil or coolant leaks,- all fasteners are tight
- all electrical leads are secure and in good order,
- the engine exhaust system is in good condition,
- air outlet valves and manifold, hoses, couplings, etc. are in good repair, free of wear or abuse,
- the wheel nuts are tightened to the proper torque.

When more than one compressor is connected to a common header, be sure each compressor has a non-return valve (check valve) to prevent reverse rotation when stopping.

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 spare parts.
- 3 All maintenance work, other than routine attention, shall only be undertaken when the unit is stopped. Ensure that the unit cannot be started inadvertently.
- 4 Before removing 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.
- 5 Never use flammable solvents for cleaning (fire-risk). Take safety precautions against toxic vapours of cleaning liquids.
- 6 Scrupulously observe cleanliness during maintenance and when performing repairs. Keep dirt away by covering the parts and exposed openings with a clean cloth, paper or tape.
- 7 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.
- 8 Support the drawbar and the axle securely if working underneath the unit or when removing a wheel. Do not rely on jacks.
- 9 Make sure that no tools, loose parts or rags are left in or on the unit.
- 10 Before clearing the unit for use after maintenance or overhaul, check that operating pressures, temperatures and speeds are correct and that the control and shut

down devices function correctly.

- 11 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.
- 12 Protect the electrical and regulating components, the air filter, etc. to prevent moisture from entering them, e.g. when steam cleaning.

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 Use only wrenches or sockets whose size fits the fastener.
- 2 Apply an open-end wrench only in the place of the fastener head, square to the thread axis.
- 3 Do not use a pipe or other improvised leverage extensions on handles.
- 4 Do not hammer on wrenches or other tools which are not specially designed for it.
- 5 Always support the ratchet head when using socket extensions.
- 6 Discard any wrench with broken or battered points or edges.
- 7 Never use hand type sockets on power or impact tools.
- 8 Select only heavy-duty impact sockets for use with pneumatic or electric impact tools.
- 9 Replace sockets showing cracks or wear; keep sockets clean.
- 10 Never use screwdrivers for prying, punching, chiselling, scoring or scraping.
- 11 Use the correct type and size of screwdriver for the job. The bit must match the fastener.
- 12 A screwdriver with rounded edges will slip; it needs to be redressed or discarded.
- 13 Never use a screwdriver or any other tool near a live wire or electrical component. Plastic covering of handles is for comfort and grip only. They are not intended to act as insulation if such is not clearly marked by the manufacturer.

14 Never strike a hammer against a hardened object; use a soft drift against the object and strike against the drift.

15 Strike the object with the full face of the hammer.

16 Never use a hammer with a loose head.

17 Discard a hammer with chipped or mushroomed face.

18 Never use a chisel or punch with a chipped or mushroomed striking face.

19 Always pull on a wrench or socket handle, if possible, and adjust your stance to prevent a fall if something lets go.

20 Wear approved eye protection when using percussion tools or when scraping, chipping, shaving or grinding.

21 Wear protective gloves when holding a chisel or punch.

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. Incorrect connection will damage alternator.

ETHER FUEL SYSTEMS

Ether fuel systems are used for diesel cold starting.

- 1 Do not use ether as a starting aid in conjunction with other starting aids (i.e. glow plug, air intake heater etc.) as an explosive condition may result in severe engine damage or personal injury.
- 2 This type of fuel is extremely flammable, toxic and poisonous. Avoid contact with eyes or skin and breathing the fumes. If accidentally swallowed, do not induce vomiting but call a physician immediately.
- 3 If fuel enters or fumes irritate the eyes, flush the latter with large quantities of clean water and call for medical aid.
- 4 Before operating ether cold starting aids, read the instructions and the container label.
- 5 Never operate ether cold starting aids while the engine is running as this can cause severe damage.
- 6 When maintenance, tests or repair has to be performed, do so in a well-ventilated area only, away from heat, open flame or sparks. Ascertain that the area is clearly marked out with signs prohibiting fire, open flame and smoking.
- 7 Wear eye protection when testing a system. Make sure that openings of a spray container, valve, tube or atomizer are pointed away from yourself and others while testing.
- 8 Do not store ether containers in temperatures above 160 °F (70°C),
- 9 Do not incinerate, puncture or attempt to remove the center core valve, side safety valve or any other part of an ether container.

PRESSURE VESSELS

Maintenance/installation requirements:

- 1 The vessel can be used as pressure vessel or as separator and is designed to hold compressed air for the following application:
 - pressure vessel for compressor,
 - medium AIR/OIL,and operates as detailed on the data plate of the vessel:
 - the maximum working pressure ps in psi (bar),
- 2 The pressure vessel is only to be used for the applications as specified above and in accordance with the technical specifications. Safety reasons prohibit any other applications.

- 3 National legislation requirements with respect to re-inspection must be complied with.
- 4 No welding or heat treatment of any kind is permitted to those vessel walls which are exposed to pressure.
- 5 The vessel is provided and may only be used with the required safety equipment such as manometer, overpressure control devices, safety valve, etc.
- 6 Draining of condensate shall be performed daily when vessel is in use.
- 7 Installation, design and connections should not be changed.
- 8 Bolts of cover and flanges may not be used for extra fixation.

SAFETY VALVES

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

Following checks must be carried out:

- 1 A check of the opening of the lifting gear, 1 or 2 times a year. This can be done by lifting the ring or lever.
- 2 A check of the set pressure once a year according to the local regulations, if required. This check may not be done with the compressor supplying the air pressure and must be carried out on a proper test bench.

INJURY PREVENTION

- 1 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, operate only when guards are securely reinstalled.
- 2 Do not open electrical cabinets, cubicles or other equipment while voltage is supplied. If such cannot be avoided, e.g. for measurements, tests or adjustments, have the action carried out by a qualified electrician only, with appropriate tools, and ascertain that the required bodily protection against electrical hazards is applied.
- 3 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,

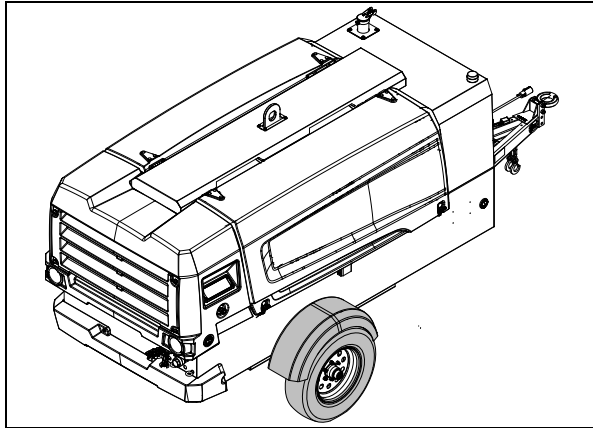
above 105 dB(A): special ear protectors that are adequate for this noise level and the spectral composition of the noise shall be provided and a special warning to that effect shall be placed at each entrance.

- 4 Insulation or safety guards of parts the temperature of which can be in excess of 80 °C (175 °F) and which may be accidentally touched by personnel shall not be removed before the parts have cooled to room temperature.
- 5 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.
- 6 If the working process produces fumes, dust or vibration hazards, etc., take the necessary steps to eliminate the risk of personnel injury.
- 7 Before lifting machines, all loose parts which could be liable to fall down shall be removed or secured; pivoting parts such as doors, etc. shall be safely immobilized.
- 8 To lift heavy parts, a hoist of ample capacity, tested and approved according to local safety regulations, shall be used.
- 9 When lifting machinery, only hooks or shackles meeting local safety regulations shall be applied. Never shall cables, chains or ropes be applied directly on or through lifting eyes. Never allow sharp bends in lifting cables, chains or ropes.
- 10 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.

- 11 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.
- 12 When heavy parts are being lifted with a hoist, it is strictly forbidden to dwell or pass under the load or in the space which is liable to be hit if the load or part of it should topple over or come loose. Never leave a load hanging on a hoist. Lifting acceleration and retardation shall be kept within safe limits.
- 13 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 30deg from the vertical.
- 14 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.
- 15 Before blowing compressed air or inert gas through a hose, ensure that the open end is held securely, so that it cannot whip and cause injury.
- 16 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.
- 17 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.
- 18 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.
- 19 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.
- 20 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.

Leading particulars

GENERAL DESCRIPTION



CPS 400-150 is a silenced, single-stage, oil-injected screw compressor, built for a nominal effective working pressure of 150 psi (10.34 bar).

All machines meet Tier 4F emission standards.

Engine

The compressor CPS 400-150 is driven by 4 cylinder in-line liquid-cooled diesel engines.

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

Compressor

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

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

Compressor oil system

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

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

The vessel is provided with an oil level indicator.

Regulation

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

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

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

Cooling system

The engine is provided with a liquid-cooler and intercooler and the compressor is provided with an oil cooler. For available options see chapter “**Available options**”.

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

Safety devices

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

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

The electric system is equipped with a 12V main switch.

A warning light and audible alarm are placed at the right hand front end corner.

Frame and axles

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

The standard compressor has fixed towbar with brakes.

Bodywork

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

Lifting eye

A lifting eye is accessible at all times at the top of the unit.

Control panel

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

The controller is equipped with an automatic shutdown sequence after 24 hours of continuous operation.

Exhaust system

The exhaust system includes an after treatment with a selective catalytic reduction system.

Data plate

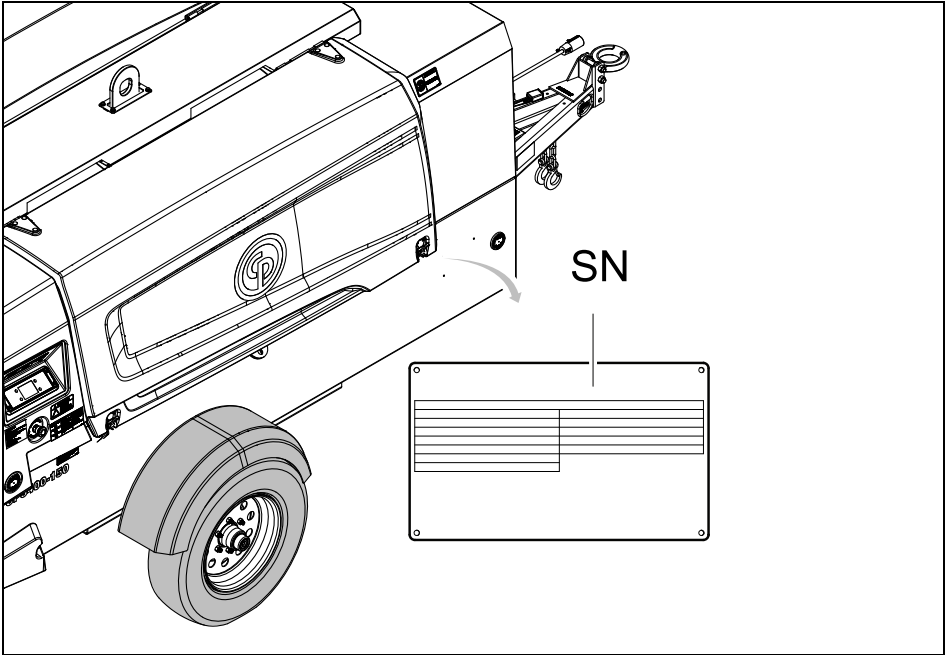
MANUFACTURED BY / FABRIQUÉ PAR POWER TECHNIQUE NORTH AMERICA, LLC

MONTH/YEAR OF MANUFACTURE-MOIS/ANNÉE DE FABRICATION	
GVWR (LB/KG)	MAX. FINAL PRESSURE/PRESSION FINALE MAXIMALE (PSIG)
GAWR (LB/KG)	TIRE SIZE/LA TAILLE DES PNEUS (IN)
VIN	WHEEL SIZE (IN)/TAILLE DES ROUES
PORTABLE AIR COMPRESSOR/COMPRESSEUR D'AIR PORTABLE	COLD INFLATION PRESS (PSIG)/PRESSION D'INFLATION À FROID (PSIG)
MODEL/MODÈLE	COLOR/COULEUR
PRODUCT NUMBER/NUMÉRO DE PRODUIT	
SERIAL NUMBER/NUMÉRO DE SÉRIE	

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS AND CANADIAN MOTOR VEHICLE PRESCRIBED UNDER THE SAFETY REGULATIONS ON THE DATE OF MANUFACTURE SHOWN./ CE VÉHICULE CONFORME À TOUTES LES NORMES DE SÉCURITÉ DES VÉHICULES AUTOMOBILES DES ÉTATS-UNIS FÉDÉRAUX APPLICABLES ET AUX VÉHICULES AUTOMOBILES CANADIENS PRESCRITS EN VERTU DES RÈGLEMENTS DE SÉCURITÉ À LA DATE DE FABRICATION INDIQUÉE.

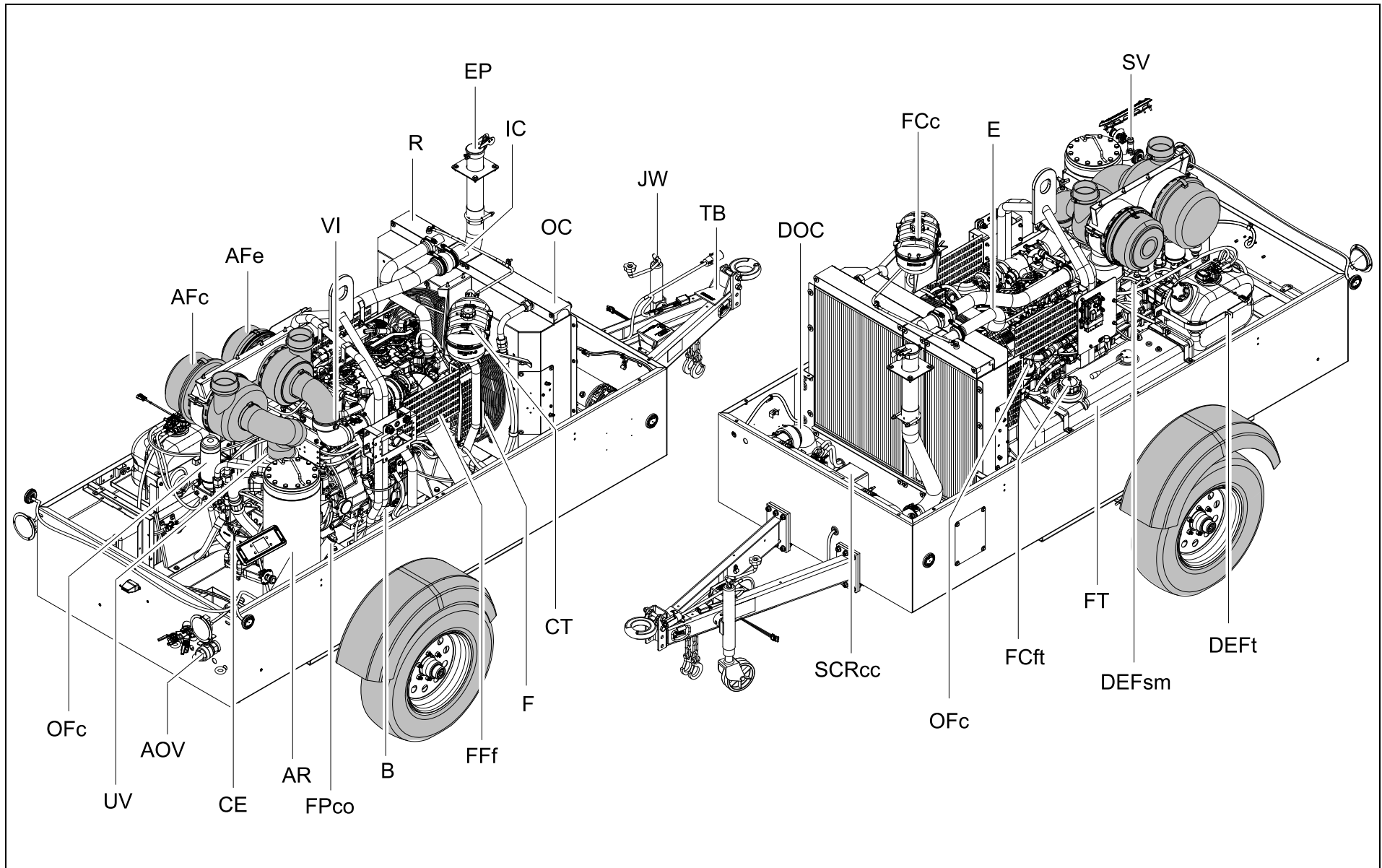
ROCK HILL, SC USA
1310921703

Serial number



The serial number (SN) is mentioned on the data plate. Last 6 digits from V.I.N.(Vehicle Identification Number) is serial number.

Main parts



Reference	Name
AFc	Air Filter (compressor)
AFe	Air Filter (engine)
AOV	Air Outlet Valves
AR	Air Receiver
B	Battery
CE	Compressor Element
CT	Coolant Tank
DOC	Diesel Oxidation Catalyst
DEFt	DEF Tank
DEFsm	DEF Supply Module
E	Engine
EP	Exhaust Pipe
F	Fan
FCft	Filler Cap (fuel tank)
FCc	Filler Cap (coolant)
FFf	Fuel Filter Final
FPco	Filler Plug (oil compressor element)
FT	Fuel Tank
IC	Intercooler
JW	Jockey Wheel
OC	Oil Cooler
OFc	Oil Filter (compressor)
R	Radiator
SV	Safety Valve
SCRcc	SCR Catalytic Converter
TB	Towbar
UV	Unloading Valve
VI	Vaccum Indicator

REGULATING SYSTEM



Reference	Name
AFc	Air Filter (compressor)
AFcs	Air Filter (safety cartridge)
AFE	Air Filter Element
AFe	Air Filter (engine)
AOV	Air Outlet Valves
AR/OS	Air Receiver/Oil Separator
BPV	By-Pass Valve
CH	Coupling Housing
CE	Compressor Element
CF	Cooling Fan
CP	Control Panel
CV	Check Valve
E	Engine
FPco	Filler Plug (oil compressor element)
LS	Load Sensor
MPV	Minimum Pressure Valve
OC	Oil Cooler
OFc	Oil Filter (compressor)
OSE	Oil Separator Element
PG	Pressure Gauge
PS	Pressure Supply
PV	Pressure Valve
R	Radiator
RV	Regulating valve
TSc	Temperature Switch (compressor)
UV	Unloading Valve
VI	Vaccum Indicator

AIR FLOW

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

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

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

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

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

OIL SYSTEM

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

Air pressure forces the oil from the air receiver/oil separator (AR/OS) through the oil cooler (OC), the oil filters (OFc) and the oil stop valve (OSV) to the compressor element (CE).

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

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

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

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

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

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

CONTINUOUS PNEUMATIC REGULATING SYSTEM

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

When the air consumption increases, the air receiver pressure will decrease and vice versa. This receiver pressure variation is sensed by the regulating valve (RV) which, by means of control air to the unloader assembly (UA), matches the air output to the air consumption. The air receiver pressure is maintained between the preselected working pressure and the corresponding unloading pressure.

When starting the compressor, the throttle valve is kept closed via receiver pressure. The compressor element (CE) takes in air and pressure builds up in the receiver (AR). The throttle valve is closed. The air output is controlled from maximum output (100%) to no output (0%) by:

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

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

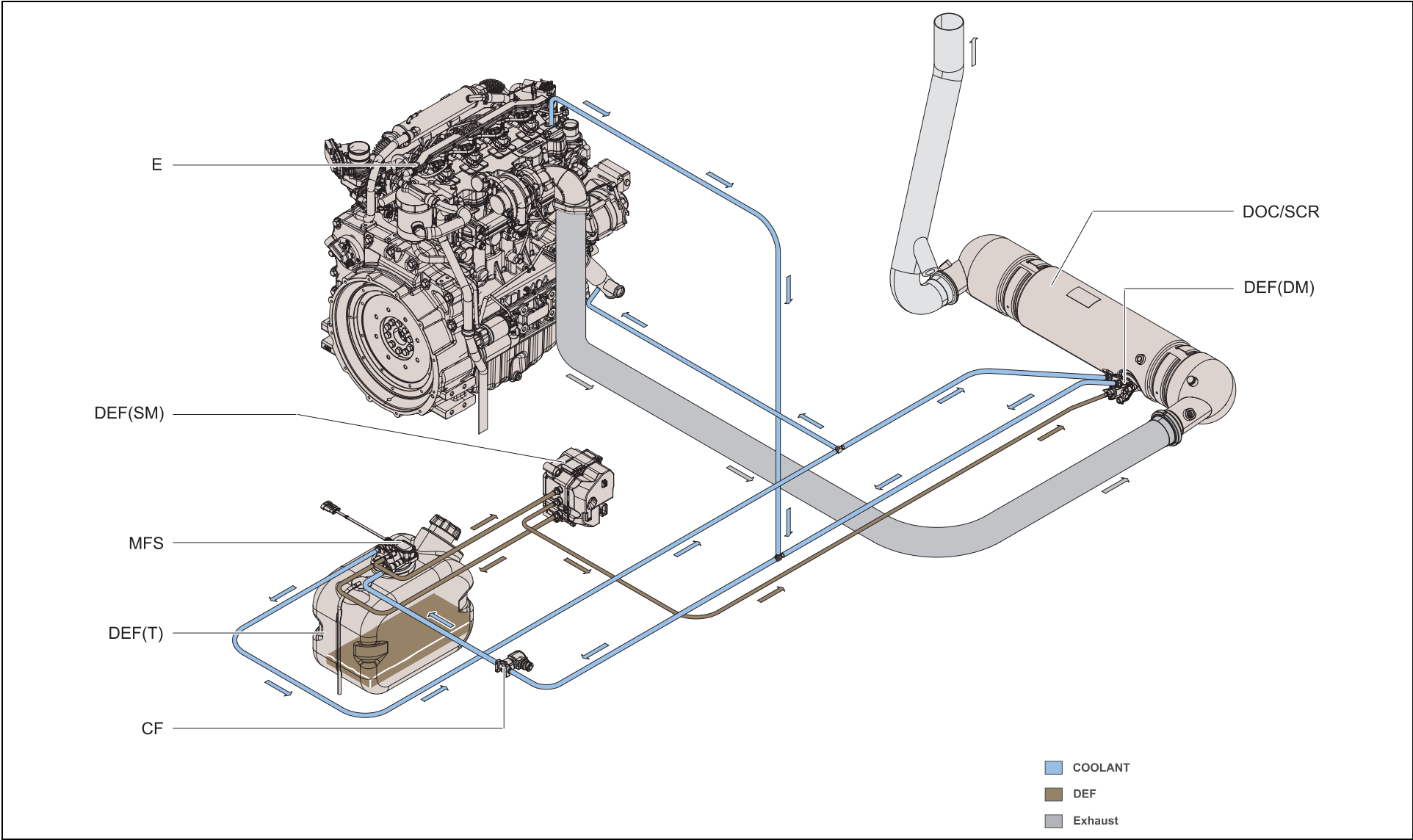
If the air consumption is less than the maximum air output, air receiver pressure increases and the regulating valve supplies control air to throttle valve to reduce the air output and holds air receiver pressure between the normal working pressure and the corresponding unloading pressure. Unloading pressure = normal working pressure + 22 to 29 psi (1.5 to 2 bar).

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

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

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

EXHAUST AFTER-TREATMENT SYSTEM



Reference	Name
CF	Coolant Heater Valve
DEF(DM)	DEF Dosing Module
DEF(SM)	DEF Supply Module
DEF(T)	DEF Tank
DOC/SCR	Diesel Oxidation Catalyst / Selective Catalytic Reduction
E	Engine
MFS	Multi Function Sensor / Heater

EXHAUST GAS AFTER-TREATMENT

To meet the demands of EPA Tier4b/EU Stage IV Emission Legislation, the engine is equipped with a diesel oxidation catalyst (DOC) and a selective catalytic reduction system (SCR).

Step 1 Exhaust Gas Recirculation

With Exhaust Gas Recirculation (EGR), part of the exhaust gases are cooled and then injected back into the engine cylinders to reduce NOx.

Exhaust gas is cooled to allow the introduction of a greater mass of recirculated gas.

The outcome is a lower peak combustion temperature.

Step 2 Diesel Oxidation Catalyst

The diesel oxidation catalyst is designed to oxidise carbon monoxide, gas phase hydrocarbons and organic fraction of diesel particulates to carbon dioxide and water.

Step 3 SCR Technology

SCR stands for an after treatment technology called Selective Catalytic Reduction.

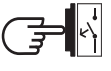
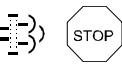
This technology requires the use of diesel exhaust fluid (AdBlue) to reduce the NOx. This technology is used to meet the new emission legislation on NOx emissions and it is the most cost effective solution to meet NOx emission standards.

Diesel exhaust fluid (AdBlue) is injected into the exhaust pipe, in front of the SCR catalyst, downstream of the engine. Heated in the exhaust it decomposes into ammonia and CO₂. When the NOx reacts inside the catalyst with the ammonia, the harmful NOx.

MARKINGS AND INFORMATION LABELS

	Dangerous outlet gases.
	Danger, hot surface.
	Electrocution hazard.
	Chicago Pneumatic synthetic compressor oil.
	Chicago Pneumatic GENOIL engine green oil.
	Manual.
	Read the instruction manual before working on the battery.
	Reset fuse.
	On / off button.
	Prohibition to open air valves without connected hoses.
	Rotation direction.
	Inlet.
	Outlet.

	Compressor oil drain.
	Read the instruction manual before starting.
	Service every 24 hours.
	Warning. Part under pressure.
	Do not stand on outlet valves.
	Start-Stop indication of switch.
	Do not run the compressor with open doors.
	Lifting permitted.
	Use diesel fuel only.
4 bar (58 psi)	Tire pressure.
6 bar (87 psi)	Tire pressure.
	Fork lifting permitted.
	Don't lift here.

	Read the instruction manual before lifting.
	Filler cap coolant.
	Read the instruction manual before topping up with coolant.
	Service point.
	Circuit breaker.
	Do not run the compressor when the baffles are not in the right position.
	Exhaust Filter Cleaning Indicator
	Exhaust Filter Indicator
	Exhaust Filter and Warning Indicator
	Exhaust Filter and Stop Indicator
	Auto Cleaning and Disabled Indicator

Operating instructions

PARKING, TOWING AND LIFTING INSTRUCTIONS

Safety precautions



The operator is expected to apply all relevant Safety precautions for portable compressor.

Attention



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

After the first 50 miles travel:

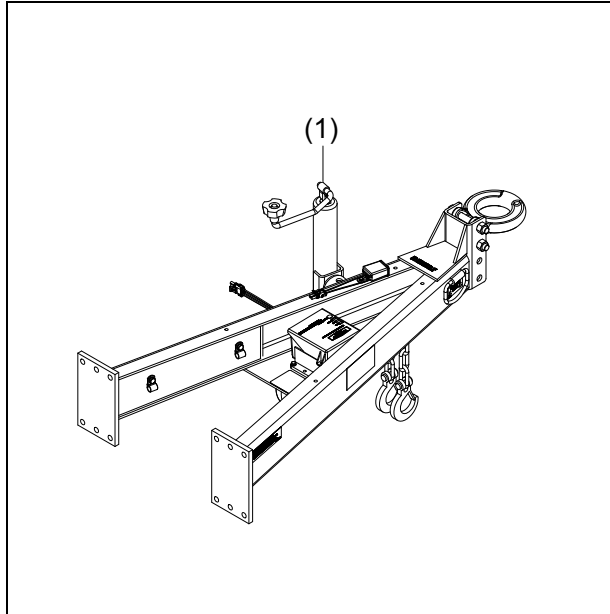
Check and re-tighten the wheel nuts and towbar bolts to the specified torque. See section Compressor/engine specifications.

Check the brake adjustment. See section Brake shoe adjustment.



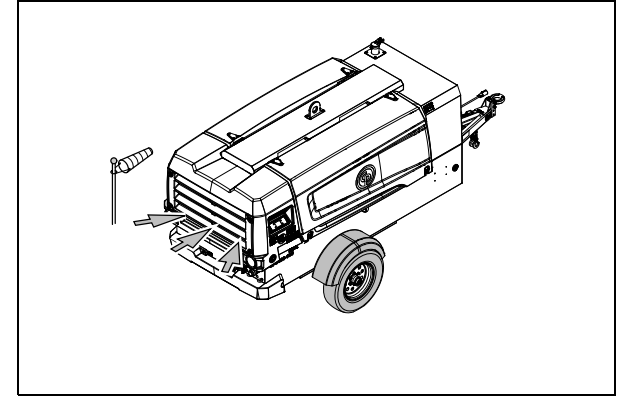
When towing, lifting or transporting the compressor in any way, the battery cable must be disconnected.

PARKING INSTRUCTIONS



Fixed towbar with jockey wheel and brakes

When parking a compressor, secure the jockey wheel (1) to support the compressor in a level position. Place the compressor as level as possible; however, it can be operated temporarily in an out-of-level position not exceeding 15°. If the compressor is parked on sloping ground, immobilize the compressor by placing wheel chocks (available as option) in front of or behind the wheels.



Rear-end of compressor upwind

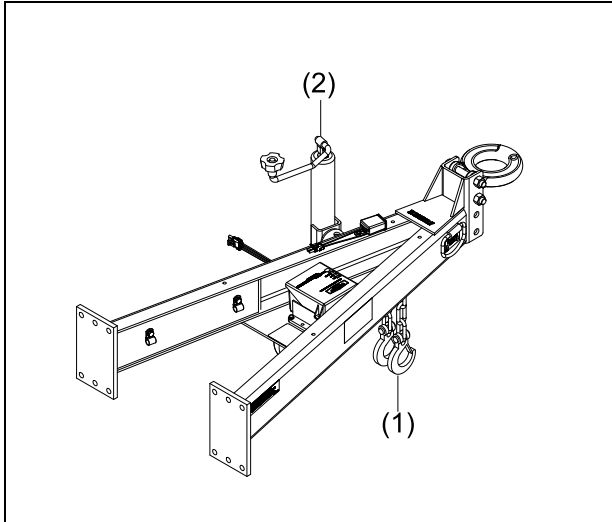
Locate the rear-end of the compressor upwind, away from contaminated wind-streams and walls. Avoid recirculation of exhaust air from the engine. This can cause overheating and engine power decrease.

TOWING INSTRUCTIONS

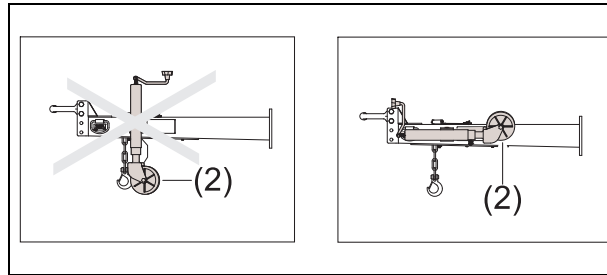


Before towing the compressor, ensure that the towing equipment of the vehicle matches the towing eye or ball connector.

The towbar should be as level as possible and the compressor and towing eye end in a level position.



Connect breakaway cable (1) to the vehicle. Secure jockey wheel (2) in the highest possible position. The jockey wheel is prevented from turning.

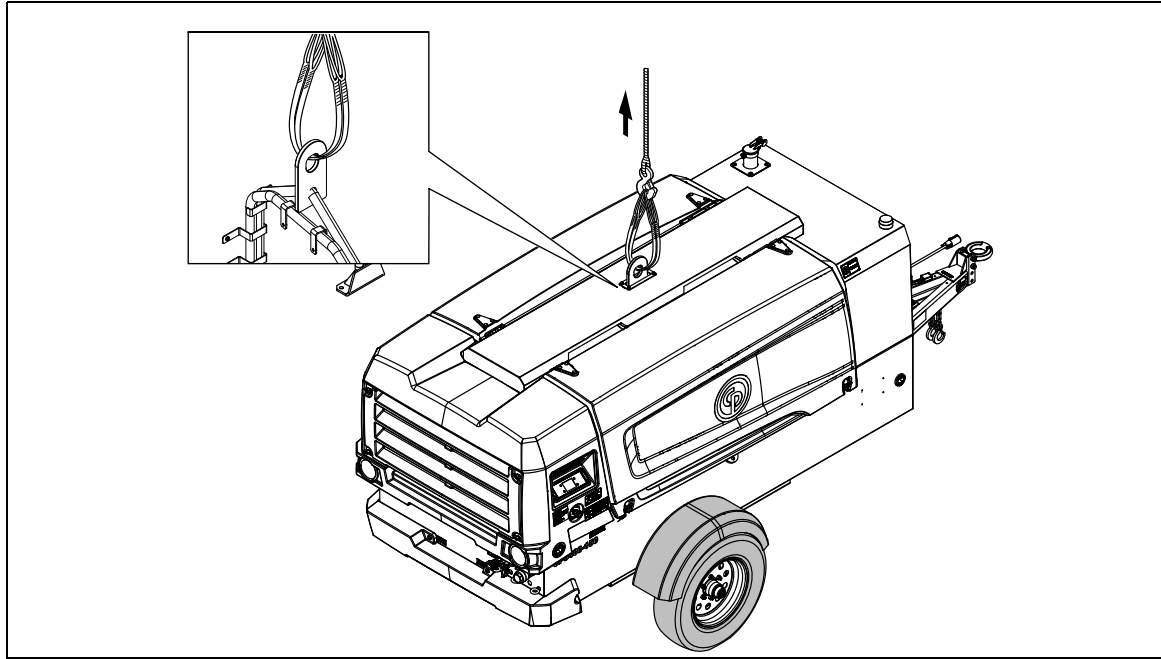


Towing position of jockey wheel



Before moving the compressor, switch it off.
Never move the compressor with air hoses connected to the air outlet valves.

LIFTING INSTRUCTIONS



1. To lift the compressor, use a lift truck or crane with sufficient capacity (weight: see indication on **Design data**).
2. To lift a unit, all loose or pivoting parts, e.g. doors shall first be securely fastened.
3. 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.
4. 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.
5. To lift heavy parts, a hoist of ample capacity, tested and approved according to local safety regulations, shall be used.
6. 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.
7. 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.
8. Never leave a load hanging on a hoist.
9. 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.



Lifting acceleration and retardation must be kept within safe limits (maximum 2g).

Helicopter lifting is not allowed.

Lifting is not allowed when the unit is running.



Drain any standing water from frame before lifting.

STARTING / STOPPING

Safety precautions



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

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

Battery switch

If the compressor is equipped with a battery switch:

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

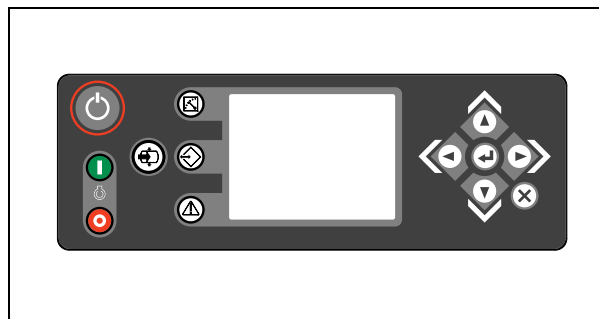
It is not allowed to use this switch as an emergency switch or for stopping the compressor. It will cause damage in the control unit when using this switch for stopping.

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



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

CONTROL PANEL



Reference	Name
	START BUTTON This button will initiate the starting sequences if the controller is in Ready To Start Sequence, or will re-enter the normal running sequence when in Cooldown Sequence.
	STOP BUTTON This button will initiate the cooldown/ stopping sequences if the controller is in normal running sequence.
	LOAD BUTTON This button will initiate the Auto Load function when the controller is in normal running sequence, but not ready to be loaded. - Initiate the loading sequences when the controller is ready to be loaded. - Initiate the not loaded sequence when the controller is running in Loaded Sequence.
	MEASUREMENTS VIEW BUTTON This button will enter the Measurements View when not already in the Measurements View, or when already in the Measurements View it will enter the Main View.

	SETTINGS VIEW BUTTON This button will enter the Settings View when not already in the Settings View, or when already in the Settings View it will enter the Main View.
	ALARMS VIEW BUTTON This button will enter the Alarms View when not already in the Alarms View, or when already in the Alarms View it will enter the Main View.
	NAVIGATION BUTTONS These buttons are used to navigate through the display menu's.
	ENTER BUTTON Confirms/stores the selection/change.
	BACK BUTTON Moves back one level or ignores the change.

The diagram illustrates a dashboard layout with five numbered callouts:

- 1** points to the **MAIN VIEW** header area.
- 2** points to the large central data visualization area.
- 3** points to the bottom status bar containing various metrics and a red warning icon.
- 4** points to the top navigation bar containing icons for different views or sections.
- 5** points to the right-hand sidebar containing a vertical list of icons.

Reference	Name
1	Compressor status
2	Vessel pressure indication or info text
3	Compressor info
	Main View Indication
	Measuring View Indication
	Settings View Indication
	Alarm View Indication
	(AdBlue) Low level.
	SCR PURGE NEEDED Means that the SCR needs to be regenerated. Please force SCR Regeneration.
	SCR PURGE High Exhaust System Temperature. Means that the system is being regenerated.

Reference	Name
	REGENERATION INHIBITED Diesel Particle Filter Regeneration Inhibited means that the regeneration is inhibited, even if all criteria to activate a regeneration are met.
	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 of which pressure (and/or flow) setting is active, the controller will show its dedicated icon.
	PRESET Depending of which pressure (and/or flow) setting is active, the controller will show its dedicated icon.

Reference	Name
	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 & not-acknowledged Shutdown Alarm.
	ALARM Active & not-acknowledged non-Shutdown alarm.
	ALARM Active & acknowledged alarm.

Reference	Name
	FUELTANK Running at internal fuel tank.
	Diesel exhaust fluid (AdBlue) tank level.

AUTOMATIC FUNCTIONS

Auto Start

The compressor can be automatically started when the monitored pressure drops under the specified level with the Auto Start function.

Auto No-Load

The Auto No-Load function can be used to save fuel when there's no air demand from the application. The compressor reverts to No-Load operation when no air demand is present for a pre-configured period of time.

Auto Load

The compressor starts to deliver air as soon as it can, with the Auto Load function.

Auto Re-Load

The compressor will start loading itself as soon as there is air demand by the application with the Auto Re-Load function.

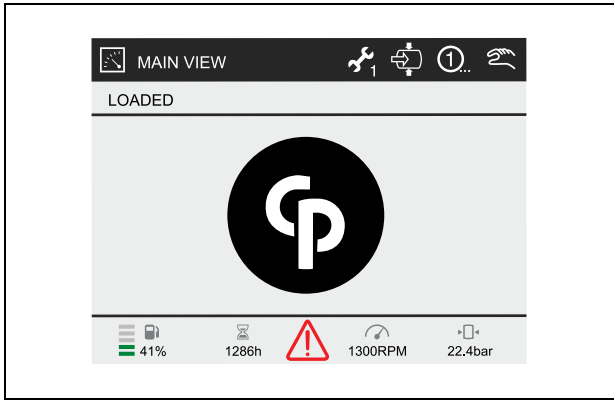
Auto Stop

This function stops the engine when no air demand is present for a pre-configured period of time. Fuel savings can be achieved by using this function.

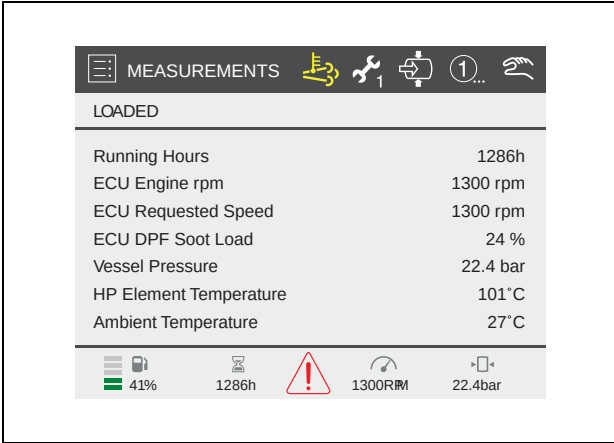
- These functions can be configured according to the needs of the application.
- These functions may require an Chicago Pneumatic Service Key to be accessible.
- Contact Chicago Pneumatic Technical Support for assistance in setting up a machine with Automatic Functions.

POSSIBLE VIEWS

Main View

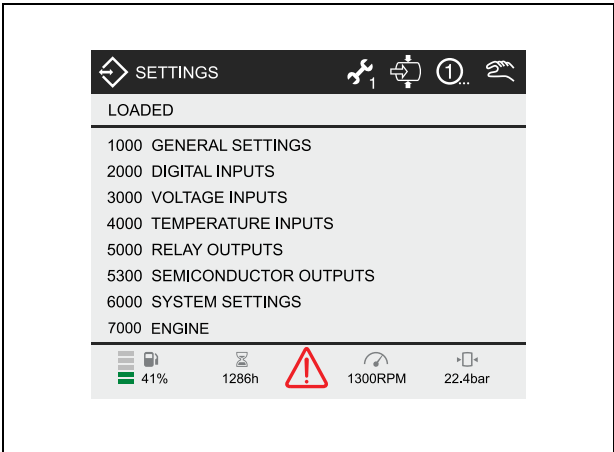


Measuring View



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

Setup View

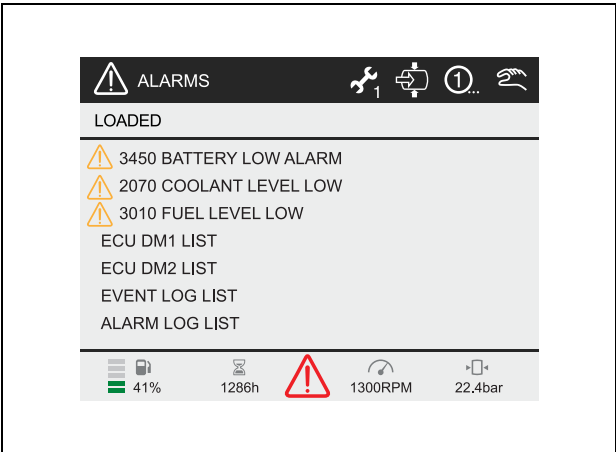


Use the Up and Down navigation buttons to scroll through the full list of settings.

Use the Enter button to enter the selected sub menu.

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

Alarm View

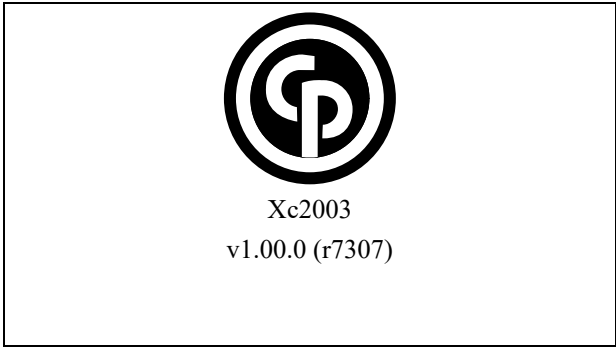


Use the Up and Down navigation buttons to scroll through the full list of alarms.

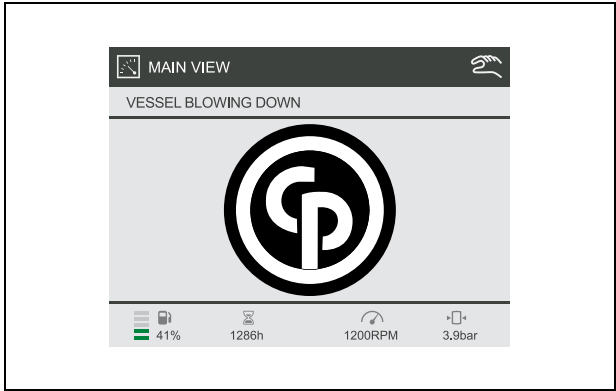
The DM Lists and the Log Lists can be selected and entered to access the sub list.

STARTING

Switch on the battery switch if so equipped.
Switch the controller on by pressing the power button.
The instrument panel will now perform a self test; the following display will be shown and the controller is initialized:



During initializing all buttons/inputs/outputs/alarms are inactive.
This view will be shown for about 2 seconds, after which the display will show the Main View.

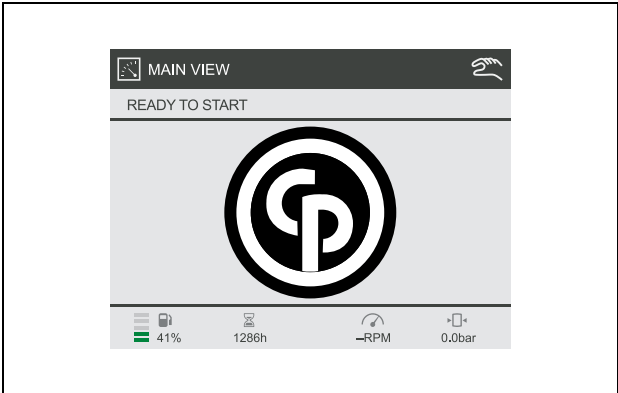


The actual vessel pressure is shown. If the measured vessel pressure is higher than 1.5 bar, the unit will not start. The vessel pressure has to be lowered by opening the

blow down valve. After power up, the vessel pressure normally is low enough to proceed with the starting procedure.

Active Buttons	
	Measurement View Button
	Settings View Button
	Alarms View Button

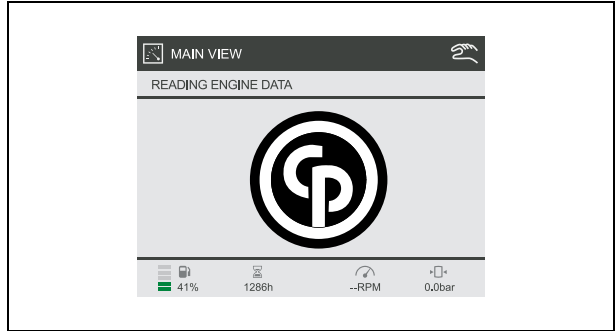
The display now shows



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

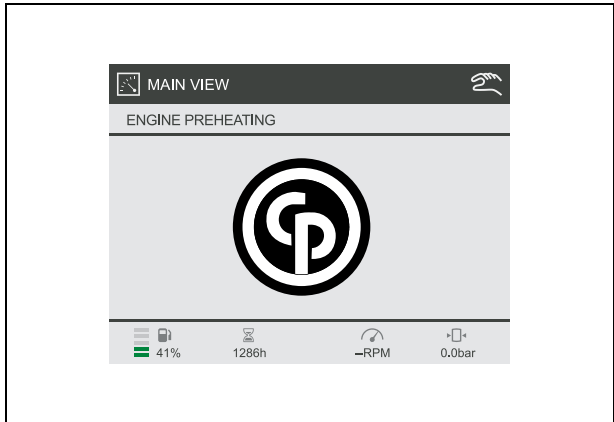
Active Buttons	
	Start Button (to initiate Start command)
	Measurement View Button
	Settings View Button
	Alarms View Button

The display now shows



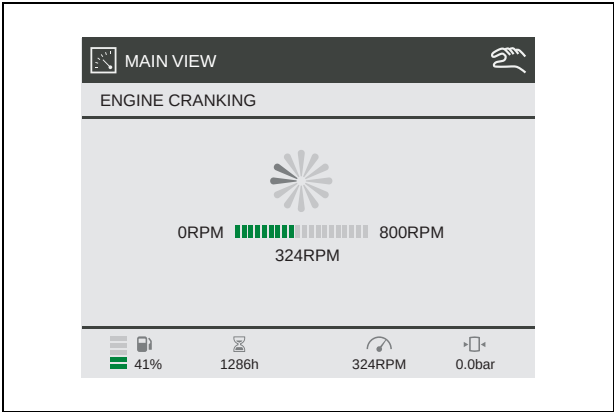
Press the START button to power-up the engine electronics (ECU).
As soon as communication between compressor controller and engine controller is established, the machine will preheat according to the parameters of the engine controller.

The display now shows



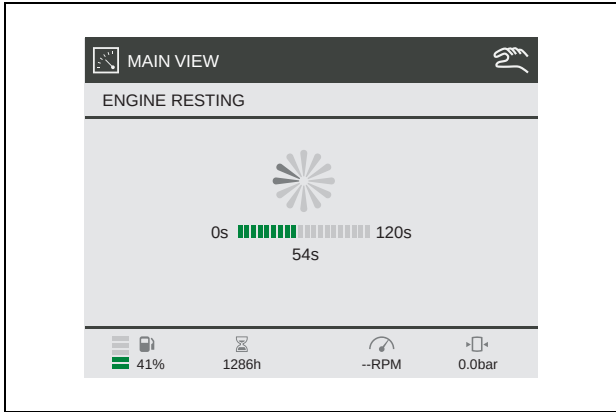
Active Buttons	
	Stop Button (to cancel Start command)
	Measurement View Button
	Settings View Button
	Alarms View Button

The engine starts cranking, the display shows



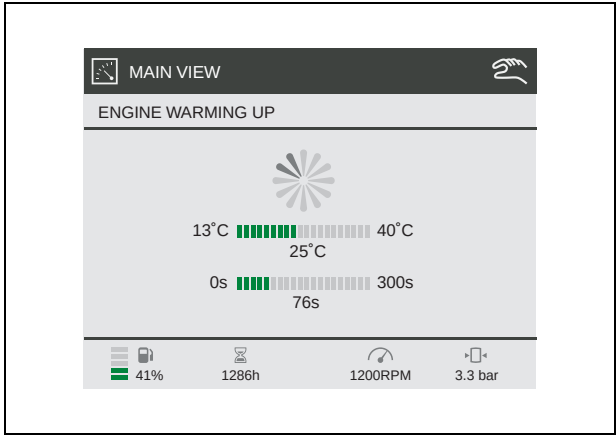
The engine cranks until 800 rpm is reached.
If 800 rpm is not reached within 30 seconds, the starting procedure is cancelled and the engine will rest for some time. (Resting time depends on cranking time).

The display now shows



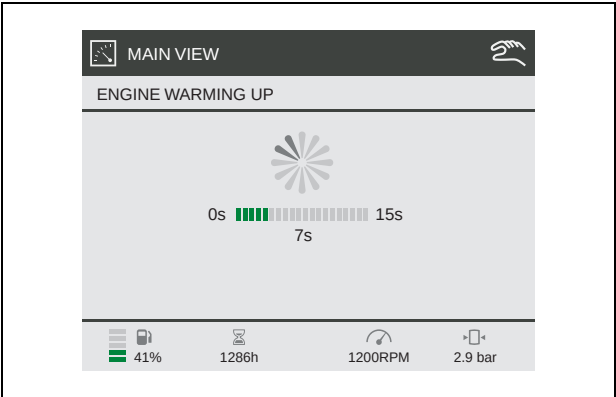
Active Buttons	
	Stop Button (to cancel Start command)
	Measurement View Button
	Settings View Button
	Alarms View Button

The engine starts running at idle speed. The display shows



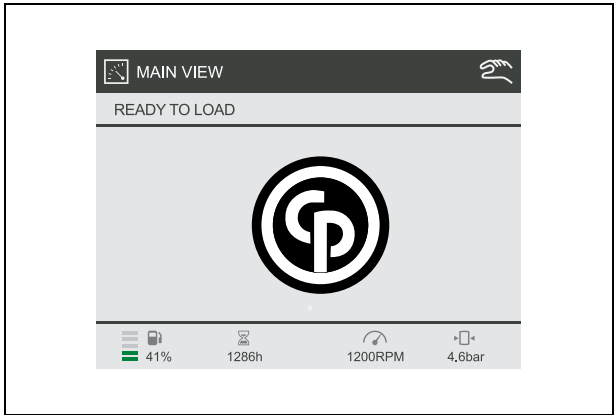
The engine will run at minimum rpm, until the engine’s coolant temperature reaches 40 deg C (104 deg F), with a minimum time of 15 seconds and a maximum time of 300 seconds.

The display now shows



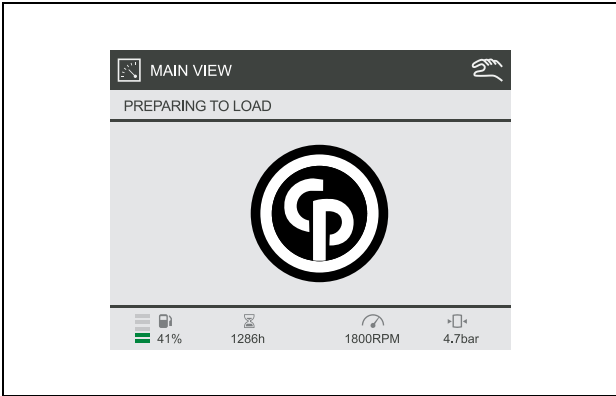
Active Buttons	
	Stop Button (to cancel Start command)
	Measurement View Button
	Settings View Button
	Alarms View Button

After warming up the machine is ready to be loaded and is waiting for a load command; the display shows



Active Buttons	
	Stop Button (to cancel Start command)
	Load Button (to initiate Automatic Load)
	Measurement View Button
	Settings View Button
	Alarms View Button

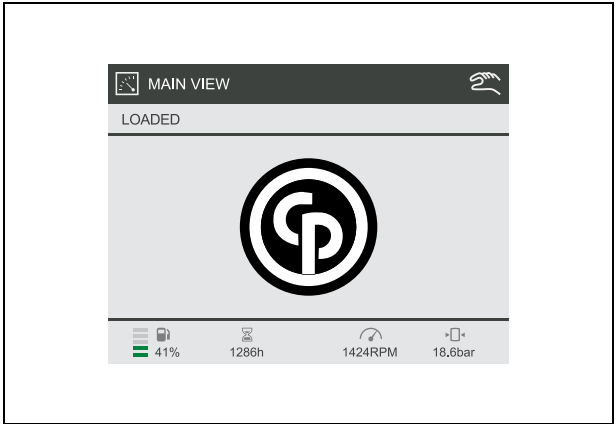
The engine will now run at maximum rpm, the display will show



The loading valve will be energized and pressure starts building up.

Active Buttons	
	Stop Button (to cancel Start command)
	Load Button (to cancel Load command)
	Measurement View Button
	Settings View Button
	Alarms View Button

During loading the following display is shown (default display)

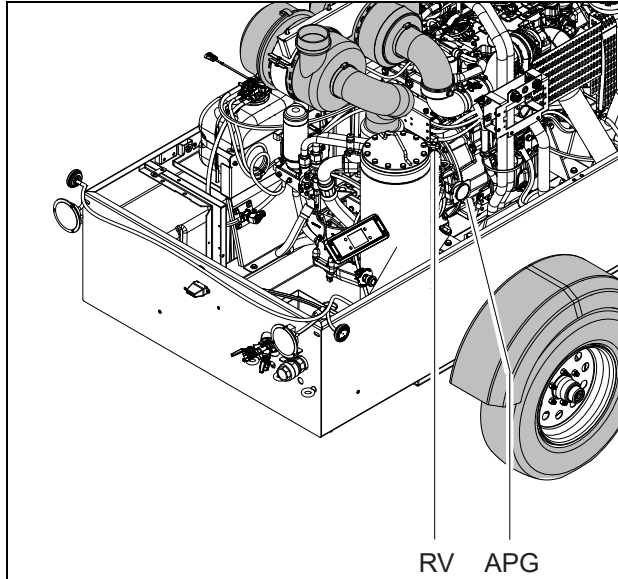


The controller controls the speed of the engine in order to meet the requested working pressure, at the most economical fuel usage.

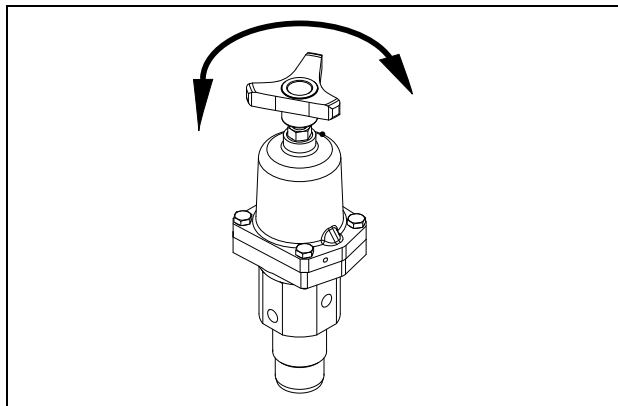
Active Buttons	
	Stop Button (to cancel Start command)
	Load Button (to cancel Load command)
	Measurement View Button
	Settings View Button
	Alarms View Button

PRESSURE SETTING

To change the pressure setting, there is a manual pressure regulating valve located directly off the air storage vessel. An analog pressure gauge is also provided below the adjustment valve.



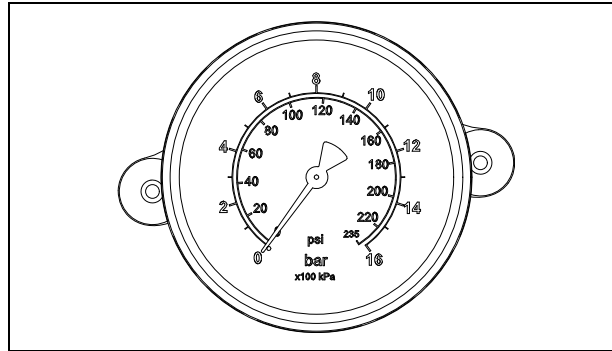
The operator can adjust the pressure by rotating the regulating valve clockwise to increase the pressure and counter clockwise to decrease the pressure.



The operator can check the current pressure at two locations.

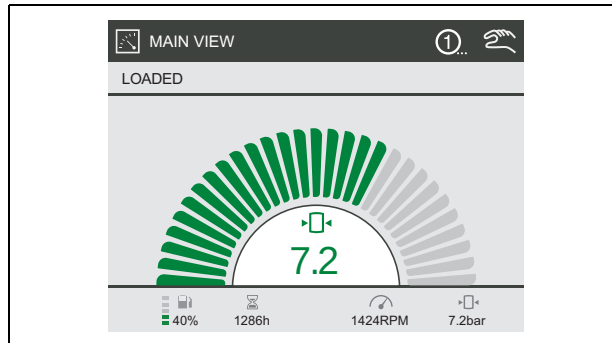
1. On the analog pressure gauge

The operator can read the current pressure on the analog pressure gauge while adjusting the valve.



2. On the controller

The operator can check the current pressure on the controller.



During operation



The doors must be closed during operation and may be opened for short periods for inspection and adjustments only.



Be aware not to touch hot or moving parts when the door is open.



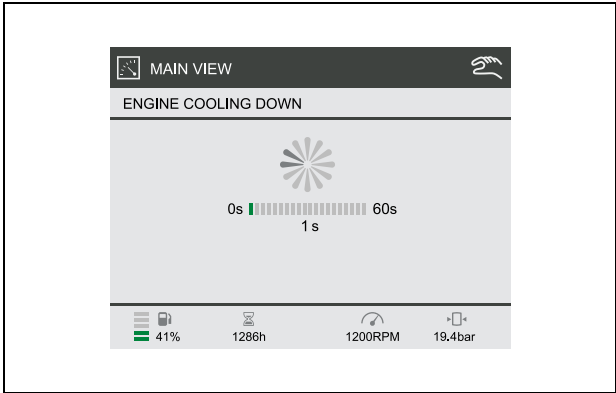
When the engine is running, the air outlet valves (ball valves) must always be put in a fully opened or fully closed position.

Regularly carry out following checks:

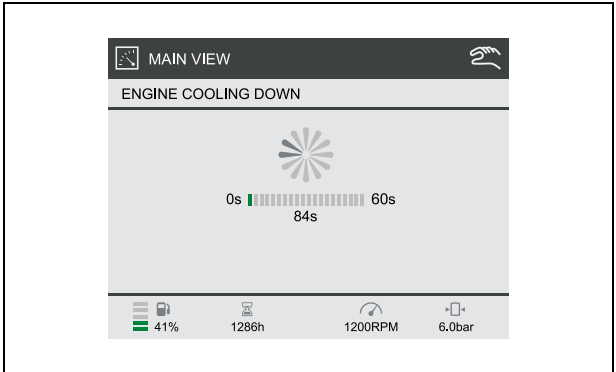
1. Ensure that the regulating valve (RV) is correctly adjusted, i.e. starts decreasing the engine speed when reaching the preset working pressure in the receiver.
2. Check the air outlet temperature of the compressor element.
3. Check the engine oil pressure, the coolant temperature and display of control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

STOPPING

After pressing the STOP button the display will show:

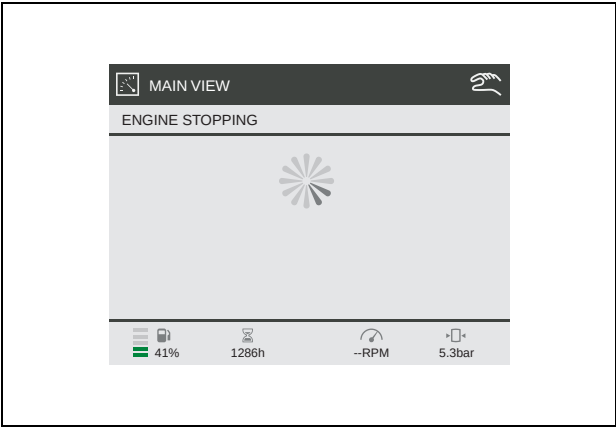


After a Stop command, or in case of a controlled stop alarm, the machine will cool down and run at minimum rpm for 1 minute before it will stop.



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

After cooling down the engine will stop and the display will show

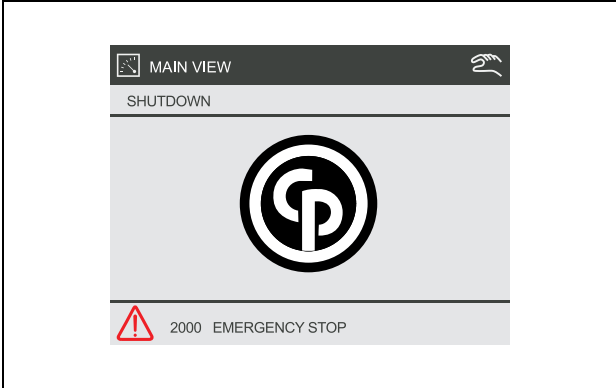


The engine is stopped, and the controller will do a double check to see if the engine is really stopped.

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

SHUTDOWN

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



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

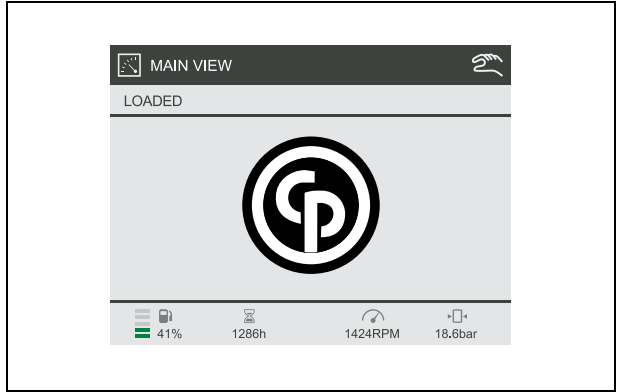
POWER OFF

Press the Power button to switch OFF the controller.
If the compressor is equipped with a battery switch:
When the compressor is not in use, this switch must always be in the “OFF” position.
It is not allowed to use this switch as an emergency switch or for stopping the compressor.
It can damage the controller or the engine’s Electronic Control Unit when using the battery switch for stopping.
Always first shut off the controller and wait until the display is dark before switching the battery switch to position “OFF”.

DIESEL OXIDATION CATALYST

When the Diesel Particle Filter regeneration process is kept at its default ‘AUTOMATIC’ setting, then the regeneration will be performed automatically when the Soot Load exceeds 60%.
The controller display will indicate an ongoing Regeneration by showing the HEST icon (High Exhaust System Temperature):

	HEST Icon
--	-----------



The regeneration process will continue, until the Soot Load has become as low as possible, or until the engine is stopped.
When the regeneration process is stopped, the HEST icon will disappear from the display.

AUTOMATIC REGENERATION (DEFAULT)

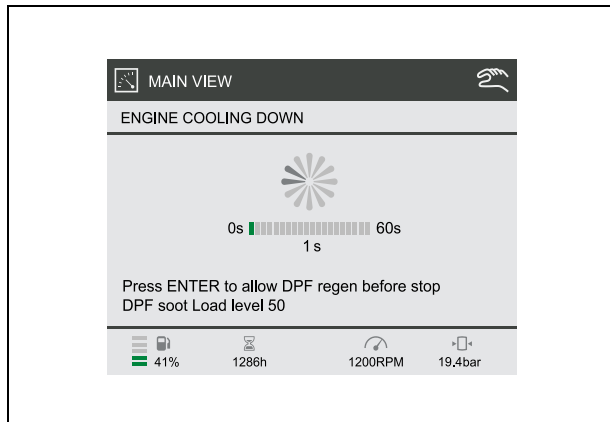
In specific cases, when the engine speed is constant at minimum RPM, an Regeneration can start..

This can happen in following situations:

- Warming Up
- Not Loaded
- Loaded (when running in Unload condition - minimum RPM)
- Cooldown

When an LSR is ongoing while the soot load is less than 60%, and the engine speed changes (engine is stopped, machine gets loaded, etc.), then the Regeneration process will be stopped.

If the Soot Load is high when cooling down and an SCR should start the controller will ask:



If Enter is pressed within 10 seconds then the controller will allow the regeneration to be completed before the engine is stopped.

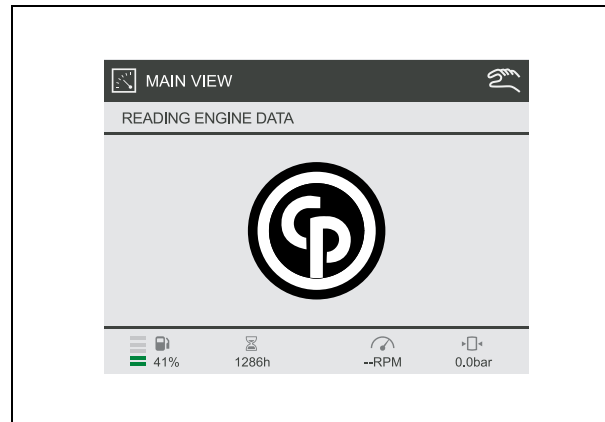
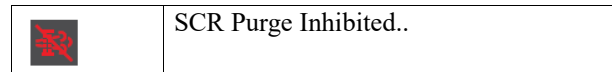
 **A full SCR Purge can take up to an hour.**

If Enter is not pressed (within 10 seconds), then the engine will be stopped after cooling down.

INHIBIT REGENERATION

When running in an environment where an elevated exhaust temperature is not allowed, it might be necessary to inhibit SCR Purge. This has to be done at Customer Service Level. Go to General settings 1000. Parameter 1142 ECU Enable - Set to "OFF". The controller has now put the SCR Purge in a FORCED OFF mode, which is Inhibit SCR Purge.

The compressor controller will communicate with the engine controller and the (RED) Inhibit SCR Purge icon will appear:

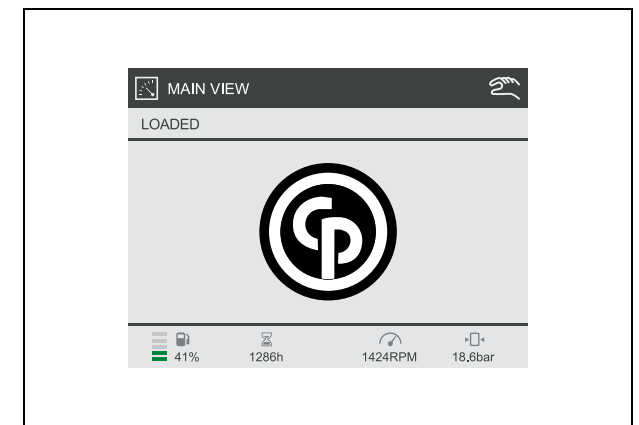
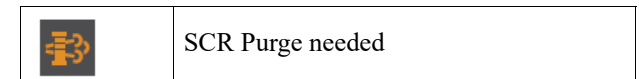


When the controller gets powered down, it will (at next power up) fall back to its default settings, meaning AUTOMATIC SCR Purge.

INCREASING SOOT LOAD

When the SCR Purge is Inhibited, or when the engine does not get sufficient possibility to automatically perform a full SCR Purge, the Soot Load will exceed the normal levels.

The controller will show the SCR Purge Needed Icon. In case of Inhibited SCR Purge, the SCR Purge Needed Icon will overwrite the DOC Inhibited Icon.



Required Action:

- Force SCR Purge, see paragraph FORCE SCR Purge
- When the SCR Purge is started, the SCR Purge Needed icon will disappear and the HEST icon will pop-up

TURNING REGENERATION BACK TO AUTO

Machine is not running:

Power the controller down. At next power up, the SCR Purge settings will be back to default, and an Automatic SCR Purge will take place at the soonest appropriate moment.

Machine is running:

- Make sure parameter '1140 ECU
- ENABLE' is set to "ON"
- Scroll down and Enter the 'MODE' parameter
- Scroll down and Enter the 'AUTOMATIC' setting
- Press the Back button 3 times to get back to the Main view

FORCE REGENERATION

Machine is running:

- Press the Settings View Button
- Enter the '1000 GENERAL SETTINGS' menu
- Go to parameter '1130 STATIONARY REGENERATION'
- Scroll to Enable and change to "ON"
- Go to parameter '1140 ECU
- Scroll to Enable and change to "ON"



Unit will not regenerate if soot level is not high enough.

SERVICE REGENERATION

Machine is running:

- Press the Settings View Button
- Enter the '7000 ENGINE' menu
- Go to parameter '7140 SERVICE REGENERATION'
- Scroll to Enable and change to "ON"



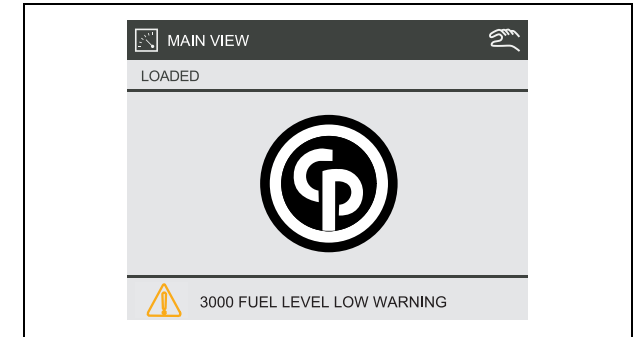
Unit will not regenerate if soot level is not high enough.

SETTINGS

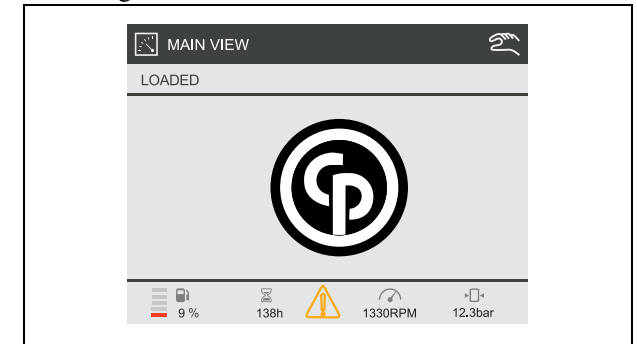
For buttons to be used see “Control Panel”

Acknowledge an Alarm

If an alarm becomes active, for example a Low Fuel Level Warning:



then this alarm can be acknowledged by pressing the ENTER button. If the fuel level is still low, the view will change to:



As soon as the fuel level is higher than the warning level, 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 seen by pressing the ALARM VIEW button

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

Set Clock

Press the SETTINGS VIEW button

- Scroll to '1000 GENERAL SETTINGS'
- Press ENTER
- Scroll to '1290 DATE/TIME'
- ENTER the Date/Time menu
- Scroll to the parameter you want to change
- ENTER this parameter.

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

To change any other setting, the highlighted figure is editable.

Scroll up/down and press ENTER to change. Use left/right to shift between editable figures.

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

Set Language

Press the SETTINGS VIEW button.

- Scroll to '1000 GENERAL SETTINGS'
- Press ENTER
- Scroll to '1300 LANGUAGES'
- ENTER the LANGUAGES menu,
- ENTER the 'SETTINGS' parameter
- Scroll to the preferred language
- Press ENTER.

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

Set Units

Press the SETTINGS VIEW button,

- Scroll to '1000 GENERAL SETTINGS'
- Press ENTER
- Scroll to the unit you would like to change:
 - '1340 TEMPERATURE UNITS'
 - '1350 PRESSURE UNITS'
 - '1360 FUEL FLOW UNITS'
- ENTER the preferred menu
- ENTER the 'SETTINGS' parameter

- Scroll to the preferred setting
- Press ENTER.

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

Change Display Settings

Press the SETTINGS VIEW button

- Scroll to '1000 GENERAL SETTINGS'
- Press ENTER
- Scroll to '1310 DISPLAY BACKLIGHT'
- ENTER the DISPLAY BACKLIGHT menu
- Scroll to the setting you would like to change
- Press ENTER.

To change a setting, the highlighted figure is editable. Scroll up/down and press ENTER to change. Use left/right to shift between editable figure.

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

Go To Diagnostics

Press the SETTINGS VIEW button

- Scroll to '1000 GENERAL SETTINGS'
- Press ENTER
- Scroll to '1150 DIAGNOSTICS'
- ENTER the Diagnostics menu,
- ENTER the 'ENABLE' parameter
- Scroll to 'ON' and press ENTER.

Now the ECU will get power and one can perform ECU diagnostics (read DM1 List, DM2 List, ECU values, perform engine diagnostics, ...).

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

To leave Diagnostics, press the STOP button.

- ECU warning 7009 will be active while in diagnostics.

Set the Auto Load Function



Parameters 1160 – 1180 can be configured in any order and will remain inactive until Operation Mode Command (parameter 1100) is configured to 'Automatic'. Parameter 1100 must be configured last or the machine may start prematurely if this parameter is set earlier.

Press the 'Settings View button'

- Scroll to 1000 GENERAL SETTINGS
- Press 'Enter button'
- Scroll to 1160 Auto Load
- Enter the FUNCTION menu
- Scroll to Auto Load setting
- Press 'Enter button'.

Now the Auto Load function is active, and as soon as the unit is Ready to Start, the display will show the Auto Load icon

If 'Function' is set to 'Off', both Auto Load and Auto No-Load functions are disabled.

If 'Function' is set to 'Auto Load', then only the Auto Load function is enabled. In this mode, the machine will remain loaded regardless of Operation Mode Command setting.

If 'Function' is set to 'Auto No-Load', then only the Auto No-Load function is enabled. In this mode, the loaded machine will operate loaded for the time configured in 'Timer' before reverting back to the No Load state.

If 'Function' is set to 'Auto No-Load + Reload', then both automatic loading and unloading functionalities are enabled, and the machine will start and stop as dictated by the sensor's pressure set point and timer setting.

Auto Start/Auto Stop

Parameter 1170 – Auto Start, 1180 – Auto Stop

If 'Enable' is set to 'On', the machine will attempt to start if the measured value of the selected sensor goes below the configured 'Pressure' for an elapsed time configured by 'Delay'.

When 'Enable' is set to 'On', 'Function' (parameter 1160) is automatically set to 'Auto Load'.

If you are using an external sensor to control automatic functionality, the sensor's pressure values at 0.5V and 4.5V must be specified in 13180 parameter.

If 'Function' is set to 'On', the machine engine will stop after being in Loaded Sequence for the elapsed time configured in 'Timer'.

Once desired Auto Load, Auto Start, Auto Stop and external sensor range (if applicable) is defined, finally go to parameter 1100 and set the operation mode to AUTOMATIC, as the machine may start prematurely if this parameter is set earlier.

Once set to AUTOMATIC, the Automatic operation icon appears.

If the automatic Operation Mode is active, but both Auto Start and Auto Stop are disabled, a red slash appears of the Automatic operation icon to indicate the machine will not perform automatically.

Suggested transducers

Model No.	Pressure (in bar)
1089957963	0 to 25
1089957964	0 to 50
1089957971	-1 to 5
1089957972	-1 to 17
1089957974	0 to 17
1089957975	0 to 35
1089957976	0 to 50

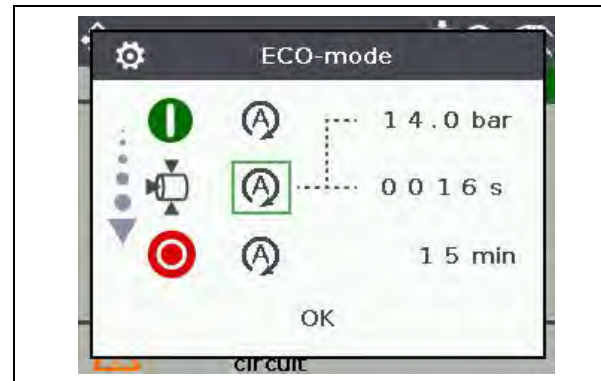
ECO MODE

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

The common settings of the automatic functions are grouped in the ECO mode pop-up menu, to make it easier for the end user to modify the settings.

A single pop-up menu avoids to go into four different menu's of the Settings Menu. Not all settings can be done in the pop-up menu. Therefore, the menu structure is still available in the background. By using the ECO mode, the customer can quickly activate the automatic no-load/re-load and automatic stop functions that will help him/her to reduce the fuel consumption. The end user can also change the timers and pressure levels at which the ECO mode functions needs to react on, to optimize the settings for his/her application.

OVERVIEW



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

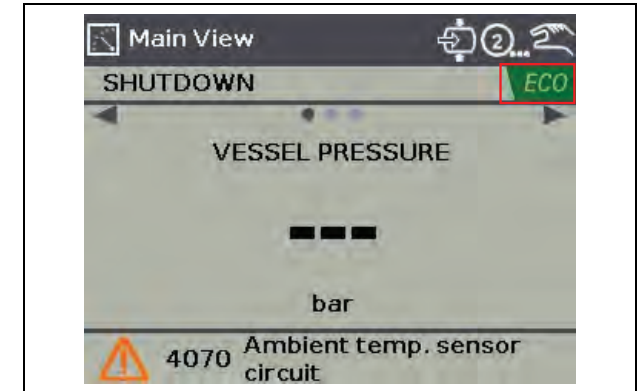


The compressor unit needs to have the air discharge pressure sensor installed for the ECO mode feature to function.



Press 'Load' button to view the ECO mode pop-up menu on the controller screen (only when the machine is not running). If the parameters need to be accessed when the machine is running, then go into Settings menu.

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



AUTO START

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

TO SET AUTO START FUNCTION

Press the 'Load' button on controller and the ECO-mode pop-up menu appears on the controller display:

- Go to 'Start' icon on the ECO mode pop-up menu and set the parameter to 'Automatic'
- Set the pressure for Auto Start
- Once the pressure is set for Auto start; that means if the pressure drops under a specified set pressure, the machine automatically starts.
- Click 'OK' to acknowledge.



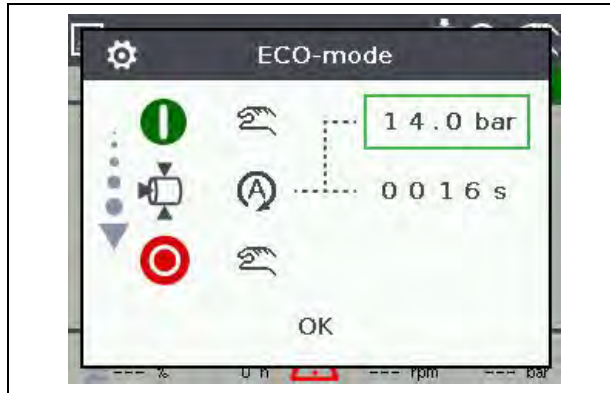
AUTO NO-LOAD / AUTO RE-LOAD

The Auto No-load function is used for saving fuel when there is no air demand from the application. The compressor switches to No-load operation mode when there is no demand for extended time.

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

TO SET AUTO NOLOAD & AUTO RE-LOAD

- Select the 'Load' icon on the ECO mode pop-up menu and set the parameter to 'Automatic'
- Set the timer for Auto No-load
- Set the pressure for Auto Re-load
- Once the pressure is set for Auto Re-load; that means if the pressure drops under a specified set pressure - the machine is re-loaded automatically.
- Click 'OK' to acknowledge.



AUTO STOP

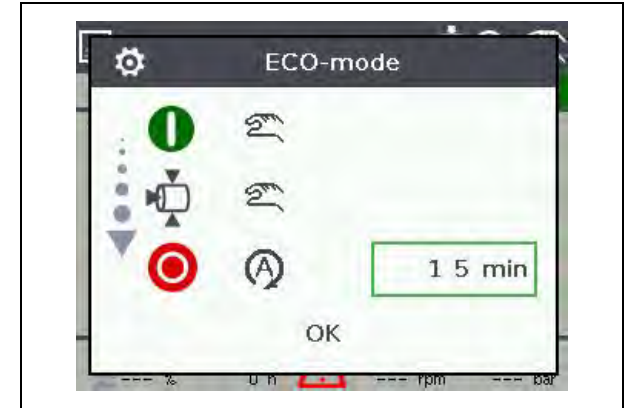
The Auto Stop function is used to stop the compressor, when there is no air demand over an extended time. This function can be combined with the Auto Start and Auto Load functions. This function can be used for fuel saving.



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

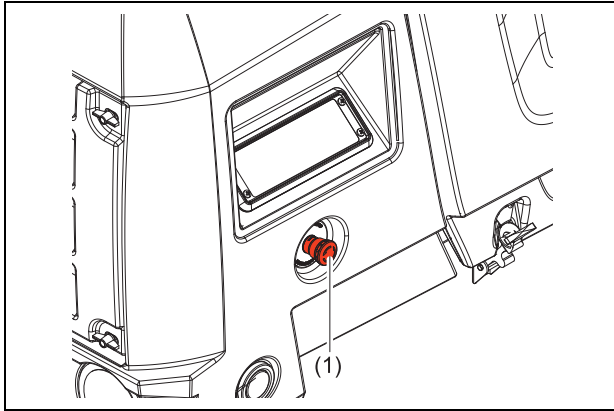
TO SET AUTO STOP FUNCTION

- Select the 'Stop' icon on ECO mode pop-up menu and change the parameter to 'Automatic'
- Set the timer for Auto stop and then click 'OK' to acknowledge.



After setting-up the necessary parameters for each mode, click on 'OK' to acknowledge.

EMERGENCY STOP

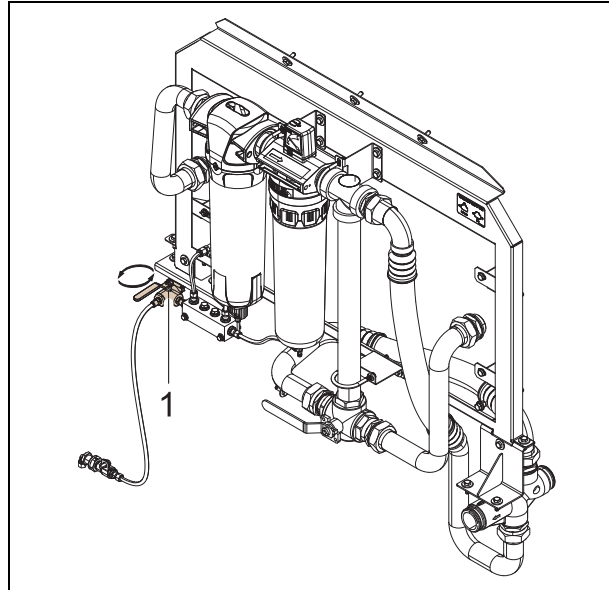


The emergency stop button is only to be used in emergency situations; not for stopping procedures.

When an emergency stop button (1) is pressed, power to all outputs is terminated, by the emergency stop itself (hardware) as well as by the software.

When the emergency stop button (1) is pressed the operator can unlock the emergency stop by turning it counter-clockwise.

CONDENSATE FLASHING



For after cooler equipped machines, the operator has the option to either drain condensate through the bottom of the frame or flash the condensate in the exhaust stream. To adjust the method of condensate disposal, rotate the condensate flash valve located at the rear of the unit attached to the condensate drain manifold block. Rotating the handle clockwise will send condensate to the drain while rotating it counter clockwise will send condensate to the exhaust for flashing.

DAILY AUTOMATIC SHUTDOWN

This unit is equipped with a forced automatic shutdown after 24 hours of continuous operation.

- This shutdown is programmed from the factory and is not subject to change in the field.
- Visible flasher and audible alarm will sound before automatic shutdown sequence initiates.
- The engine must be completely shutdown for this timer to reset.

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	Type
1190	ECU overrule active	
1500	Initial service alarm	
2000	Emergency Stop	Emergency stop has been activated Controller is missing reference voltage to Emergency Stop Input
2010	Conf digital input 1 alarm	
2020	Conf digital input 2 alarm	
2030	Conf digital input 3 alarm	
2040	Conf digital input 4 alarm	
2050	Conf digital input 5 alarm	
2060	Conf digital input 6 alarm	
2910	MPU input alarm	
3000	Fuel level low 1	The Fuel Level has dropped below the Fuel Level Low 1 setting
3010	Fuel level low 2	The Fuel Level has dropped below the Fuel Level Low 2 setting
3050	Vessel pressure high warning	OIS
3055	Vessel pressure high warning 2	OIS
3060	Vessel pressure high shutdown	OIS
3065	Vessel pressure high shutdown 2	OIS
3080	Vessel pressure sensor circuit	OIS
3130	Regulating pressure sensor circuit	
3150	Air discharge pressure alarm 1	
3160	Air discharge pressure alarm 2	
3170	Air discharge pressure circuit	
3330	Inlet pressure sensor alarm	
3450	Battery low alarm	
3455	Low battery voltage during last crank	
3460	Battery high alarm	
3500	Conf voltage input 1 alarm 1	
3510	Conf voltage input 1 alarm 2	
3520	Conf voltage input 1 sensor circuit	
3540	Conf voltage input 2 alarm 1	
3560	Conf voltage input 2 alarm 2	
3570	Conf voltage input 2 sensor circuit	2 stage
4000	L.P. Element temp. alarm 1	2 stage
4010	L.P. Element temp. alarm 2	2 stage

Alarm code	Alarm text	Type
4020	L.P. Element temp. alarm 3	
4040	L.P. Element temp. sensor circuit	
4050	Ambient temp. alarm 1	
4060	Ambient temp. alarm 2	
4070	Ambient temp. sensor circuit	
4100	Air discharge temp. alarm 1	
4110	Air discharge temp. alarm 2	
4120	Air discharge temp. sensor circuit	A H. P. element temp. alarm 1 alarm will be generated if the high pressure element temperature exceeds a configured setpoint for a configured delay. H. P. element temp. alarm 1 'SETTING' gets raised with a configurable temperature for a configurable time, each time the load valve output gets activated.
4150	H.P. Element temp. alarm 1	A h. p. element temp. alarm 2 controlled stop will be generated if the high pressure element temperature exceeds a configured setpoint for a configured delay. H. P. element temp. alarm 2 'SETTING' gets raised with a configurable temperature for a configurable time, each time the load valve output gets activated.
4160	H.P. Element temp. alarm 2	A H. P. element temp. alarm 3 shutdown will be generated if the high pressure element temperature exceeds a configured setpoint for a configured delay. Alarm is fixed at 'High', and Inhibit is fixed at 'None'. H. P. element temp. alarm 3 'SETTING' remains unchanged, each time the load valve output gets activated.
4170	H.P. Element temp. alarm 3	The High Pressure Element Temperature Sensor wiring is monitored for short-circuit and wire break.
4190	H.P. Element temp. sensor circuit	
4200	Aftercooler air temp. alarm 1	
4210	Aftercooler air temp. alarm 2	
4220	Aftercooler air temp. sensor circuit	
4230	Aftercooler freezing danger	
4240	Ambient temp alarm	
4300	Conf temp input 1 alarm 1	
4310	Conf temp input 1 alarm 2	
4320	Conf temp input 1 sensor circuit	
4350	Conf temp input 2 alarm 1	
4360	Conf temp input 2 alarm 2	
4370	Conf temp input 2 sensor circuit	
4990	VDO sensor circuit	
6140	Aftercooler fan	

Alarm code	Alarm text	Type
6190	Charging fail	
6200	Vessel pressure limiting	
6309	Engine preheat failure	
6327	Start failure	
6329	Starter speed too low	
6380	Vessel pressure too low to load	
6390	Preload RPM failure	
6420	Stop failure	
6425	Unexpected starter feedback	
6426	Unintentional run	
6427	Run failure	
6580	Check compressor oil	
6870	Regulating system failure	
7000	ECU communication error	
7007	ECU red lamp	
7008	ECU amber lamp	
7009	ECU protect lamp	
7010	Engine speed too low	
7020	Engine overspeed	
7030	ECU engine coolant temp. alarm	
7040	ECU engine oil pressure alarm	
7050	ECU engine air inlet temp. alarm 1	
7060	ECU engine air inlet temp. alarm 2	
7070	ECU engine load alarm	
7080	ECU ambient temp. alarm	
7090	ECU ambient temp. special warnings	
7100	ECU DPF soot load alarm 1	
7110	ECU DPF soot load alarm 2	
7120	ECU DPF soot load alarm 3	
7130	ECU DPF soot load alarm 4	
7150	Fuel pressure alarm 1	
7160	Fuel pressure alarm 2	
7170	DPF LSR monitoring	
7180	DEF tank level 1	
7190	DEF tank level 2	
7210	Engine speed alarm 3	
7240	Status 2. Should initiate a stationary DPF regen at this time	

Alarm code	Alarm text	Type
7250	Status 3. Must initiate a stationary DPF regen at this time	
7260	Status 4. Must contact a service to complete DPF parked	
7270	Status 5. Must contact a service to take care of DPF service	
7300	ECU oil level 1	
7310	ECU oil level 2	
7320	SCR inducement LVL 1	
7330	SCR inducement LVL 2	
7340	SCR inducement LVL 3	
7350	SCR inducement LVL 4	
7360	SCR inducement LVL 5	
7370	SCR inducement override	
7410	Regeneration required 1	
7420	Regeneration required 2	
7430	Regeneration required 3	
7501	Actuator voltage error	
7502	Actuator current error	
7503	Actuator temperature error	
7504	Actuator position error	
7505	Actuator calibration error	
7700	Junction Temperature Alarm 1	
7710	Junction Temperature Alarm 2	
7720	Motor speed alarm 1	
7730	Motor speed alarm 2	
7740	Motor torque alarm 1	
7750	Motor torque alarm 2	
7760	Motor DC voltage alarm 1	
7770	Motor DC voltage alarm 2	
7780	Motor power alarm 1	
7790	Motor power alarm 2	
7800	Motor current alarm 1	
7810	Motor current alarm 2	
7820	Motor current DC bus alarm 1	
7830	Motor current DC bus alarm 2	
7840	VSD shutdown	
7920	Run protection alarm	
1521 // 1522	Minor overhaul within	
1551 // 1553	Compressor oil change within	

Alarm code	Alarm text	Type
1552 // 1554	Major overhaul within	
3020 // 4990	Fuel level sensor circuit	The Fuel Level Sensor Circuit is monitored for Short-circuit and wire break
FMI 15 // FMI 17	Warning	
FMI 16 // FMI 18	Alarm	
FMI 2 // FMI 3 // FMI 4	Sensor failure	
FMI 5 // FMI 6 // FMI 7 // FMI 11 // FMI 12 // FMI 14	Failure	
FMI 10 // FMI 1	Shutdown	
	Configurable voltage input 1 sensor	Controller
SPN 100	Oil pressure	
SPN 102	Turbo boost pressure	
SPN 104	Turbo oil pressure	
SPN 105	Intake manifold temperature	
SPN 106	Air inlet pressure	
SPN 110	Coolant temperature	
SPN 111	Coolant level	
SPN 158	Supply voltage	
SPN 16	Fuel filter pressure	
SPN 168	Electric potential	
SPN 171	Ambient air temperature	
SPN 172	Air inlet temperature	
SPN 174	Fuel temperature	
SPN 175	Oil temperature	
SPN 1761	SCR tank level	
SPN 190	Engine speed	
SPN 2630	CAC outlet temperature	
SPN 3031	SCR tank temperature	
SPN 3701	Diesel particulate filter status	
SPN 3719	Soot load	
SPN 3720	Ash load	
SPN 52	Intercooler temperature	
SPN 651	ECU - Injector 1	
SPN 652	ECU - Injector 2	
SPN 653	ECU - Injector 3	
SPN 654	ECU - Injector 4	
SPN 655	ECU - Injector 5	
SPN 656	ECU - Injector 6	

Alarm code	Alarm text	Type
SPN 657	ECU - Injector 7	
SPN 658	ECU - Injector 8	
SPN 94	Engine fuel pressure	
SPN 95	Engine oil level	
SPN 97	Engine filter differential pressure	
SPN 98	Fuel level	
SPN 99	Engine fuel filter differential pressure	

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

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 Xc controller also shows full text next to the SPN code:

ECU - FUEL FILTER PRESSURE
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

FAIL CLASS

Limit

- If an alarm with this fail class is triggered, there will be no change in operational functionality and the machine keeps on performing as normal.
- If the alarm situation has turned back to normal (eg. pressure has dropped again to a normal value), this alarm will be automatically acknowledged.
- A 'Limit' alarm will never activate the HORN OUTPUT and/or the FLASHER LIGHT OUTPUT, and will never be shown at the display. Only the configured Output Relay will be energized.

Indication

- if an alarm with this fail class is triggered, there will be no change in operational functionality and the machine keeps on performing as normal.
- If the alarm situation has turned back to normal (eg. pressure has dropped again to a normal value), this alarm will be automatically acknowledged.
- An 'Indication' alarm will never activate the HORN OUTPUT and/or FLASHER LIGHT OUTPUT. The alarm will be shown at the display and the configured Output Relay will be energized.

Warning

- If an alarm with this fail class is triggered, there will be no change in operational functionality and the machine keeps on performing as normal.
- This alarm always needs to be manually acknowledged (by pressing the Enter button), even if the alarm situation has turned back to normal.
- 'Warning' alarm will activate the FLASHER LIGHT OUTPUT. The alarm will be shown at the display and the configured Output Relay will be energized.

Inhibit load

- If an alarm with this fail class is triggered, the action the controller will take is to prevent that the LOADED SEQUENCE is entered for as long as the alarm is active.
- This alarm always needs to be manually acknowledged (by pressing the Enter button), even if the alarm situation has turned back to normal.
- An 'Inhibit Load' alarm will always activate the HORN OUTPUT and FLASHER LIGHT OUTPUT. The alarm will be shown at the display and the configured Output Relay will be energized.

Controlled stop

- If an alarm with this fail class is triggered, the action the controller will take is to jump to the COOLDOWN SEQUENCE or to jump to the SHUTDOWN SEQUENCE. The appropriate action is described in each sequence specification. Due to the fact that there will be jumped to COOLDOWN SEQUENCE or to SHUTDOWN SEQUENCE, normal operation of the machine will be aborted.
- This alarm always needs to be manually acknowledged (by pressing the Enter button), even if the alarm situation has turned back to normal.
- A 'Controlled Stop' alarm will always activate the HORN OUTPUT and FLASHER LIGHT OUTPUT. The alarm will be shown at the display and the configured Output Relay will be energized.

Shutdown

- If an alarm with this fail class is triggered, the controller will jump to the SHUTDOWN SEQUENCE and normal operation of the machine will be aborted.
- This alarm always needs to be manually acknowledged (by pressing the Enter button), even if the alarm situation has turned back to normal.
- A 'Shutdown' alarm will always activate the HORN OUTPUT and FLASHER LIGHT OUTPUT. The alarm will be shown at the display and the configured Output Relay will be energized.

Maintenance

LIABILITY

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

SERVICE PACKS

A Service Pack is a collection of parts to be used for a specific maintenance task, e.g. after 500 and after 1500 running hours.

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

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

Use of service packs

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

Service Packs minimize downtime and keep your maintenance budget low.

Order Service Packs at your local Chicago Pneumatic dealer.

SERVICE KITS

A service kit is a collection of parts to fit a specific repair or rebuilding task.

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

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



Contact Chicago Pneumatic.

STORAGE

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

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



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



Unauthorised modifications can result in injuries or machine damage.



Always keep the machine tidy to prevent fire hazard.



Poor maintenance can void any warranty claims.

QR CODE

Scan the QR code to access into the Chicago Pneumatic Part list.



CPS 400-150

PREVENTIVE MAINTENANCE SCHEDULE

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

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

For engine maintenance & Exhaust filters refer to Engine Operation Manual. The maintenance schedule has to be seen as a guideline for compressors operating in a dusty environment typical to compressor applications. Maintenance schedule can be adapted depending on application, environment and quality of maintenance.

MAINTENANCE SCHEDULE

<i>To determine the maintenance intervals, use service hours, or calendar time, whichever occurs first.</i>			
Service hours		500 hours	1500 hours
Calendarial	Daily	Every 6 months	Yearly
<i>For the most important sub assemblies, Chicago Pneumatic has developed service kits that combine all wear parts. These service kits offer you the benefits of genuine parts, save on administration costs and are offered at reduced price, compared to the loose components. Refer to the parts list for more information on the contents of the service kits.</i>			
Check engine oil level	x		
Check compressor oil level	x		
Check coolant level	x		
Drain water from fuel filter	x		
Empty Air filter vacuator valve	x		
Check electrolyte level and terminals of battery		x	x
Check tyre pressure	x		
Check for leaks in air-, oil- or fuel system (2)		x	x
Clean oil cooler (1)		x	x
Clean radiator (1)		x	x
Clean intercooler (1)		x	x
Check torque of wheel nuts		x	x
Check and adjust brake system (if installed)		x	x
Test safety valve (8)			x
Grease door hinges		x	x
Grease towing eye shaft or ball coupling and its shaft		x	x
Check rubber flexibles (2)			x
Check shut down switches			x
Replace separator element (11)			x
Check / adjust fan V-belts (3) (10)		x	x

Maintenance schedule		500 hours	1500 hours
	Daily	Every 6 months	Yearly
Clean fuel tank			x
Replace compressor oil (1) (12)			x
Replace compressor oil filter (6)			x
Analyze coolant (5) (9)		x	x
Replace engine and compressor air filter elements (1)		x	x
Replace engine oil (3) (4)		x	x
Replace engine oil filter (3)		x	x
Replace primary fuel filter (7)		x	x
Replace fuel prefilter (3) (7)		x	x
Replace bleed off valve unloader			x
Clean oil stop valve			x
Check and adjust engine inlet and outlet valves (3)			Every 2000 hours
Replace filter element from regulating valve			x
Clean flow restrictor in oil scavenge line			x
Inspection by Chicago Pneumatic Service Technician			x

Notes:



1. More frequently when operating in a dusty environment.
2. Replace all rubber flexibles each 6 years, according to DIN 20066.
3. Refer to the engine operation manual.
4. 500 hours only valid when using GENOIL Engine Green.
5. Check coolant every year. Change coolant every 5 years.
6. Use Chicago Pneumatic oil filters, with by-pass valve, as specified in the parts list.
7. Replace the fuel filters regularly. Gummed or clogged filters mean fuel starvation and reduced engine performance. The quality of the fuel determines the frequency of renewal.
8. See section **Safety valve**.
9. The following part numbers can be ordered from Chicago Pneumatic to check on inhibitors and freezing point:
 - 2913 0028 00 refractometer
 - 2913 0029 00 pH meter.
10. Replace V-belt after 1500 operating hours.
11. Replace the element when the pressure drop exceeds 0.8 bar (11.6 psi).
12. See section **Oil specifications**.



Keep the bolts of the housing, the lifting beam, towbar and axles securely tightened. For torque values see section Technical specifications.



See Engine operators manual for information regarding the Selective catalytic reductions maintenance & service.

OIL SPECIFICATIONS



It is strongly recommended to use Chicago Pneumatic branded lubrication oils for both compressor and engine.



Only use synthetic compressor oil.

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.



Never mix synthetic with mineral oil.

Remark:

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

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

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

GENOIL from Chicago Pneumatic is the ONLY oil tested and approved for use in all engines built into Chicago Pneumatic compressors and generators.

Extensive laboratory and field endurance tests on Chicago Pneumatic equipment have proven GENOIL 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 GENOIL allow for extended oil change intervals without any loss in performance or longevity.

GENOIL 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.

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

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

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

GENOIL prevents Soot build-up.

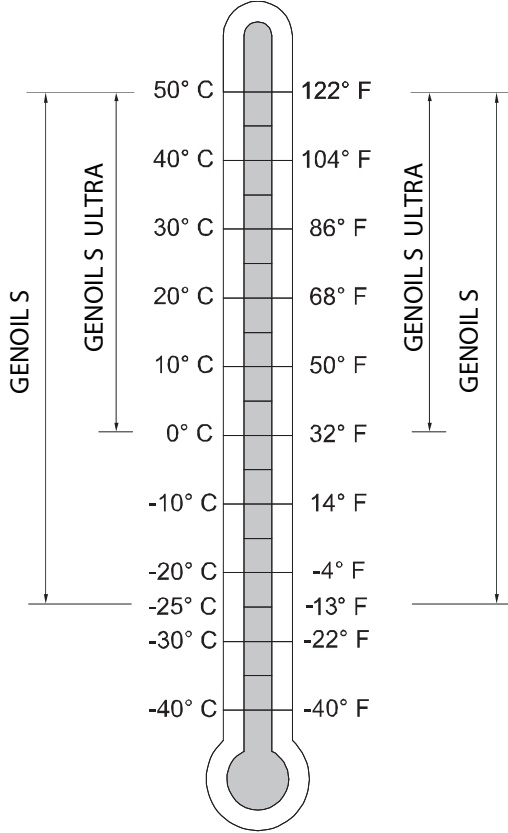
GENOIL is optimized for the latest low emission EURO - 3 & -2, EPA TIER II & III engines running on low sulphur diesel for lower oil and fuel consumption.

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

GENOIL Engine Green is a mineral based high performance diesel engine oil with a high viscosity-index. Chicago Pneumatic GENOIL Engine Green is designed to provide a high level of performance and protection under 'standard' ambient conditions from -10°C (14°F) onward.

GENOIL Engine Green are low SAPS oil. These oils are to be used in Tier 4I / Stage IIIB engines in order to provide the full performance and life of the engine and aftertreatment systems.

COMPRESSOR OIL



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

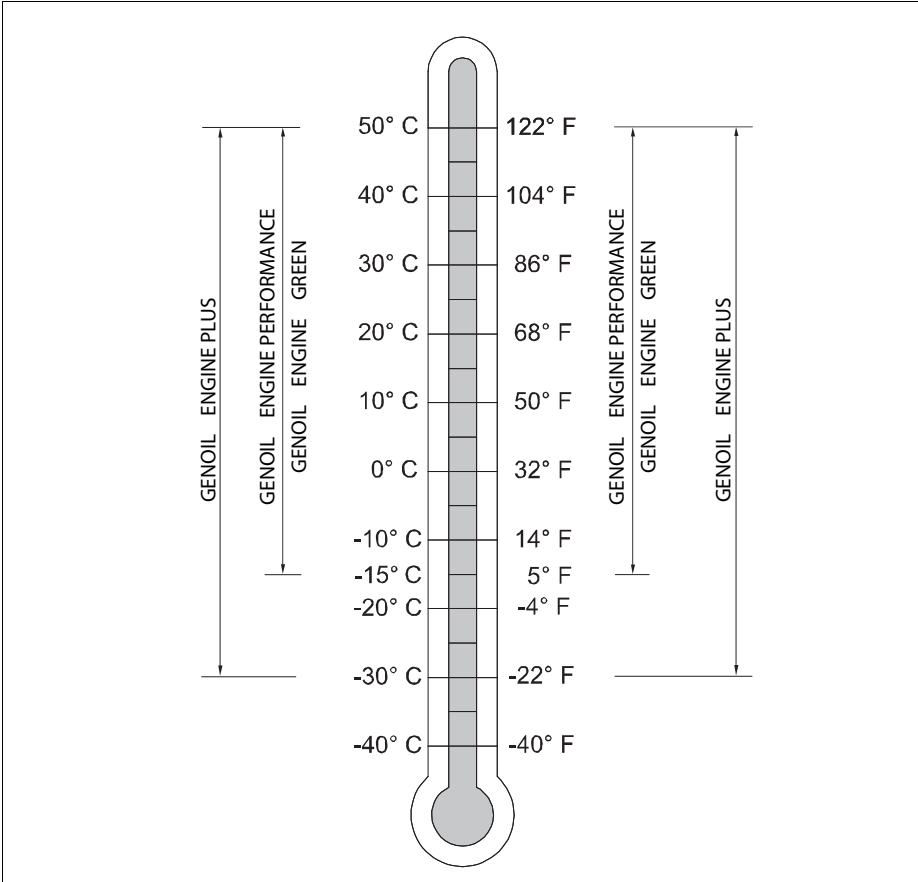
Synthetic compressor oil GENOIL S

	Liter	US gal	Order number
can	20	5.28	1630 0175 00

Synthetic compressor oil high ambient temperature GENOIL S ULTRA

	Liter	US gal	Order number
can	20	5.28	1630 0249 00

ENGINE OIL



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

Synthetic Engine oil Genoil Engine Plus

	Liter	US gal	Order number
can	5	1.32	1626 2258 01
can	20	5.28	1626 2259 01

Mineral Engine oil Genoil Engine Performance

	Liter	US gal	Order number
can	5	1.32	1626 2262 00
can	20	5.28	1626 2263 00

Mineral lubricant for Stage 3b/Tier 4 engines Genoil Engine Green

	Liter	US gal	Order number
can	5	1.32	1638 0740 00
can	20	5.28	1638 0750 00

OIL LEVEL CHECK

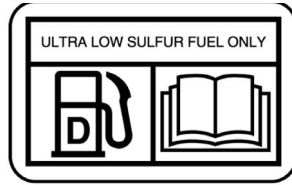
CHECK ENGINE OIL LEVEL

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

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

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

DIESEL FUEL RECOMMENDATIONS



Ultra Low Sulphur Diesel (ULSD) fuel 0.0015 percent (≤ 15 ppm (mg/kg)) sulphur is required by regulation for use in engines certified by regulation for use in engines certified to non-road Tier 4 standards (U.S. EPA Tier 4 certified) and that are equipped with exhaust after treatment systems.

European ULSD 0.0010 percent (≤ 10 ppm (mg/kg)) sulphur fuel is required by regulation for use in engines certified to European non-road Stage IIIB and newer standards and are equipped with exhaust after treatment systems.

Misfueling with fuels of higher sulphur level can have the following negative effects:

- Shorten the time interval between after treatment device service intervals (cause the need for more frequent service intervals).
- Adversely impact the performance and life of after treatment devices (cause loss of performance).
- Reduce regeneration intervals of after treatment devices.
- Reduce engine efficiency and durability.
- Increase the wear.
- Increase the corrosion.
- Increase the deposits.
- Lower fuel economy.
- Shorten the time period between oil drain intervals (more frequent oil drain intervals).
- Increase overall operating costs.
- Failures that result from the use of improper fuels will not be covered by warranty.

DIESEL EXHAUST FLUID (ADBLUE)

General information

For diesel engines that are equipped with SCR equipment, meeting the mandated exhaust emissions levels requires the use of diesel exhaust fluid (AdBlue).

Diesel exhaust fluid (AdBlue) is available commercially, and its manufacture is regulated by the American Petroleum Institute (API).

For engines and machines with diesel exhaust fluid (AdBlue)/SCR equipment used in the U.S., the use of API certified diesel exhaust fluid is required.

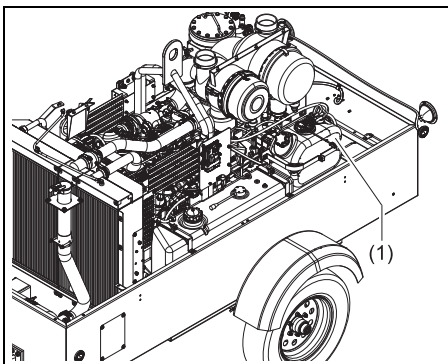


Use of fluids that are not recommended by Chicago Pneumatic can result in numerous problems including damage to the equipment.



As diesel exhaust fluid (AdBlue) is very corrosive, you need to thoroughly clean up any spilled diesel exhaust fluid (AdBlue).

FILLING UP DIESEL EXHAUST FLUID (ADBLUE)



1. Open the door on the right-hand side and fill the tank (1) with diesel exhaust fluid (AdBlue).
2. When you refill with diesel exhaust fluid (AdBlue), there is no need to wear protective clothing. However, we recommend that you wear gloves to prevent irritation to sensitive skin.



Do not use old diesel or oil containers to transfer diesel exhaust fluid (AdBlue) into the tank. Any non-dedicated equipment can lead to contamination.

Even very small quantities of fuel/oil/lubricant can damage your SCR system.



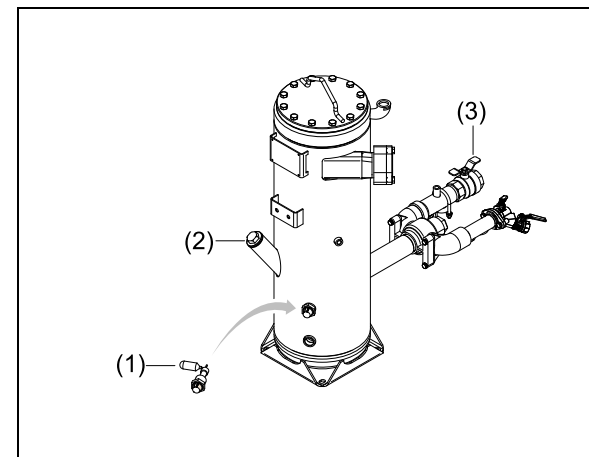
Do not replace diesel exhaust fluid (AdBlue) by a water/urea solution. Water or urea solution cause easily identifiable damage, including a build up of calcium deposits from the minerals found in water and urea solution. Gradual degrading and clogging of the SCR system will result in costly replacement parts, reducing efficiency and lost time. These repairs will not be covered by warranty if it can be detected that the damage was caused by water, or urea solution.



If diesel exhaust fluid (AdBlue) is accidentally filled into the diesel tank or diesel into the diesel exhaust fluid (AdBlue) tank, do not start the engine. It is essential that you drain the tank with the unit still in its original position. If the engine is started, even just briefly:

- **The fluid will enter the wrong system, and this can have expensive consequences in the long and short term.**
- **Diesel exhaust fluid (AdBlue) is not compatible with some metals and materials, so it will slowly degrade the fuel system's pipework and components.**
- **Diesel will poison the catalyst which is expensive to replace (unwarrantable damage), resulting in downtime and maintenance bills.**

CHECK COMPRESSOR OIL LEVEL



With the compressor standing horizontal, check the level of the compressor oil.

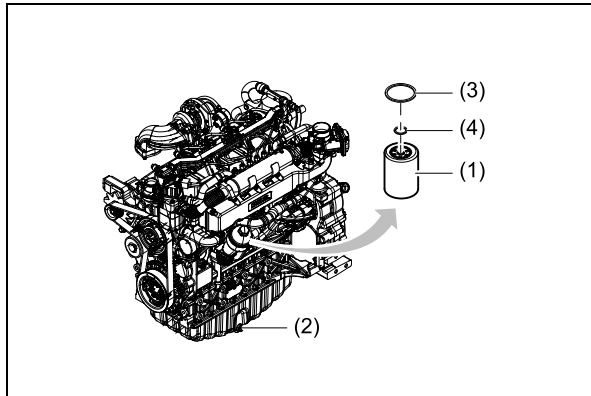
The pointer of the oil level gauge (1) must register in the upper extremity of the green range. Add oil if necessary.



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

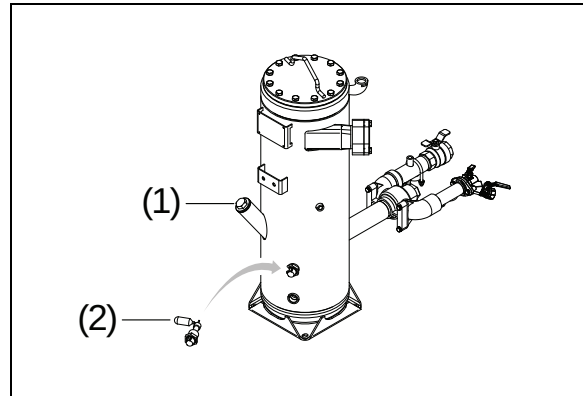
OIL AND OIL FILTER CHANGE

ENGINE OIL AND OIL FILTER CHANGE



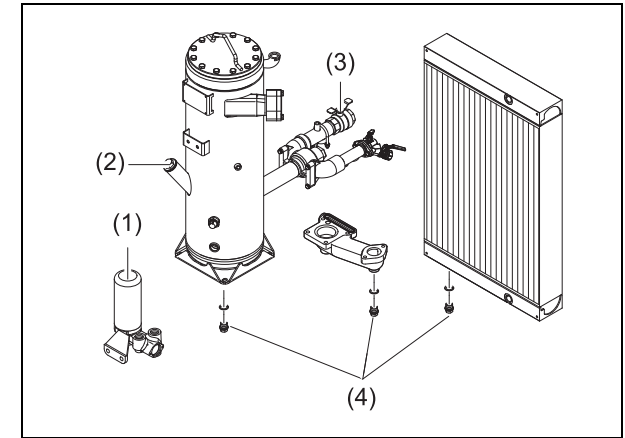
1. Run engine approximately 5 minutes to warm up oil. Shut engine off.
2. Remove oil pan drain plug (2).
3. Drain crankcase oil from engine while warm.
4. Turn filter element (1) using a suitable filter wrench to remove. Discard oil filter element.
5. Apply clean engine oil to the new filter at the inner (4) and outer (3) seals and to filter threads.
6. Wipe both sealing surfaces of the header with a clean rag. Ensure notches in dust seal are properly installed in the slots in the housing. Replace dust seal if damaged.
7. Install and tighten oil filter by hand until firmly against dust seal. Do not apply an extra 3/4 to 1 1/4 turn after gasket contact as done with standard filters.
8. Tighten drain plug to specifications.

TOPPING UP THE COMPRESSOR OIL



1. Stop the compressor. Wait a few minutes until the pressure is released through the automatic blow-down valve. Make sure that all pressure is released by loosening the filler plug (1) one turn.
2. Wait a few minutes until the oil level is constant.
3. Remove the filler plug (1) and top up with oil until the pointer of the oil level gauge (2) is in the upper part of the green area.
4. Reinstall and tighten the filler plug (1).

COMPRESSOR OIL AND OIL FILTER CHANGE



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

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

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



In this case, contact Chicago Pneumatic.

1. Run the compressor until warm. Close the outlet valve(s) (3) and stop the compressor. Wait until the pressure is released through the automatic blow-down valve. Unscrew the oil filler plug (2) by a single turn. This uncovers a vent hole, which permits any pressure in the system to escape.
2. Drain the compressor oil by removing all relevant drain plugs (4). Catch the oil in a drain pan. Unscrew the filler plug (2) to speed up draining. After draining, reposition and tighten the drain plugs (4).
3. Remove the oil filters (1), e.g. by means of a special tool. Catch the oil in a drain pan.
4. Clean the filter seat on the manifold, taking care that no dirt drops into the system. Oil the gasket of the

new filter element. Screw it into place until the gasket contacts its seat, then tighten one half turn only.

5. Fill the air receiver until the pointer of the oil level gauge is in the upper part of the green area. Be sure that no dirt gets into the system. Reinstall and tighten the filler plug.
6. Start the compressor and let it run unloaded for a few minutes.
7. Stop the compressor, wait a few minutes and top up with oil until the pointer of the oil level gauge is in the upper part of the green area.



Never add more oil. Overfilling results in oil consumption.

COMPRESSOR OIL FLUSHING PROCEDURE



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

To avoid problems when changing over to a new type of oil (see table) a special Compressor Oil Flushing Procedure has to be followed. The table is only valid when the replaced oil has not exceeded its lifetime. For more information consult Chicago Pneumatic Service department.

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

Whenever aged oil is discovered, e.g. when changing the oil separator, contact Chicago Pneumatic Service department to have your compressor cleaned and flushed.

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



Instructions on replacing the oil separator element are available from Chicago Pneumatic Service department.

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



Vessel cover
contaminated

clean



Vessel
contaminated

clean

	GENOIL - S	GENOIL - S Ultra
GENOIL - S	draining *	draining
GENOIL - S Ultra	draining	draining *

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

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 Chicago Pneumatic branded coolant.

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

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

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



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

GENCOOL EG



GENCOOL EG is the only coolant that has been tested and approved by all manufacturers of engines currently used in Chicago Pneumatic compressors and generators.

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

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

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

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

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

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

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

GENCOOL EG

	Liter	US gal	Order number
Can	20	5.3	1626 2256 01

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

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

GENCOOL EG Concentrate

	Liter	US gal	Order number
Can	5	1.3	1626 2257 01

HANDLING GENCOOL EG

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

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

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

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

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

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

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

COOLANT CHECK



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

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

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

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

Visual check

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

pH measurement

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

Glycol concentration measurement

- To optimize the unique engine protection features of the GENCOOL EG, the concentration of the Glycol in the water should always be above 33 vol.%.
- Mixtures exceeding a 68 vol.% mix ratio in water are not recommended, as this will lead to high engine operating temperatures.
- A refractometer can be ordered from Chicago Pneumatic with part number 2913 0028 00.



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

TOPPING UP/REPLACING COOLANT

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

TOPPING UP WITHOUT DRAINING FROM THE COOLING SYSTEM

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

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

PN: 1604 8159 00 **Example:**

Total volume coolant =

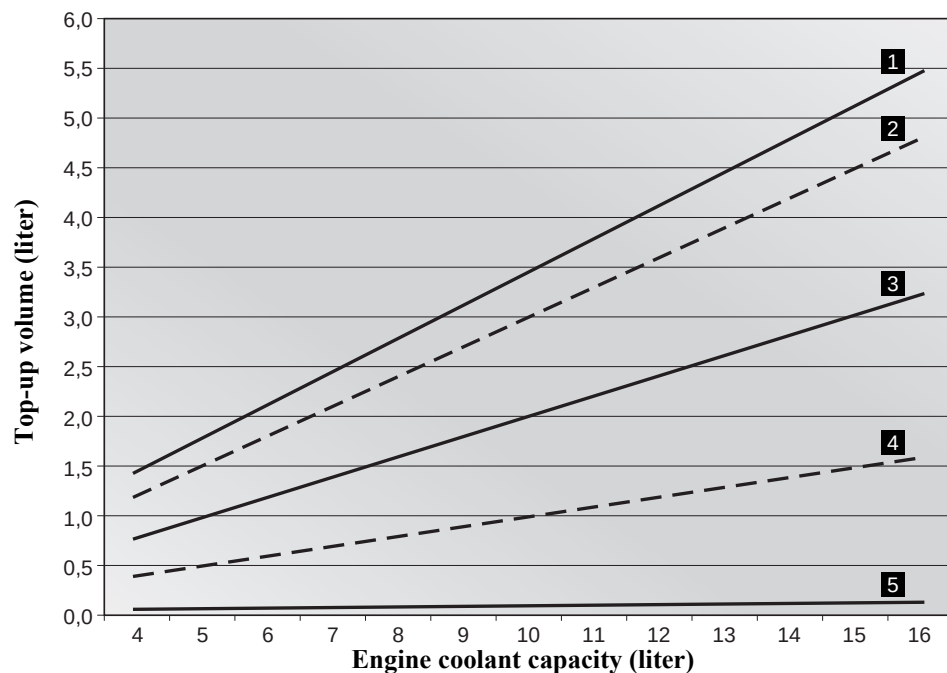
14 Liter

Measured concentration =

33 Vol %

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

Top-up volume GENCOOL EG Concentrate without drainage



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

1. Refractometer indication -20° C (33%)
2. Refractometer indication -22° C
3. Refractometer indication -25° C
4. Refractometer indication -30° C
5. Refractometer indication -36° C

TOPPING UP AFTER LIMITED QUANTITY DRAINING FROM THE COOLING SYSTEM

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

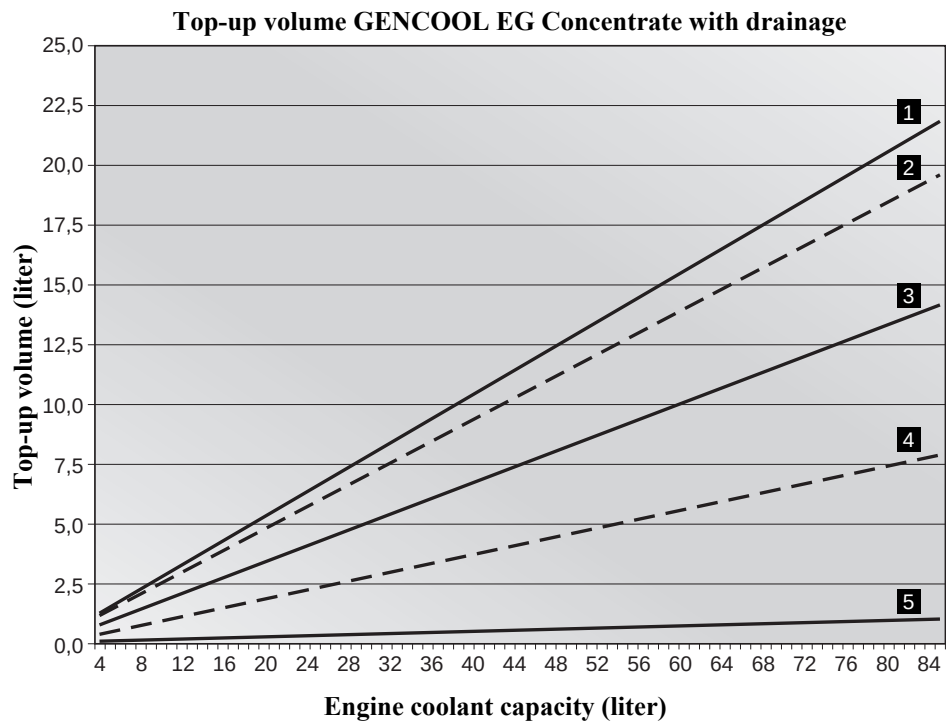
Corrections concentrate in measured system towards 50% volume by using GENCOOL EG Concentrate

PN: 1604 8159 00 **Example:**

Total volume coolant =

Measured concentration =

$$\begin{array}{l}
 \boxed{80} \text{ Liter} \\
 \boxed{33} \text{ Vol \%} \\
 50 - \boxed{33} = \boxed{17} * \boxed{80} / \boxed{67} = \boxed{20} \text{ Liter GENCOOL EG Concentrate} \\
 100 - \boxed{33} = \boxed{67}
 \end{array}$$



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

1. Refractometer indication -20° C (33%)
2. Refractometer indication -22° C
3. Refractometer indication -25° C
4. Refractometer indication -30° C
5. Refractometer indication -36° C

REPLACING THE COOLANT

Drain

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

Flush

- Flush twice with clean water. Used coolant must be disposed or recycled in accordance with laws and local regulations.
- It is recommended to let the unit drain overnight.
- It should be clearly understood that the risk for contamination is reduced in case of proper cleaning.
- In case a certain content of 'other' coolant remains in the system, the coolant with the lowest properties influences the quality of the 'mixed' coolant.

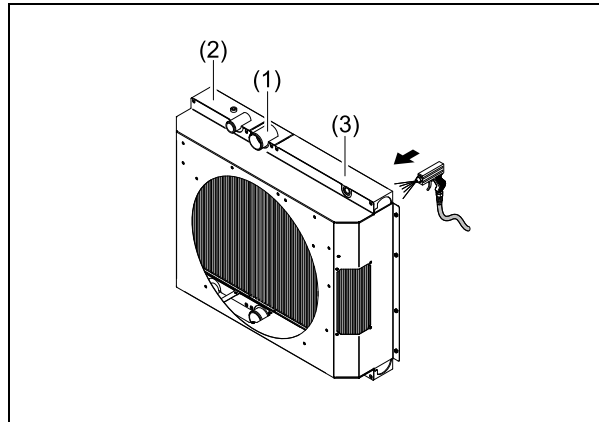
Fill

- To assure proper operation and the release of trapped air, run the engine until normal engine operation temperature is reached. Turn off the engine and allow to cool.
- From the Chicago Pneumatic Instruction book, determine the amount of GENCOOL EG required.
- Mix concentrate and water before filling.
- Fill with a maximum rate of 10 l/min (0.35 cu.ft/min).
- Recheck coolant level and add coolant mixture if necessary.



Do not top off when the engine is hot.

CLEANING COOLERS



Keep the Air Cooler (1), radiator (2) & Oil Cooler (3) clean to maintain the cooling efficiency.



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

Clean by air jet in the direction of the arrow.

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



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

Close the service door(s).



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

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

BATTERY CARE



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

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

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

ELECTROLYTE



Read the safety instructions carefully.

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

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



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

ACTIVATING A DRY-CHARGED BATTERY

- Take out the battery.
- Battery and electrolyte must be at equal temperature above 10 °C (50 °F).
- Remove cover and/or plug from each cell.
- Fill each cell with electrolyte until the level reaches the mark on the battery. If there is no mark on the battery, the level must be above the plates for at least 10 mm (0.4 in) to 15 mm (0.6 in).
- Rock the battery a few times so that possible air bubbles can escape; wait 10 minutes and check the level in each cell once more; if required, add electrolyte.
- Refit plugs and/or cover.
- Place the battery in the compressor.

RECHARGING A BATTERY

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



Use a commercial automatic battery charger according to its manufacturer's instructions.

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.

MAKE-UP DISTILLED WATER

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

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

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

PERIODIC BATTERY SERVICE

- Keep the battery clean and dry.
- Keep the electrolyte level at 10 to 15 mm above the plates or at the indicated level; top up with distilled water only. Never overfill, as this will cause poor performance and excessive corrosion.
- Record the quantity of distilled water added.

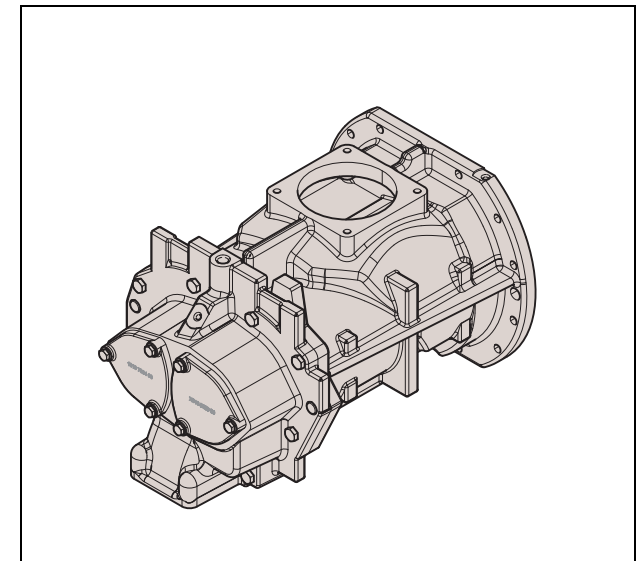
- Keep the terminals and clamps tight, clean, and lightly covered in petroleum jelly.

- Carry out periodic condition tests. Test intervals of 1 to 3 months, depending on climate and operating conditions, are recommended.

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

COMPRESSOR ELEMENT OVERHAUL

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



Adjustments and servicing procedures

AIR FILTER ENGINE/COMPRESSOR



The Chicago Pneumatic 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 element.

Never run the compressor without air filter element.

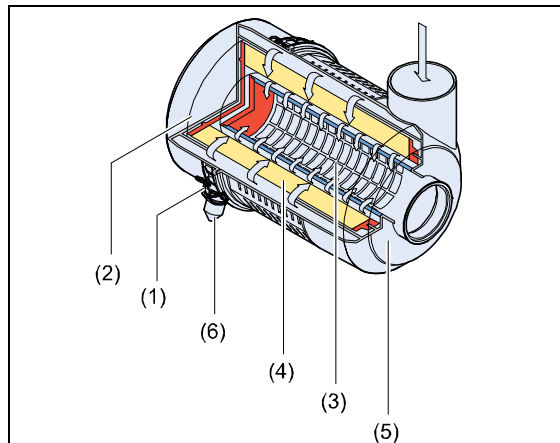
SERVICING

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



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

MAIN PARTS



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

CLEANING THE DUST TRAP

Remove dust daily.

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

CLEANING INSTRUCTIONS FILTER ELEMENT

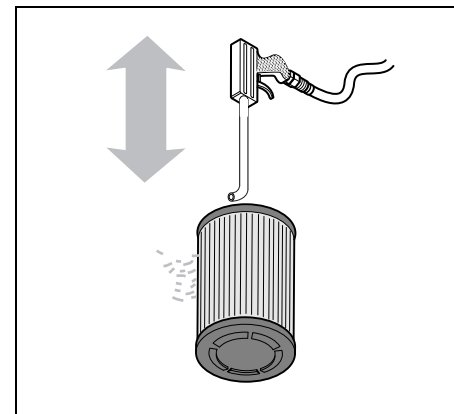
If element cleaning can not be avoided, care should be taken that the filter element (4) is not washed out. Please note that engine damage can cause considerable costs, which makes the cost of a new filter element seem insignificant.

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

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

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

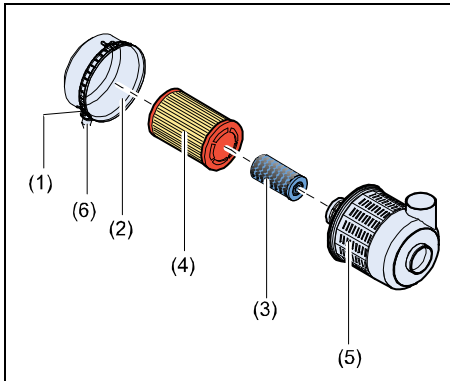
In order to clean, position a pipe with an end bent by approx. 90° on the end of a compressed-air pistol. The pipe must be long enough to reach the bottom of the filter element. Carefully blow out the filter element with dry compressed air (maximum 5 bar (72.5 psi)) from the inside to the outside until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



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

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

REPLACING THE AIR FILTER ELEMENT



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

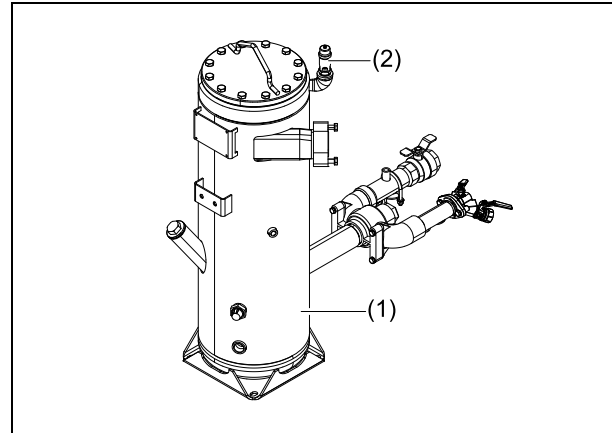
Discard the element (4) when damaged.

A dirty safety cartridge (3) is an indication of a malfunctioning air filter element. Replace the element and the safety cartridge in this case.

The safety cartridge cannot be cleaned.

1. Release the snap clips (1) and remove the dust trap (2). Clean the trap.
2. Remove the element (4) and the safety cartridge.
3. Reassemble in reverse order of dismantling. Make sure the vacuumator valve (6) points down.
4. Inspect and tighten all air intake connections.

AIR RECEIVER



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



Daily drain condensate.

SAFETY VALVE

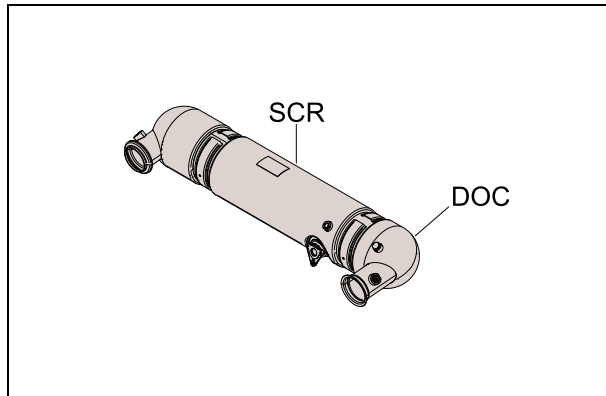


All adjustments or repairs are to be done by an authorized representative of the valve supplier.

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

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

EXHAUST FILTER



1. Selective Catalytic Reduction (SCR)
2. Diesel Oxidation Catalyst (DOC).

EXHAUST FILTER SYSTEM

An exhaust filter consisting of a diesel oxidation catalyst (DOC) and a Selective catalytic reduction (SCR) specifically to meet the demands of off-highway applications. The DOC reduces carbon monoxide, hydrocarbons, and some particulate matter. The downstream SCR traps and holds particulates remaining in the exhaust stream. Trapped particles are eventually oxidized within the SCR through a process known as regeneration or exhaust filter cleaning.

Under normal machine operation and with the system in AUTO mode, the exhaust filter system requires minimal operator interaction.

To avoid unnecessary build-up of diesel particulates or soot in the exhaust filter system;

1. Utilize the Automatic (AUTO) Exhaust Filter Cleaning mode.
2. Avoid unnecessary idling.
3. Use Chicago Pneumatic “GENOIL Engine Green Low SAPS” engine oil.
4. Use only ultra low sulphur fuel.

In addition to soot, ash deposits will also slowly build up in the SCR and cannot be removed through the engine exhaust filter cleaning process.

When the exhaust filter has run several thousand hours, these ash deposits can restrict engine performance due to increased back pressure.



To correct this situation, replace the exhaust filter or have the exhaust filter cleaned in specialized equipment.



Do not power wash the filter assembly when external skin temperature of assembly exceeds 50° C (120° F).

SELECTIVE CATALYTIC REDUCTION MAINTENANCE AND SERVICE

The Exhaust Filter includes the Diesel Oxidation Catalyst (DOC) and Selective catalytic reduction (SCR). The SCR is designed to retain residual ash, which is a non combustible result of additives used in crankcase lubrication oils and the fuel. The SCR provides many hours of maintenance free operation. At some point the SCR will require professional service to remove the accumulated ash. The exact number of hours of operation before service is required will vary depending upon the engine's power category, duty cycle and operating conditions, engine oil ash content, and fuel quality.

The exhaust filter's dash lamp indicator or the diagnostic codes will indicate when the SCR needs ash removal service.

The removal of SCR ash must be done by removing the SCR from the machine and placing it into specialized equipment. Do not remove ash by using water or other chemicals. Removing ash by these methods may damage the material securing the SCR in its canister, resulting in the loosening of the SCR element in the canister and subjecting it to damage from vibration.

EXHAUST FILTER/SELECTIVE CATALYTIC REDUCTION ASH HANDLING AND DISPOSAL



Under federal, state, and/or local laws or regulations, Selective catalytic reduction ash may be classified as a hazardous waste. Hazardous wastes must be disposed of in accordance with all applicable federal, state and local laws or regulations governing hazardous waste disposal. Only a qualified service provider should remove ash from the SCR. Personal protective equipment and clothing, maintained in a sanitary and reliable condition, should be used when handling and cleaning a SCR. See your John Deere dealer or qualified service provider for assistance.

EXHAUST FILTER DISPOSAL



Proper management of an Exhaust Filter that has reached the end of its useful life is required, since the ash or catalyst material in the device may be classified as hazardous waste under federal, state, and/or local laws or regulations. Used Exhaust Filters, which include the Selective catalytic reduction, may be exchanged at any Engine manufacturer's dealer or qualified service provider.



See Engine operator's manual for further information regarding the Exhaust Filter.

FUEL SYSTEM

PRIMING INSTRUCTIONS



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

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

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



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

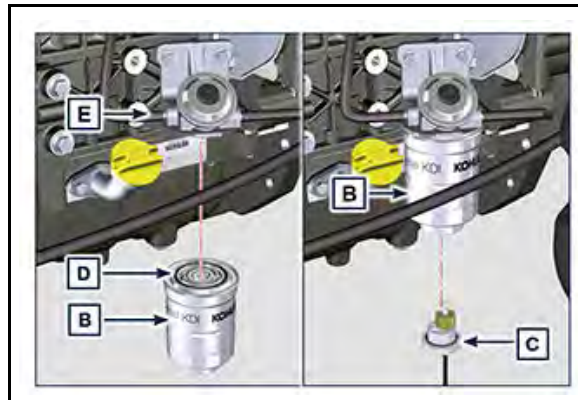
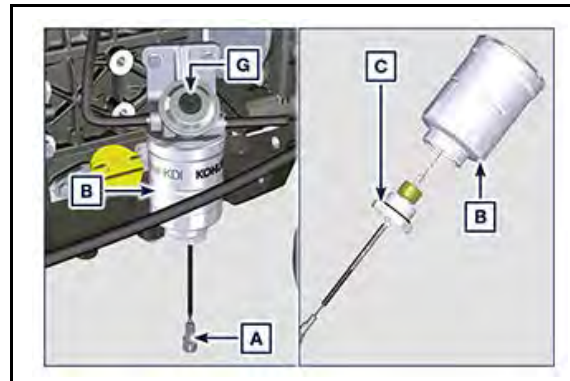


Diesel fuel quality & fuel sulfur content must comply with all existing emissions regulation for the area in which the unit operates.



Do not use diesel fuel with sulfur content greater than 1% (10,000 ppm).

FUEL FILTER REPLACEMENT



The fuel filter is situated on the crankcase of the engine or it may be assembled on the frame of the vehicle.

Remove fuel filter element

1. Disconnect the cable A of the water presence sensor C.
2. Remove the water presence sensor C from its cartridge B.
3. Loosen the cartridge B using the appropriate wrench.

Install fuel filter element

1. Lubricate the gasket D of the new cartridge B.



Do not fill the new cartridge B with fuel.

2. Tighten the new empty cartridge B on the diesel fuel filter support E using the special wrench (tightening torque of 17 Nm).
3. Tighten the water presence sensor C on the new cartridge B (tightening torque of 5 Nm).
4. Reconnect the cable A of the water presence sensor C.
5. Push repeatedly the button G in order to fill the circuit.



Fill the fuel tank at the end of each working day to reduce condensation & moisture build-up in the fuel system.



Replace fuel filter elements anytime audible alarm sounds and trouble codes indicate plugged fuel filters (low fuel pressure). If no alarm sounds during the 12 month service interval, replace elements at that time, or after 500 hours operation, whichever comes first.



Do not open higher pressure fuel system.

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting fuel or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

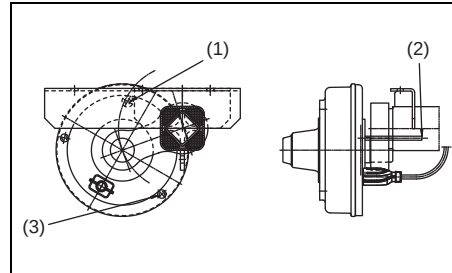
If any fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.

BRAKE ADJUSTMENT



Before jacking up the compressor, connect it to a towing vehicle or attach a weight of minimum 50 kg (110 lb) to the towbar.

BRAKE SHOE ADJUSTMENT



Check the thickness of the brake lining.

- Remove both black plastic plugs (3) one on each wheel.
- Check the thickness of the brake lining.
- After inspection and/or replacement re-insert both plugs (3).

Brake shoe adjustment re-establishes the brake lining-to-drum clearance and compensates for lining wear.



When the brake lining has been worn to a minimum thickness, the brake shoes have to be replaced (Minimum thickness brake lining: 1 mm (0.039 in)).

Problem solving

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



An electrical fault must be traced by an electrician.

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

See also section **Control panel**.

Problem: Compressor capacity or pressure below normal.

Possible faults	Corrective actions
Air consumption exceeds capacity of compressor.	Check equipment connected.
Choked air filter elements (AF).	Remove and inspect elements. Clean or replace, if necessary.
Blow down valve stuck in open position.	Check and correct as necessary.
Loading valve (LV) leaking past O-ring.	With compressor running at maximum load speed, disconnect hose leading to unloader. If air leaks from the hose, remove and inspect loading valve. Replace damaged or worn O-rings.
Oil separator element clogged.	Have element removed and inspected by an Chicago Pneumatic Service representative.
Air intake throttle valve remains partially closed.	Check unloader and identify reason for open valve; if possible: solve; else: contact Chicago Pneumatic.
Safety valve (SV) leaking.	Remove and inspect. Replace if not airtight after reinstallation.
Blow-off valve leaking.	Remove and inspect. Replace if necessary.

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

Possible faults	Corrective actions
Air leaks in regulating system.	Check hoses and their fittings. Stop leaks; replace leaking hoses.
Air intake throttle valve does not close for some reason.	Check unloader and identify reason for open valve; if possible: solve; else: contact Chicago Pneumatic.
Minimum pressure valve malfunctioning.	Remove and inspect valve.
Blow-off valve malfunctioning.	Remove and inspect valve.

Problem: After working some time, the unit stops through a shutdown switch.

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

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

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

Problem: Compressor overheating.

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

Alternator precautions

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

Available options

Loose ball coupling

Additional loose couplings available to replace the stock Lunette Eye coupler.

Aftercooler

The aftercooler reduces the discharging air temperature to ambient + 10 °C (50 °F). Comes with a water separator and a fine particle filter (UD) to remove particles and oil content down to 0.01 mg/m³ (3.5 oz/1000 cu.ft.). Service and replacement of these filters can be done without dismantling other parts or canopy.

Fork pockets

Lift points for industrial forklifts.

Tool box

Towbar mounted box available to safely and securely store tools and equipment.

Hose reel

Towbar mounted hose storage available in single or dual reels with 50 ft or 100 ft flexible hoses.

Telematics

Remote control system to provide detailed information on the compressor from anywhere in the world.

Jack stand

Support leg with a skid plate rather than a wheel.

Support

A rigid support mounted version for rough construction conditions with the possibility to be mounted on a truck. The installation allows the unit to be put on and taken off the truck daily. It is possible to handle the unit with a forklift.

Solar battery charger

Solar charger mounted to the canopy for constant trickle charging of the battery.

External fuel tank connection

Allows the use of a larger external fuel tank to increase the continuous operation time.

Fire extinguisher

Provides an internally mounted 2.5 pound fire extinguisher in the case of an emergency.

Technical specifications

TORQUE VALUES

GENERAL TORQUE VALUES

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	Torque value	
	Nm	ft.lbf
M6	9	6.64
M8	23	16.96
M10	46	33.93
M12	80	59
M14	125	92.19
M16	205	151.20

For hexagon screws and nuts with strength grade 12.9

Thread size	Torque value	
	Nm	ft.lbf
M6	15	11.06
M8	39	28.76
M10	78	57.53
M12	135	99.57
M14	210	154.88
M16	345	254.46

CRITICAL TORQUE VALUES

Assemblies	Torque value	
	Nm	ft.lbf
Axles to frame:		
Wheel nuts	140	103
Bolts, axle(s)/frame	195	144
Compressor to frame:		
Bolts, elements/gear casing	46	33.95
Bolts, elements/support	80	59.04
Bolts, support/buffer	46	33.95
Bolts, buffer/frame	23	16.97
Engine to frame:		
Bolts, engine/support	80	59.04
Bolts, support/buffer	46	33.95
Bolts, buffer/frame	23	16.97
Lifting beams to frame:		
Bolts, lifting beams/yoke (M16)	205	151.29
Bolts, A-Frames/frame	80	59.04
Hose clamps:		
Pebra hose clamps on all IC/radiator hoses	12	8.85



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

COMPRESSOR/ENGINE SPECIFICATIONS

REFERENCE CONDITIONS

Designation	Unit	CPS 400-150
Absolute inlet pressure	bar(e)	1
	psi	14.7
Relative air humidity	%	0
Air inlet temperature	°C	25
	°F	77
Nominal effective working pressure	bar(e)	10
	psi	150

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

LIMITATION

Designation	Unit	CPS 400-150
Minimum effective receiver pressure	bar(e)	4
	psi	58
Maximum effective receiver pressure, compressor unloaded	bar(e)	10
	psi	150
Maximum ambient temperature at sea level	°C	50
	°F	122
Minimum starting temperature	°C	-25
	°F	-13
Altitude capability	m	see graph section

PERFORMANCE DATA

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

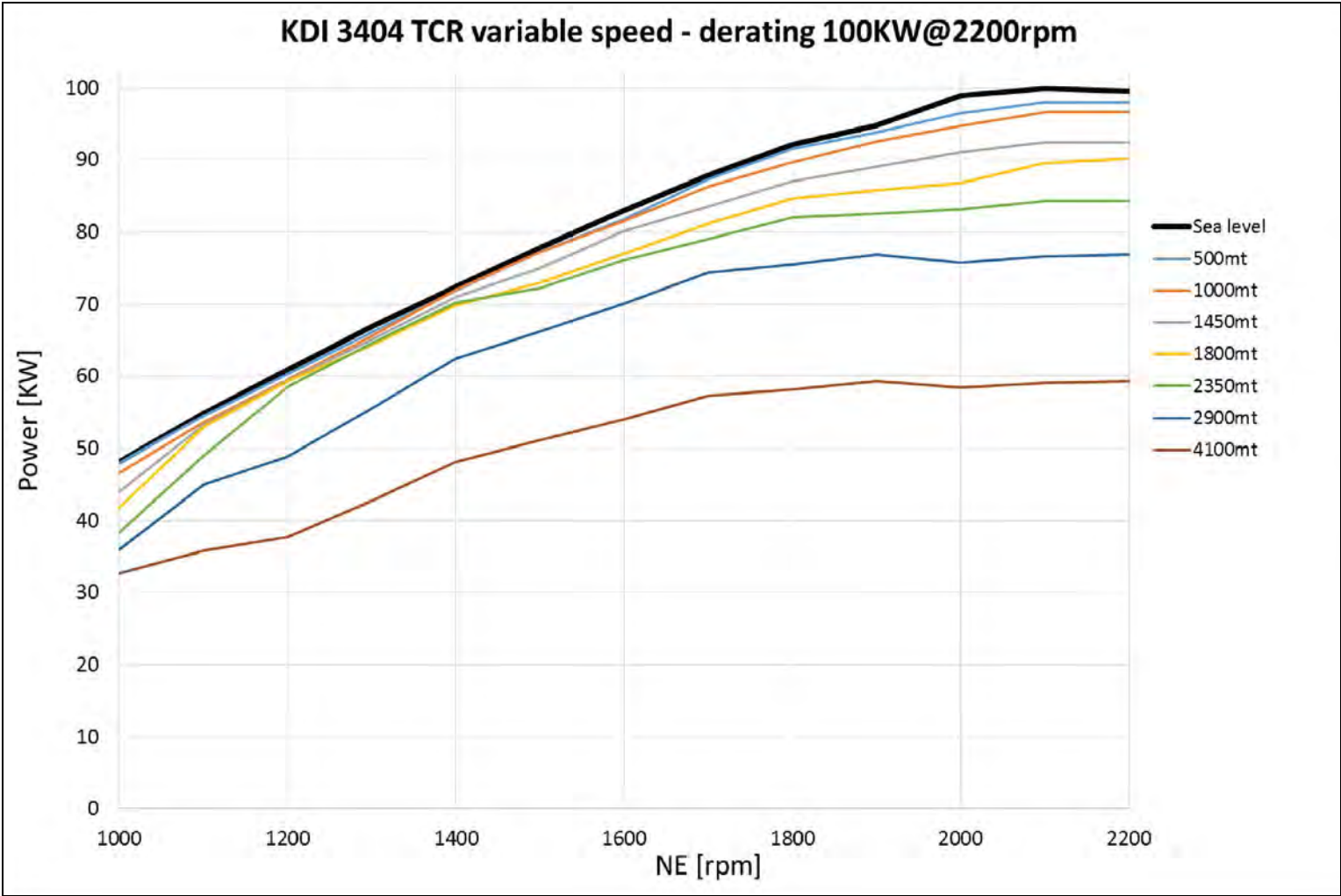
Designation	Unit	CPS 400-150	
Test pressure	psi	100	150
Engine shaft speed, normal	r/min	2200	2066
Engine shaft speed, maximum	r/min	2200	
Engine shaft speed, compressor unloaded	r/min	1500	
Free air delivery	l/s	187.36	172.73
	cfm	397	366
	l/s	185.47	170.37
	cfm	393	361
Fuel consumption			
at 100% FAD (full load)	gal/hr	5.7	5.92
at 75% FAD	gal/hr	3.33	4.10
at 50% FAD	gal/hr	2.9	3.48
at 25% FAD	gal/hr	2.54	3.70
at 0% FAD (unload)	gal/hr	1.32	
Specific fuel consumption at 100% FAD	lb/hp-hr	0.397	0.368
Maximum typical oil content of compressed air	mg/m ³	5	
Fuel tank capacity	gal	52	
Fuel autonomy at 100% FAD full load	hours	9.65	9.31
Noise sound pressure level (Lp) at 100% FAD (full load), 7m	dB(A)	80.7	
(Lp) measured according to		ISO 2151	

DERATING TABLE

		Power Available (kW) at given RPM								
		1000	1200	1400	1600	1800	1926	2000	2066	2200
Elevation (meters)	0	47.1	62.0	73.3	82.9	92.0	95.717	97.9	98.560	99.900
	500	49.0	60.0	72.0	82.0	92.0	94.520	96.0	96.660	98.000
	1000	48.0	59.0	71.0	82.0	90.0	93.150	95.0	95.660	97.000
	1450	45.0	59.0	71.0	80.0	86.0	89.150	91.0	91.660	93.000
	1800	43.0	59.0	70.0	77.0	84.0	85.890	87.0	87.990	90.000
	1830	42.8	58.9	70.0	76.9	83.9	85.712	86.8	87.736	89.673
	2000	41.5	58.6	70.0	76.6	83.3	84.705	85.5	86.295	87.818
	2350	39.0	58.0	70.0	76.0	82.0	82.630	83.0	83.330	84.000
	2790	37.4	50.8	64.4	71.2	76.4	77.030	77.4	77.730	78.400
	2900	37.0	49.0	63.0	70.0	75.0	75.630	76.0	76.330	77.000
	3000	36.7	48.1	61.8	68.7	73.6	74.213	74.6	74.900	75.542
	3785	34.1	40.9	51.9	58.2	62.5	63.093	63.5	63.671	64.094
	4000	33.3	38.9	49.3	55.3	59.4	60.047	60.4	60.595	60.958
	4100	33.0	38.0	48.0	54.0	58.0	58.630	59.0	59.165	59.500

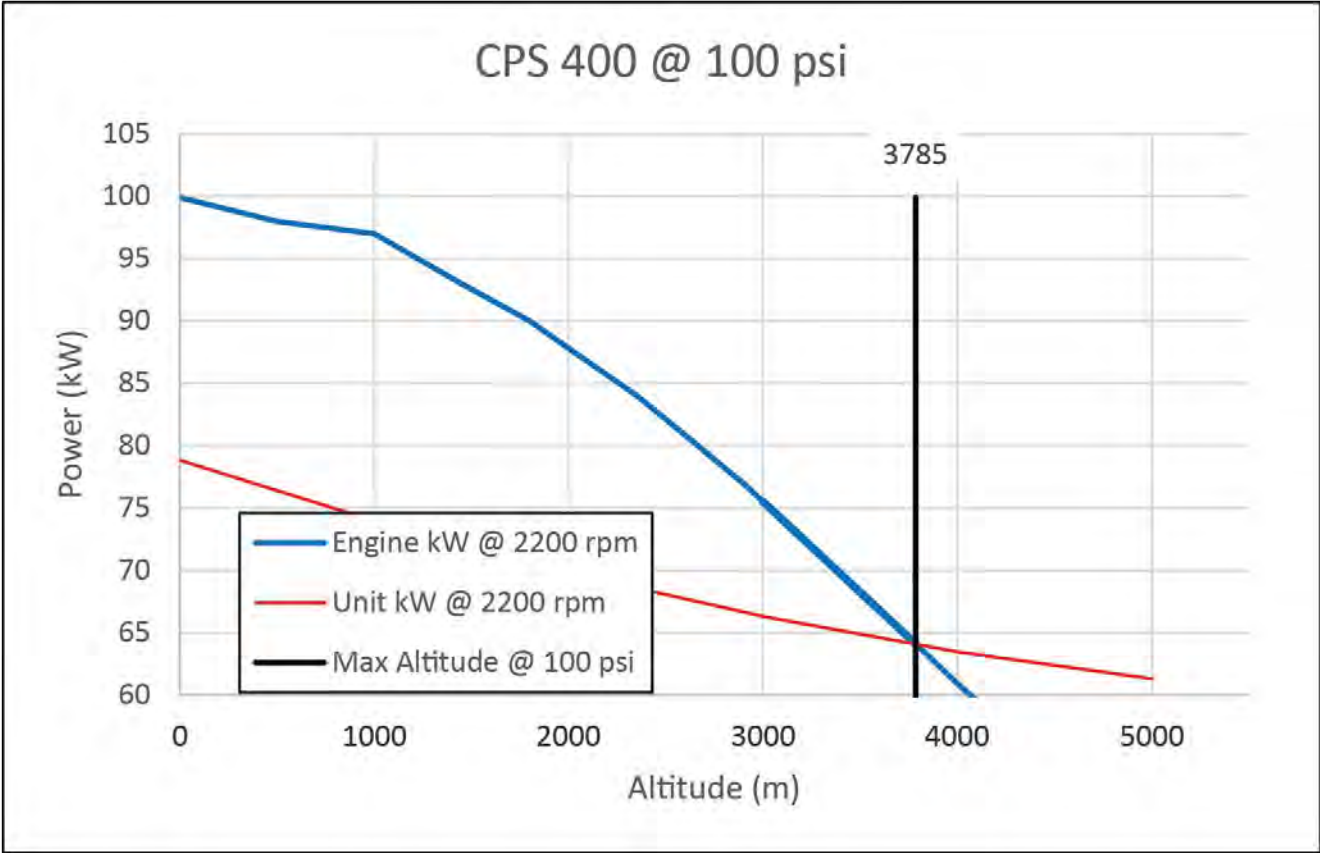
		Power Required (kW) at given FAD (psi) @ RPM	
		100psi @ 2200 RPM	150psi @ 2066 RPM
Elevation (meters)	0	78.86	86.61
	1000	74.00	82.79
	1830	70.51	80.17
	2000	69.80	79.63
	2790	67.05	77.71
	3000	66.32	77.02
	3785	64.08	75.80
	4000	63.46	75.42
	5000	61.30	74.39

DERATING CURVE

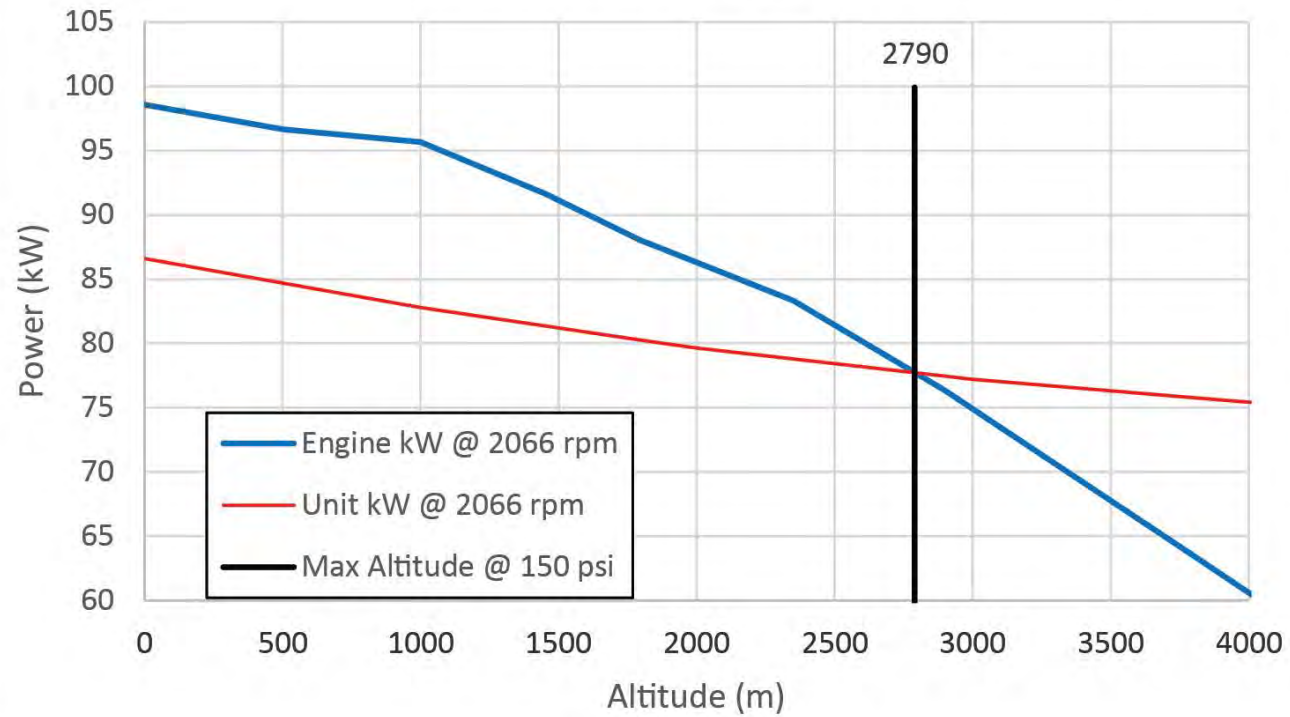


ALTITUDE UNIT PERFORMANCE CURVE

Maximum Altitude Capability		
Set Point	meters	feet
400CFM @ 100psi	3785	12418
375CFM @ 150psi	2790	9154



CPS 400 @ 150 psi



DESIGN DATA

Compressor

Designation	CPS 400-150
Number of compression stages	1

Engine

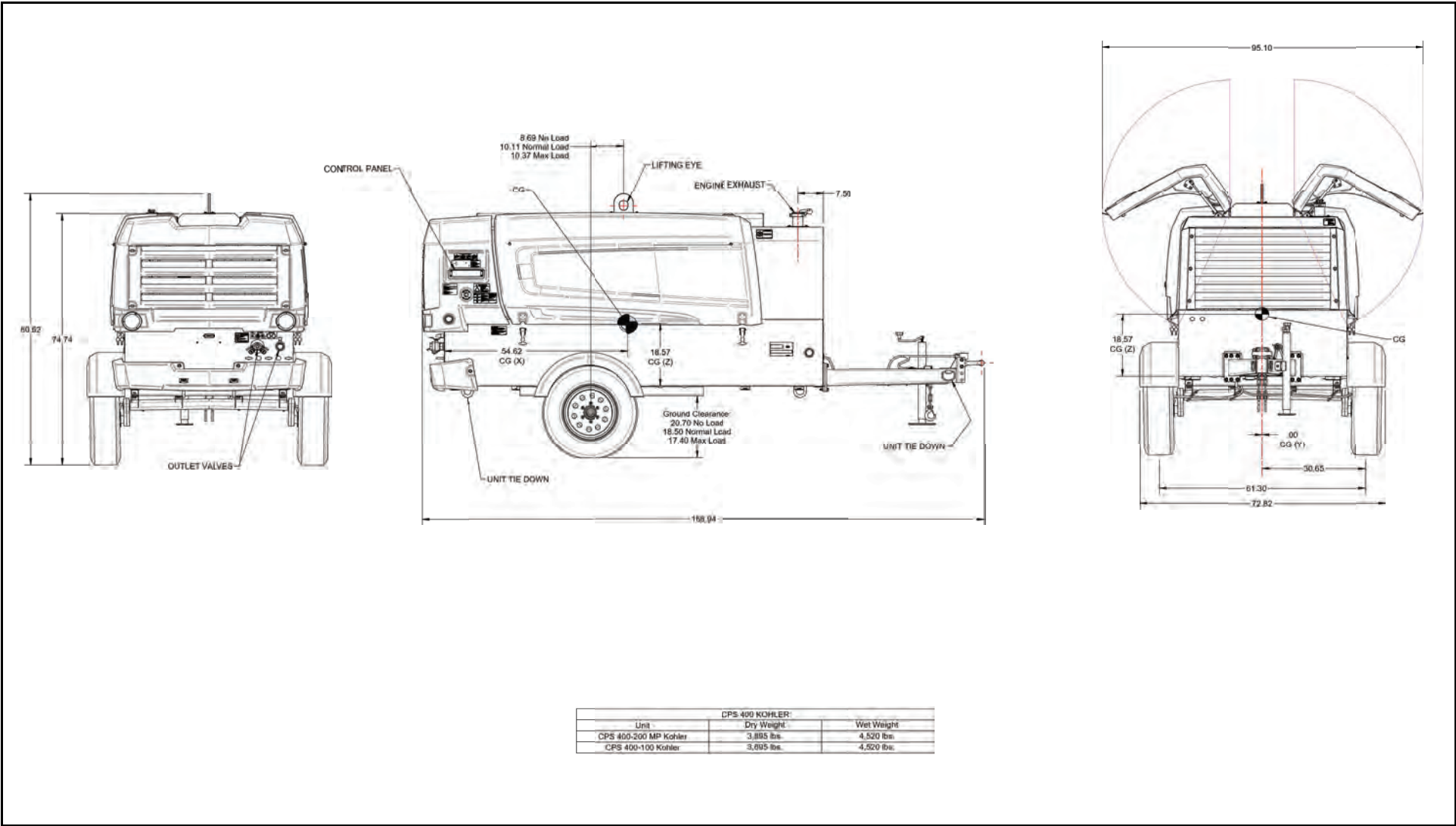
Designation	Unit	CPS 400-150
Make		Kohler
Type		KDI3404TCR
Coolant		Ethylene-Glycol
Number of cylinders		4
Bore	mm	96
	in	3.78
Stroke	mm	116.07
	in	4.57
Swept volume	l	3.36
	cu.in	204.98
Output at normal shaft speed	kW	99.99
	hp	134.1
Load factor	%	76 (100psi)
	%	89 (150 psi)
Capacity of oil sump	qts	16
	US gal	4

Unit

Designation	Unit	CPS 400-150
Capacity of compressor oil system	qts	27
	US gal	6.75
Net capacity of air receiver	qts	11
	US gal	2.25
Capacity of fuel tank	qts	208
	US gal	52
Capacity of Diesel Exhaust Fluid (DEF) tank	qts	20
	US gal	5

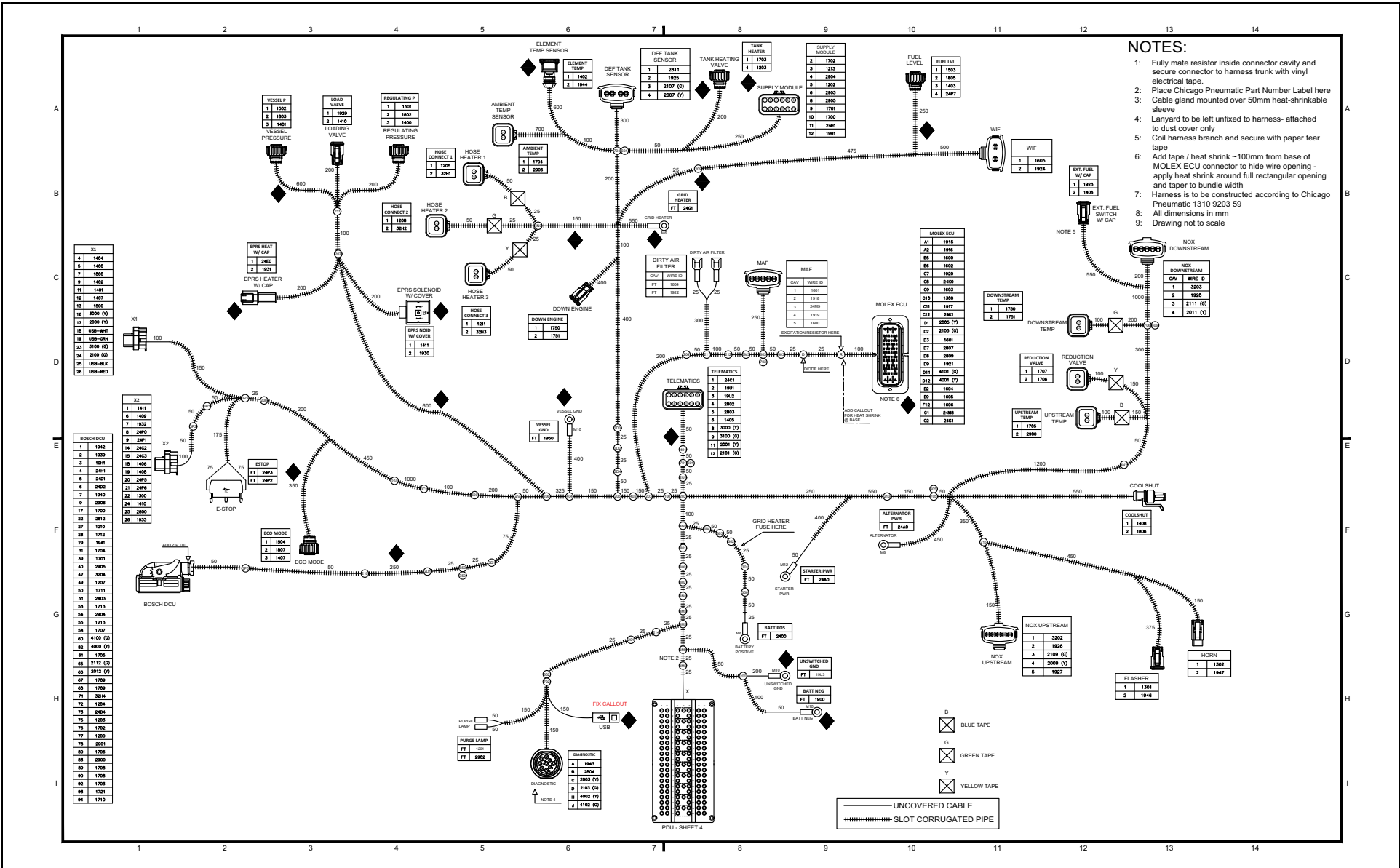
Dimensional drawing

1317006001_01

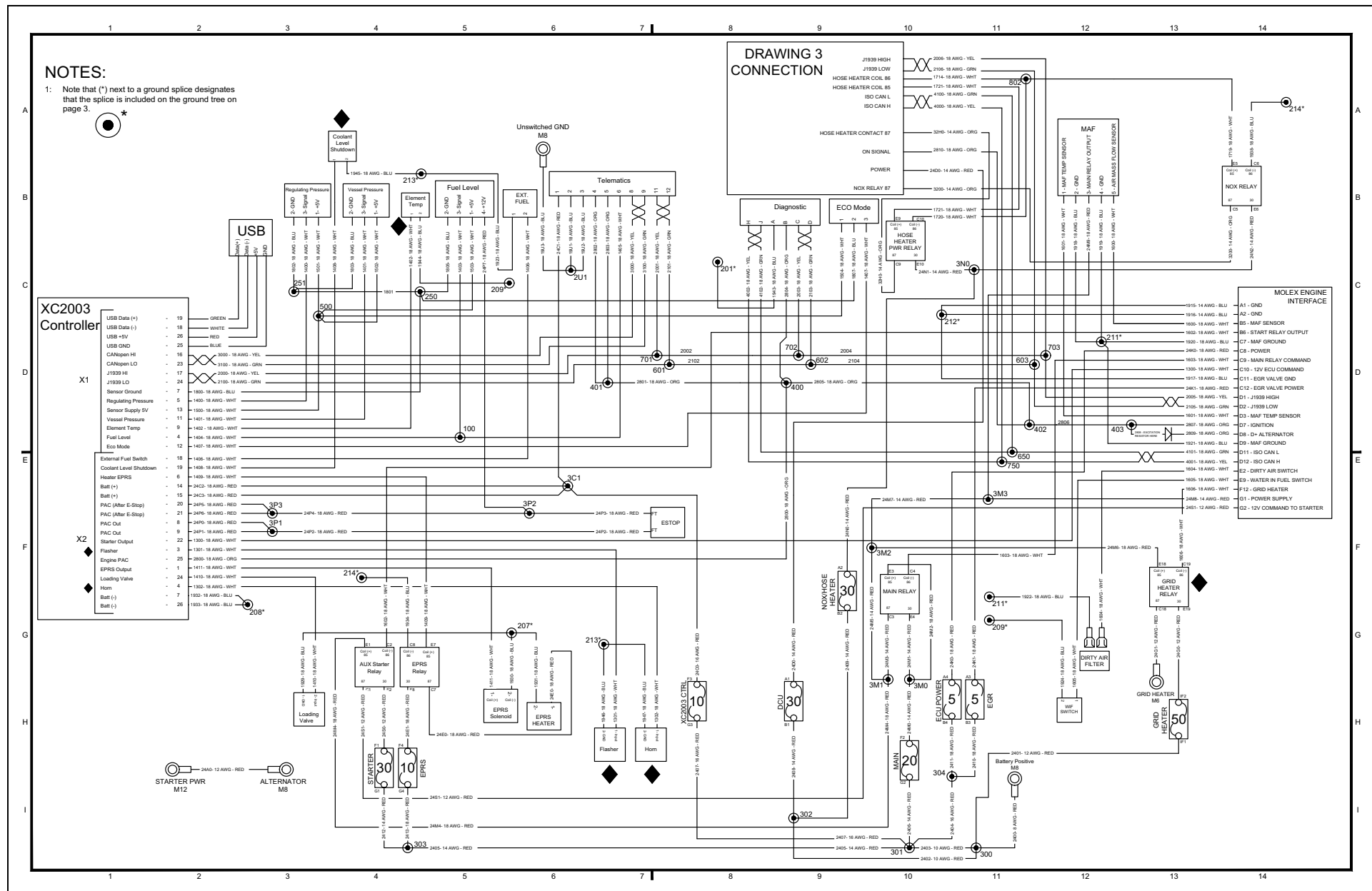


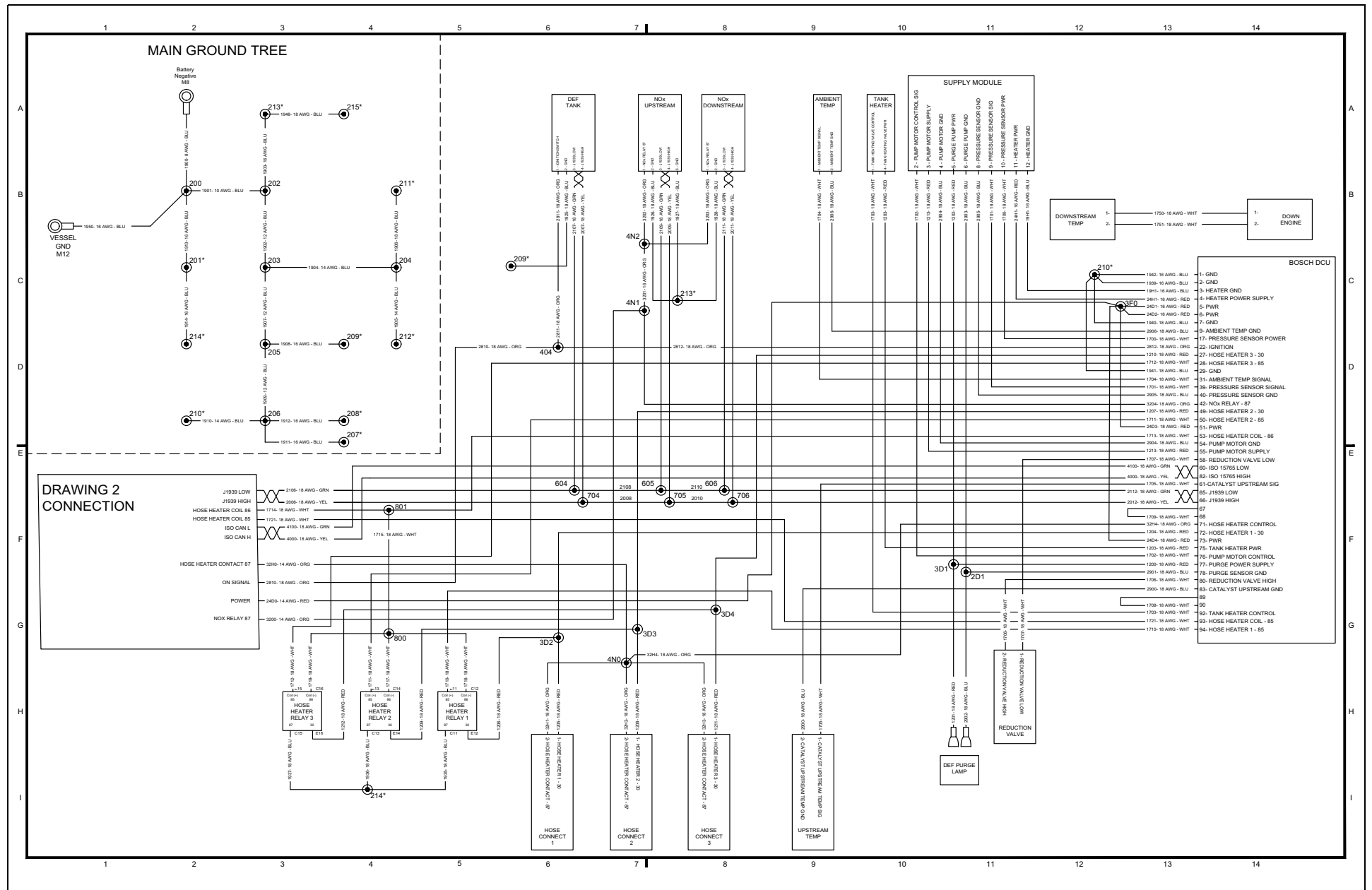
Electrical system

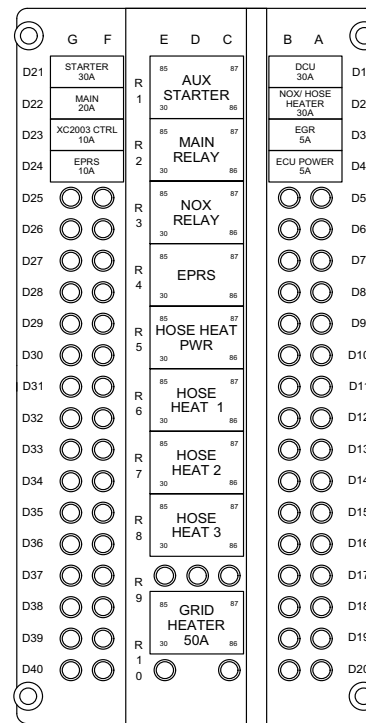
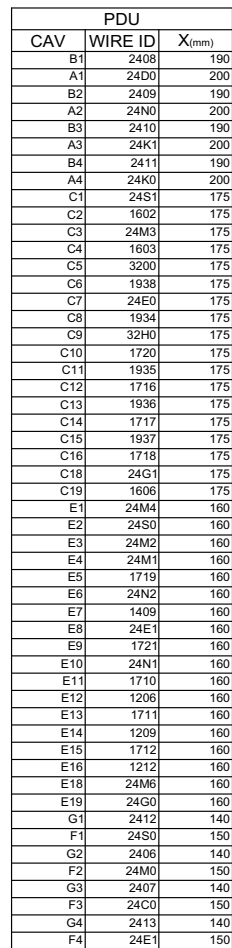
WIRE HARNESS - 1316221410-01



1: Note that (*) next to a ground splice designates that the splice is included on the ground tree on page 3.



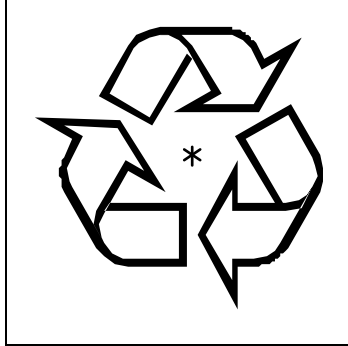




■ MAKE FIG. 2 A LABEL ON THE INSIDE OF THE PDU BLOCK

Disposal

GENERAL



When developing products and services, Chicago Pneumatic 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 Chicago Pneumatic products. Chicago Pneumatic 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 Chicago Pneumatic 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.

DISPOSAL OF MATERIALS

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

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.

Maintenance log

Compressor Customer

Serial number

[illegible]

Scan the QR code to access into the Chicago Pneumatic Spare Part List.



CPS 400-150

