



Doosan Infracore  
Portable Power

# OPERATION and MAINTENANCE MANUAL

## COMPRESSOR MODELS

**XP375WCU-T3 (E59)**

**HP375WCU-T3 (E60)**

**XP375WCU-FX-T3 (E81)**

**HP375WCU-FX-T3 (E82)**



This manual contains important safety information.  
Do not destroy this manual.  
This manual must be available to the personnel who operate and maintain this machine.

Doosan Infracore Portable Power  
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Statesville, N.C. 28625  
DoosanPortablePower.com

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# **Foreword**

## Information

The contents of this manual are considered to be proprietary and confidential to Doosan Infracore Portable Power (herein referred to as "Portable Power"), and should not be reproduced without the prior written permission of Portable Power.

Nothing contained in this document is intended to extend any promise, warranty or representation, expressed or implied, regarding the Portable Power products described herein. Any such warranties or other terms and conditions of sale of products shall be in accordance with the standard terms and conditions of sale for such products, which are available upon request.

This manual contains instructions and technical data to cover all routine operation and scheduled maintenance tasks by operation and maintenance staff. Major overhauls are outside the scope of this manual and should be referred to an authorized Portable Power Service department.

All components, accessories, pipes and connectors added to the compressed air system should be:

- of good quality, procured from a reputable manufacturer and, wherever possible, be of a type approved by Portable Power.
- clearly rated for a pressure at least equal to the compressor safety valve setting.
- compatible with the compressor oil.
- accompanied with instructions for safe installation, operation and maintenance.

Details of approved equipment are available from the Portable Power Service departments. The use of repair parts other than those included within the approved parts list may create hazardous conditions over which Portable Power has no control. Therefore, Portable Power cannot be held responsible for equipment in which non-approved repair parts are installed.

Portable Power reserves the right to make changes and improvements to products without notice and without incurring any obligation to make such changes or add such improvements to products sold previously.

The intended uses of this compressor are outlined below and examples of unapproved usage are also given. However, Portable Power cannot anticipate every application or work situation that may arise. **If in doubt, consult supervision.**

This compressor has been designed and supplied for above ground operation to be used for compression of normal ambient air containing no additional gases, vapors or particles within the ambient temperature range specified in the general data section of this manual.

**This compressor should not be used:**

- A. For direct or indirect human consumption of the compressed air.
- B. Outside the ambient temperature range specified in the general data section of this manual.
- C. When an actual or foreseeable risk of hazardous levels of flammable gases or vapors exists.
- D. With other than Portable Power approved components.
- E. With guards, or controls or switches missing or disabled.
- F. For storage or transportation of materials inside or on the enclosure.

This company accepts no responsibility for errors in translation of this manual from the original English version.

You as the customer are expected to provide certain service and maintenance items. Your Portable Power dealer will provide all other more detailed service and maintenance items on a special preventive maintenance schedule for each compressor. It is very important that the minimum service and maintenance requirements explained in this manual be performed at the required intervals. Exceeding these intervals may reduce the reliability of the compressor.

The purpose of this manual is to train the operator with functions, operation, and basic service and maintenance requirements of the compressor. During the preparation of this manual, every effort was made to ensure the adequacy and accuracy of the contents.

Your Portable Power dealer will assist with setup and initial startup of the compressor. He will also provide brief operating and service instructions and will insure that a copy of this manual is included with the compressor. Before starting the compressor, this manual and instructions should be carefully read to obtain a thorough knowledge of the duties to be performed. Please take pride in the compressor, keep it clean, and in good mechanical condition.

To enable proper maintenance records, Portable Power provides a Noise Emission Control Maintenance Log within this manual. This section contains a recommended schedule and space so that the serviceman can note what service and maintenance was done, by whom, where, and when.



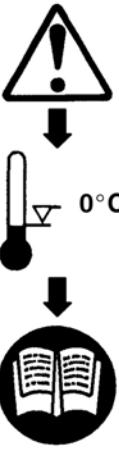
# Decals

## DECALS

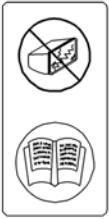
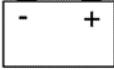
Look for these signs on machines manufactured in Europe, which point out potential hazards to the safety of you and others. Read and understand thoroughly. Heed warnings and follow instructions. If you do not understand, inform your supervisor.

### GRAPHIC FORM AND MEANING OF ISO SYMBOLS

Prohibition / Mandatory	Information / Instructions	Warning
WARNING: Electrical shock risk.	WARNING – Pressurised component or system.	WARNING – Hot surface.
WARNING – Pressure control.	WARNING – Corrosion risk.	WARNING – Air/gas flow or Air discharge.
		  WARNING – Maintain correct tyre pressure. (Refer to the GENERAL INFORMATION section of this manual).
WARNING – Pressurised vessel.	WARNING – Hot and harmful exhaust gas.	WARNING – Maintain correct tyre pressure. (Refer to the GENERAL INFORMATION section of this manual).

 <p>WARNING – Flammable liquid.</p>	 <p>WARNING – Before connecting the tow bar or commencing to tow consult the operation and maintenance manual.</p>	 <p>WARNING – For operating temperature below 0°C, consult the operation and maintenance manual.</p>
 <p>WARNING – Do not undertake any maintenance on this machine until the electrical supply is disconnected and the air pressure is totally relieved.</p>	 <p>WARNING – Consult the operation and maintenance manual before commencing any maintenance.</p>	 <p>Do not breathe the compressed air from this machine.</p>
 <p>Do not remove the Operating and Maintenance manual and manual holder from this machine.</p>	 <p>Do not stack.</p>	 <p>Do not operate the machine without the guard being fitted.</p>

		
Replace any cracked protective shield.	Oil drain.	Engine Oil
		
Fuel level/point	Pressure control	Malfunction
		
Battery charging condition	Low pressure	High pressure
		
Engine malfunction	High compressor temperature	Compressor malfunction
		
Low engine oil pressure	Engine high temperature	

Look for these signs on machines manufactured in North America, which point out potential hazards to the safety of you and others. Read and understand thoroughly. Heed warnings and follow instructions. If you do not understand, inform your supervisor



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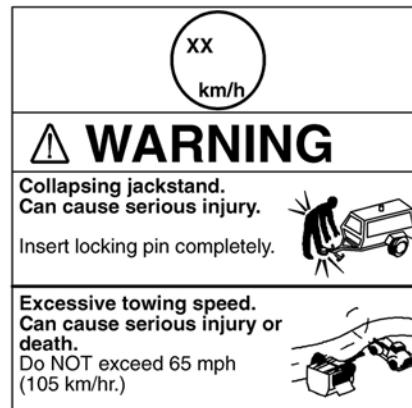
Indicates the presence of a hazard which WILL cause serious injury, death or property damage, if ignored.

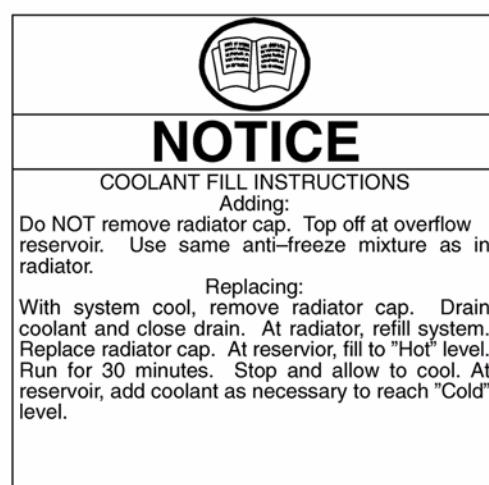
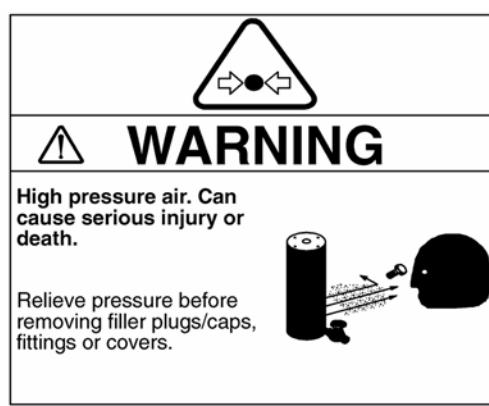
Indicates the presence of a hazard which CAN cause serious injury, death or property damage, if ignored.

Indicates the presence of a hazard which WILL or can cause injury or property damage, if ignored.

Indicates important set-up, operating or maintenance information.







### Free Safety Decals

To promote communication of Safety Warnings on products manufactured by the Portable Power Division of Statesville, NC, safety decals are available free of charge.

Safety decals are identified by the decal heading: DANGER, WARNING, or CAUTION.

Decal part numbers are on the bottom of each decal and are also listed in the compressor parts manual. Submit orders to the Statesville Parts Service Department. The no charge order should contain only safety decals. Help promote product safety! Assure that decals are present on the machines. Replace decals that are not readable.

# **Noise Emission**

## Noise Emission

This section pertains only to compressors distributed within the United States.

### **WARNING**

#### **TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED**

Federal law prohibits the following acts or the causing thereof:

(1) The removal or rendering inoperative by any persons, other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new compressor for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or (2) the use of the compressor after such device or element of design has been removed or rendered inoperative by any person.

Among those acts included in the prohibition against tampering are these:

1. Removal or rendering inoperative any of the following:
  - a. the engine exhaust system or parts thereof
  - b. the air intake system or parts thereof
  - c. enclosure or parts thereof
2. Removal of any of the following:
  - a. fan shroud
  - b. vibration mounts
  - c. sound absorption material
3. Operation of the compressor with any of the enclosure doors open.

#### **Compressor Noise Emission Control Information**

- A. The removal or rendering inoperative, other than for the purpose of maintenance, repair, or replacement of any noise control device or element of design incorporated into this compressor in compliance with the noise control act;
- B. The use of this compressor after such device or element of design has been removed or rendered inoperative.

**NOTE: the above information applies only to compressors that are built in compliance with the U.S. Environmental Protection Agency.**

Portable Power reserves the right to make changes or add improvements without notice and without incurring any obligation to make such changes or add such improvements to products sold previously.

The Purchaser is urged to include the above provisions in any agreement for any resale of this compressor.

## Maintenance Log

**COMPRESSOR MODEL** \_\_\_\_\_

**SERIAL NO.** \_\_\_\_\_

**USER UNIT NO.** \_\_\_\_\_

<b>UNIT IDENTIFICATION</b> Engine Make & Model: _____  Serial No.: _____  Purchaser or Owner: _____  Address: _____	<b>DEALER OR DISTRIBUTOR FROM WHOM PURCHASED:</b>  _____  _____  _____  Date Purchased: _____
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The Noise Control Act of 1972 (86 Stat. 1234) prohibits tampering with the noise control system of any compressor manufactured and sold under the above regulations, specifically the following acts or the causing thereof:

(1) the removal or rendering inoperative by any persons, other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into new compressor for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or (2) the use of the compressor after such device or element of design has been removed or rendered inoperative by any person.

### Noise Emission Warranty

The manufacturer warrants to the ultimate purchaser and each subsequent purchaser that this air compressor was designed, built and equipped to conform at the time of sale to the first retail purchaser, with all applicable U.S. EPA Noise Control Regulations.

This warranty is not limited to any particular part, component, or system of the air compressor. Defects in the design, assembly or in any part, component, or system of the compressor which, at the time of sale to the first retail purchaser, caused noise emissions to exceed Federal Standards are covered by this warranty for the life of air compressor.(40CFR204.58-1)

## Introduction

The compressor for which this Maintenance Log is provided conforms to U.S. E.P.A. Regulations for Noise Emissions, applicable to Portable Air Compressors.

The purpose of this book is to provide (1) the Maintenance Performance Schedule for all required noise emission controls and (2) space so that the purchaser or owner can record what maintenance was done, by whom, where and when. The Maintenance Schedule and detailed instructions on the maintenance items are given on following page.

## Maintenance Schedule

ITEM	AREA	PERIOD
A.	Compressed Air Leaks	As Detected
B.	Safety and Control Systems	As Detected
C.	Acoustic Materials	Daily
D.	Fasteners	100 hours
E.	Enclosure Panels	100 hours
F.	Air Intake & Engine Exhaust	100 hours
G.	Cooling Systems	250 hours
H.	Isolation Mounts	250 hours
I.	Engine Operation	See Operator's Manual
J.	Fuels & Lubricants	See Operator's Manual

### A. Compressed Air Leaks

Correct all compressed air leaks during the first shutdown period after discovery. If severe enough to cause serious noise problems and efficiency loss, shut down immediately and correct the leak(s).

### B. Safety and Control Systems

Repair or replace all safety and control systems or circuits as malfunction occurs. No compressor should be operated with either system bypassed, disabled, or nonfunctional.

### C. Acoustic Materials

In daily inspections, observe these materials. Maintain all acoustic material as nearly as possible in its original condition. Repair or replace all sections that have: 1) sustained damage, 2) have partially separated from panels to which they were attached, 3) are missing, or have otherwise deteriorated due to severe operating or storage conditions.

**D. Fasteners**

All fasteners such as hinges, nuts, bolts, clamps, screws, rivets, and latches should be inspected for looseness after each 100 hours of operation. They should be retightened, repaired, or if missing, replaced immediately to prevent subsequent damage and noise emission increase.

**E. Enclosure Panels**

Enclosure panels should also be inspected at 100 hour operational intervals. All panels that are warped, punctured, torn, or otherwise deformed, such that their noise containment function is reduced, should be repaired or replaced before the next operation interval. Doors, access panels, and hatch closures especially, should be checked and adjusted at this time to insure continuous seating between gasket or acoustic material and the mating frame.

**F. Air Intake and Engine Exhaust**

Engine and compressor air intake and engine exhaust systems should be inspected after each 100 hours of operation for loose, damaged, or deteriorated components. Repairs or replacements should be made before the next period of use.

**G. Cooling Systems**

All components of the cooling system for engine water and compressor oil should be inspected every 250 hours of use. Any discrepancies found should be corrected before placing the compressor back in operation. Unrestricted airflow over the radiator and oil cooler must be maintained at all times during operation.

**H. Isolation Mounts**

Engine/airend isolation mounts should be inspected after each 250 hours of operation. Those mounts with cracks or splits in the molded rubber, or with bent or broken bolts due to operation or storage in severe environments, all should be replaced with equivalent parts.

**I. Engine Operation**

Inspect and maintain engine condition and operation as recommended in the manuals supplied by the engine manufacturer.

**J. Fuels and Lubricants**

Use only the types and grades of fuels and lubricants recommended in the Portable Power and Engine Manufacturer's Operator and Maintenance Manuals.



# **Safety**

## Safety Precautions

Never operate the compressor without first observing all safety warnings and carefully reading the operation and maintenance manual shipped from the factory with this compressor.

Ensure that the operator reads and understands the decals and consults the manuals before maintenance or operation.

Ensure that maintenance personnel are adequately trained, competent and have read the manuals.

Make sure that all protective covers are in place and that the canopy/doors are closed during operation.

The specification of this compressor is such that the compressor is not suitable for use in flammable gas risk areas. If such an application is required then all local regulations, codes of practice and site rules must be observed. To ensure that the compressor can operate in a safe and reliable manner, additional equipment such as gas detection, exhaust spark arrestors, and intake (shut-off) valves may be required, dependent on local regulations or the degree of risk involved.

A weekly visual check must be made on all fasteners/fixing screws securing mechanical parts. In particular, safety-related parts such as coupling hitch, drawbar components, wheels, tires and lifting bail should be checked for total security.

All components which are loose, damaged or unserviceable, must be rectified without delay.

Air discharged from this compressor may contain carbon monoxide or other contaminants which will cause serious injury or death. Do not breathe this air.

This compressor produces loud noise with the doors open or service valve vented. Extended exposure to loud noise can cause hearing loss. Always wear hearing protection when doors are open or service valve is vented.

Never inspect or service the compressor without first disconnecting battery cable(s) to prevent accidental starting.

Do not use petroleum products (solvents or fuels) under high pressure as this can penetrate the skin and result in serious illness. Wear eye protection while cleaning the compressor with compressed air to prevent debris from injuring eye(s).

Rotating fan blade can cause serious injury. Do not operate without guard in place.

Use care to avoid contacting hot surfaces (engine exhaust manifold and piping, air receiver and air discharge piping, etc.).

Ether is an extremely volatile, highly inflammable gas. When it is specified as a starting aid, use sparingly. Do not use Ether if the engine has glow plugs or inlet heater starting aids or engine damage will result.

Never operate the compressor with guards, covers or screens removed. Keep hands, hair, clothing, tools, blow gun tips, etc. well away from moving parts.

## Compressed Air

Compressed air can be dangerous if incorrectly handled. Before doing any work on the compressor, ensure that all pressure is vented from the system and that the compressor cannot be started accidentally.

Ensure that the compressor is operating at the rated pressure and that the rated pressure is known to all relevant personnel.

All air pressure equipment installed in or connected to the compressor must have safe working pressure ratings of at least the compressor safety valve setting.

If more than one compressor is connected to one common downstream plant, effective check valves and isolation valves must be fitted and controlled by work procedures, so that one compressor cannot accidentally be pressurized or over pressurized by another.

Compressed air must not be used for a direct feed to any form of breathing apparatus or mask.

Compressed air can cause serious injury or death. Relieve pressure before removing filler plugs/caps, fittings or covers.

Air pressure can remain trapped in air supply line which can result in serious injury or death. Always carefully vent air supply line at tool or vent valve before performing any service.

The discharged air contains a very small percentage of compressor lubricating oil and care should be taken to ensure that downstream equipment is compatible.

If the discharged air is to be ultimately released into a confined space, adequate ventilation must be provided.

When using compressed air, always use appropriate personal protective equipment.

All pressure containing parts, especially flexible hoses and their couplings, must be regularly inspected, be free from defects and be replaced according to the manual instructions.

Avoid bodily contact with compressed air.

The safety valve located in the separator tank must be checked periodically for correct operation.

Whenever the compressor is stopped, air will flow back into the compressor from downstream devices or systems unless the service valve is closed. Install a check valve at the compressor service valve to prevent reverse flow in the event of an unexpected shutdown when the service valve is open.

Disconnected air hoses whip and can cause serious injury or death. Always attach a safety flow restrictor to each hose at the source of supply or branch line in accordance with OSHA Regulation 29CFR Section 1926.302(b).

Never allow the compressor to sit stopped with pressure in the separator tank or piping.

## Exhaust System

Hot engine exhaust gas and hot exhaust system surfaces are produced during and after compressor operation. Avoid contact with exhaust gas and hot exhaust system surfaces. Keep flammable and combustible materials away. Do not operate compressor on, under, or near flammable or combustible materials.

The potential for higher temperatures is present when the exhaust aftertreatment system undergoes regeneration. Refer to engine manual for further safety instructions and information on the exhaust aftertreatment system and controls.

## Materials

The following substances may be produced during the operation of this compressor:

- brake lining dust
- engine exhaust fumes

### **WARNING**

**Avoid inhalation of material substances.**

Ensure that adequate ventilation of the cooling system and exhaust gases is maintained at all times.

The following substances are used in the manufacture of this compressor and may be hazardous to health if used incorrectly:

- anti-freeze
- compressor oil
- engine oil
- preservative grease, lubricating grease
- rust preventative
- diesel fuel
- battery electrolyte

### **WARNING**

**Avoid ingestion, skin contact and inhalation of fumes.**

Should compressor oil come into contact with the eyes, irrigate with water for at least 5 minutes.

Should compressor oil come into contact with the skin, wash off immediately. Consult a physician if large amounts of compressor oil are ingested or if compressor oil is inhaled. Never give fluids or induce vomiting if the patient is unconscious or having convulsions.

Safety data sheets for compressor and engine oils should be obtained from the oil supplier.

Do NOT start or operate this compressor in a confined area. Avoid breathing exhaust fumes when working on or near the compressor.

This compressor may include such materials as oil, diesel fuel, antifreeze, brake fluid, oil/air filters and batteries which may require proper disposal when performing maintenance and service tasks. Contact local authorities for proper disposal of these materials.

## Battery

A battery contains sulfuric acid and can give off gases which are corrosive and potentially explosive. Avoid contact with skin, eyes and clothing. In case of contact, flush area immediately with water.

### **WARNING**

**Do not attempt to slave start a frozen battery since this may cause it to explode.**

Exercise extreme caution when using booster battery. To jump battery, connect ends of one booster cable to the positive (+) terminal of each battery. Connect one end of other cable to the negative (-) terminal of the booster battery and other end to a ground connection away from dead battery (to avoid a spark occurring near any explosive gases that may be present). After starting the compressor, always disconnect cables in reverse order.

## Radiator

Hot engine coolant and steam can cause injury. Ensure that the radiator filler cap is removed with due care and attention.

Do not remove the pressure cap from a HOT radiator. Allow radiator to cool down before removing pressure cap.

 **WARNING**

**Hot engine coolant and steam can cause injury. When adding coolant or antifreeze solution to the engine radiator, stop the engine and allow radiator to cool down prior to releasing the radiator filler cap. Using a cloth to protect the hand, slowly release the filler cap, absorbing any released fluid with the cloth. Do not remove the filler cap until all excess fluid is released and the engine cooling system fully depressurized.**

 **WARNING**

**Follow the instructions provided by the antifreeze supplier when adding or draining the antifreeze solution. It is advisable to wear personal protective equipment to prevent skin and eye contact with the antifreeze solution.**

## Transport

When loading or transporting the compressor, ensure that the specified lifting and tie down points are used.

When loading or transporting the compressor, ensure that the towing vehicle, its size, weight, towing hitch and electrical supply are all suitable to provide safe and stable towing at speeds either, up to the legal maximum for the country in which it is being towed or, as specified for the compressor model if lower than the legal maximum. Do not exceed gross vehicle weight rating.

Before towing the compressor, ensure that:

- the tires and towing hitch are in a serviceable condition, and that tires are properly inflated.
- the canopy is secure.
- all ancillary equipment is stored in a safe and secure manner.
- the brakes and lights are functioning correctly and meet necessary road traffic requirements.
- break-away cables/safety chains are connected to the towing vehicle.

The compressor must be towed in a level attitude in order to maintain correct handling, braking and lighting functions. This can be achieved by correct selection and adjustment of the vehicle towing hitch and, on variable height running gear, adjustment of the drawbar.

1. Make sure wheels, tires and drawbar connectors are in safe operating condition and drawbar is properly connected before towing.
2. When parking always use the handbrake and, if necessary, suitable wheel chocks.

**Safety chains/breakaway cable and their adjustment (where fitted).**

Ensure that the breakaway cable is securely coupled to the towed compressor and also to a substantial point on the towing vehicle.

Ensure that the cable length is as short as possible, while still allowing enough slackness for the towed compressor to articulate without the brake being applied.

Attach safety chains to the towing vehicle at substantial anchorage points of suitable strength.

Ensure that the effective chain length is as short as possible while still allowing normal articulation of the towed compressor and effective operation of the breakaway cable.

## Decals

Decals are located on the compressor to point out potential safety hazards. Read and follow these instructions. If you do not understand these instructions, inform your supervisor.



(Red Background)

Indicates the presence of a hazard which **WILL** cause serious injury, death or property damage, if ignored.



(Orange Background)

Indicates the presence of a hazard which **CAN** cause serious injury, death, or property damage, if ignored.



(Yellow Background)

Indicates the presence of a hazard which **WILL** or **CAN** cause injury or property damage, if ignored.



(Blue Background)

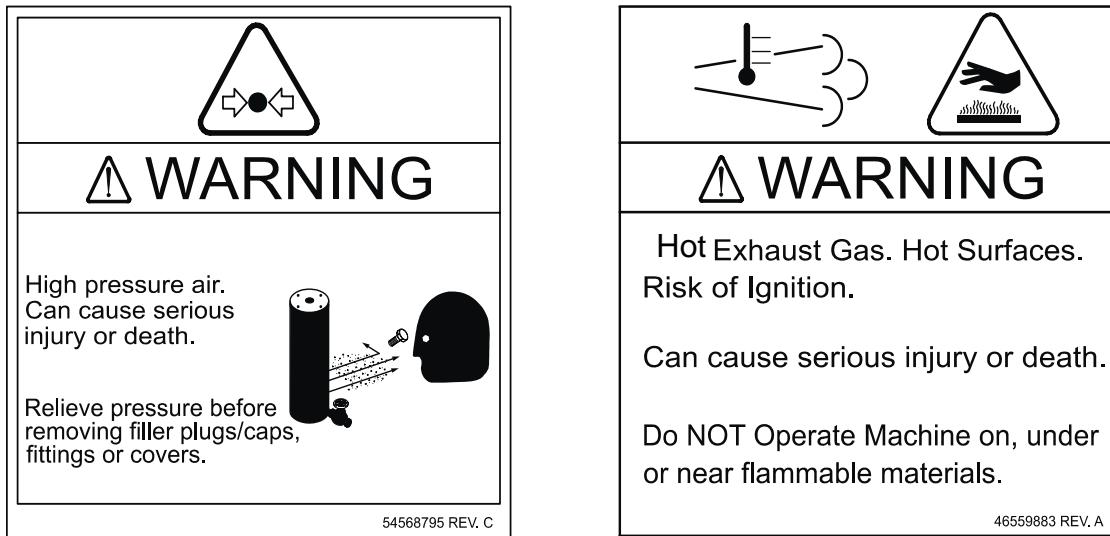
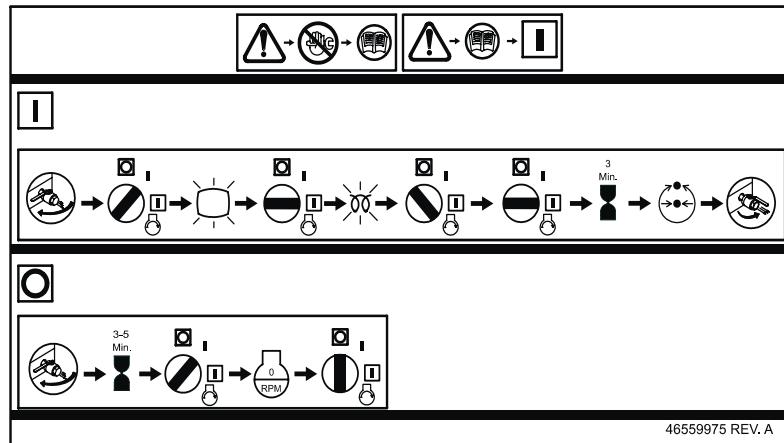
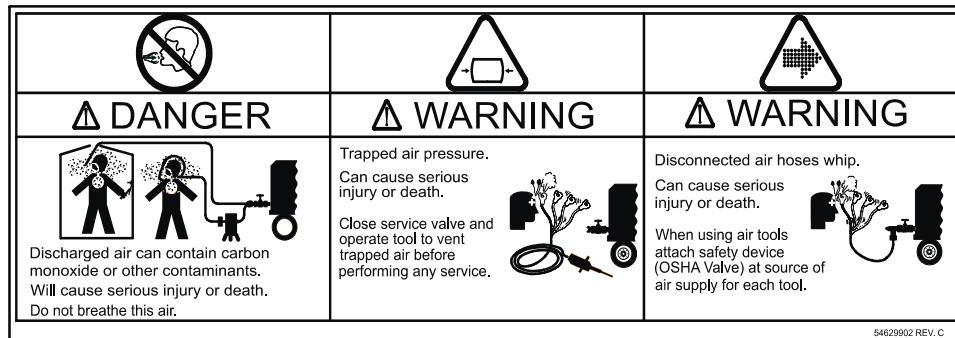
Indicates important set-up, operating or maintenance information.

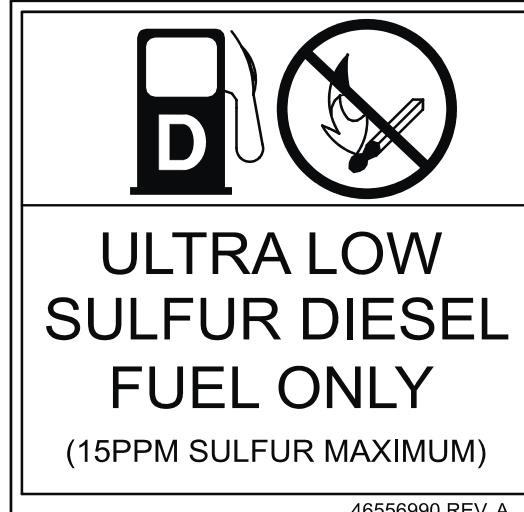
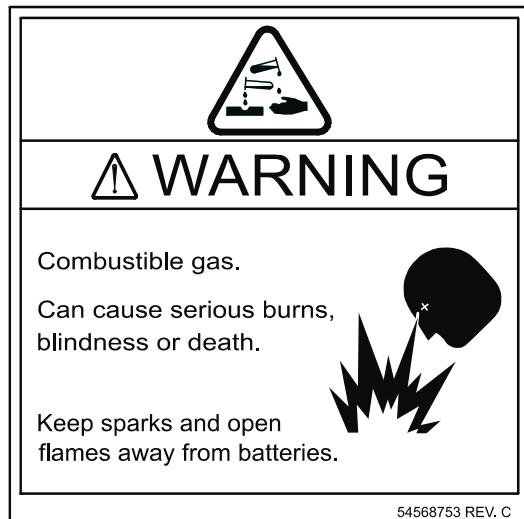
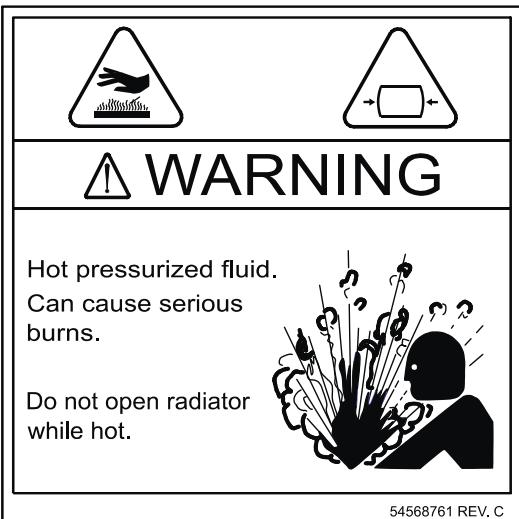
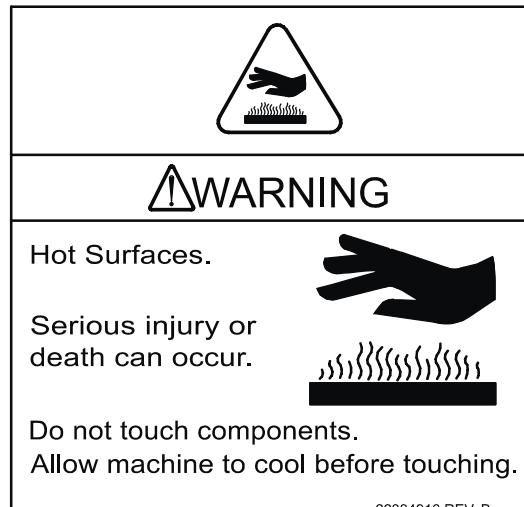
**Free Safety Decals**

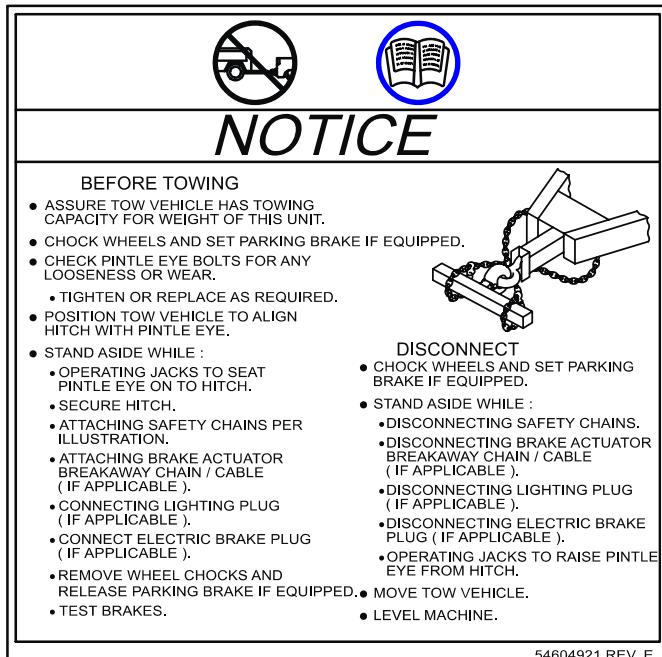
To promote communication of Safety Warnings on products manufactured by the Portable Power Division in Statesville, N.C., Safety Decals are available FREE of charge. Safety Decals are identified by the decal heading: DANGER, WARNING, CAUTION, NOTICE.

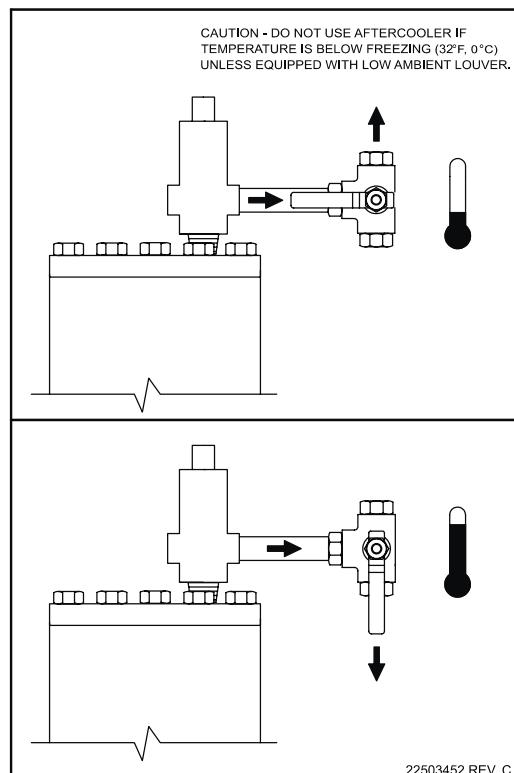
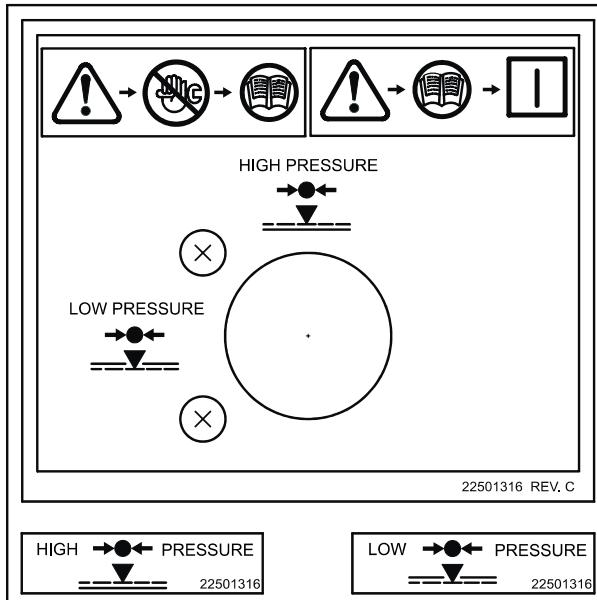
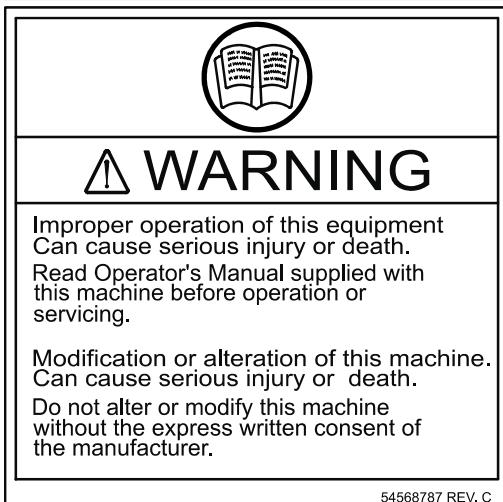
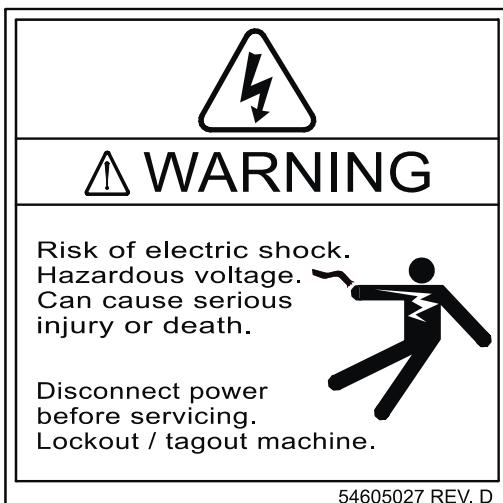
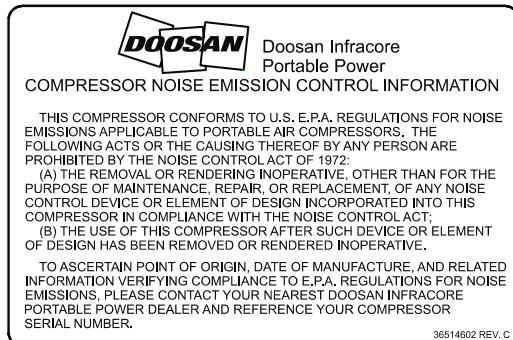
Decal part numbers are on the bottom of each decal and are also listed in the compressor parts manual. Submit orders for Safety Decals to the Statesville Parts Service Dept. The no charge order should contain only Safety Decals.

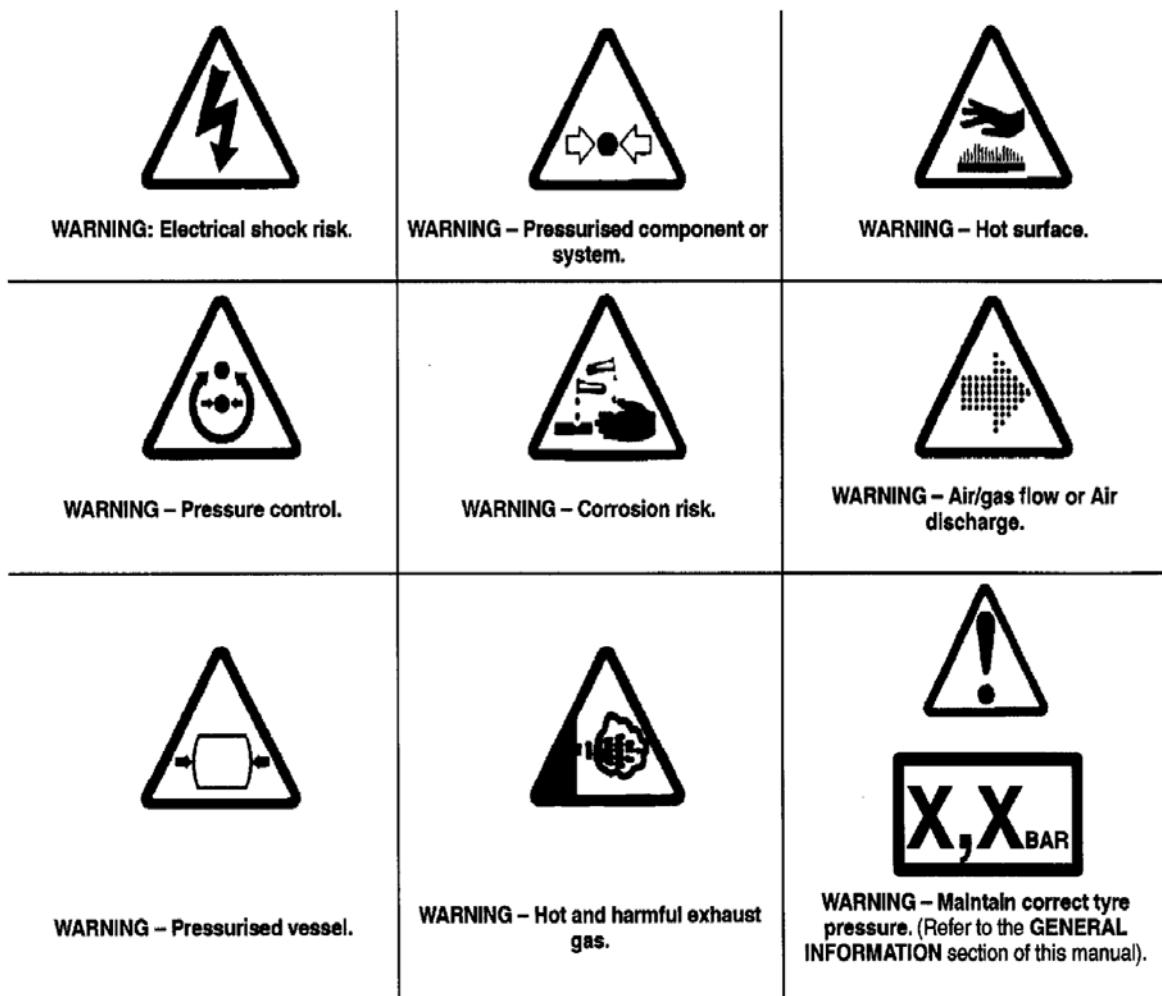
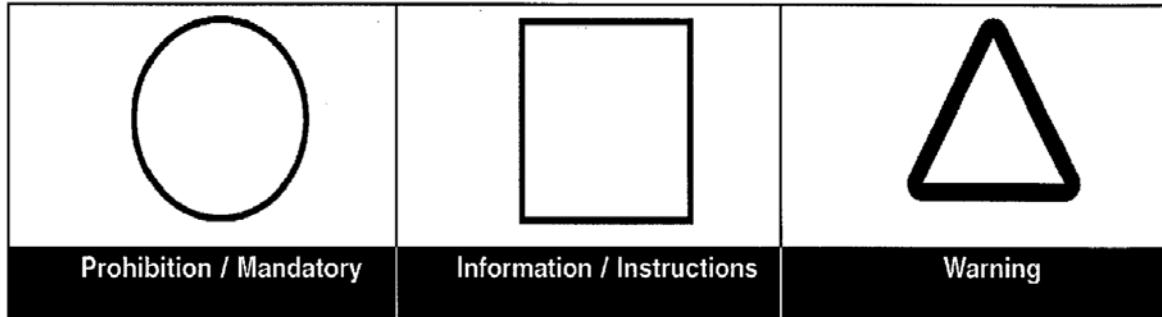
Help promote product safety! Assure that decals are present on the compressor. Replace decals that are not readable.

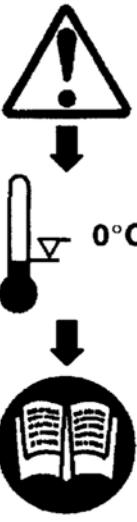


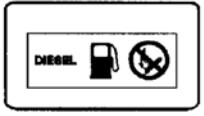


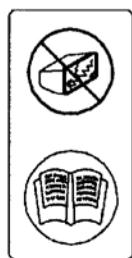




**Decals****Graphic Form and Meaning of ISO Symbols**

 <p><b>WARNING – Flammable liquid.</b></p>	 <p><b>WARNING – Before connecting the tow bar or commencing to tow consult the operation and maintenance manual.</b></p>	 <p><b>WARNING – For operating temperature below 0°C, consult the operation and maintenance manual.</b></p>
 <p><b>WARNING – Do not undertake any maintenance on this machine until the electrical supply is disconnected and the air pressure is totally relieved.</b></p>	 <p><b>WARNING – Consult the operation and maintenance manual before commencing any maintenance.</b></p>	 <p><b>Do not breathe the compressed air from this machine.</b></p>
 <p><b>Do not remove the Operating and Maintenance manual and manual holder from this machine.</b></p>	 <p><b>Do not stack.</b></p>	 <p><b>Do not operate the machine without the guard being fitted.</b></p>

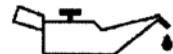
		
		
		
		
		
		



Replace any cracked protective shield.



Oil drain.



Engine Oil



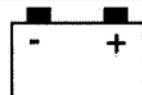
Fuel level/point



Pressure control



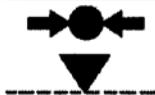
Malfunction



Battery charging condition



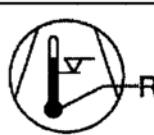
Low pressure



High pressure



Engine malfunction



High compressor temperature



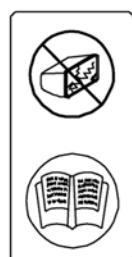
Compressor malfunction



Low engine oil pressure



Engine high temperature



Replace any cracked protective shield.

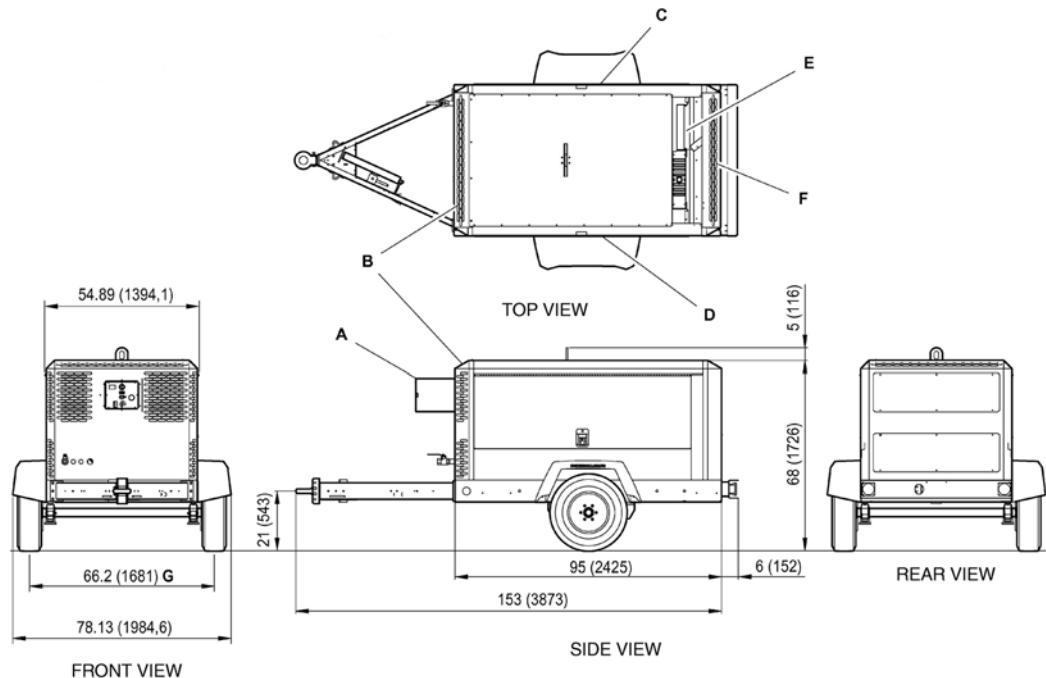


Oil drain.



# **General Arrangement**

## General Arrangement



MANUFACTURED IN NORTH AMERICA

All dimensions in inches(mm)

**A** Instrument panel access door**B** Package air inlet**C** Access items:

Separator element &amp; fill

Compressor oil filter

Fuel filters

Dipstick

Engine oil fill

Coolant bottle fill

**D** Access items:

Fuel fill

Engine oil filter

Fuel filter

Engine and compressor air filter

**E** Access items:

Radiator fill

**F** Package air outlet**G** Track width

## Compressor

### COMPRESSOR

Actual free air delivery (XP375WCU) 10, 5 m<sup>3</sup> min<sup>-1</sup> (375 CFM)

Actual free air delivery (HP375WCU) 10, 5m<sup>3</sup> min<sup>-1</sup> (375 CFM)

Normal operating discharge pressure (XP375WCU) 8, 6 bar (125 PSI)

Normal operating discharge pressure (HP375WCU) 10, 3 bar (150 PSI)

Maximum allowable pressure (XP375WCU) 10.3 bar (150 PSI)

Maximum allowable pressure (HP375WCU) 12.1 bar (175 PSI)

Safety valve setting (XP375WCU) 10 bar (200 PSI)

Safety valve setting (HP375WCU) 14 bar (200 PSI)

Operating ambient temperature. Whisperized -12°C TO +49°C(10°F TO 120°F)

Maximum discharge temperature 120°C (248°F)

Cooling system. Oil injection

Oil capacity. 36 litres (9.5 GAL)

Maximum oil system temperature. 120°C (248°F)

Maximum oil system pressure (XP375WCU) 10.3 bar (150 PSI)

Maximum oil system pressure (HP375WCU) 12.1 bar (175 PSI)

## Lubricating Oil Specification

### LUBRICATING OIL SPECIFICATION

(for the specified ambient temperatures).

#### ABOVE -23°C(-9°F)

Recommended: Pro-Tec™

Approved: SAE 10W, API CF-4/CG-4

#### BELOW -23°C(-9°F)

Mandatory: Performance 500

Pro-Tec™ compressor fluid is factory-fitted, for use at all ambient temperatures above -23°C(-9°F).

**NOTE:** Warranty may be extended only by continuous use of Pro-Tec™ and Portable Power oil filters and separators.

#### **No other oil/fluids are compatible with Pro-Tec™**

No other oils/fluids should be mixed with Pro-Tec™ because the resulting mixture could cause damage to the airend.

In the event that Pro-Tec™ is not available and /or the end user needs to use an approved single grade engine oil, the complete system including separator/receiver, cooler and pipework must be flushed clear of the first fill fluid and new oil filters installed.

When this has been completed, the following oils are approved:

- a. for ambient temperatures above -23°C(-9°F), SAE 10W, API CF-4/CG-4
- b. for ambient temperatures below -23°C(-9°F), Performance 500 only.

Safety data sheets can be obtained on request from the lubricant supplier.

For temperatures outside the specified ambient range, consult your Portable Power representative.

## Engine

**ENGINE****XP375WCU, HP375WCU**

Type/model.	Cummins
Number of cylinders.	4
Oil capacity.	15.9 litres (4.2 GAL)
Speed at full load. min <sup>-1</sup> (RPM)	2200 revs
Speed at idle. (RPM)	1500 revs min <sup>-1</sup>
Electrical system.	24V negative earth
Power available at 2200 revs min <sup>-1</sup>	97 kW (130 HP)
Fuel tank capacity	219.5 litres (58 GAL)
Oil specification	Refer engine section
Coolant capacity	18.9 litres (5.0 GAL)

**SOUND LEVEL DATA ('W' model)**

EPA Noise	76 dB(A)
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**WHEELS AND TIRES - XP375WCU, HP375WCU**

Number of wheels.	2 x 5.5
Tire Size	ST225/75R15(D)
Tire Pressure	=65 psi (4.5 bar)

***Further information may be obtained by request through the Portable Power Customer Service Department.***

## Commissioning

Upon receipt of the unit, and prior to putting it into service, it is important to adhere strictly to the instructions given below in *PRIOR TO STARTING*.

Ensure that the operator reads and *understands* the decals and consults the manuals before maintenance or operation.

Ensure that the position of the *emergency stop* device is known and recognized by its markings. Ensure that it is functioning correctly and that the method of operation is known.

Before towing the unit, ensure that the tire pressures are correct (refer to the *GENERAL INFORMATION* section of this manual). Before towing the unit during the hours of darkness, ensure that the lights are functioning correctly (where fitted).

Ensure that all transport and packing materials are discarded.

Ensure that the correct fork lift truck slots or marked lifting/tie down points are used whenever the machine is lifted or transported.

When selecting the working position of the machine, ensure that there is sufficient clearance for ventilation and exhaust requirements, observing any specified minimum dimensions (to walls, floors etc.).

Adequate clearance needs to be allowed around and above the machine to permit safe access for specified maintenance tasks.

Ensure that the machine is positioned securely and on a stable foundation. Any risk of movement should be removed by suitable means, especially to avoid strain on any rigid discharge piping.

Attach the battery cables to the battery(s) ensuring that they are tightened securely. Attach the negative cable before attaching the positive cable.

 **WARNING**

**All air pressure equipment installed in or connected to the machine must have safe working pressure ratings of at least the machine rated pressure, and materials compatible with the compressor lubricant (refer to the *GENERAL INFORMATION* section).**

 **WARNING**

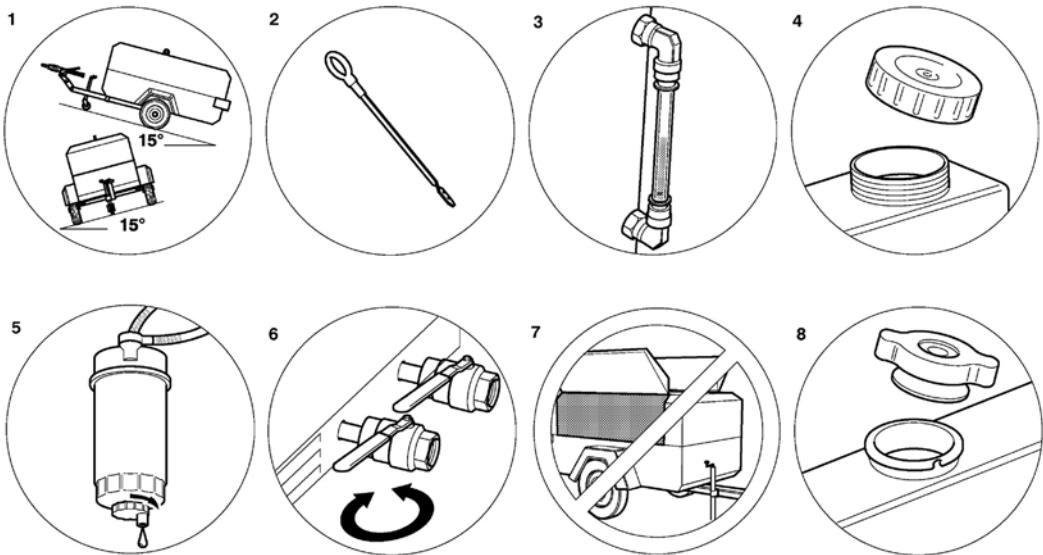
**If more than one compressor is connected to one common downstream plant, effective check valves and isolation valves must be fitted and controlled by work procedures, so that one machine cannot accidentally be pressurized/over pressurized by another.**

 **WARNING**

**If flexible discharge hoses are to carry more than 7 bar (100psi) pressure, then it is recommended that safety retaining wires are used on the hoses.**

# **Operating Instructions**

## Operating Instructions



### Prior to Starting

1. Place the unit in a position that is as level as possible. The design of the unit permits a 15 degree lengthways and sideways limit on out of level operation. It is the engine, not the compressor, that is the limiting factor.

When the unit has to be operated out of level, it is important to keep the engine oil level near the high level mark (with the unit level).

### **⚠ CAUTION**

***Do not overfill either the engine or the compressor with oil.***

2. Check the engine lubrication oil in accordance with the operating instructions in the *Engine Operator's Manual*.
3. Check the compressor oil level in the sight glass located on the separator tank.
4. Check the diesel fuel level. A good rule is to top up at the end of each working day. This prevents condensation from occurring in the tank.

**⚠ CAUTION**

**Use only a No. 2-D diesel fuel oil with a minimum octane number of 45 and a sulphur content not greater than 0.5%.**

**⚠ CAUTION****When refueling:**

- *switch off the engine.*
- *do not smoke.*
- *extinguish all naked lights.*
- *do not allow the fuel to come into contact with hot surfaces.*
- *wear personal protective equipment.*

5. Drain the fuel filter water separator of water, ensuring that any released fuel is safely contained.
6. Open the service valve(s) to ensure that all pressure is relieved from the system. Close the service valve(s).
7. Check the radiator coolant level (with the unit level).

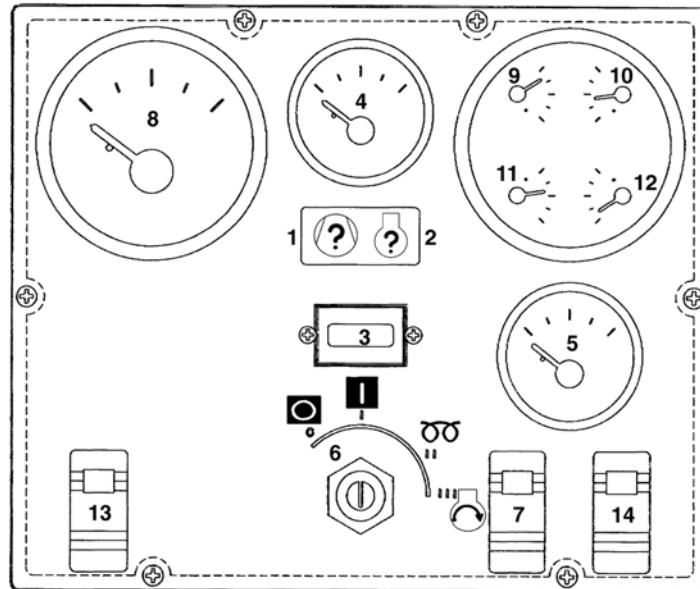
**⚠ CAUTION**

**Do not operate the machine with the canopy/doors in the open position as this may cause overheating and expose operators to high noise levels.**

8. Check the radiator coolant level (with the unit level).
9. Check the air restriction indicator(s). Refer to the *MAINTENANCE* section of this manual.

When starting or operating the machine in temperatures below or approaching 0°C, ensure that the operation of the regulation system, the unloader valve, the safety valve, and the engine are not impaired by ice or snow, and that all inlet and outlet pipes and ducts are clear of ice and snow.

## Control Panel



### Diagnostic/Auto Shutdown (Standard)

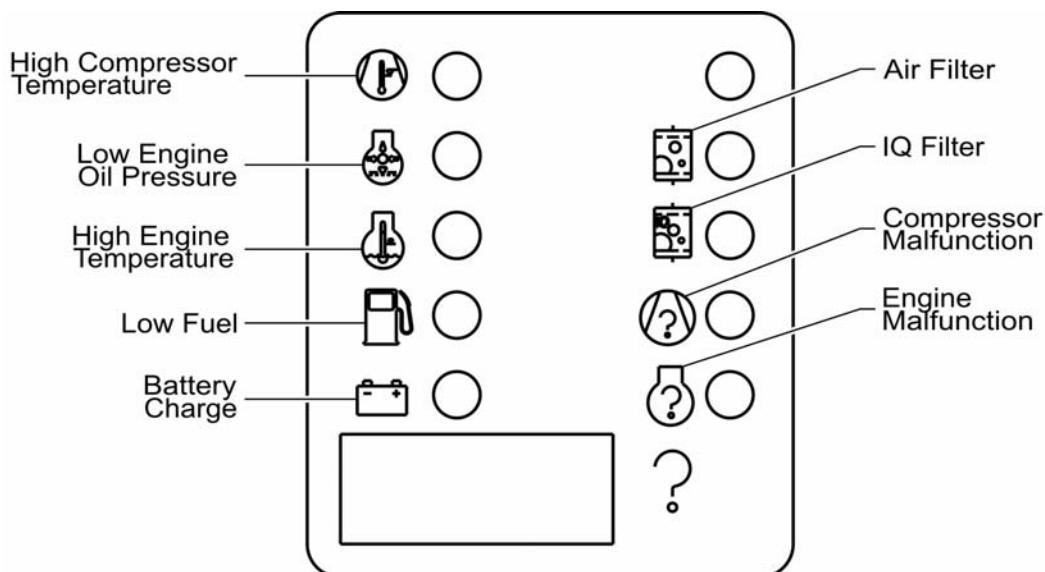
1. **Compressor Fault** - Needs attention. See Wedge diagnostic panel for more detail.
2. **Engine Fault** - Needs attention. See Wedge diagnostic panel for more detail.
3. **Hourmeter** - Records running time for maintenance.
4. **Compressor Discharge Pressure Gauge** - Indicates pressure in receiver tank, psi (kPa).
5. **Fuel Level Gauge** - Indicates amount of fuel in tank.

### Controls (standard)

6. **Power Switch** - Flip "ON" to activate systems prior to starting. Flip "OFF" to stop engine.
7. **Service Air Switch** - After warm-up, PUSH. Provides full air pressure at the service outlet.
8. **Wait to Start Lamp**

### Optional Controls

9. **Engine Speed Gauge** - Indicates engine speed.
10. **Discharge Air Temp. Gauge** - Indicates in °F and °C. Normal operating range: 185°F/85°C to 248°F/120°C.
11. **Engine Oil Pressure Gauge** - Indicates engine oil pressure (psi (kPa)).
12. **Engine Water Temp Gauge** - Indicates coolant temperature with normal operating range from 180°F/82°C to 210°F/99°C.
13. **Voltmeter** - Indicates battery condition.
14. **Spare**



#### WEDGE DIAGNOSTIC DISPLAY PANEL

The Wedge diagnostic display panel is arranged as shown above. A description of each diagnostic indicator is as follows:

1. **High Compressor Temp:** Fault indicator lamp. Indicates shutdown due to high compressor temperature.
2. **Spare**
3. **Low Engine Oil Pressure:** Fault indicator lamp. Indicates shutdown due to low engine oil pressure.
4. **Restricted Air Filter:** Alarm indicator lamp. Indicates engine/compressor air inlet filters need service.
5. **High Engine Coolant Temp:** Fault indicator lamp. Indicates shutdown due to high engine water temperature.
6. **Restricted IQ Filter**
7. **Low Fuel Level:** Fault indicator lamp. Indicates shutdown due to low fuel level. Lamp blinks at low fuel warning.
8. **Compressor Malfunction:** Fault indicator lamp. Indicates shutdown due to compressor system fault. Refer to Fault Code List.
9. **Low Battery Voltage:** Alarm indicator lamp. Indicates battery or charging system requires service.
10. **Engine Malfunction:** Engine Fault code. Refer to service card or engine manual for codes and service requirements.
11. **Malfunction Code (4 Digit):** Compressor or engine fault. Refer to manual for list of codes and service requirements.

## Compressor and Engine Diagnostic Code Descriptions

The following are descriptions of Compressor and Engine diagnostic codes. When a compressor diagnostic code is displayed the "Compressor Malfunction" diagnostic light will be illuminated. When an Engine diagnostic code is displayed the "Engine Malfunction" diagnostic light will be illuminated. Refer to the "Operating Controls and Instruments" page to determine the location of the malfunction lights. Be sure to determine which malfunction light is illuminated before beginning the troubleshooting process.

### Engine Diagnostic Codes



#### Compressor Diagnostic Display Codes (Wedge Software Version 2.20 or greater)

Condition	Alert		Shutdown		Delay (sec.)
	Code	Light (Blinks)	Code	Light (Steady)	
Low Engine Speed			1	Compressor Malfunction	30
High Engine Speed			2	Compressor Malfunction	30
Engine Crank Time Exceeded			3	Compressor Malfunction	0
Low Fuel Level			4	Compressor Malfunction	3
Engine Not Responding To Throttle Command	10	Compressor Malfunction			
Too Many Start Attempts During Auto Start			11	Compressor Malfunction	0
Engine Shutdown: Reason Unknown			29	Compressor Malfunction	0
High Airend Discharge Temperature (RT2) (248°F)			30	Compressor Malfunction	3
Airend Discharge Temperature Sensor Fault (RT2)			32	Compressor Malfunction	10
Sep. Tank Pressure Sensor Fault (PT1)	33	Compressor Malfunction			
Separator Tank Pressure > 20 psi at Crank (engine will not start).			34	Compressor Malfunction	0
High Separator Tank Temperature (RT1) (248°F)			50	Compressor Malfunction	3
Machine ID Not Installed			51	Compressor Malfunction	0
IQ Filter Restriction			52	Compressor Malfunction	3
Separator Tank Temperature Sensor Fault (RT1)			53	Compressor Malfunction	10
Regulation System Pressure Sensor Fault (PT2)	54	Compressor Malfunction			

**Compressor Diagnostic Display Codes (Wedge Software Version 2.20 or greater)**

<b>Condition</b>	<b>Alert</b>		<b>Shutdown</b>		<b>Delay (sec.)</b>
	<b>Code</b>	<b>Light (Blinks)</b>	<b>Code</b>	<b>Light (Steady)</b>	
Minimum Start Pressure Not Met (50 psi)	56	Compressor Malfunction			
Serial Communications Failure	70	Compressor Malfunction			
Engine ECM Communication Failure			71	Compressor Malfunction	13
Auto/Stop Controller Communication Failure	73	Compressor Malfunction			

**Compressor Alert/Shutdown Diagnostic Lights (Wedge Software 2.20 or greater)**

<b>Diagnostic Light</b>	<b>Alert</b>	<b>Shutdown</b>	<b>Delay (sec.)</b>
	<b>Light (Blinks)</b>	<b>Light (Steady)</b>	
Compressor Malfunction	•	•	
Engine Malfunction	•	•	
Low Fuel Level		•	3
Restricted Air Filters	•	•	
Low Battery Voltage	•	•	
Low Engine Oil Pressure (18 psi ALERT) (SHUTDOWN by Engine ECM)	•	•	4
High Engine Coolant Temperature (220°F ALERT) (SHUTDOWN by Engine ECM)	•	•	10
High Compressor Temperature (RT2) 248°F		•	3
Restricted IQ Air Filter		•	3

## Engine Diagnostic Codes



Displayed Code	Definition
111	Engine Control Module - Critical internal failure
115	Engine Speed/Position Sensor Circuit - Lost both of two signals
122	Intake Manifold Pressure Sensor Circuit - Voltage Above Normal, or Shorted High
123	Intake Manifold Pressure Sensor Circuit - Voltage Below Normal, or Shorted Low
135	Engine Oil Pressure Sensor Circuit - Voltage Above Normal, or Shorted High
141	Engine Oil Pressure Sensor Circuit - Voltage Below Normal, or Shorted Low
143	Engine Oil Pressure Low - Warning
144	Engine Coolant Temperature Sensor Circuit - Voltage Above Normal, or Shorted High
145	Engine Coolant Temperature Sensor Circuit - Voltage Below Normal, or Shorted Low
146	Engine Coolant Temperature High - Warning
147	Frequency Throttle Signal - Abnormal Frequency, Pulse Width, or Period
148	Frequency Throttle Signal - Abnormal Frequency, Pulse Width, or Period
151	Engine Coolant Temperature Low - Critical
153	Intake Manifold Air Temperature Sensor Circuit - Voltage Above Normal, or Shorted High
154	Intake Manifold Air Temperature Sensor Circuit - Voltage Below Normal, or Shorted Low
155	Intake Manifold Air Temperature High - Critical
187	Sensor Supply Voltage #2 Circuit - Voltage Below Normal, or Shorted Low
195	Engine Coolant Level Sensor Circuit - Voltage Above Normal, or Shorted High
196	Engine Coolant Level Sensor Circuit - Voltage Below Normal, or Shorted Low
197	Engine Coolant Level Low - Warning
212	Engine Oil Temperature Sensor 1 Circuit - Voltage Above Normal, or Shorted High
213	Engine Oil Temperature Sensor 1 Circuit - Voltage Below Normal, or Shorted Low
214	Engine Oil Temperature High - Critical
221	Barometric Pressure Sensor Circuit - Voltage Above Normal, or Shorted High
222	Barometric Pressure Sensor Circuit - Voltage Below Normal, or Shorted Low
227	Sensor Supply Voltage #2 Circuit - Voltage Above Normal, or Shorted High
231	Engine Coolant Pressure Sensor Circuit - Voltage Above Normal, or Shorted High
232	Engine Coolant Pressure Sensor Circuit - Voltage Below Normal, or Shorted Low
233	Engine Coolant Pressure Low - Warning
234	Engine Speed High - Critical

Displayed Code	Definition
235	Engine Coolant Level Low - Critical
238	Sensor Supply Voltage #3 Circuit - Voltage Below Normal, or Shorted Low
249	Ambient Air Temperature Sensor Circuit - Voltage Above Normal, or Shorted High
256	Ambient Air Temperature Sensor Circuit - Voltage Below Normal, or Shorted Low
261	Engine Fuel Temperature High - Warning
263	Engine Fuel Temperature Sensor 1 Circuit - Voltage Above Normal, or Shorted High
265	Engine Fuel Temperature Sensor 1 Circuit - Voltage Below Normal, or Shorted Low
268	Fuel Pressure Sensor Circuit - Data Incorrect
271	High Fuel Pressure Solenoid Valve Circuit – Voltage Below Normal, or Shorted Low
272	High Fuel Pressure Solenoid Valve Circuit - Voltage Above Normal, or Shorted High
275	Fuel Pumping Element (Front) - Mechanical System Malfunction
281	High Fuel Pressure Solenoid Valve - Mechanical System Malfunction
284	Engine Speed/Position Sensor (Crankshaft) Circuit - Voltage Below Normal, or Shorted Low
285	SAE J1939 Multiplexing PGN Time-out Error
286	SAE J1939 Multiplexing Configuration Error
287	SAE J1939 Multiplexing Throttle Error
295	Barometric Pressure Sensor Circuit - Data Incorrect
319	Real Time Clock Power Interrupt - Data Incorrect
322	Injector Solenoid Cylinder #1 Circuit - Current Below Normal, or Open Circuit
323	Injector Solenoid Cylinder #5 Circuit - Current Below Normal, or Open Circuit
324	Injector Solenoid Cylinder #3 Circuit - Current Below Normal, or Open Circuit
325	Injector Solenoid Cylinder #6 Circuit - Current Below Normal, or Open Circuit
331	Injector Solenoid Cylinder #2 Circuit - Current Below Normal, or Open Circuit
332	Injector Solenoid Cylinder #4 Circuit - Current Below Normal, or Open Circuit
334	Engine Coolant Temperature Sensor Circuit - Data Incorrect
342	Electronic Calibration Code Incompatibility - Out of Calibration
351	Injector Power Supply - Bad Intelligent Device or Component
352	Sensor Supply Voltage #1 Circuit - Voltage Below Normal, or Shorted Low
386	Sensor Supply Voltage #1 Circuit - Voltage Above Normal, or Shorted High
415	Engine Oil Pressure Low - Critical
418	Water in Fuel Indicator High - Maintenance

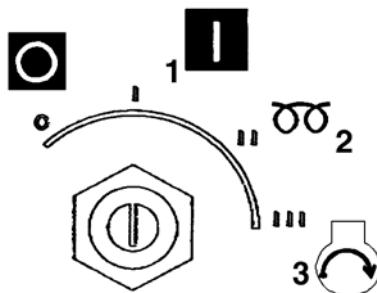
Displayed Code	Definition
422	Engine Coolant Level - Data Incorrect
425	Engine Oil Temperature - Data Incorrect
428	Water in Fuel Sensor Circuit - Voltage Above Normal, or Shorted High
429	Water in Fuel Sensor Circuit - Voltage Below Normal, or Shorted Low
433	Intake Manifold Pressure Sensor Circuit - Data Incorrect
435	Engine Oil Pressure Sensor Circuit - Data Incorrect
441	Battery Voltage Low - Warning
442	Battery Voltage High - Warning
449	Fuel Pressure High - Warning
451	Injector Metering Rail Pressure Sensor Circuit - Voltage Above Normal, or Shorted High
452	Injector Metering Rail Pressure Sensor Circuit - Voltage Below Normal, or Shorted Low
488	Intake Manifold Air Temperature High - Warning
553	Injector Metering Rail Pressure High - Warning
554	Fuel Pressure Sensor Error - Data Incorrect
559	Injector Metering Rail Pressure Low - Warning
595	Turbocharger Speed High - Warning
596	Electrical Charging System Voltage High - Warning
597	Electrical Charging System Voltage Low - Warning
598	Electrical Charging System Voltage Low - Critical
687	Turbocharger Speed Low - Warning
689	Primary Engine Speed Sensor Error - Data Incorrect
691	Turbocharger Compressor Inlet Temp Sensor Circuit - Voltage Above Normal, or Shorted High
692	Turbocharger Compressor Inlet Temp Sensor Circuit - Voltage Below Normal, or Shorted Low
697	ECM Internal Temperature Sensor Circuit - Voltage Above Normal, or Shorted High
698	ECM Internal Temperature Sensor Circuit - Voltage Below Normal, or Shorted Low
719	Extended Crankcase Blow-by Pressure Circuit - Voltage Above Normal, or Shorted High
729	Extended Crankcase Blow-by Pressure Circuit - Voltage Below Normal, or Shorted Low
731	Engine Speed/Position #2 Mechanical Misalignment - Mechanical System Malfunction
753	Engine Speed/Position #2 Camshaft Sync Error - Data Incorrect
778	Engine Speed Sensor (Camshaft) Error - Data Incorrect
951	Cylinder Power Imbalance Between Cylinders - Data Incorrect

Displayed Code	Definition
1139	Injector Cylinder #1 - Mechanical System Malfunction
1141	Injector Cylinder #2 - Mechanical System Malfunction
1142	Injector Cylinder #3 - Mechanical System Malfunction
1143	Injector Cylinder #4 - Mechanical System Malfunction
1144	Injector Cylinder #5 - Mechanical System Malfunction
1145	Injector Cylinder #6 - Mechanical System Malfunction
1911	Injector Metering Rail Pressure High - Critical
2111	Engine Coolant Temperature 2 Sensor Circuit - Voltage Above Normal, or Shorted High
2112	Engine Coolant Temperature 2 Sensor Circuit - Voltage Below Normal, or Shorted Low
2113	Engine Coolant Temperature 2 High - Warning
2114	Engine Coolant Temperature 2 High - Critical
2115	Engine Coolant Pressure 2 Circuit - Voltage Above Normal, or Shorted High
2116	Engine Coolant Pressure 2 Circuit - Voltage Below Normal, or Shorted Low
2117	Engine Coolant Pressure 2 Low - Warning
2185	Sensor Supply Voltage #4 Circuit - Voltage Above Normal, or Shorted High
2186	Sensor Supply Voltage #4 Circuit - Voltage Below Normal, or Shorted Low
2215	Fuel Pump Delivery Pressure Low - Warning
2216	Fuel Pump Delivery Pressure High - Warning
2249	Injector Metering Rail Pressure Low - Critical
2265	Fuel Priming Pump Control Signal Circuit - Voltage Above Normal, or Shorted High
2266	Fuel Priming Pump Control Signal Circuit - Voltage Below Normal, or Shorted Low
2292	Fuel Inlet Meter Device - High - Warning
2293	Fuel Inlet Meter Device - Low - Warning
2311	Fueling Actuator #1 Circuit Error - Condition Exists
2321	Engine Speed/Position Sensor #1 - Data Incorrect
2322	Engine Speed/Position Sensor #2 - Data Incorrect
2345	Turbocharger Speed - Abnormal Rate of Change
2555	Intake Air Heater #1 Circuit - Voltage Above Normal, or Shorted High
2556	Intake Air Heater #1 Circuit - Voltage Below Normal, or Shorted Low
2963	Engine Coolant Temperature High - Alert
2964	Intake Manifold Air Temperature High - Alert
2973	Intake Manifold Pressure Sensor Circuit - Data Incorrect

## Starting the Machine

### **WARNING**

**Under no circumstances should volatile liquids such as Ether be used for starting this machine.**



All normal starting functions are incorporated in the key operated switch.

- Turn the key switch to position 1. The engine fault and compressor fault lamps will flash.

#### **Wait to Start Lamp.**

- Turn the key switch to position 1 until the Wait To Start Lamp. (14) extinguishes.
- Turn the key switch to crank position (3) (engine start position)
- Release to position (1) when engine starts. The engine will now be running at a reduced speed.

At temperatures below 0°C or if there is difficulty starting first time:

- Open the service valve fully, with no hose connected.
- Complete starting sequence above.
- Close service valve as soon as engine runs freely.
- Do not allow machine to run for long periods with service valve open.
- Allow the engine to reach operating temperature.
- At this point in the operation of the machine, it is safe to apply full load to the engine.

**NOTE:** Wear hearing protection at all times when the engine is started with the service valve open and air is flowing from the valve.

## Push After Warm Up

**NOTE:** In order to allow the machine to start at a reduced load, a valve, which is operated by a button located on the instrument panel, is incorporated in the regulation system. (The valve automatically returns to the start position when the machine is switched off and air pressure relieved from the system).

- Allow the engine to reach its operating temperature-then press the button(7).
- At this point in the operation of the machine it is safe to apply *full load* to the engine.

## Dual Pressure when Fitted

Machines which operate in excess of 7 bar (100 psi) can optionally be fitted with a dual pressure switch inside the unit. This switch selects between 7 bar (100 psi) and the machine rated pressure, cfm remains nominally constant.

Starting and stopping are unaffected by the selection and during normal running the selector switch may be safely operated. Precaution must be taken to ensure that downstream equipment is rated to suit the available pressure.

The pressure gauge indicates which setting has been selected.

## Stopping the Machine

- Close the service valve.
- Allow the machine to run unloaded for a short period of time to reduce the engine temperature.
- Turn the start switch to the *0* (off) position.

**NOTE:** As soon as the engine stops, the automatic blowdown valve will relieve all pressure from the system.

If the automatic blowdown valve fails to operate, then pressure must be relieved from the system by means of the service valve(s).

### CAUTION

Never allow the machine to stand idle with pressure in the system.

## Emergency Stopping

In the event that the unit has to be stopped in an emergency. **TURN THE KEY SWITCH LOCATED ON THE INSTRUMENT PANEL TO THE *0* (OFF) POSITION.**

## Re-Starting After an Emergency

If the machine has been switched off because of a machine malfunction, then identify and correct the fault before attempting to re-start.

If the machine has been switched off for reasons of safety, then ensure that the machine can be operated safely before re-starting.

Refer to the *PRIOR TO STARTING* and *STARTING THE UNIT* instructions earlier in this section before re-starting the machine.

## Monitoring During Operation

Should any of the safely shut-down conditions occur, the unit will stop.

Refer to the Wedge diagnostic display codes table for a listing of shutdown conditions.

### CAUTION

*To ensure an adequate flow of oil to the compressor at low temperature, never allow the discharge pressure to fall below 3,5 bar (50 psi)*

## Decommissioning

When the machine is to be permanently decommissioned or dismantled, it is important to ensure that all hazard risks are either eliminated or notified to the recipient of the machine. In particular:-

- Do not destroy batteries or components containing asbestos without containing the materials safely.
- Do not dispose of any pressure vessel that is not clearly marked with its relevant data plate information or rendered unusable by drilling, cutting etc.
- Do not allow lubricants or coolants to be released into land surfaces or drains.
- Do not dispose of a complete machine without documentation relating to instructions for its use.

## Engine

### Engine Serial Number Plate

Each engine has a 13-digit engine serial number.

The engine's serial number plate is located on the right-hand side of cylinder block behind the fuel filter.

# **Lubrication**

## General Information

Lubrication is an essential part of preventive maintenance, affecting to a great extent the useful life of the compressor. Different lubricants are needed and some components require more frequent lubrication than others. Therefore, it is important that the instructions regarding types of lubricants and the frequency of their application be explicitly followed. Periodic lubrication of the moving parts reduces to a minimum the possibility of mechanical failures.

The Maintenance Schedule shows those items requiring regular service and the interval in which they should be performed. A regular service program should be developed to include all items and fluids. These intervals are based on average operating conditions. In the event of extremely severe (hot, cold, dusty or wet) operating conditions, more frequent lubrication than specified may be necessary.

All filters and filter elements for air and compressor oil must be obtained through Portable Power to assure the proper size and filtration for the compressor.

## Compressor Oil Change

These compressors are normally furnished with an initial supply of oil sufficient to allow operation until the first service interval indicated in the Maintenance Schedule. If a compressor has been completely drained of all oil, it must be refilled with new oil before it is placed in operation. Refer to specifications in the Portable Compressor Oil Chart.

### NOTICE

**Some oil types are incompatible when mixed and result in the formation of varnishes, shellacs, or lacquers which may be insoluble. Such deposits can cause serious troubles including clogging of the filters. Where possible, do NOT mix oils of different types and avoid mixing different brands. A type or brand change is best made at the time of a complete oil drain and refill.**

If the compressor has been operated for the time/hours indicated in the Maintenance Schedule, it should be completely drained of oil. If the compressor has been operated under adverse conditions, or after long periods in storage, an earlier change may be necessary as oil deteriorates with time as well as by operating conditions.

### CAUTION

**In most severe applications such as sandblasting, quarry drilling, well drilling, and oil and gas drilling, more frequent service intervals will be required to ensure long component life.**

**⚠ WARNING**

**High pressure air can cause severe injury or death from hot oil and flying parts. Always relieve pressure before removing caps, plugs, covers or other parts from pressurized air system. Ensure that the air pressure gauge reads zero (0) pressure and ensure there is no air discharge when opening the manual blowdown valve.**

An oil change is good insurance against the accumulation of dirt, sludge, or oxidized oil products.

Completely drain the separator tank, piping, and cooler. If the oil is drained immediately after the compressor has been run for some time, most of the sediment will be in suspension and, therefore, will drain more readily. However, the oil will be hot and care must be taken to avoid contact with the skin or eyes.

After the compressor has been completely drained of all old oil, close the drain valves and/or plugs and install new oil filter elements. Add oil in the specified quantity at the filler plug. Tighten the filler plug and run the compressor to circulate the oil. Check the oil level. DO NOT OVERFILL.

**NOTICE**

**Portable Power provides compressor oil specifically formulated for Portable Compressors and requires the use of these fluids in order to obtain extended limited airend warranty.**

## Portable Compressor Oil Chart

Refer to this chart for the correct compressor oil required. Note that the selection of oil is dependent on the rated operating pressure of the compressor and the ambient temperature expected to be encountered before the next oil change.

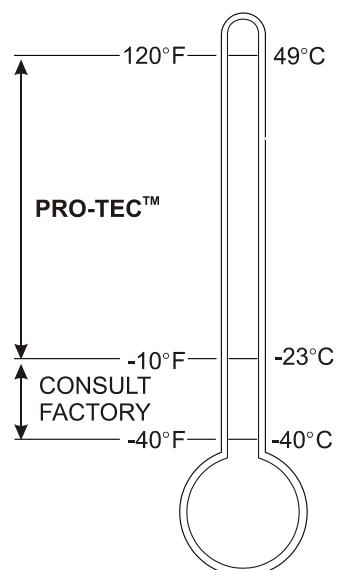
**NOTE: Oils listed as “preferred” are required for extended warranty.**

**Compressor oil carryover (oil consumption) may be greater with the use of alternative oils.**

Rated Operating Pressure	Ambient Temperature	Compressor Oil Specification
100 psi to 200 psi (6.9 to 13.8 bar)	-10°F to 120°F (-23°C to 49°C)	Preferred: PRO-TEC™ Alternate: ISO Viscosity Grade 46 PAO, with rust and oxidation inhibitors, for rotary screw compressor service.
	Below -10°F (Below -23°C)	Consult Factory

RATED OPERATING PRESSURE

100 - 200 PSI  
(6.9 - 13.8 BAR)



**Preferred Oils - Use of these oils with Doosan branded filters can extend airend warranty.**  
Refer to the warranty policy for details or contact your representative.

Preferred Oils	1 gal. (3.8 Liter)	5 gal. (19.0 Liter)	55 gal. (208 Liter)	275 gal. (1041 Liter)
Pro-Tec	36899698	36899706	36899714	36899722
Tier 4 Engine Oil	46557017	46557016	46557015	
Engine Oil	54480918	36875938	36866903	

# **Maintenance**

## Maintenance

	Initial 500 miles/ 850 km	Daily	Weekly	Monthly	3 Months 250 hrs.	6 Months 500 hrs.	12 Months 1000 hrs.
Compressor Oil Level		C					
Engine Oil Level		C					
*Radiator Coolant Level		C					
Gauges/Lamps		C					
*Air Cleaner Service Indicators		C					
Fuel Tank (Fill at end of day)		C				D	
*Fuel/Water Separator Drain		C					
Oil Leaks		C					
Fuel Leaks		C					
Drain Water From Fuel Filters		D					
Coolant Leaks		C					
Radiator Filler Cap		C					
Air Cleaner Precleaner Dumps			C				
Fan/Alternator Belts			C				
Battery Connections/Electrolyte			C				
Tire Pressure and Surface			C				
*Wheel Lug Nuts				C			
Hoses (Oil, Air, Intake, etc.)				C			
Automatic Shutdown System				C			
Air Cleaner System				C			
Compressor Oil Cooler Exterior				C			
*Engine Rad/Oil Cooler Exterior				C			
Fasteners, Guards					C		
Air Cleaner Elements						R/WI	

\*Disregard if not appropriate for this particular machine

(1) or 3000 miles/5000km whichever is the sooner

(2) or as defined by local or national legislation

**C** = Check (adjust, clean or replace as necessary)

**CBT** = Check before towing.

**CR** = Check and report

**D** = Drain

**G** = Grease

**R** = Replace

**T** = Test

**WI** = or when indicated if earlier.

Refer to specific sections of the operator's manual for more information

	Initial 500 miles/ 850 km	Daily	Weekly	Monthly	3 Months 250 hrs.	6 Months 500 hrs	12 Months 1000 hrs	48 Months 5000 hrs
*Fuel/Water Separator Element						R		
Compressor Oil Filter Element						R		
Compressor Oil						R		
Engine Oil Change						R		
Engine Oil Filter						R		
Wheels (Bearings, Seals, etc.)							C	
*Engine Coolant						C	R	
Fuel Filter Element						R		
*Injection Nozzle Check								C
Shutdown Switch Settings							T	
Scavenger Orifice & Related Parts							C	
Oil Separator Element							R	
*Feed Pump Strainer Cleaning.							C	
Coolant Replacement							R	
*Valve Clearance Check								C
Lights (running, brake, & turn)		CBT						
Pintle Eye Bolts		CBT						
*Brakes	C					C		
*Brake linkage	C							
Emergency stop		T						
Running gear linkage				G				
Safety valve						C		
Running gear bolts (1)						C		

\*Disregard if not appropriate for this particular machine

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**R** = Replace

**T** = Test

**WI** = or when indicated if earlier.

Refer to specific sections of the operator's manual for more information

	Initial 500 miles/ 850 km	Daily	Weekly	Monthly	3 Monthly 250 hrs.	6 Monthly 500 hrs	12 Monthly 1000 hrs
Scavenge line						<b>C</b>	
Pressure system						<b>C</b>	
Engine breather element							<b>C</b>
Pressure gauge							<b>C</b>
Pressure regulator							<b>C</b>
Separator tank (2) exterior							<b>CR</b>
Lubricator (Fill)		<b>C</b>					

	2 Yrs	4 Yrs	6 Yrs				
Safety valve	<b>C</b>						
Hoses		<b>R</b>					
Separator tank (2) interior			<b>C</b>				

\*Disregard if not appropriate for this particular machine

(1) or 3000 miles/5000km whichever is the sooner

(2) or as defined by local or national legislation

**C** = Check (adjust, clean or replace as necessary)

**CBT** = Check before towing.

**CR** = Check and report

**D** = Drain

**G** = Grease

**R** = Replace

**T** = Test

**WI** = or when indicated if earlier.

Refer to specific sections of the operator's manual for more information

## Routine Maintenance

This section refers to the various components which require periodic maintenance and replacement.

The *SERVICE/MAINTENANCE CHART* indicates the various components' descriptions and the intervals when maintenance has to take place. Oil capacities, etc., can be found in the *GENERAL INFORMATION* section of this manual.

For any specification or specific requirement on service or preventative maintenance for the engine, refer to the *Engine Manufacturer's Manual*.

Compressed air can be dangerous if incorrectly handled. Before doing any work on the unit, ensure that all pressure is vented from the system and that the machine cannot be started accidentally.

If the automatic blowdown fails to operate, then pressure must be gradually relieved by operating the manual blowdown valve. Suitable personal protective equipment should be worn.

Ensure that maintenance personnel are adequately trained, competent and have read the Maintenance Manuals.

**Prior to attempting any maintenance work, ensure that:**

- all air pressure is fully discharged and isolated from the system. If the automatic blowdown valve is used for this purpose, then allow enough time for it to complete the operation.
- The discharge pipe/manifold area is depressurized by opening the discharge valve, while keeping clear of any airflow from it.

### MINIMUM PRESSURE VALVE - WHEN FITTED

**NOTE:** Pressure will always remain in the part of the system between the minimum pressure valve and the discharge valve after operation of the auto blowdown valve.

This pressure must be relieved by carefully:

(a) Disconnecting any downstream equipment.

(b) Opening the discharge valve to atmosphere.

(Use hearing protection if necessary).

- the machine cannot be started accidentally or otherwise, by posting warning signs and/ or fitting appropriate anti-start devices.
- all residual electrical power sources (main and battery) are isolated.

**Prior to opening or removing panels or covers to work inside a machine, ensure that:**

- anyone entering the machine is aware of the reduced level of protection and the additional hazards, including hot surfaces and intermittently moving parts.
- the machine cannot be started accidentally or otherwise, by posting warning signs and/or fitting appropriate anti-start devices.

**Prior to attempting any maintenance work on a *running* machine, ensure that:**

- the work carried out is limited to only those tasks which require the machine to run.
- the work carried out with safety protection devices disabled or removed is limited to only those tasks which require the machine to be running with safety protection devices disabled or removed.
- all hazards present are known (e.g. pressurized components, electrically live components, removed panels, covers and guards, extreme temperatures, inflow and outflow of air, intermittently moving parts, safety valve discharge etc.).
- appropriate personal protective equipment is worn.
- loose clothing, jewelry, long hair etc. is made safe.
- warning signs indicating that *Maintenance Work is in Progress* are posted in a position that can be clearly seen.

**Upon completion of maintenance tasks and prior to returning the machine into service, ensure that:**

- the machine is suitably tested.
- all guards and safety protection devices are refitted.
- all panels are replaced, canopy and doors closed.
- hazardous materials are effectively contained and disposed of.

## Productive Shutdown System

Refer to the Wedge diagnostic display codes table for a listing of shutdown conditions.

### Low engine fuel level switch.

At three month intervals, test the low engine fuel level switch circuit as follows:

- Start the machine.

**NOTE:** Do not press the load button.

- Disconnect the switch, the machine should shutdown.
- Re-connect the switch.

At twelve month intervals, test the low engine fuel level switch by removing and operating the float manually.

### CAUTION

*Never remove or replace switches when the machine is running.*

## Scavenge Line

The scavenge line runs from the combined orifice/drop tube in the separator tank, to the orifice fitting located in the airend.

Examine the orifice, check valve and hoses at every service or in the event of oil carryover into the discharge air.

It is good preventative maintenance to check that the scavenge line and tube are clear of any obstruction each time the compressor lubricant is changed as any blockage will result in oil carryover into the discharge air.

## Compressor Oil Filter

Refer to the *MAINTENANCE CHART* in this section for the recommended servicing intervals.

### Removal

#### **WARNING**

**Do not remove the filter(s) without first making sure that the machine is stopped and the system has been completely relieved of all air pressure.**  
(Refer to *STOPPING THE UNIT* in the *OPERATING INSTRUCTIONS* section of this manual).

Clean the exterior of the filter housing and remove the spin-on element by turning it in a counter-clockwise direction.

### Inspection

Examine the filter element.

#### **CAUTION**

If there is any indication of the formation of varnishes, shellacs or lacquers on the filter element, it is a warning that the compressor lubricating and cooling oil has deteriorated and that it should be changed immediately. Refer to *LUBRICATION* later in this section.

### Reassembly

Clean the filter gasket contact area and install the new element by screwing in a clockwise direction until the gasket makes contact with the filter housing. Tighten a further  $\frac{1}{2}$  to  $\frac{3}{4}$  of a revolution.

#### **CAUTION**

*Start the machine (refer to *PRIOR TO STARTING* and *STARTING THE UNIT* in the *OPERATING INSTRUCTIONS* section of this manual) and check for leakage before the machine is put back into service.*

## Compressor Oil Separator Element

Normally the separator element will not require periodic maintenance provided that the air and oil filter elements are correctly maintained.

If, however, the element has to be replaced, then proceed as follows:

### Removal

#### **WARNING**

**Do not remove the filter(s) without first making sure that the machine is stopped and the system has been completely relieved of all air pressure. (Refer to *STOPPING THE UNIT* in the *OPERATING INSTRUCTIONS* section of this manual).**

Disconnect all hoses and tubes from the separator tank cover plate. Remove the drop-tube from the separator tank cover plate and then remove the cover plate. Remove the separator element.

### Inspection

Examine the filter element. Examine all hoses and tubes, and replace if necessary.

### Reassembly

Thoroughly clean the orifice/drop tube and filter gasket contact area before reassembly. Install the new element.

#### **WARNING**

**Do not remove the staple from the anti-static gasket on the separator element since it serves to ground any possible static build-up. Do not use gasket sealant since this will affect electrical conductance.**

Reposition the cover plate, taking care not to damage the gasket, and replace the cover plate screws tightening in a *criss-cross* pattern to the recommended torque (refer to the *TORQUE SETTING TABLE* later in this section).

Engage the adaptor in the cover plate with the drop-tube integral with the filter, reconnect all hoses and tubes to the separator tank cover plate.

Replace the compressor oil (refer to *LUBRICATION* later in this section).

**⚠ CAUTION**

Start the machine (refer to **PRIOR TO STARTING** and **STARTING THE UNIT** in the **OPERATING INSTRUCTIONS** section of this manual) and check for leakage before the machine is put back into service.

**Compressor Oil Cooler and Engine Radiator**

When grease, oil and dirt accumulate on the exterior surfaces of the oil cooler and radiator, the efficiency is impaired. It is recommended that each month the oil cooler and radiator be cleaned by directing a jet of compressed air, (carrying if possible a non-flammable cleaning solvent) over the exterior core of the cooler/radiator. This should remove any accumulation of oil, grease and dirt from the exterior core of the cooler so that the entire cooling area can radiate the heat of the lubricating and cooling oil/water into the air stream.

**⚠ WARNING**

Hot engine coolant and steam can cause injury. When adding coolant or antifreeze solution to the engine radiator, stop the engine at least one minute prior to releasing the radiator filler cap. Using a cloth to protect the hand, slowly release the filler cap, absorbing any released fluid with the cloth. Do not remove the filler cap until all excess fluid is released and the engine cooling system fully depressurized.

**⚠ WARNING**

Follow the instructions provided by the antifreeze supplier when adding or draining the antifreeze solution. It is advisable to wear personal protective equipment to prevent skin and eye contact with the antifreeze solution.

## Air Filter Elements

The air filter should be inspected regularly (refer to the *SERVICE/MAINTENANCE CHART*) and the element replaced when the restriction indicator shows red or every 6 Months (500 hours), whichever comes first. The dust collector box(es) should be cleaned daily (more frequently in dusty operating conditions) and not allowed to become more than half full.

### Removal

#### **⚠ CAUTION**

***Never remove and replace element(s) when the machine is running.***

Clean the exterior of the filter housing and remove the filter element by releasing the nut.

### Inspection

Check for cracks, holes or any other damage to the element by holding it up to a light source, or by passing a lamp inside.

Check the seal at the end of the element and replace if any sign of damage is evident.

### Reassembly

Assemble the new element into the filter housing ensuring that the seal seats properly.

Reset the restriction indicator by depressing the rubber diaphragm.

Assemble the dust collector box parts, ensuring that they are correctly positioned.

Before restarting the machine, check that all clamps are tight.

## Ventilation

Always check that the air inlets and outlets are clear of debris etc.

#### **⚠ CAUTION**

***NEVER clean by blowing air inwards.***

## Cooling Fan Drive

Periodically check that the fan mounting bolts in the fan hub have not loosened. If, for any reason, it becomes necessary to remove the fan or re-tighten the fan mounting bolts, apply a good grade of commercially available thread locking compound to the bolt threads and tighten to the torque value shown in the *TORQUE SETTING TABLE* later in this section.

The fan belt(s) should be checked regularly for wear and correct tensioning.

## Fuel System

The fuel tank should be filled daily or every eight hours. To minimize condensation in the fuel tank(s), it is advisable to top up after the machine is shut down or at the end of each working day. At six month intervals drain any sediment or condensate that may have accumulated in the tank(s).

## Fuel Filter Water Separator

The fuel filter water separator contains a filter element which should be replaced at regular intervals (see the *SERVICE/MAINTENANCE CHART*).

## Charge Air Cooler Pipework

Inspect all hoses and clips on the charge cooler pipe work.

Engine damage will occur if the charge cooling system leaks.

## Hoses

All components of the engine cooling air intake system should be checked periodically to keep the engine at peak efficiency.

At the recommended intervals, (see the *SERVICE/MAINTENANCE CHART*), inspect all of the intake lines to the air filter, and all flexible hoses used for air lines, oil lines and fuel lines.

Periodically inspect all pipe work for cracks, leaks, etc. and replace immediately if damaged.

## Electrical System

### **WARNING**

**Always disconnect the battery cables before performing any maintenance or service.**

Inspect the safety shutdown system switches and the instrument panel relay contacts for evidence of arcing and pitting. Clean where necessary.

Check the mechanical action of the components.

Check the security of electrical terminals on the switches and relays i.e. nuts or screws loose, which may cause local hot spot oxidation.

Inspect the components and wiring for signs of overheating i.e. discolouration, charring of cables, deformation of parts, acrid smells and blistered paint.

## Battery

Keep the battery terminals and cable clamps clean and lightly coated with petroleum jelly to prevent corrosion.

The retaining clamp should be kept tight enough to prevent the battery from moving.

## Pressure System

At 500 hour intervals it is necessary to inspect the external surfaces of the system (from the airend through to the discharge valve(s)) including hoses, tubes, tube fittings and the separator tank, for visible signs of impact damage, excessive corrosion, abrasion, tightness and chafing. Any suspect parts should be replaced before the machine is put back into service.

## Tire Pressure

See the *GENERAL INFORMATION* section of this manual.

## Running Gear/Wheels

Check the wheel nut torque 20 miles (30 kilometres) after refitting the wheels. Refer to the *TORQUE SETTING TABLE* later in this section.

Lifting jacks should only be used under the axle.

The bolts securing the running gear to the chassis should be checked periodically for tightness (refer to the *SERVICE/MAINTENANCE CHART* for frequency) and re-tightened where necessary. Refer to the *TORQUE SETTING TABLE* later in this section.

### CAUTION

*Check the wheel nut torque 20 miles (30 kilometres) after refitting the wheels (Refer to the *TORQUE SETTING TABLE* later in this section).*

## Lubrication

The engine is initially supplied with engine oil sufficient for a nominal period of operation (for more information, consult the Engine section of this manual).

### CAUTION

***Always check the oil levels before a new machine is put into service.***

If, for any reason, the unit has been drained, it must be re-filled with new oil before it is put into operation.

## Engine Lubricating Oil

The engine oil should be changed at the engine manufacturer's recommended intervals. Refer to the Engine Operator's manual.

## Engine Lubricating Oil Specification

Refer to the Engine Operator's manual.

## Engine Oil Filter Element

The engine oil filter element should be changed at the engine manufacturer's recommended intervals. Refer to the Engine Operator's manual.

## Compressor Lubricating Oil

Refer to the *SERVICE/MAINTENANCE CHART* in this section for service intervals.

**NOTE: If the machine has been operating under adverse conditions, or has suffered long shutdown periods, then more frequent service intervals will be required.**

### WARNING

**DO NOT, under any circumstances, remove any drain plugs or the oil filler plug from the compressor lubricating and cooling system without first making sure that the machine is stopped and the system has been completely relieved of all air pressure (refer to *STOPPING THE UNIT* in the *OPERATING INSTRUCTIONS* section of this manual).**

Completely drain the receiver/separator system including the piping and oil cooler by removing the drain plug(s) and collecting the used oil in a suitable container.

Replace the drain plug(s) ensuring that each one is secure.

**NOTE:** If the oil is drained immediately after the machine has been running, then most of the sediment will be in suspension and will therefore drain more readily.

## **⚠ CAUTION**

**Some oil mixtures are incompatible and result in the formation of varnishes, shellacs or lacquers which may be insoluble.**

**NOTE:** Always specify Pro-Tec™ oil for use at all ambient temperatures above -23°C.

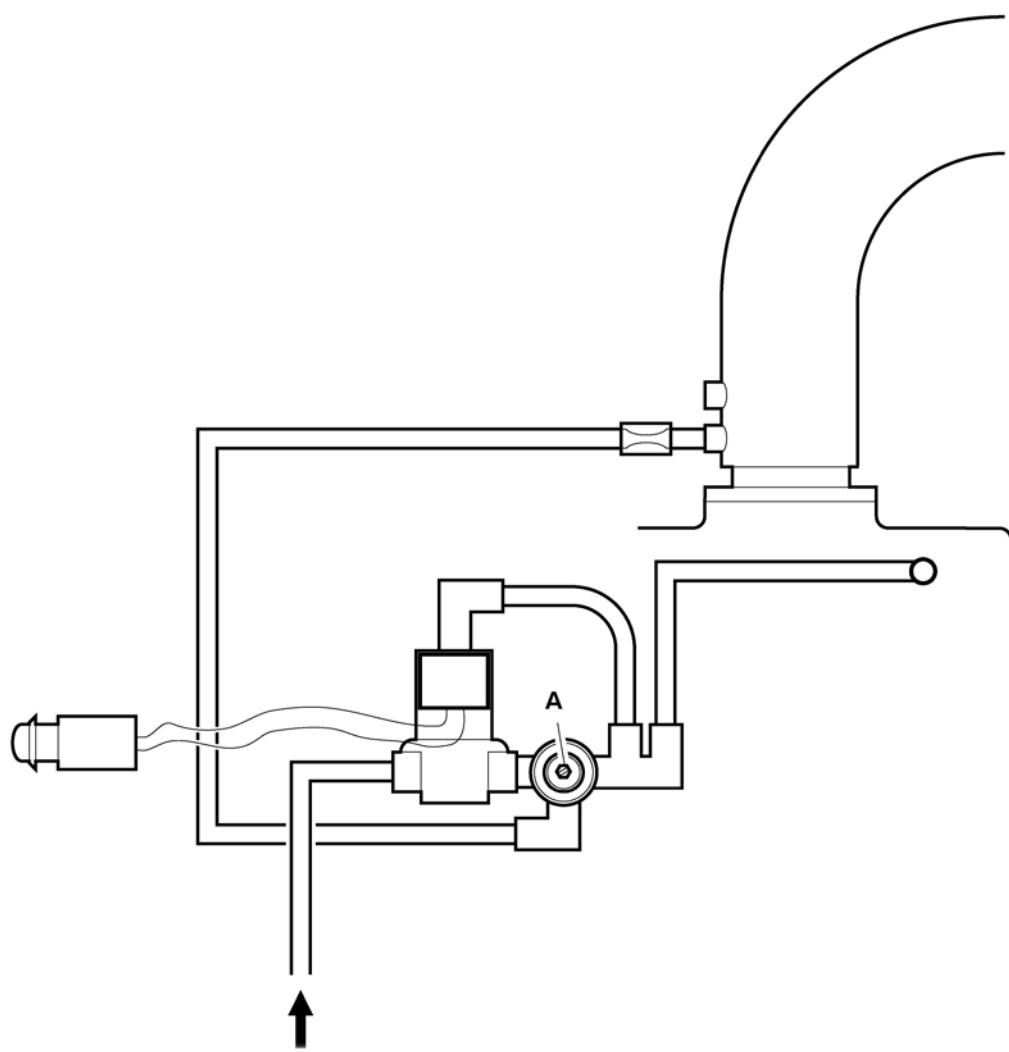
### **Compressor Oil Filter Element**

Refer to the *SERVICE/MAINTENANCE CHART* in this section for service intervals.

### **Running Gear Wheel Bearings**

Wheel bearings should be packed with grease every 6 months. The type of grease used should conform to specification *MIL-G-10924*.

## Speed and Pressure Regulation Adjustment



Normally, regulation requires no adjusting, but if correct adjustment is lost, proceed as follows:

Refer to the diagram above.

### A. Adjusting screw

Start the machine (Refer to *STARTING INSTRUCTIONS* in the *OPERATING INSTRUCTIONS* section of this manual).

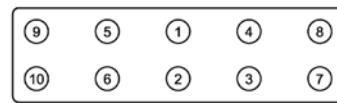
Adjust the service valve on the outside of the machine to maintain rated pressure at full speed. If full speed is not maintained at rated pressure, then turn the adjusting screw clockwise to increase the pressure. Optimum adjustment is achieved when full speed is achieved at rated pressure.

Close the service valve. The engine will slow to idle speed.

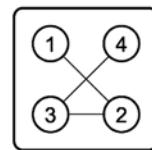
TABLE 1

INCH FASTENERS

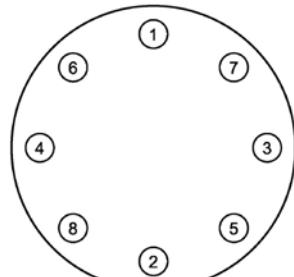
CAPSCREW OR NUT THREAD SIZE AND PITCH	NOMINAL DESIGN TORQUE			
	8AE J249 GRADE 5 (HEAD MARKING)		8AE J249 GRADE 8 (HEAD MARKING)	
	(Nm.)	(FT-LBF)	(Nm.)	(FT-LBF)
1/4 – 20	11	8	16	12
5/16 – 18	24	17	33	25
3/8 – 16	42	31	59	44
7/16 – 14	67	49	95	70
1/2 – 13	102	75	144	106
9/16 – 12	148	109	208	154
5/8 – 11	203	150	287	212
3/4 – 10	361	266	509	376



TYPICAL RECTANGULAR TORQUE PATTERN



TYPICAL SQUARE TORQUE PATTERN

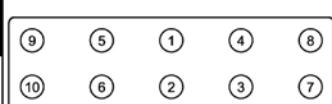


TYPICAL CIRCULAR TORQUE PATTERN

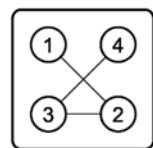
TABLE 2

METRIC FASTENERS

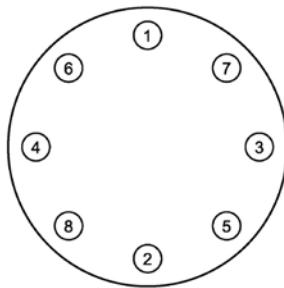
CAPSCREW OR NUT THREAD SIZE AND PITCH	NOMINAL DESIGN TORQUE				
	PROPERTY GRADE 8.8 (HEAD MARKING)		PROPERTY GRADE 10.9 (HEAD MARKING)		PROPERTY GRADE 12.9 (HEAD MARKING)
	(Nm.)	(FT-LBF)	(Nm.)	(FT-LBF)	(Nm.)
M6 X 1.0	11	8	15	11	18
M8 X 1.25	26	19	36	27	43
M10 X 1.5	52	38	72	53	84
M12 X 1.75	91	67	126	93	147
M14 X 2	145	107	200	148	234
M16 X 2	226	166	313	231	365
M20 X 2.5	441	325	610	450	713
					526



TYPICAL RECTANGULAR TORQUE PATTERN



TYPICAL SQUARE TORQUE PATTERN



TYPICAL CIRCULAR TORQUE PATTERN

# **Fault Finding**

## Fault Finding

FAULT	CAUSE	REMEDY
<b>No reaction from instrument panel when key turned to (I) position.</b>	<i>Emergency stop actuated.</i>  <i>Batteries not connected.</i>  <i>Fuse at starter motor 'blown'.</i>	Reset emergency stop button.  Connect batteries.  Replace fuse.
<b>Engine fails to start.</b>	<i>Low battery charge.</i>  <i>Bad earth connection.</i>  <i>Loose connection.</i>  <i>Fuel starvation.</i>  <i>Relay failed.</i>  <i>Faulty stop solenoid</i>	Check the fan belt tension, battery and cable connections.  Check the earth cables, clean as required.  Locate and make the connection good.  Check the fuel level and fuel system components. Replace the fuel filter if necessary.  Replace the relay.  Check the stop solenoid
<b>Engine stops while in service or is reluctant to start.</b>	<i>Low fuel level.</i>  <i>Safety shut-down system in operation.</i>	Fill fuel tank and bleed air from fuel system if necessary. (Refer to MAINTENANCE SECTION).  Check the safety shut-down switches.
<b>Engine starts but stalls when the switch returns to position /</b>	<i>Electrical fault</i>  <i>Low engine oil pressure.</i>  <i>Faulty relay</i>  <i>Faulty key-switch</i>	Test the electrical circuits.  Check the oil level and the oil filter(s).  Check the relays.  Check the key-switch.

FAULT	CAUSE	REMEDY
<b>Engine starts but will not run or engine shuts down prematurely.</b>	<p><i>Electrical fault.</i></p> <p><i>Low engine oil pressure.</i></p> <p><i>Safety shut-down system in operation.</i></p> <p><i>Fuel starvation.</i></p> <p><i>Switch failure.</i></p> <p><i>High compressor oil temperature.</i></p> <p><i>Water present in fuel system.</i></p> <p><i>Faulty relay.</i></p>	<p>Test the electrical circuits.</p> <p>Check the oil level and oil filter(s).</p> <p>Check the safety shut-down switches.</p> <p>Check the fuel level and fuel system components. Replace the fuel filter if necessary.</p> <p>Test the switches.</p> <p>Check the compressor oil level and oil cooler. Check the fan drive.</p> <p>Check the water separator and clean if required.</p> <p>Check the relay in the holder and replace if necessary.</p>
<b>Engine Overheats.</b>	<p><i>Low water level</i></p> <p><i>Blocked radiator.</i></p> <p><i>Reduced cooling air from fan.</i></p> <p><i>Faulty thermostat</i></p>	<p>Check the level and replenish if necessary.</p> <p>Stop the machine and clean the cooling fins with compressed air or steam. Use reduced pressure for cleaning the fins.</p> <p>Check the fan and the drive belts. Check for any obstruction inside the cowl.</p> <p>Check the thermostat and replace if necessary.</p>
<b>Engine speed too low.</b>	<p><i>Blocked fuel filter.</i></p> <p><i>Faulty regulator valve.</i></p> <p><i>Incorrectly set regulation system</i></p> <p><i>Premature unloading.</i></p>	<p>Check and replace if necessary.</p> <p>Check the regulation system.</p> <p>Reset the regulation system. Refer to <b>SPEED AND PRESSURE REGULATION ADJUSTMENT</b> in the <b>MAINTENANCE</b> section of this manual.</p> <p>Check the regulation and the operation of the air cylinder.</p>
<b>Excessive vibration.</b>	<i>Engine speed too low.</i>	See "Engine speed too low"
<b>Leaking oil seal.</b>	<i>Improperly fitted oil seal.</i>	Replace the oil seal.
<b>Refer also to the <i>Engine Manufacturer's Manual</i>.</b>		

FAULT	CAUSE	REMEDY
<b>Air discharge capacity too low.</b>	<p><i>Engine speed too low.</i></p> <p><i>Blocked air cleaner.</i></p> <p><i>High pressure air escaping.</i></p> <p><i>Incorrectly set regulation system.</i></p>	<p>Check the air cylinder and air filter(s).</p> <p>Check the restriction indicators and replace the element(s) if necessary.</p> <p>Check for leaks.</p> <p>Reset the regulation system. Refer to <b>SPEED AND PRESSURE REGULATION ADJUSTMENT</b> in the <b>MAINTENANCE</b> section of this manual.</p>
<b>Compressor overheats.</b>	<p><i>Low oil level.</i></p> <p><i>Dirty or blocked oil cooler.</i></p> <p><i>Incorrect grade of oil.</i></p> <p><i>Defective by-pass valve.</i></p> <p><i>Recirculation of cooling air.</i></p> <p><i>Reduced cooling air from fan.</i></p>	<p>Top up the oil level and check for leaks.</p> <p>Clean the oil cooler fins.</p> <p>Use recommended oil.</p> <p>Check the operation of the element and replace if necessary.</p> <p>Move the machine to avoid recirculation.</p> <p>Check the fan and the drive belts. Check for any obstruction inside the fan cowl.</p>
<b>Excessive oil present in the discharge air.</b>	<p><i>Blocked scavenge line.</i></p> <p><i>Perforated separator element.</i></p> <p><i>Pressure in the system is too low.</i></p>	<p>Check the scavenge line, drop tube and orifice. Clean and replace.</p> <p>Replace the separator element.</p> <p>Check the minimum pressure valve.</p>
<b>Safety valve operates.</b>	<p><i>Operating pressure too high.</i></p> <p><i>Incorrect setting of the regulator.</i></p> <p><i>Faulty regulator.</i></p>	<p>Check the setting and operation of the regulator valve piping.</p> <p>Adjust the regulator.</p> <p>Replace the regulator.</p>
	<p><i>Inlet valve set incorrectly.</i></p> <p><i>Loose pipe/hose connections.</i></p>	<p>Refer to <b>SPEED AND PRESSURE REGULATION ADJUSTMENT</b> in the <b>MAINTENANCE</b> section of this manual.</p> <p>Check all pipe/hose connections.</p>

FAULT	CAUSE	REMEDY
	<i>Faulty safety valve.</i>	Check the relieving pressure. Replace the safety valve if faulty. <b>DO NOT ATTEMPT A REPAIR.</b>
<b>Oil is forced back into the air filter.</b>	<i>Incorrect stopping procedure used</i>	Always employ the correct stopping procedure. Close the discharge valve and allow the machine to run on idle before stopping.
	<i>Faulty inlet valve.</i>	Check for free operation of the inlet valve(s).
<b>Machine goes to full pressure when started.</b>	<i>Faulty load valve.</i>	Replace the valve.
<b>Machine fails to load when the load button is pressed.</b>	<i>Faulty load valve.</i>	Replace the valve.
	<i>Faulty switch.</i>	Test switch.
	<i>Loose pipe/hose connections.</i>	Check all pipe/hose connections.



# Options

## Options - Lubricator

(For units manufactured in North America)

### Safety

#### **WARNING**

Ensure that the lubricator filler cap is re-tightened correctly after replenishing with oil.

#### **WARNING**

Do not replenish the lubricator oil, or service the lubricator without first making sure that the machine is stopped and the system has been completely relieved of all air pressure (Refer to **STOPPING THE UNIT** in the **OPERATING INSTRUCTIONS** section of this manual).

#### **CAUTION**

*If the nylon tubes to the lubricator are disconnected then ensure that each tube is re-connected in its original location.*

### General Information

Oil capacity:

1 QT Option-0.95 Litre (1qt)

2 QT Option-1.9 Litre (2qts)

Oil specification:

Refer to the *Tool Manufacturer's Manual*.

## Operating Instructions

### Commissioning

Check the lubricator oil level and fill as necessary.

### Prior to Starting

Check the lubricator oil level and replenish as necessary.

### Maintenance

Check the lubricator oil level and replenish as necessary.

### Fault Finding

FAULT	CAUSE	REMEDY
<b>No oil flow.</b>	<i>Incorrect connection</i>	Reverse the nylon tube connections to the lubricator.



# **IQ Options**

## IQ System

The IQ System is a complete, self-contained system which provides cooler, cleaner air than from a standard portable compressor. The system utilizes an integral aftercooler, high-efficiency filtration, and a patented condensate disposal system to provide the cool, clean air. The condensate disposal system injects all liquid condensed from the moisture separator and filters into the engine exhaust system where it is vaporized by heat. This eliminates the need for collecting the condensate, and the added cost of disposing of the condensate, which is often regulated by local, state, and/or federal regulations.

The IQ System not to be operated below freezing.

### NOTICE

**Do not operate aftercooler at temperatures less than 2°C (36°F).**

## Theory of Operation

The compressed air exits the separator tank through the top cover piping, and can then travel along one of two paths, selectable via manual valving.

One path allows Standard Operation, which bypasses the IQ System, and delivers air quality equivalent to a standard oil-flooded portable compressor. If the IQ System is enabled by proper setting of the selector valve, the compressed air first enters the aftercooler.

The aftercooler is cooled by the incoming compressor package air. The compressed air and condensate (water with a small amount of compressor oil) exits the aftercooler and enters the moisture separator, where most of the condensate is removed. The compressed air then flows through two stages of filtration, where the aerosol oil is removed down to approximately 0.01 ppm, and all particulates are removed down to 0.01 micron.

At the bottom of the moisture separator and both filters are strainers and constant-bleed orifices, which are sized to allow the maximum flow of condensate while minimizing compressed air loss.

The condensate lines are then piped together, and the condensate is injected at a single point into the engine exhaust piping. The compressed air then travels through the check valve, and out through the service air valve. The air pressure gauge on the instrument panel indicates the pressure inside the separator tank.

If the IQ System is bypassed (Standard Operation selected), the delivered air pressure will be approximately equal to the separator tank pressure. If the IQ System operation is selected, the delivered air pressure will be slightly less, depending on the restriction of the filters.

**⚠ CAUTION**

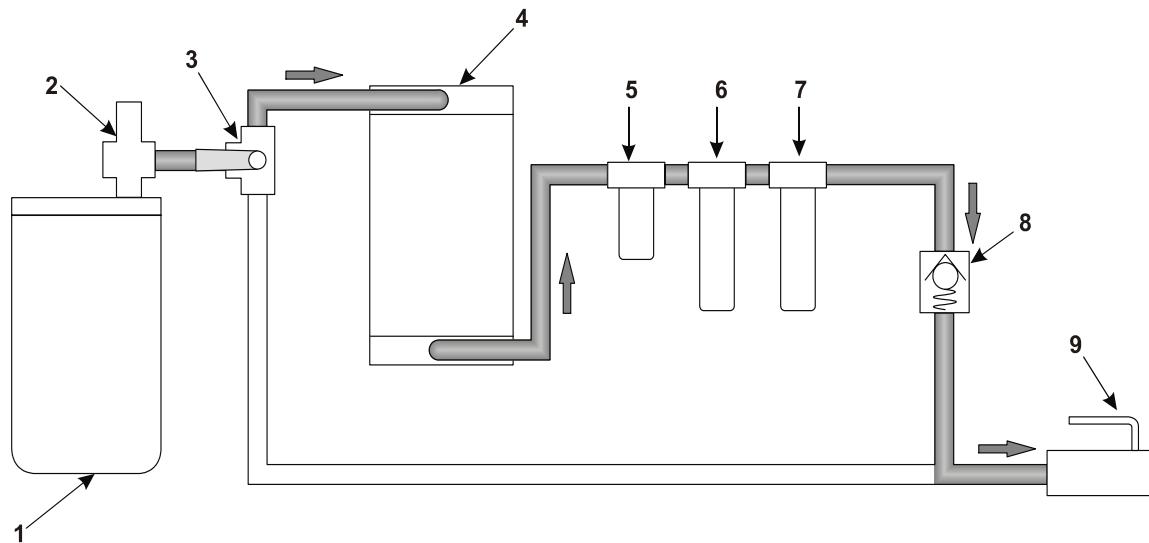
The compressor regulation system is adjusted to maintain regulated pressure at the separator tank. DO NOT adjust regulation to provide full rated pressure at the service valve when the IQ System is enabled. This will result in operation at excessive horsepower levels, causing overheating, reduced engine life, and reduced airend life.

**NOTICE**

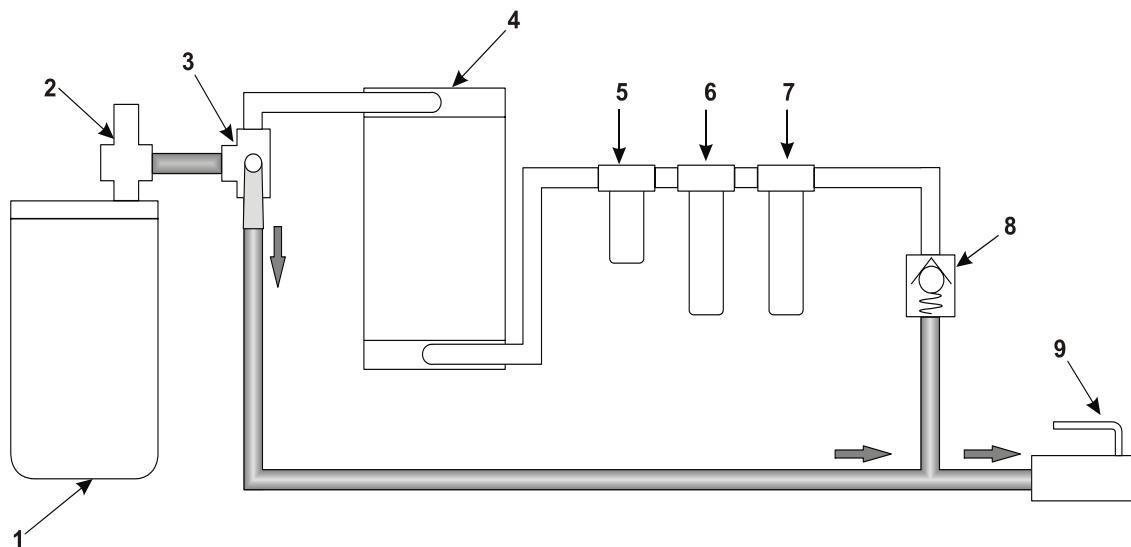
Keep all doors and panels closed during operation to direct proper flow of cooling air across the aftercooler and maintain aftercooling performance.

## IQ System Configuration

IQ System Active



Standard Operation (IQ System Bypassed)



(1) Separator Tank	(6) Primary IQ Filter
(2) Minimum Pressure Valve	(7) Secondary IQ Filter
(3) 3 Way Selector Valve	(8) Check Valve
(4) Aftercooler	(9) Service Valve
(5) Water Separator	

## Maintenance

### Daily Maintenance

Verify, during full-load (maximum compressed air delivery) operation, that the IQ System filter restriction is not excessive. Filter restriction can be checked at the control panel. The compressor will shutdown if restriction exceeds recommended values.

## ⚠ CAUTION

**Excessively restricted filter elements may cause an increase in the amount of aerosol water and oil carryover, which could result in damage to downstream equipment. Normal service intervals should not be exceeded.**

### Weekly Maintenance

- Remove Y-strainer screens at the bottom of the moisture separator and both filters and clean out any residue.
- Verify that the orifices below the Y-strainers are not clogged.
- Verify that the piping from the orifice purge points to the exhaust system is not clogged.

## ⚠ CAUTION

**Blockage of the Y-strainers, orifices or piping can result in flooding of the vessels with condensate. If flooding occurs, excessive condensate may enter the airstream and could result in damage to downstream equipment.**

### Yearly Maintenance

The normal maintenance interval on the primary and secondary IQ System filter elements is one year, or earlier if pressure drop becomes excessive. High filter restriction will shut down the compressor if restriction exceeds recommended values.

## ⚠ CAUTION

**Excessively restricted filter elements may cause an increase in the amount of aerosol water and oil carryover, which could result in damage to downstream equipment. Normal service intervals should not be exceeded.**

## Filter Replacement

- With engine stopped, ensure pressure is relieved from air system.
- Disconnect drains on the bottom of each filter housing. Inspect fittings and hoses for any blockage. Clean if necessary.
- Using a chain wrench or similar tool, loosen the housing. The housing should be removed by hand after loosening, taking care to prevent the housing from falling.
- Remove and replace the filter element, being careful not to damage outer wrap.

**Verify the part number and positions of new element vs. old element, as the two IQ filter stages are of different media.**

- Put a small amount of petroleum jelly or other non-synthetic grease on the element O-Ring to aid installation into the filter head.
- Replace housing, making sure to not overtighten.
- Repeat the above procedure on the remaining filter element.
- Reconnect drains on the bottom of each filter housing.

## Dual Pressure Regulation Control

The compressor can optionally be fitted with a dual pressure control valve. This valve selects between 100 psi and the rated operating pressure. Flow remains nominally constant.

Starting and stopping are unaffected by the selection. During normal running, the selector valve may be safely operated. Precaution must be taken to ensure that downstream equipment is rated to suit the available pressure.

## Revision History



Doosan Infracore Portable Power  
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**Doosan Infracore**  
Portable Power