

OPERATION, MAINTENANCE, MANUAL



Doosan Infracore
Portable Power

P185WJD-T4I (D75)

COMPRESSOR MODEL



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.

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TABLE OF CONTENTS
Manual-Name

TITLE	PAGE
FOREWORD	1-3
Foreword	1-4
DRAWBAR NOTICE	2-7
SAFETY	1-11
Safety Precautions	1-12
NOISE EMISSION	2-21
Noise Emission	2-22
This section pertains only to machines distributed within the United States.....	2-22
Noise Emission Warranty	2-23
Introduction	2-23
GENERAL DATA	4-27
General Data	4-28
Unit Model:	4-28
FLUID CAPACITIES	4-28
RUNNING GEAR	4-28
UNITS MEASUREMENTS WEIGHTS	4-28
EXPENDABLE SERVICE PARTS	4-29
OPERATION	5-31
BEFORE TOWING	5-32
TOWING	5-33
CONTROL PANEL	5-33

TABLE OF CONTENTS
Manual-Name

TITLE	PAGE
MAINTENANCE	6-39
Maintenance	6-40
General	6-40
Scheduled Maintenance	6-40
Compressor Oil Level	6-40
Air Cleaner	6-41
Gauges	6-41
Fuel Tank	6-41
Battery	6-41
Fasteners	6-42
Radiator	6-42
Hoses	6-42
Compressor Oil Cooler	6-44
Compressor Oil	6-44
Receiver-Separator Systems	6-45
Scavenge Line	6-46
Exterior Finish Care	6-46
MAINTENANCE SCHEDULE	6-48
LUBRICATION	7-49
Lubrication	7-50
Portable Compressor Fluid Chart	7-50
TROUBLESHOOTING	8-51
Troubleshooting	8-52
Introduction	8-52
Action Plan	8-52
Trouble Shooting Chart	8-53



Foreword

Foreword

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 machine maximum allowable working pressure.
- compatible with the compressor lubricant/coolant.
- 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 machine 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 machine 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 machine should not be used:

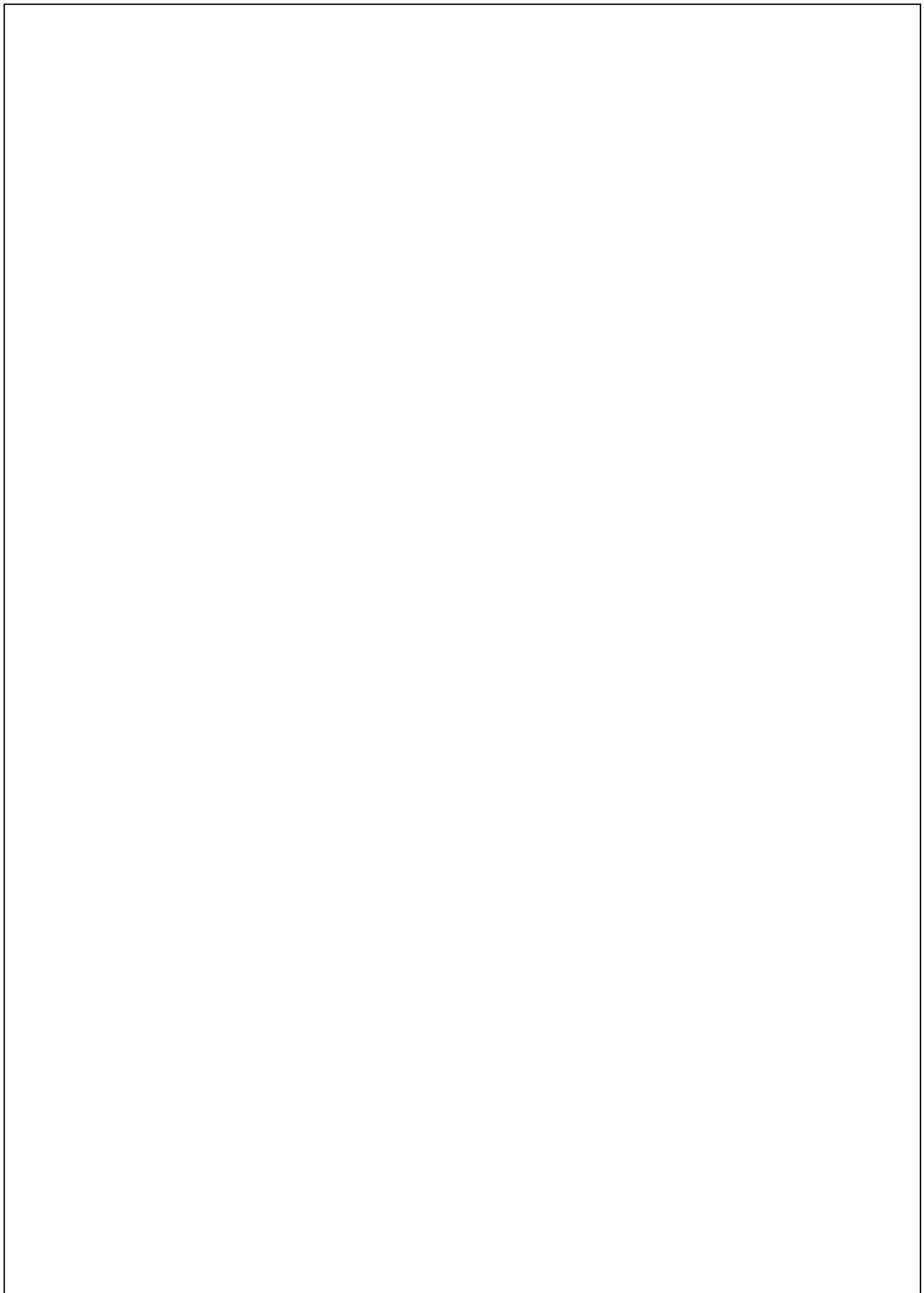
- A. For direct or indirect human consumption of the compressed air.
- B. Outside the ambient temperature range specified in the general data section of this manual.
- C. When an actual or foreseeable risk of hazardous levels of flammable gases or vapors exists.
- D. With other than Portable Power approved 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 machine. 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 machine.

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 machine. 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.





DRAWBAR NOTICE

DRAWBAR NOTICE (Important)

This machine may have been shipped from the factory with the drawbar positioned upright.

To Convert From Shipping Position to Towing Position

The following tools are required:

- Ratchet
- 13mm socket to fit ratchet
- Torque wrench set to 68 foot pounds (9.4 kg-meters)

- 16mm socket to fit torque wrench
- 5 inch extension for torque wrench

Hardware Included:

- (4) 12mm bolts with pre-applied thread lock
- (2) 8mm Taptite Bolts
- (2) Washers
- (2) Safety Chains

1. Remove hardware box from compressor toolbox.

2. Open box and remove the bag containing hardware, safety chains and assembly instructions.

3. Using the jack, raise the front of the unit so that the legs are approximately 1" above the ground.

4. Remove the temporary retaining bolts from both sides of the frame at the drawbar connection (See Figure 1).

5. Carefully lower drawbar to the Level Position.

6. Install the four bolts (with pre-applied thread lock) to the four points inside the enclosure and torque to 68 ft. lbs.(9.4kg-m) (See Figure 2).

7. Install safety chains by sliding the second link of one chain into the slot in drawbar plate. Fasten chain to plate using taptite and washer. Repeat for the other chain (See

Sketch).

8. Temporarily support drawbar and move jack from front of compressor to side of drawbar.

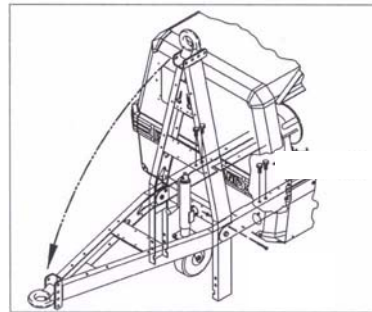


Figure 1
Drawbar Position

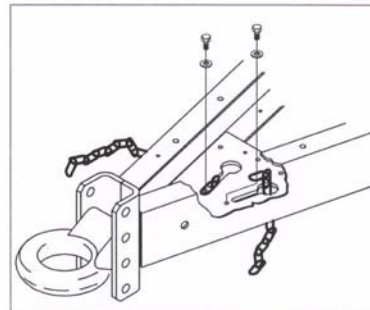
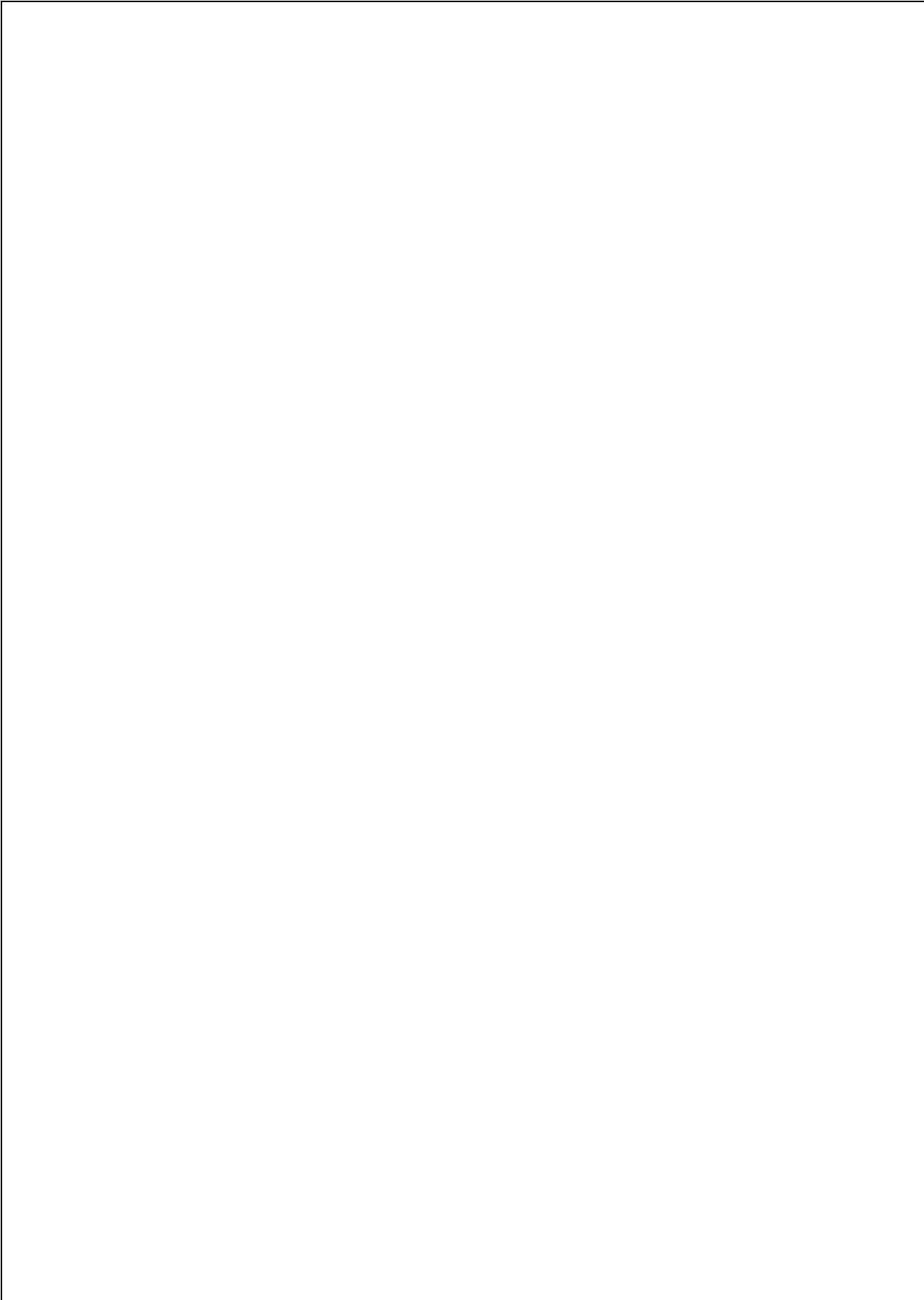
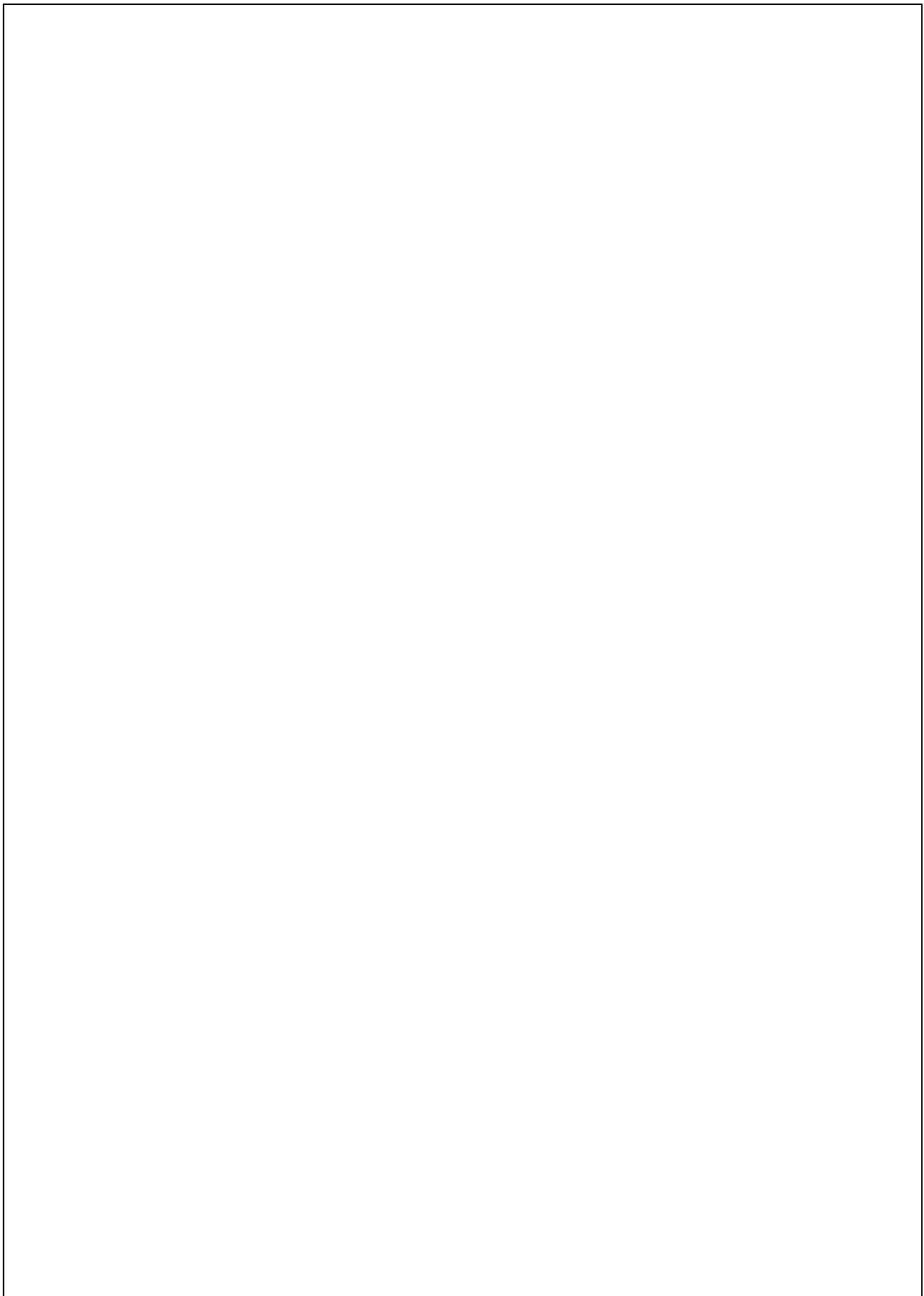


Figure 2
Safety Chain Attachment







Safety

Safety Precautions

General

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

Ensure that the Operation and Maintenance manual, and manual holder if equipped, are not removed permanently from the machine.

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 machine is such that the machine 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 machine 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.

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

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.

Ensure that the machine 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 machine must have safe working pressure ratings of at least the machine safety valve rating.

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 or over pressurized by another.

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

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.

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

Never operate the engine of this machine inside a building without adequate ventilation. Avoid breathing exhaust fumes when working on or near the machine. Do not alter or modify this machine.

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.

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 unit, always disconnect cables in reverse order.

High Pressure 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.

This machine produces loud noise with 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 unit without first disconnecting battery cable(s) to prevent accidental starting.

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

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 unit with compressed air to prevent debris from injuring eye(s).

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).

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

flammable gas. USE SPARINGLY! DO NOT use ETHER if unit has GLOW Plug starting aid. Engine damage will result.

Never allow the unit to sit stopped with the pressure in receiver-separator system. As a precaution, open manual blowdown valve.

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

Make sure wheels, tires and tow bar connectors are in safe operating condition and tow bar is properly connected before towing.

Steps for determining correct load limit -

1. Locate the statement "The weight of cargo should never exceed xxx kg or xxx lbs" on your vehicle's placard.
 2. This figure equals the available amount of cargo and luggage load capacity.
1. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo.

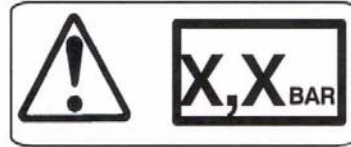
Whenever the machine is stopped, air will flow back into the compressor system from devices or systems downstream of the machine unless the service valve is closed. Install a check valve at the machine service valve to prevent reverse flow in the event of an unexpected shutdown when the service valve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

Hazardous Substance Precaution

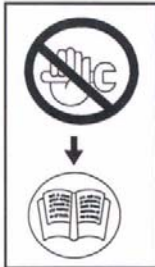
The following substances are used in the manufacture of this machine and may be hazardous to health if used incorrectly. Avoid ingestion, skin contact and breathing fumes for the following substances: Antifreeze, Compressor Oil, Engine Lubricating Oil, Preservative Grease, Rust Preventative, Diesel Fuel and Battery Electrolyte.



Read the Operation and Maintenance manual before operation or maintenance of this machine is undertaken.



WARNING - Maintain correct tire pressure.
(Refer to the *GENERAL INFORMATION* section of this manual).



WARNING: Consult the operation and maintenance manual before performing any maintenance.

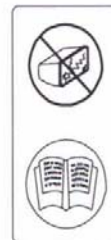


**Rough Service Designation
Wet Location Operation**



Do not stack

Do not use fork lift truck from this side



Replace any cracked protective shield.



Do not operate with the doors or enclosure open.



On (power).



Off (power).



Emergency stop.

WARNING - Before connecting the tow bar or when preparing to tow, consult the operation and maintenance manual.



Corrosion risk



Hot Surface



Lifting point



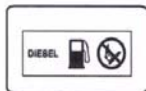
WARNING: Electrical shock risk.



Parking Brake



No open flame



Diesel Fuel.
No open flame.



Do not operate the machine
without guard being fitted.



Lifting point



WARNING - Flammable liquid.



When parking use prop stand,
handbrake and wheel chocks.



Air/gas flow or Air discharge.



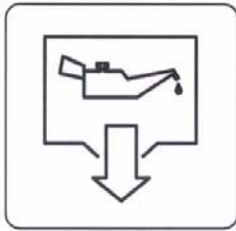
WARNING - Hot and harmful exhaust gas.



Tie down point



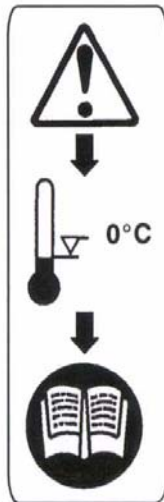
Do not breathe the compressed
air from this machine.



Oil Drain



Do not exceed the speed limit.



WARNING - For operating temperature below 0°C, consult the operation and maintenance manual.



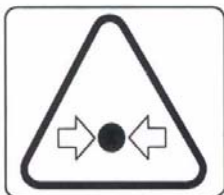
WARNING - Do not undertake any maintenance on this machine until the electrical supply is disconnected and the air pressure is totally relieved.



Read the Operation and Maintenance manual before operation or maintenance of this machine is undertaken



Do not remove the Operating and Maintenance manual and manual holder from this machine.



Pressurized vessel.



Use fork lift truck from this side only.



Pressurized component or system.

Look for these signs on machines shipped to markets 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.



DANGER (Red Background) indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING (Orange Background) indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION (Yellow Background) indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



NOTICE (Blue Background) indicates important set-up, operating or maintenance information.



⚠ DANGER



Discharged air can contain carbon monoxide or other contaminants.
Will cause serious injury or death.
Do not breathe this air.




⚠ WARNING

Hot pressurized fluid.
Can cause serious burns.



Do not open radiator while hot.



⚠ WARNING

Disconnected air hoses whip.
Can cause serious injury or death.



When using air tools attach safety device (OSHA Valve) at source of air supply for each tool.



⚠ WARNING

High pressure air.
Can cause serious injury or death.



Relieve pressure before removing filler plugs/caps, fittings or covers.



⚠ WARNING

Combustible gas.
Can cause serious burns, blindness or death.



Keep sparks and open flames away from batteries.



⚠ WARNING

Door under pressure.
Can cause serious injury.



Use both hands to open door when machine is running.











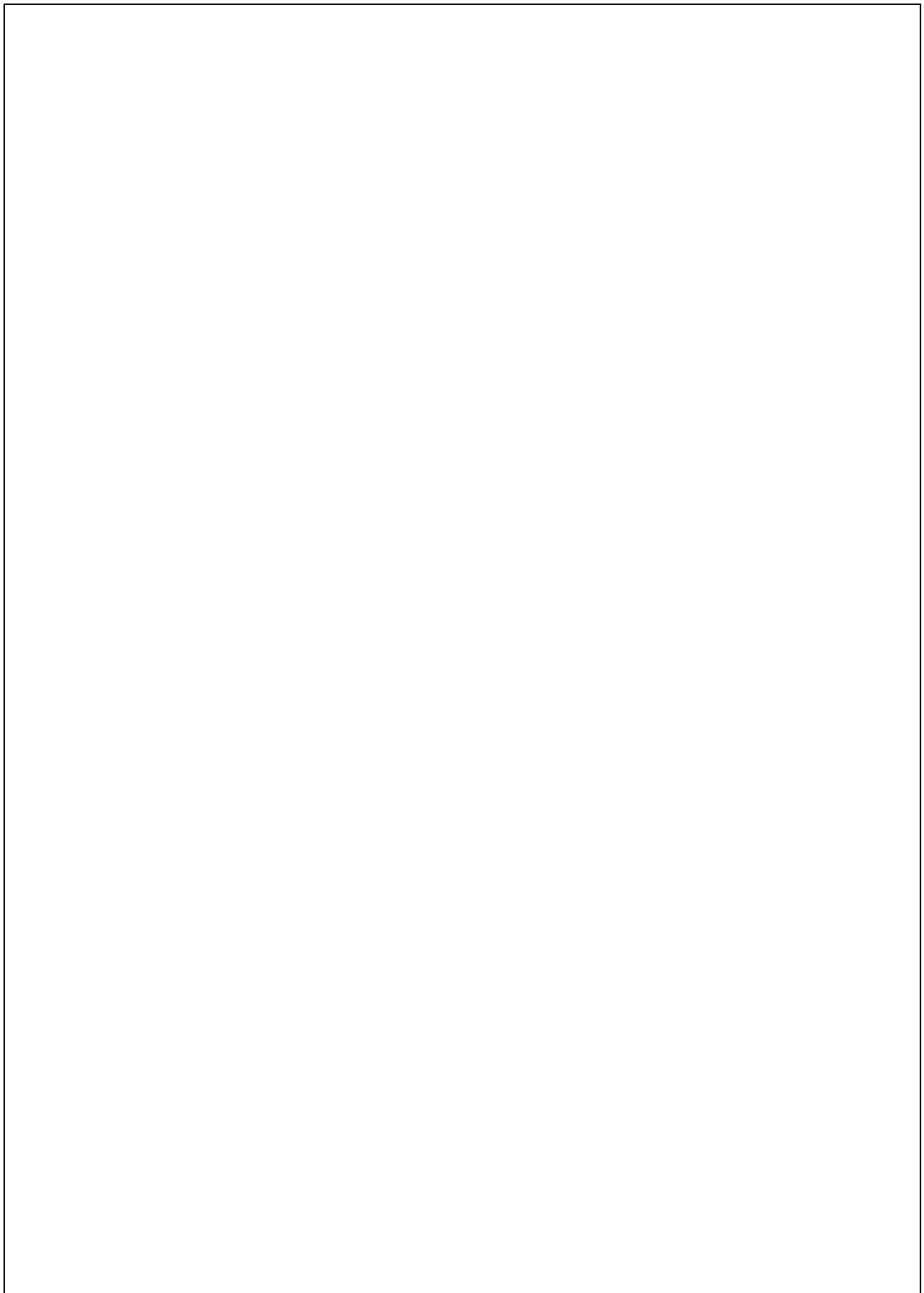
 <p>WARNING</p> <p>Improper operation of this equipment. Can cause serious injury or death. Read Operator's Manual supplied with this machine before operation or servicing.</p> <p>Modification or alteration of this machine. Can cause serious injury or death. Do not alter or modify this machine without the express written consent of the manufacturer.</p>	 <p>WARNING</p> <p>Falling off machine. Can cause serious injury or death.</p>  <p>Access lifting bail from inside machine.</p>
 <p>WARNING</p> <p>Collapsing jackstand. Can cause serious injury. Insert locking pin completely.</p>  <p>Excessive towing speed. Can cause serious injury or death. Do NOT exceed 65 mph (105 km/hr.)</p> 	 <p>WARNING</p> <p>Rotating fan blade. Can cause serious injury.</p>  <p>Do not operate without guard in place.</p>
 <p>WARNING</p> <p>High pressure air. Can cause serious injury or death.</p>  <p>Relieve pressure before removing filler plugs/caps, fittings or covers.</p>	

Table 1:

<p align="center">FREE SAFETY DECALS</p>
<p>Safety Decals are available free of charge. Safety Decals are identified by the decal heading: DANGER, WARNING, or CAUTION.</p>
<p>Decal part numbers are on the bottom of each decal and are also listed in the compressor's parts manual. Submit orders for Safety Decals to the Portable Power Parts Service Department. The no charge order should contain only Safety Decals. Help promote safety! Assure that decals are present on the machines. Replace decals that are not readable.</p>





Noise Emission

Noise Emission

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



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:

3. 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
4. Removal of any of the following:
 - a.fan shroud
 - b.vibration mounts
 - c.sound absorption material
5. 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 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 units 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.

Noise Emission Control Maintenance Log

<p>COMPRESSOR MODEL _____</p> <p>SERIAL NO. _____</p> <p>USER UNIT NO. _____</p>

<p>UNIT IDENTIFICATION</p> <p>Engine Make & Model: _____</p> <p>Serial No.: _____</p> <p>Purchaser or Owner: _____</p> <p>Address: _____</p>	<p>DEALER OR DISTRIBUTOR FROM WHOM PURCHASED:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Date Purchased: _____</p>
---	--

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 the air compressor.

Introduction

The unit 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 unit 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 Ingersoll-Rand Company and Engine Manufacturer's Operator and Maintenance Manuals.

Maintenance Record For Noise Emission Control And Extended Warranty					
Item No.	Description Of Work	Hourmeter Reading	Maint/inspect Date	Location City/state	Work Done By (Name)





GENERAL DATA

General Data

Unit Model:

UNIT MODEL	P185WJD
Air Delivery CFM (litres/sec)	185 (87)
Engine Speed - RPM (Full Load)	2600
Engine Speed - RPM (No Load)	1500
COMPRESSOR	
Rated Operating Pressure - psi (kPa)	100 psi (689)
Safety Valve Setting - psi (kPa)	200 psi (1379)
Net Weight (less fuel) pounds	2134
ENGINE (Diesel)	
Manufacturer	John Deere
Model	4024T
Electrical System	12VDC

FLUID CAPACITIES

Compressor Lubricant..... 12 quarts (11.4 litres)
 Engine Crankcase Lubricant 7 quarts (6.6 litres)
 Fuel Tank 27 U.S gal. (103 litres)

RUNNING GEAR

Tire Size..... P215.75RX15
 Inflation Pressure (Cold) 35 psi
 Towing Speed (Maximum) 65 mph (105 km/hr)

UNITS MEASUREMENTS WEIGHTS

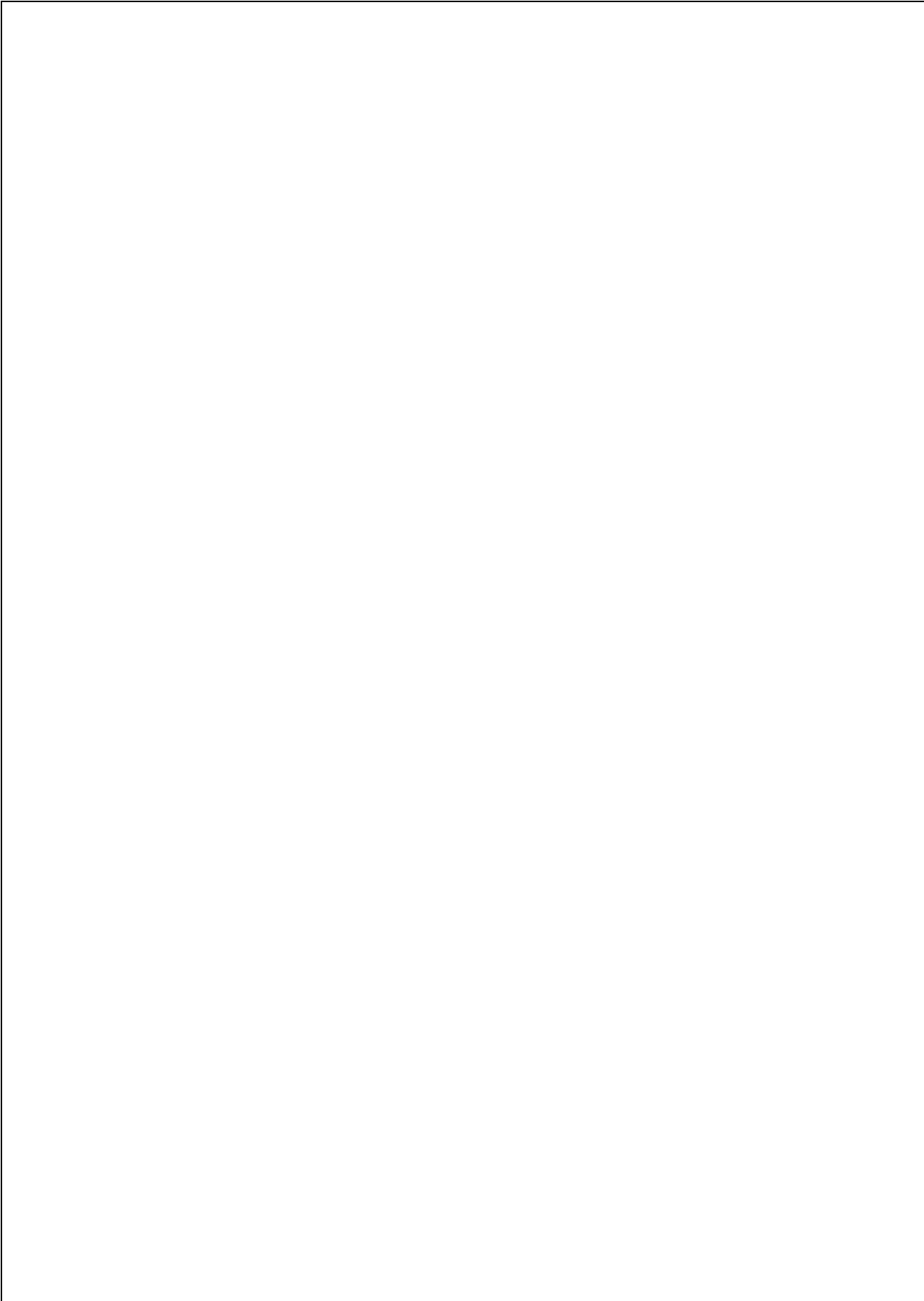
Overall Length..... 11.5 (3.5 meters)
 Overall Height 5.2 feet (1.56 meters)
 Overall Width 5.7 feet (1.74 meters)
 Track Width..... 4.9 feet (1.49 meters)
 Weight (with fuel) 2360 pounds
 Weight (less fuel) 2134 pounds

EXPENDABLE SERVICE PARTS

Description	P185WJD Part No.
Compressor Oil Filter Element	23279078
Compressor Oil Separator Element	22436331
Air Cleaner Element (Compressor)	35393685
Air Cleaner Element (Engine)	35393685
Air Cleaner Element (Compressor) Secondary (Optional)	35393651
Air Cleaner Element (Engine) Secondary (Optional)	35393651
Engine Fuel Filter	22556138
Engine Oil Filter	22545867
PRO-TEC [®] Engine Fluid (1 gal)	54480918
PRO-TEC [®] Compressor Fluid (1 gal)	36899698



Modification or alteration of this machine. Can result in severe injury or death. Do not modify or alter without the express written consent of Doosan Infracore Portable Power.





OPERATION

BEFORE TOWING

WARNING

Failure to follow these instructions CAN cause severe injury or death.

- Assure tow vehicle has towing capacity for weight of this unit as stated on general data decal.
- Position the tow vehicle to align its hitch with the pintle eye or coupler of the compressor.
- Engage the parking brake and chock the tires of the tow vehicle.
- Stand to the side and ensure pin is FULLY inserted (secure) in tube of jack.
- Crank jack to seat pintle eye or coupler onto hitch. Latch and lock hitch. Cross safety chain(s) under drawbar. Attach to vehicle.
- Crank jack to raise pad off the ground. Pull pin from tube of jack.
- Fold jack handle down and forward. Swing up jack tube and FULLY insert pin in tube.
- Remove tire chocks.
- Test brakes, if so equipped.
- Test lights (running, stop, and turn signals).

WARNING

Always raise (or remove) jack for maximum ground clearance before towing.

SETTING UP (ALL UNITS)

Position as level as possible. The design of these units permits a 15 degree sidewise limit on out-of-level operation.

When the unit is to be operated out-of-level, it is important:

1. To keep the engine crankcase oil level near the high level mark (with the unit level).
2. To have the compressor oil level gauge show no more than mid-scale. Do not overfill either the engine crankcase or the compressor lubricating oil system.
3. The side doors must be closed to maintain a cooling air path and to avoid recirculation hot air.

TOWING

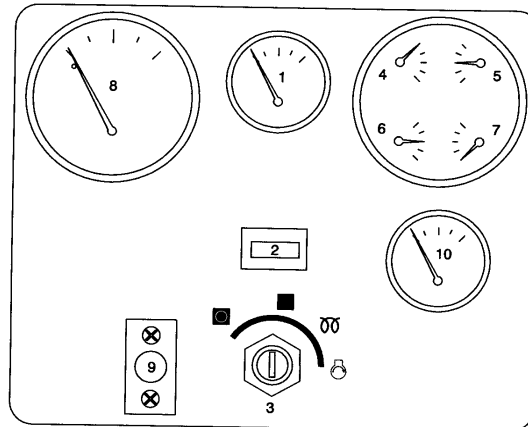
DISCONNECT

- Engage tow vehicle parking brake.
- Chock tires of compressor.
- Set the vehicle parking brake. Chock wheels of unit.
- Standing to the side, remove pin from tube of jack.
- Disconnect safety chains. Crank jack to raise eye or coupler from hitch. Tow vehicle can be moved.

UTILITY PACKAGE SET-UP (no running gear)

This unit must be located on vehicle bed to allow access for normal servicing and maintenance. The air going into the inlet must be relatively free of oil, dirt, soot and other debris. It must be no more than 10°F. (5°C) over the ambient temperature.

CONTROL PANEL



1. **Discharge Air Pressure Gauge** - Indicates pressure in receiver tank, normally from 0 psi (kPa) to the rated pressure of the machine.
2. **Hourmeter** - Indicates machine operating hours.
3. **Main Ignition Switch** - ON/OFF Start Switch.
4. **Compressor Oil Temperature Gauge** - Optional
5. **Engine Oil Pressure Gauge** - Optional
6. **Engine Coolant Temperature Gauge** - Optional
7. **Battery Voltage Gauge**
8. **Engine Tachometer** - Indicates engine speed in RPM from 0 when stopped to full speed. (Optional)
9. **Service Air Button** - Push to engage. Allows user to load compressor after engine warm-up.
10. **Fuel Level Gauge** - Optional

Before Starting

- Open service valve(s) to ensure pressure is relieved in receiver-separator system.
- Close valve(s) in order to build up full air pressure and ensure proper oil circulation.
- Check battery for proper connections and condition.
- Check engine coolant level.

 **WARNING**

Do not remove pressure cap from a HOT radiator. Allow radiator to cool down before removing pressure cap. Use extreme care when removing a pressure cap from a liquid cooling system for the engine. The sudden release of pressure from a heated cooling system can result in a loss of coolant and possible severe personal injury.

- Check the engine oil level. Maintain per marks on dipstick.
- Check the fuel level. Add only CLEAN low or ultra low sulfur diesel fuel for maximum service from the engine.
- Check the compressor lubricating fluid level between bottom and midway of the sight glass on the separator tank.

 **WARNING**

This machine produces loud noise with doors open. Extended exposure to loud noise can cause hearing loss. Wear hearing protection when doors or valve (s) are open.

- Close all doors to maintain a cooling air path and to avoid recirculation of hot air. This will maximize the life of the engine and compressor and protect the hearing of surrounding personnel.
- Be sure no one is IN or ON the compressor unit.

 **WARNING**

Unrestricted air flow from a hose will result in a whipping motion of the hose which can cause severe injury or death. A safety device must be attached to the hose at the source of supply to reduce pressure in case of hose failure or other sudden pressure release. Reference: OSHA regulation 29 CFR Section 1926.302 (b).

Starting

- Turn the POWER switch to “ON”.
- Turn Power switch to “START” position to crank engine. Hold switch in “START” position for approximately 5 seconds after engine starts.

NOTICE

Do not operate the starter motor for more than 30 seconds without allowing at least 30 seconds cooling time between start attempts.

Release Power Switch (it will automatically move to the “ON” position) when the engine starts and sustains running.

- Allow engine to warm up 5 to 10 minutes.
- Press the “Service Air Button”. Open air service valve(s).

Cold Weather Starting

- Turn power switch to the glow plug position and hold 10 seconds. Then turn to start.

NOTICE

Exercise extreme caution when using a booster battery to start. To jump start: Connect the ends of one booster cable to the positive (+) terminals of each battery. Then connect one end of the other cable to the negative (-) terminal of the booster battery and the other end to the engine block. Not to the negative (-) terminal of the weak battery.

NOTICE

Do NOT use ETHER !

Stopping

NOTICE

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

Close air service valves.

- Allow the unit to run at idle for 3 to 5 minutes to reduce the engine temperatures.
- Turn Power Switch to “OFF” position.
- When the engine stops, automatic blowdown valve should relieve system air pressure. If automatic blow-down valve malfunction is suspected, open manual blowdown valve.
- Never allow unit to sit under pressure when engine is not running.

WARNING

Since the service valve is closed, air downstream of the valve may be trapped. A vent hole in the service valve will slowly bleed air from the hose. Do not disconnect hoses until all pressure has been vented.

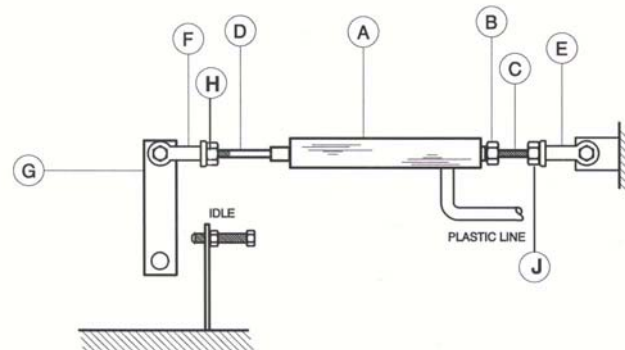
NOTICE

Do not wire around or bypass a shutdown sensor or switch.

Machine has shutdown switches as follows:

- Low Engine Oil Pressure
- High Engine Coolant Temperature
- High Airend Discharge Temperature
- High Separator Temperature
- Low Fuel Level (Optional)

Speed and Pressure Regulator Adjusting Instructions



Before Starting

1. On the Pressure Regulator, loosen the jam nut and turn screw counterclockwise until tension is no longer felt at the screw. Then, turn screw clockwise one full turn.
2. Close service valve(s).
3. Inspect throttle arm (G) on engine governor to see the arm is resting against the governor stop. Loosen jam nut on air actuating cylinder (A) and then turn cylinder rod (D) until throttle arm (G) is forced against the governor stop.

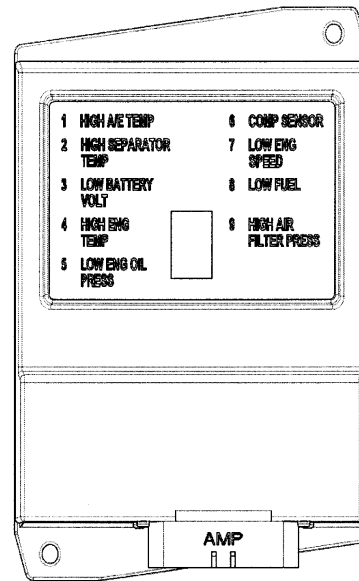
After Starting Unit

4. If equipped, push the SERVICE AIR button on the control panel, making certain the button does not pop back out. The unit should speed up and then unload (and drop back to IDLE). With the unit unloaded, turn the adjusting screw on the pressure regulator clockwise until the discharge pressure gauge indicates 125-130 psi. Tighten the pressure regulator jam nut.
5. With the service valve closed, adjust IDLE speed (*). Adjust speed using adjusting rod (D). Tighten jam nut (H).
6. Open the service valve and adjust the discharge pressure to 100 psi (700 kPa). Now turn adjusting rod (C) until the proper engine FULL speed setting (*) is reached. Tighten jam nuts (B & J).
7. To obtain maximum CFM at any pressure between 80 psi (550kPa) and maximum pressure rating (*), make adjustment at the pressure regulator to obtain desired discharge pressure at FULL engine speed. Lock adjusting screw and replace cover.

* See General Data Specifications.

Compressor Diagnostic Display Codes Small Electronic Control Unit (SECU)

During SECU Controller power-up, the number 8 flashes to check the display operation. Next, the display will step through the 3 digit software revision number.



-	Center Bar Blinking	Compressor is ready to start (no faults)
A	Engine Model Not Recognized	Compressor will start and operate with a 1700-2300 rpm range.
C	Engine ECM Communication Failure	SECU cannot communicate with engine ECM over J1939 CAN BUSS.
H	Pre-Heat Signal or Start Signal Detected	Displayed while ignition switch is in the pre-heat or start position.
E	Generator Switch "ON"	Switch must be turned off to start the machine.
1	High A/E Temp	SHUTDOWN condition due to high airend discharge temperature (248°F/120°C).
2	High Separator Temp	SHUTDOWN condition due to high separator tank temperature (248°F/120°C).
3	Low Battery Voltage	ALERT condition indicating battery or charging system needs service. (<11.6 VDC).
4	High Eng Temp	SHUTDOWN condition due to high engine coolant temperature (248°F/120°C).
5	Low Eng Oil Press	SHUTDOWN condition due to low engine oil pressure. (12 psi/0.83 bar).
6	Comp Sensor	SHUTDOWN condition due to PS1 pressure sensor failure. Machine will not start.
7	Low Eng Speed	SHUTDOWN condition due to low engine speed. (Idle speed <200 rpm).
8	Low Fuel	SHUTDOWN condition due to low fuel level. (Optional)
9	High Air Filter Press	ALERT condition indicating engine/compressor air inlet filters need service (20 in. of H ₂ O/508 mm of H ₂ O). (Optional)



MAINTENANCE

Maintenance

CAUTION

Any unauthorized modification or failure to maintain this equipment may make it unsafe and out of factory warranty.

If performing more than visual inspections, disconnect battery cables and open manual blowdown valve.

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

Never operate this machine with any guards removed.

Inch and metric hardware was used in the design and assembly of this unit. Consult the parts manual for clarification of usage.

NOTICE

Disregard any maintenance pertaining to components not provided on your machine.

General

In addition to periodic inspections, many of the components in these units require periodic servicing to provide maximum output and performance. Servicing may consist of pre-operation and post-operation procedures to be performed by the operating or maintenance personnel. The primary function of preventive maintenance is to prevent failure, and consequently, the need for repair. Preventive maintenance is the easiest and the least expensive type of maintenance. Maintaining your unit and keeping it clean at all times will facilitate servicing.

Scheduled Maintenance

The maintenance schedule is based on normal operation of the unit. This page can be reproduced and used as a checklist by the service personnel. In the event unusual environmental operating conditions exist, the schedule should be adjusted accordingly.

Compressor Oil Level

Check the compressor fluid level when the machine is not operating. Always check the oil level while the unit is level, the engine off, and there is zero pressure in the separator tank. Maintain the fluid level between bottom and midway of the sight glass on the separator tank.

Air Cleaner

If this unit is equipped with the Optional Full Instrumentation, the SECU Module, located inside front panel near instrument panel, will Display #9 when either engine or compressor air filter is restricted.

Weekly squeeze the rubber valve (precleaner dirt dump) on each air cleaner housing to ensure that they are not clogged.

The air filters restricted sensor will automatically reset after the main power switch is turned to "OFF."

To service the air cleaners on all units proceed as follows:

1. Loosen the 3 latches on the sides of the air cleaner cover.
2. Remove air cleaner body.
3. Pull out air cleaner element.
4. Pull out safety element if installed.
5. Install new filters in air cleaner body.
6. Re-install cover on air cleaner body.
7. Close the 3 latches after securing to air cleaner body.

In addition, the air cleaner system (housing and piping) should be inspected every month for any leakage paths or inlet obstructions. Make sure the air cleaner mounting bolts and clamps are tight. Check the air cleaner housing for dents or damage which could lead to a leak. Inspect the air transfer tubing from the air cleaner to the compressor and the engine for leaks.

Make sure that all clamps and flange joints are tight.

Make sure the pre-cleaner dirt dump is pointed within 30° of down.

Gauges

The instruments or gauges are essential for safety, maximum productivity and long service life of the machine. Inspect the gauges and test any diagnostic lamps prior to start-up. During operation observe the gauges and any lamps for proper functioning. Refer to Operating Controls, for the normal readings.

Fuel Tank

CLEAN fuel in the fuel tanks is vitally important and every precaution should be taken to ensure that only clean fuel is poured or pumped into the tank.

When filling the fuel tank on this unit, by methods other than a pump and hose, use a CLEAN non-metallic funnel.

Battery

Keep the battery posts-to-cable connections clean, tight and lightly coated with a grease. Also the electrolyte level in each cell should cover the top of the plates. If necessary, top-up with clean distilled water.

Tires

A weekly inspection is recommended. Tires that have cuts or cracks or little tread should be repaired or replaced. Monthly check the wheel lug nuts for tightness.

Fasteners

Visually check entire unit in regard to bolts, nuts and screws being properly secured. Spot check several capscrews and nuts for proper torque. If any are found loose, a more thorough inspection must be made. Take corrective action.

Table 1:

Wheel Torque Chart	
M12 bolts	Torque (ft-lbs)
13" wheel	60-70
1/2" lug nuts	
13" wheel	80-90
15" wheel	105-115
16" wheel	105-115
16.5 wheel	105-115
5/8" lug nuts	
16" wheel	190-210
17.5" wheel	190-210

Radiator

NOTICE

The use of water alone in this engine can result in major engine failure. Refer to engine section for coolant recommendation.

Hoses

Each month it is recommended that all of the intake lines to and from the air cleaners, the engine cooling system hoses and all of the flexible hoses used for air, oil, and fuel be inspected.

To ensure freedom from air leaks, all rubber hose joints and the screw-type hose clamps must be absolutely tight. Regular inspection of these connections for wear or deterioration is necessary.

Premature wear of both the engine and compressor is ASSURED whenever dust-laden air is permitted to enter the engine's combustion chamber or compressor intake.

The flexible hoses used in the fuel, oil and air lines on these units are primarily used for their ability to accommodate relative movement between components. It is important they be periodically inspected for wear and deterioration. It is also important the operator does not use the hoses as convenient hand hold or steps. Such use can cause early cover wear and hose failure.

NOTICE

Some of the air lines are nylon tubing. The associated fittings are “push-in” design. Features are as follows:

Pulling on the tubing will cause the inner sleeve to withdraw and compress, thus tightening the connection. The tubing can be withdrawn only while holding the sleeve against the fitting. The tubing can be removed and replaced numerous times without losing its sealing ability.

To install the nylon tubing, make a mark (with tape or grease pencil) approximately 7/8 inch from the end of the tubing. Insert the tubing into the sleeve and “push-in” past the first resistance to the bottom. The mark should be approximately 1/16 inch from the sleeve, for the 3/8 inch O.D. tubing; 1/8 inch for the 0.25 inch O.D. tubing. This will ensure that tubing is fully engaged in the sealing mechanism.

Compressor Oil Filters

The oil filter must be replaced every 500 hours of operation or six (6) months, whichever comes first.

To service oil filters it will first be necessary to shut the unit down. Wipe off any external dirt and oil from the exterior of the filter to minimize any contamination from entering the lubrication system. Proceed as follows:

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.

1. Open the service air valve(s) to ensure that system is relieved of all pressure. Close the valve(s).
2. Turn the spin-on filter element counterclockwise to remove it from the filter housing. Inspect the filter.
3. Inspect the oil filter head to be sure the gasket was removed with the oil filter element. Clean the gasket seal area on the oil filter head.

NOTICE

Installing a new oil filter element when the old gasket remains on the filter head, will cause an oil leak and can cause property damage.

4. Lubricate the new filter gasket with the same oil being used in the machine.
5. Install new filter by turning the element clockwise until gasket makes initial contact. Tighten an additional 1/2 to 3/4 turn.
6. Start unit and allow to build up to rated pressure. Check for leaks before placing unit back into service.

Compressor Oil Cooler

The compressor lubricating and cooling oil is cooled by means of the fin and tube-type oil cooler, located beside the radiator. The lubricating and cooling oil, flowing internally through the core section, is cooled by the air stream from the cooling fan flowing past the core section. When grease, oil and dirt accumulate on the exterior surfaces of the oil cooler, its efficiency is impaired.

Each month it is recommended that the oil cooler be cleaned by directing compressed air which contains a nonflammable, non-caustic safety solvent through the core of the oil cooler. This should remove the accumulation of grease, oil and dirt from the exterior surfaces of the oil cooler core so that the entire cooling area can transmit the heat of the lubricating and cooling oil to air stream.

In the event foreign deposits, such as sludge and lacquer, accumulate in the oil cooler to the extent that its cooling efficiency is impaired, a resulting high discharge air temperature is likely to occur, causing shut down of the unit. To correct this situation it will be necessary to clean it using a cleaning compound in accordance with the manufacturer's recommendations.

Compressor Oil

The lubricating and cooling oil must be replaced every 500 hours of operation or six (6) months, whichever comes first. Refer to warranty section about extended warranty.

Receiver-Separator Systems

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.

- Open service valve at end of machine.
- Ensure pressure is relieved, with BOTH:
 - Discharge air pressure gauge reads zero (0).
 - No air discharging from service valve.

Remove plug on fitting in bottom of separator tank to drain compressor oil.

When adding oil, remove and replace (make tight) plug on side of separator tank.

In the compressor lubricating and cooling system, separation of the oil from the compressed air takes place in the receiver-separator tank. As the compressed air enters the tank, the change in velocity and direction drop out most of the oil from the air.

Additional separation takes place in the oil separator element which is located in the top separator element head.

Any oil accumulation in this separator element is continuously drained off by means of a scavenge system which returns the accumulated oil to the oil circuit.

The life of the oil separator element is dependent upon the operating environment (soot, dust, etc.) and should be replaced every twelve months or 1000 hours. To replace the element proceed as follows:

- Ensure the tank pressure is zero.
- Unscrew separator element from manifold.
- Lubricate gasket with compressor oil. Install new element.

Scavenge Line



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.

The scavenge line originates at the manifold and terminates at the compressor airend near the oil filter element. An orifice check valve is located on the scavenge tube.

Once a year or every 1000 hours of operation, whichever comes first, replace the separator element and clean the scavenge orifice/check valve.

Note: Excessive oil carry-over may be caused by an oil-logged separator element. Do not replace element without first performing the following maintenance procedure:

1. Check oil level. Maintain as indicated earlier in this section.
2. Thoroughly clean scavenge line, any orifice and check valve.
3. Assure minimum pressure valve/orifice is operational.
4. Run unit at rated operating pressure for 30 to 40 minutes to permit element to clear itself.

Exterior Finish Care

This unit was painted and heat cured at the factory with a high quality, thermoset polyester powder coating. The following care will ensure the longest possible life from this finish.

1. If necessary to remove dust, pollen, etc. from housing, wash with water and soap or dish washing liquid detergent. Do not scrub with a rough cloth, pad, etc.
2. If grease removal is needed, a fast evaporating alcohol or chlorinated solvent can be used. Note: This may cause some dulling of the paint finish.
3. If the paint has faded or chalked, the use of a commercial grade, non-abrasive car wax may partially restore the color and gloss.

Field Repair of Texture Paint

1. The sheet metal should be washed and clean of foreign material and then thoroughly dried.
2. Clean and remove all grease and wax from the area to be painted using Duponts 3900S Cleaner prior to sanding.
3. Use 320 grit sanding paper to repair any scratches or defects necessary.
4. Scuff sand the entire area to be painted with a red scotch brite pad.
5. Wipe the area clean using Duponts 3900S.
6. Blow and tack the area to be painted.
7. Apply a smooth coat of Duponts 1854S Tuffcoat Primer to all bare metal areas and allow to dry.
8. Apply 2 medium - wet coats of Duponts 222S Adhesion Promoter over the entire area to be painted, with a 5 minute flash in between coats.
9. To apply the texture coat, use Duponts 1854S Tuffcoat Primer. The proper technique to do this is to spray the Tuffcoat Primer using a pressure pot and use about 2-5 pounds of air pressure. This will allow the primer to splatter causing the textured look.

NOTE: You must be careful not to put too much primer on at one time, this will effect the amount of texture that you are trying to achieve. Allow the texture coat to flash for 20 minutes or until dry to touch.

10. Apply any of Duponts Topcoat Finishes such as Imron™ or Centari™ according to the label instructions.

NOTE: To re-topcoat the textured surfaces when sheet metal repairs are not necessary, follow steps 1, 2, 4, 5, 6, 8 and 10.

MAINTENANCE SCHEDULE

	Daily	Weekly	Monthly	3 MOS. 250 hours	6 MOS. 500 hours	12 MOS. 1000 hours
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				DRAIN	
Fuel Water Separator (Drain)	C					
Oil Leaks	C					
Fuel Leaks	C					
Drain Water From Fuel Filters	DRAIN					
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 Test			C			
Air Cleaner System Visual			C			
Compressor Oil Cooler Exterior			C	CLEAN		
Engine Radiator Exterior			C	CLEAN		
Fasteners, Guards				C		
Air Cleaner Elements					R	
Fuel/Water Separator Element					R	
Compressor Oil Filter Element					R	
Compressor Oil					R	
Engine Oil Change (initial change @ 50 hrs)				R -non IR fluids	R*	
Engine Oil Filter (initial change @ 50 hrs)				R - non IR fluids	R*	
Wheels (bearings, seals, etc)					C	
Engine Coolant Test					C	R
Fuel Filter Element					R	
Injection Valve Pressure						C
Shutdown Switch Settings Test						C
Scavenge Orifice & related parts						CLEAN
Oil Separator Element						R
Injection Pump (check & adjust)						C@ 2000 hrs
Valve Clearance Check						C
Adjust Intake and Exhaust Valves						C@ 2000 hrs
Lights (running, brake, & turn)	CBT					
Pintle Eye Bolts	CBT					

R=replace, C=check (adjust if necessary) CBT = check before towing.

*** Applies only when using PRO-TEC® Engine Fluid**



LUBRICATION

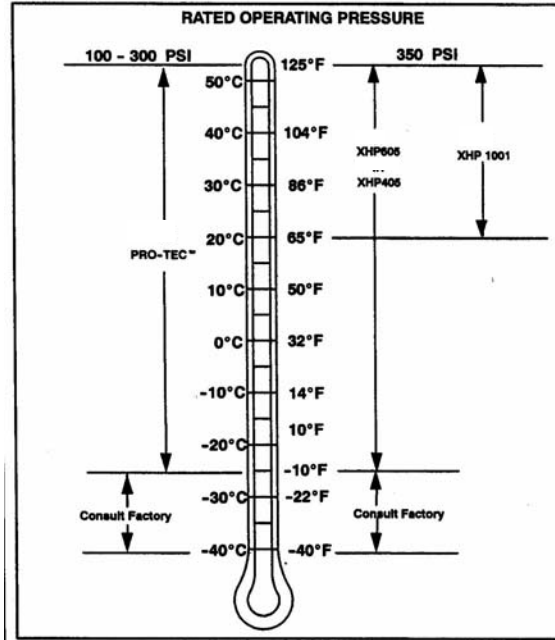
Lubrication

Portable Compressor Fluid Chart

Refer to these charts for correct compressor fluid required. Note that the selection of fluid is dependent on the design operating pressure of the machine and the ambient temperature expected to be encountered before the next oil change.

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

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



Design Operating Pressure	Ambient Temperature	Specification
100 psi to 300 psi	-10°F to 125°F (-23°C to 52°C)	Preferred: PRO-TEC® Alternate: ISO Viscosity Grade 46 with rust and oxidation inhibitors, designed for air compressor service.
350 psi	(-23°C to 52°C) -10°F to 125°F	Preferred: XHP 605 Alternate: XHP405 ISO Viscosity Grade 68 Group 3 or 5 with rust and oxidation inhibitors designed for air compressor service.
	65°F to 125°F (18°C to 52°C)	Preferred: XHP605 XHP1001

Preferred Fluids - Use of these fluids with original Doosan/Ingersoll Rand branded filters can extend airend warranty. Refer to operator's manual warranty section for details or contact your Portable Power representative.

Preferred Fluids	1 gal. (3.8 Litre)	5 gal. (19.0 Litre)	55 gal. (208.2 Litre)	220 gal. (836 Litre)
PRO-TEC®	36899698	36899706	36899714	36899722
XHP605	-	22252076	22252050	22252068
XHP1001	-	35612738	35300516	-
XHP405	-	22252126	22252100	22252118
Engine Oil	54480918	36875938	36866903	



Troubleshooting

Troubleshooting

Introduction

Troubleshooting for a portable air compressor is an organized study of a particular problem or series of problems and a planned method of procedure for investigation and correction. The troubleshooting chart that follows includes some of the problems that an operator may encounter during the operation of a portable compressor.

The chart does not attempt to list all of the troubles that may occur, nor does it attempt to give all of the answers for correction of the problems. The chart does give those problems that are most apt to occur. To use the troubleshooting chart:

- A. Find the "complaint" depicted as a bold heading.
- B. Follow down that column to find the potential cause or causes. The causes are listed in order (1,2,3 etc.) to suggest an order to follow in trouble shooting.

Action Plan

A. Think Before Acting

Study the problem thoroughly and ask yourself these questions:

1. What were the warning signals that preceded the trouble?
2. Has a similar trouble occurred before?
3. What previous maintenance work has been done?
4. If the compressor will still operate, is it safe to continue operating it to make further checks?

B. Do The Simplest Things First

Most troubles are simple and easily corrected. For example, most complaints are "low capacity" which may be caused by too low an engine speed or "compressor overheats" which may be caused by low oil level.

Always check the easiest and most obvious things first; following this simple rule will save time and trouble.

NOTE: For troubleshooting electrical problems, refer to the Wiring Diagram Schematic found in Parts List Section.

C. Double Check Before Disassembly

The source of most compressor troubles can be traced not to one component alone, but to the relationship of one component with another. Too often, a compressor can be partially disassembled in search of the cause of a certain trouble and all evidence is destroyed during disassembly. Check again to be sure an easy solution to the problem has not been overlooked.

D. Find And Correct Basic Cause

After a mechanical failure has been corrected, be sure to locate and correct the cause of the trouble so the same failure will not be repeated. A complaint of "premature breakdown" may be corrected by repairing any improper wiring connections, but something caused the defective wiring. The cause may be excessive vibration.

Trouble Shooting Chart

Bold Headings depict the COMPLAINT - Subheadings indicate CAUSES

NOTE: Subheadings suggest sequence to follow troubleshooting.

Table 1: Machine Shutdown

Cause	Corrective Action
Out of fuel	Add CLEAN diesel fuel.
Low fuel shutdown (option)	Add CLEAN diesel fuel. (See Table 11).
Airend discharge temperature too high	See Table 4.
Separator temperature too high	See Table 5.
Engine coolant temperature too high	See Table 7.
Engine oil pressure too low	See Table 8.
Regulation pressure sensor malfunction (electronic engine models only)	See Table 9.
Engine ECM communication failure (electronic engine models only)	See Table 14.
Broken engine fan belt	Replace fan belt.
Blown fuse(s)	Replace fuse(s). Check harness connections.
Electrical wiring malfunction	Check harness connections.

Table 2: Machine Will Not Start

Cause	Corrective Action
Out of fuel	Add CLEAN diesel fuel.
Low fuel shutdown (option)	Add CLEAN diesel fuel. (See Table 11).
Low battery voltage	See Table 6.
Airend discharge temperature too high	See Table 4.
Separator temperature too high	See Table 5.
Blown fuse(s)	Replace fuse(s). Check harness connection.
Ignition switch malfunction (SECU not showing Code H in START position)	Check harness connections. Replace switch.
Engine starter relay malfunction	Check harness connections. Replace engine starter.
Engine starter malfunction	Check harness connections. Replace engine starter.
Fuel solenoid malfunction	Check harness connections. Replace fuel solenoid.
Regulation pressure sensor malfunction (electronic engine models only)	See Table 9.
Engine ECM communication failure (electronic engine models only)	See Table 14.
Engine Fault (engine failure lamp flashing) (electronic engine models only)	Refer to Engine Diagnostic Codes section.
Generator switch in the generator position (electronic engine models only)	See Table 16.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 3: Machine Will Not Run

Cause	Corrective Action
Out of fuel	Add clean diesel fuel.
Low fuel shutdown (option)	Add clean diesel fuel. See table 11.
Airend discharge temperature too high	See table 4.
Separator temperature to high	See table 5.
Engine oil pressure too low	See table 8.
Engine coolant temperature too high	See table 7.
Low battery voltage	See table 6.
Regulation pressure sensor malfunction(electronic engine models only)	See table 9.
Engine Fault (engine failure lamp flashing)	Refer to Engine Diagnostic Codes section.
Engine alternator malfunction	Check voltage output. Check harness connections. Replace engine alternator.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 4: High Airend Temperature Shutdown SECU CODE 1

Cause	Corrective Action
Dirty cooler	Clean cooler.
Low compressor oil level	Add oil. Check for leaks.
Clogged compressor oil filter elements	Replace elements. Change oil.
Operating pressure too high	Reduce pressure setting to within spec.
Recirculation of cooling air	Close side doors. Relocate machine to ensure cool intake air.
Dirty operating conditions	Relocate machine to cleaner environment.
Machine out of level>15 degrees	Relocate or level machine.
Ambient temperature>120°F (49°C)	Above spec. limit.
Wrong compressor lube oil	Check oil spec. in this manual.
Bypass valve thermostat malfunction	Replace thermostat.
Loose or broken belts	Tighten belts. Replace belt set.
Minimum pressure valve malfunction (optional)	Repair or replace valve.
Engine fan malfunction	Inspect fan. Replace if damaged.
Blocked or restricted oil lines	Clean by flushing. Replace oil lines.
Airend malfunction	Consult dealer.
Airend discharge temperature switch malfunction	Check harness connections. Replace switch.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 5: High Separator Temperature Shutdown SECU CODE 2

Cause	Corrective Action
Dirty cooler	Clean cooler.
Low compressor oil level	Add oil. Check for leaks.
Clogged compressor oil filter elements	Replace elements. Change oil.
Operating pressure too high	Reduce pressure setting to within spec.
Recirculation of cooling air	Close side doors. Relocate machine to ensure cool intake air.
Dirty operating conditions	Relocate machine to cleaner environment.
Machine out of level >15 degrees	Relocate or level machine.
Ambient temperature >120°F (49°C)	Above spec. limit.
Wrong compressor lube oil	Check oil spec. in this manual.
Bypass valve thermostat malfunction	Replace thermostat.
Loose or broken belts	Tighten belts. Replace belt set.
Minimum pressure valve malfunction (optional)	Repair or replace valve.
Engine fan malfunction	Inspect fan. Replace if damaged.
Blocked or restricted oil lines	Clean by flushing. Replace oil lines.
Airend malfunction	Consult dealer.
Airend discharge temperature switch malfunction	Check harness connections. Replace switch.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 6: Low Battery Voltage Alert SECU CODE 3

Cause	Corrective Action
Low battery voltage	Measure battery voltage. Charge or replace battery.
Loose battery cables	Tighten battery cables. Replace if damaged
Loose or broken belts	Tighten belts. Replace belt set.
Engine alternator malfunction	Check voltage output. Check harness connections. Replace engine alternator.
Electrical wiring malfunction	Check harness connections.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 7: High Engine Coolant Temperature Shutdown SECU CODE 4

Cause	Corrective Action
Dirty cooler	Clean cooler.
Dirty operating conditions	Relocate machine to cleaner environment.
Machine out of level >15 degrees	Relocate or level machine.
Ambient temperature >120°F (49°C)	Above spec. limit.
Recirculation of cooling air	Close side doors. Relocate machine to ensure cool intake air.
Operating pressure too high	Reduce pressure setting to within spec.
Loose or broken belts	Tighten belts. Replace belt set.
Engine thermostat malfunction	Replace thermostat.
Engine malfunction	Consult dealer.
Engine coolant temperature switch malfunction	Check harness connections. Replace switch.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 8: Low Engine Oil Pressure Shutdown SECU CODE 5

Cause	Corrective Action
Engine oil level low	Add engine oil.
Clogged engine oil filter element	Replace element.
Machine out of level >15 degrees	Relocate or level machine.
Wrong engine lube oil	Check engine oil spec. in this manual.
Engine oil pressure switch malfunction	Check harness connections. Replace switch.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 9: Regulation Pressure Sensor Fault Shutdown SECU CODE 6 (Electronic Engine Models Only)

Cause	Corrective Action
Regulation pressure sensor malfunction	Check harness connections. Replace sensor.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 10: Low Engine Speed Shutdown SECU CODE 7

Cause:	Corrective Action
Clogged fuel filter(s)	Replace fuel filter(s)
Clogged engine air filter	See table 12.
Operating pressure too high	Reduce pressure setting to within spec.
Pressure regulator malfunction	Replace regulator.
Air/Oil Separator element malfunction	Replace separator element
Engine malfunction	Consult dealer
Airend malfunction	Consult dealer
Engine alternator malfunction	Check frequency output. Check harness connections. Replace engine alternator.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 11: Low Fuel Shutdown (Option) SECU CODE 8

Cause	Corrective Action
Out of fuel	Add clean diesel fuel.
Jumper disconnected (standard machine)	Reinstall jumper. Refer to wiring decal.
Low fuel shutdown/gauge sensor malfunction	Check harness connections. Replace sensor.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 12: High Air Filter Pressure Drop Alert (Option) SECU CODE 9

Cause	Corrective Action
Clogged engine air filter	Replace filter(s)
Clogged airdrop air filter	Replace filter(s)
Dirty operating conditions	Relocate machine to cleaner environment.
High air filter pressure drop switch malfunction	Check harness connections. Replace switch.
SECU controller malfunction	Check harness connections. Replace SECU controller.

**Table 13: Engine Model Not Recognized Alert SECU CODE A
(Electronic Engine Models Only)**

Cause	Corrective Action
Engine speed incorrect	Replace engine ECM.

**Table 14: Engine ECM Communication Failure Shutdown SECU CODE C
(Electronic Engine Models Only)**

Cause	Corrective Action
Blown engine ECM fuse	Replace fuse.
Electrical CAN BUSS wiring malfunction	Check CAN Buss harness connections.
Engine ECM malfunction	Check harness connections. Replace engine ECM.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 15: Machine Glow Plugs or Inlet Heater Not Functioning

Cause	Corrective Action
Ignition switch malfunction (SECU not showing code H in pre-heat position)	Check harness connections. Replace switch.
Engine glow plug/inlet heater relay malfunction	Check harness connections. Replace relay.
Engine glow plugs/inlet heater malfunction	Check harness connections. Replace glow plugs or inlet heater.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 16: Generator Switch on SECU CODE H (Electronic Engine Models Only)

Cause	Corrective Action
Machine will not start	Switch generator to the air only position.
Generator switch malfunction	Check harness connections. Replace switch.
SECU controller malfunction	Check harness connections. Replace SECU controller.

Table 17: Machine Will Not Shutdown

Cause	Corrective Action
Ignition switch malfunction	Check harness connections. Replace switch.
Fuel solenoid malfunction	Check harness connections. Replace fuel solenoid.
Engine ECM malfunction	Consult dealer.

Table 18: Excessive Vibration

Cause	Corrective Action
Dirty Fuel/Filters	Replace filters/fuel.
Engine idle speed too low.	Raise "No Load" speed.
Rubber Mounts, Loose or Damaged	Tighten or replace.
Anti-rumble valve not working.	Repair or Replace.
Drive Coupling Defective	Replace coupling.
Defective Fan	Replace fan.
Engine Malfunctioning	Consult Dealer.
Airend Malfunctioning	Consult Dealer

Table 19: Low CFM

Cause	Corrective Action
Engine RPM too Low	Adjust RPM
Malfunctioning Inlet Unloader	Inspect valve.
Dirty Air Filter	Clean or replace elements.
Incorrect Pressure Regulator Adjustment	Adjust linkage.
Malfunctioning Pressure Regulator	Replace regulator.
Wrong Air Filter Element	Install correct element.
Defective Separator Element	Install new element.
Defective Minimum Pressure Valve (option)	Repair or replace valve.
Air Leak	Find and repair leak
Orifice Blocked	Check and clean orifice

Table 20: Excessive Oil In Air

Cause	Corrective Action
High Oil Level	Read procedure in this manual.
Clogged Scavenge Orifice	Remove scavenge orifice. Clean and Replace.
Incorrect Oil	Replace by spec. in this manual.
Defective Scavenge Check Valve (option)	Remove check valve. Replace with new valve.
Out of Level > 15 degrees	Relocate or reposition unit.

Table 21: Oil Seal Leak

Cause	Corrective Action
Contaminated Lube Oil	Drain and flush system. Add new CLEAN oil. Replace seal.
Malfunctioning Seal	Consult dealer. Replace seal.
Scored Shaft	See instructions in new seal kit.

Table 22: Will Not Unload

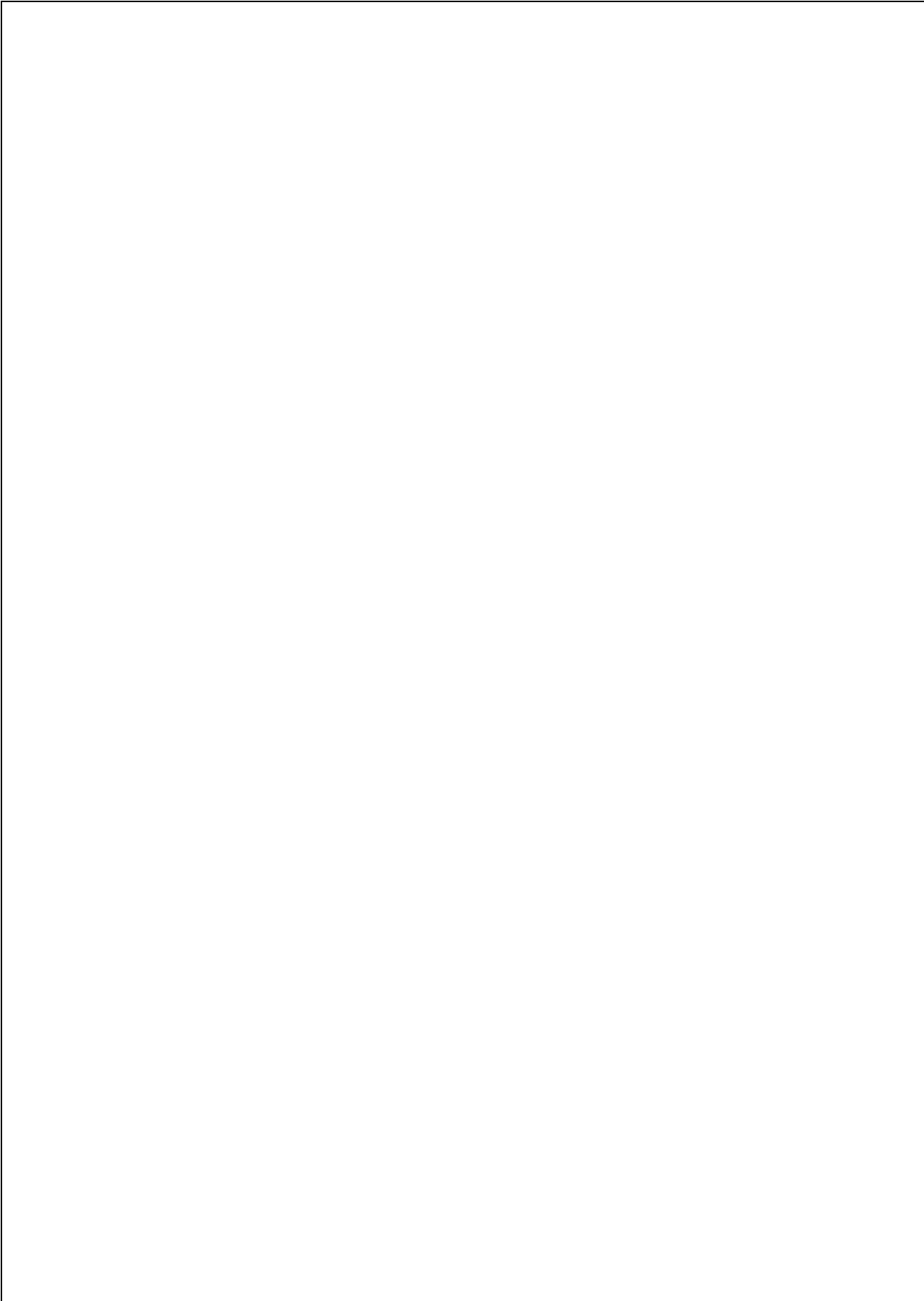
Cause	Corrective Action
Incorrect Pressure Regulator Adjustment	Adjust regulator.
Leak in Regulator Piping	Find and repair leak(s).
Malfunctioning Pressure Regulator	Replace regulator.
Malfunctioning Inlet Valve Unloader	Inspect valve. Repair/Replace.
Defective Separator Element	Remove element. Install new.
Ice in Regulation Lines/Orifice	Apply heat to line(s) and or orifice.

Table 23: Oil In Air Cleaner

Cause	Corrective Action
Incorrect Stopping Procedure	Read Procedure in this manual.
Malfunctioning Unloader	Repair/Replace.

Table 24: Safety Valve Relieves

Complaint	Corrective Action
Operating Pressure Too High	Reduce pressure to spec limit.
Incorrect Pressure Regulator Adjustment	Refer to Operation section in this manual.
Malfunctioning Pressure Regulator	Replace regulator.
Leak In Regulator Piping	Repair leak(s).
Malfunctioning Inlet Unloader	Inspect valve. Repair/Replace.
Defective Separator Element	Remove element. Install new.
Defective Safety Valve	Replace safety valve.
Ice in Regulation Lines/Orifice	Remove ice.



Revision History

Rev Level	EC Number	Comments
A	SVC31192	Original Release
B		
C		
D		
E		



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