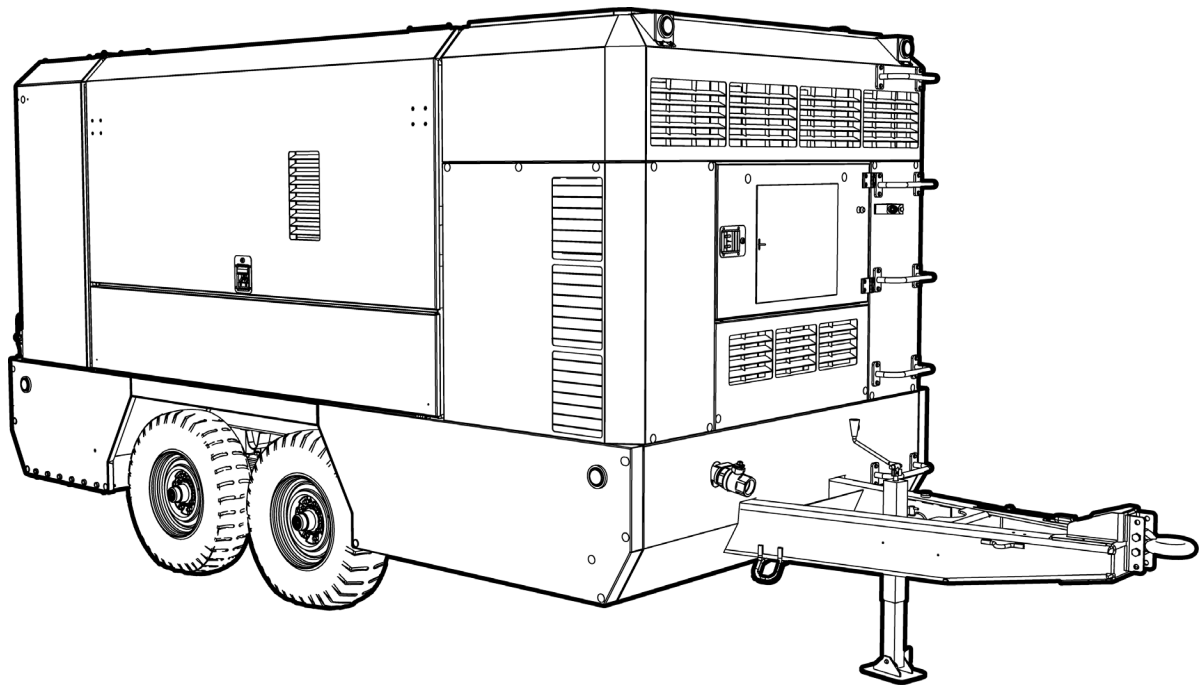
Portable Power

HP915, XP1000, XHP750
OPERATION & MAINTENANCE MANUAL

Original Instruction



This manual contains important safety information and must be made available to personnel who operate and maintain this machine.

SERIAL No: **894600 -> 894800**

46678290_en_E_11/19

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

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

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

WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm.

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

ABBREVIATIONS & SYMBOLS

####	Contact the company for serial number
->####	Up to Serial No.
####->	From Serial No.
*****	Not illustrated
†	Option
WDG	Generator option
AR	As required
HA	High ambient machine
S.R.G.	Site running gear
H.R.G.	High speed running gear

bg	Bulgarian
cs	Czech
da	Danish
de	German
el	Greek
en	English
es	Spanish
et	Estonian
fi	Finnish
fr	French
hu	Hungarian
it	Italian
lt	Lithuanian
lv	Latvian, Lettish
mt	Maltese
nl	Dutch
no	Norwegian
pl	Polish
pt	Portuguese
ro	Romanian
ru	Russian
sk	Slovak
sl	Slovenian
sv	Swedish
zh	Chinese

2 FOREWORD

The contents of this manual are considered to be proprietary and confidential to and should not be reproduced without the prior written permission of the company.

Nothing contained in this document is intended to extend any promise, warranty or representation, expressed or implied, regarding the 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 authorised service department.

The design specification of this machine has been certified as complying with EC directives. As a result:

a) Any machine modifications are strictly prohibited, and will invalidate EC certification.
b) A unique specification for USA/Canada is adopted and tailored to the territory.

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 the company.
- 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 company Service departments.

The use of repair parts / lubricants / fluids other than those included within the approved parts list may create hazardous conditions over which the company has no control. Therefore the company cannot be held responsible for equipment in which non-approved repair parts are installed.

The company 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 the company cannot anticipate every application or work situation that may arise.

IF IN DOUBT CONSULT SUPERVISION.

This machine has been designed and supplied for use only in the following specified conditions and applications:

- Compression of normal ambient air containing no known or detectable additional gases, vapours. or particles
- Operation within the ambient temperature range specified in the *GENERAL INFORMATION* section of this manual.

The use of the machine in any of the situation types listed in table 1:

a) Is not approved,
b) May impair the safety of users and other persons, and
c) May prejudice any claims made against the company.

TABLE 1
Use of the machine to produce compressed air for: a) direct human consumption b) indirect human consumption, without suitable filtration and purity checks.
Use of the machine outside the ambient temperature range specified in the *GENERAL INFORMATION SECTION* of this manual.
This machine is not intended and must not be used in potentially explosive atmospheres, including situations where flammable gases or vapours may be present.
Use of the machine fitted with non approved components / lubricants / fluids.
Use of the machine with safety or control components missing or disabled.

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

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.

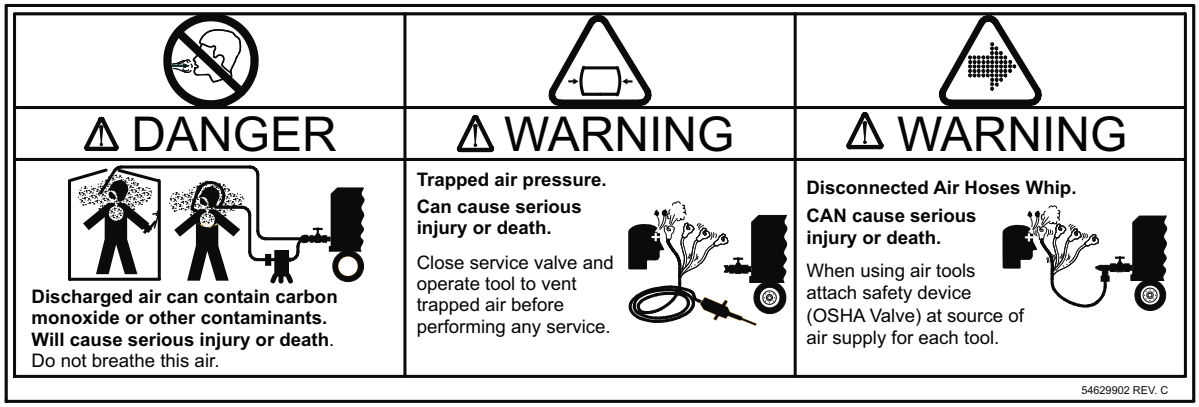
(Yellow Background)

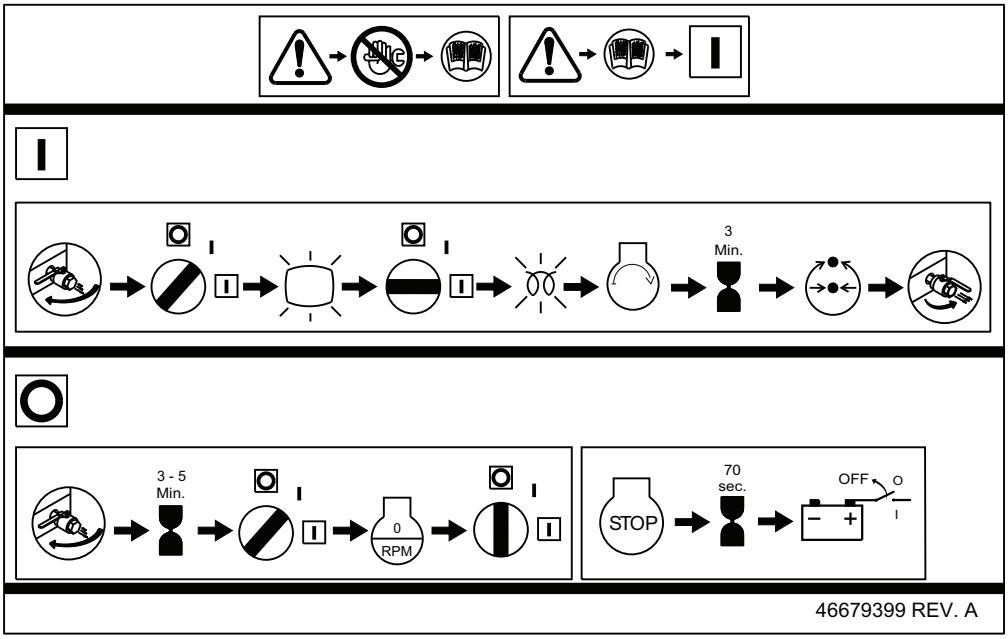
Indicates the presence of a hazard which WILL or CAN cause injury or property damage, if ignored.

(Blue Background)

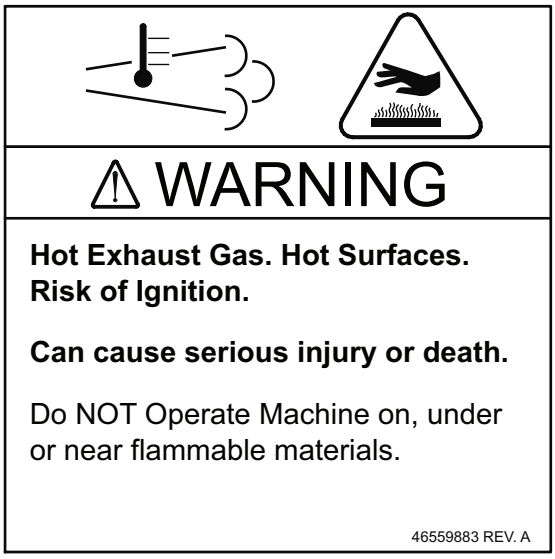
Indicates important set-up, operating, or maintenance information.

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 located in the lower right hand corner 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! Ensure decals are present on the compressor. Replace decals that are not readable.


⚠ DANGER
Discharged air can contain carbon monoxide or other contaminants. Will cause serious injury or death. Do not breathe this air.
⚠ WARNING
Trapped air pressure.
Can cause serious injury or death.
Close service valve and operate tool to vent trapped air before performing any service.
⚠ 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.
54629902 REV. C

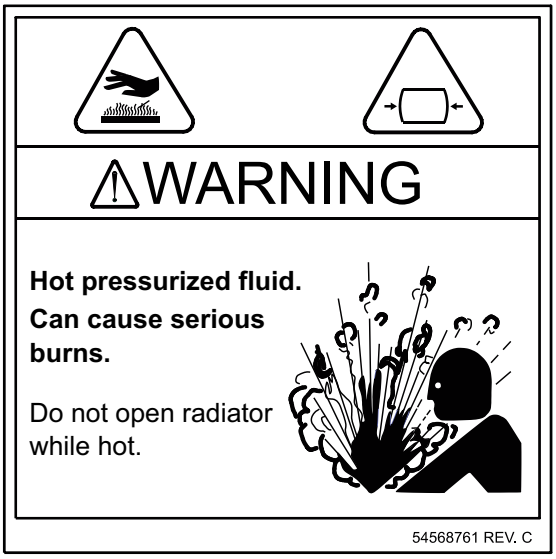

3 Min.
3 - 5 Min.
0 RPM
STOP
70 sec.
OFF
46679399 REV. A


⚠ WARNING
High pressure air.
Can cause serious injury or death.
Relieve pressure before removing filler plugs/caps, fittings or covers.
54568795 REV. C


⚠ WARNING
Hot Exhaust Gas. Hot Surfaces.
Risk of Ignition.
Can cause serious injury or death.
Do NOT Operate Machine on, under or near flammable materials.
46559883 REV. A


WARNING
Rotating Fan Blade.
Can cause serious injury.
Do not operate without guard in place.
54568779 REV. C


WARNING
Hot Surfaces.
Serious injury or death can occur.
Do not touch components.
Allow machine to colol before touching.
22334916 REV. B


WARNING
Hot pressurized fluid.
Can cause serious burns.
Do not open radiator while hot.
54568761 REV. C


WARNING
Combustible gas.
Can cause serious burns, blindness or death
Keep sparks and open flames away from batteries.
54568753 REV. C

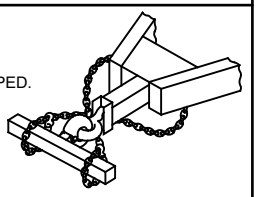

105
km/h
WARNING
Collapsing propstand.
Can cause serious injury.
Insert locking pin completely.
Excessive towing speed.
Can cause serious injury or death.
Do NOT exceed 65 mph (105 km/hr)
54568803 REV. C


CAUTION
DO NOT USE ETHER.
ENGINE DAMAGE WILL OCCUR.
This engine is equipped with an electric heater starting aid.
54454756 Rev. E

NOTICE

BEFORE TOWING

- ENSURE TOW VEHICLE HAS TOWING CAPACITY FOR WEIGHT OF THIS UNIT.
- CHOCK WHEELS AND SET PARKING BRAKE IF EQUIPPED.
- CHECK PINTLE EYE BOLTS FOR ANY LOOSENESS OR WEAR.
  - TIGHTEN OR REPLACE AS REQUIRED.
- POSITION TOW VEHICLE TO ALIGN HITCH WITH PINTLE EYE.
- STAND ASIDE WHILE:
  - OPERATING JACKS TO SEAT PINTLE EYE ON TO HITCH.
  - SECURE HITCH.
  - ATTACHING SAFETY CHAINS PER ILLUSTRATION.
  - ATTACHING BRAKE ACTUATOR BREAKAWAY CHAIN / CABLE (IF APPLICABLE).
  - CONNECTING LIGHTING PLUG (IF APPLICABLE).
  - CONNECT ELECTRIC BRAKE PLUG (IF APPLICABLE).
  - REMOVE WHEEL CHOCKS AND RELEASE PARKING BRAKE IF EQUIPPED.
  - TEST BRAKES.



DISCONNECT

- CHOCK WHEELS AND SET PARKING BRAKE IF EQUIPPED.
- STAND ASIDE WHILE:
  - DISCONNECTING SAFETY CHAINS.
  - DISCONNECTING BRAKE ACTUATOR BREAKAWAY CHAIN / CABLE (IF APPLICABLE).
  - DISCONNECTING LIGHTING PLUG (IF APPLICABLE).
  - DISCONNECTING ELECTRIC BRAKE PLUG (IF APPLICABLE).
  - OPERATING JACKS TO RAISE PINTLE EYE FROM HITCH.
  - MOVE TOW VEHICLE.
  - LEVEL MACHINE.

54604921 REV. E

WARNING

Risk of electric shock.
Hazardous voltage.
Can cause serious injury or death.

Disconnect power before servicing.
Lockout / tagout machine.

54605027 REV. D

WARNING

FALLING OFF MACHINE CAN CAUSE SERIOUS INJURY OR DEATH.

USE LADDER AND HAND HOLDS TO ACCESS LIFTING BAIL.

22298343 REV.C

NOTICE

Remove This Panel To Clean Radiator And Oil Cooler.

Do Not Operate Machine With Panel Removed.

36529691 Rev. B

NOTICE

LIFT POINT

54699400 REV. B

CAUTION

DO NOT WELD.

ELECTRONIC DAMAGE WILL OCCUR.

This engine is equipped with an electronic engine controller and other electronic components.

54749205 REV. B

DOOSAN Doosan Infracore
Portable Power

COMPRESSOR NOISE EMISSION CONTROL INFORMATION

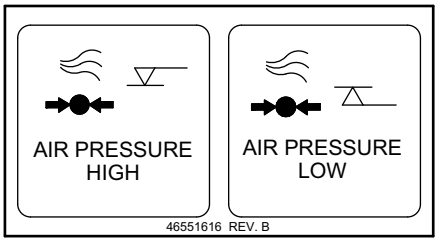
THIS COMPRESSOR CONFORMS TO U.S. E.P.A. REGULATIONS FOR NOISE EMISSIONS APPLICABLE TO PORTABLE AIR COMPRESSORS. THE FOLLOWING ACTS OR THE CAUSING THEREOF BY ANY PERSON ARE PROHIBITED BY THE NOISE CONTROL ACT OF 1972:

(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 INCORPERATED 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.

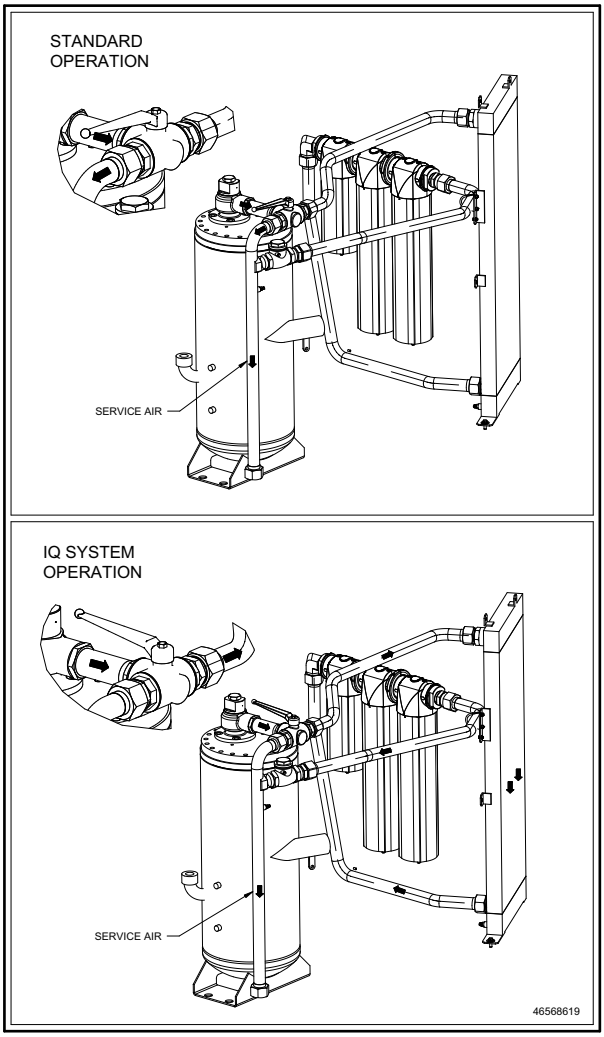
TO ASCERTAIN POINT OF ORIGIN, DATE OF MANUFACTURE, AND RELATED INFORMATION VARIFYING COMPLIANCE TO E.P.A. REGULATIONS FOR NOISE EMISSIONS, PLEASE CONTACT YOUR NEAREST DOOSAN INFRACORE PORTABLEPOWER DEALER AND REFERENCE YOUR COMPRESSOR SERIAL NUMBER

36514602 REV. C



46551616 REV. B

EMERGENCY
STOP



⚠ WARNING

Improper operation of this equipment can cause serious injury or death.

Read Operators Manual supplied with the machine before operation or servicing.

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.

54568787 REV. C

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

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

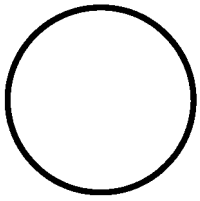
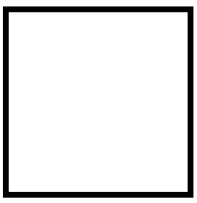
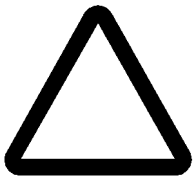
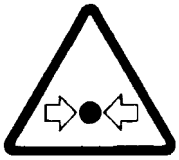
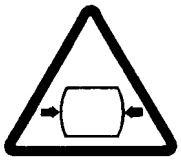
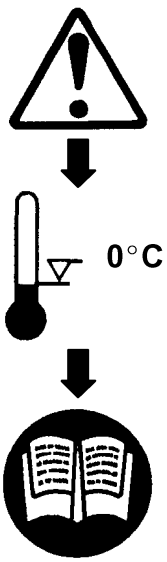
For more information go to www.P65warnings.ca.gov/diesel.

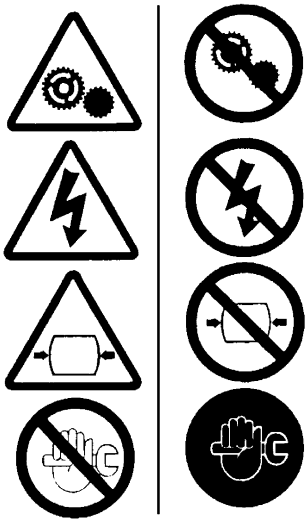
WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm.

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

46745965 REV A

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 - Pressurised vessel.	**WARNING - Hot and harmful exhaust gas.**	**WARNING - Flammable liquid.**
		
WARNING - Maintain correct tire pressure. (Refer to the GENERAL INFORMATION section of this manual).	**WARNING - Before connecting the tow bar or commencing to tow consult the Operation & Maintenance manual.**	**WARNING - For operating temperature below 0°C (32°F), consult the Operation & Maintenance manual.**



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

WARNING - Consult the Operation & Maintenance manual before commencing any maintenance.

Do not breathe the compressed air from this machine.

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

Do not stack.

Do not operate the machine without the guard being fitted.

Do not stand on any service valve or other parts of the pressure system.

Do not operate with the doors or enclosure open.

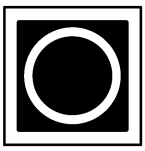
Do not use fork lift truck from this side.

Do not exceed the trailer speed limit.

No naked lights.

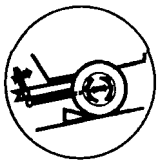
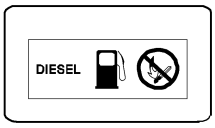
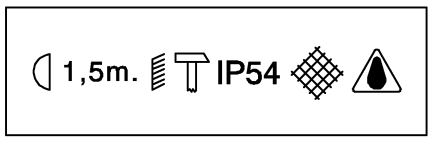
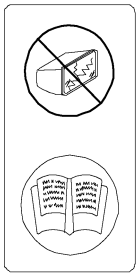
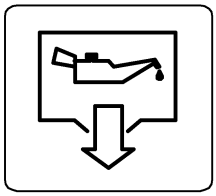
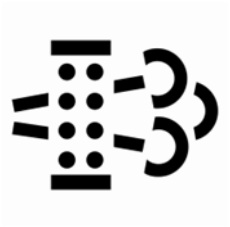
Do not open the service valve before the air hose is attached.

Use fork lift truck from this side only.



Emergency stop.

Tie down point

		
Lifting point.	On (power).	Off (power).
		
Read the Operation & Maintenance manual before operation or maintenance of this machine is undertaken.	When parking use prop stand, handbrake and wheel chocks.	Compressor oil filling
		
Diesel fuel No open flame.	Parking brake.	Rough Service Designation. Wet Location Operation.
		
Replace any cracked protective shield.	Oil drain.	Operational status of the engine emission filter.
		
Engine emissions system temperature may be high.	Disable active cleaning of the engine emission filter.	Diesel exhaust fluid (DEF) level is low.

This section pertains only to machines 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 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

COMPRESSOR MODEL .....

SERIAL NO. .....

USER UNIT NO......

UNIT IDENTIFICATION

ENGINE MAKE & MODEL:
SERIAL NO.: .....
PURCHASER OR OWNER: .....
ADDRESS: .....
.....

DEALER OR DISTRIBUTOR
FROM WHOM PURCHASED:
.....
.....

DATE PURCHASED: .....

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 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 a 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. (40FR204.58-1).

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 below 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. Detailed instructions on the maintenance items below are given on the 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, DEF & 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 non-functional.

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 sealing 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 systems 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 Portable Power 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)

WARNINGS
Warnings call attention to instructions which must be followed precisely to avoid injury or death.

CAUTIONS
Cautions call attention to instructions which must be followed precisely to avoid damaging the product, process or its surroundings.

NOTES
Notes are used for supplementary information.

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

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

Ensure all protective covers are in place and the canopy and 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 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 of 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 discharged 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 fan 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. 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. 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. Prior to performing any maintenance or service on the compressor, ensure all pressure is vented from the system and the compressor cannot be started accidentally.

Ensure the compressor is operating at the rated pressure and 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, to ensure 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 or maintenance.

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 shutdown 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 cleaning. 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:

- antifreeze
- compressor oil
- engine oil
- preservative grease, lubricating grease
- rust preventative
- diesel fuel
- battery electrolyte
- diesel exhaust fluid DEF (AdBlue)

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 or service tasks. Contact local authorities for proper disposal of these materials.

Battery

A battery contains sulfuric acid and can produce 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 the battery 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 the radiator pressure cap is removed with due care and attention.

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

WARNING: Hot engine coolant and steam can cause injury. When adding coolant or antifreeze solution to the engine radiator, shutdown the engine and allow radiator to cool down prior to releasing the pressure cap. Using a cloth to protect the hand, slowly release the pressure cap, absorbing any released fluid with the cloth. Do not remove the pressure 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:

- the tires and towing hitch are in a serviceable condition and 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.
- breakaway 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. Ensure 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.

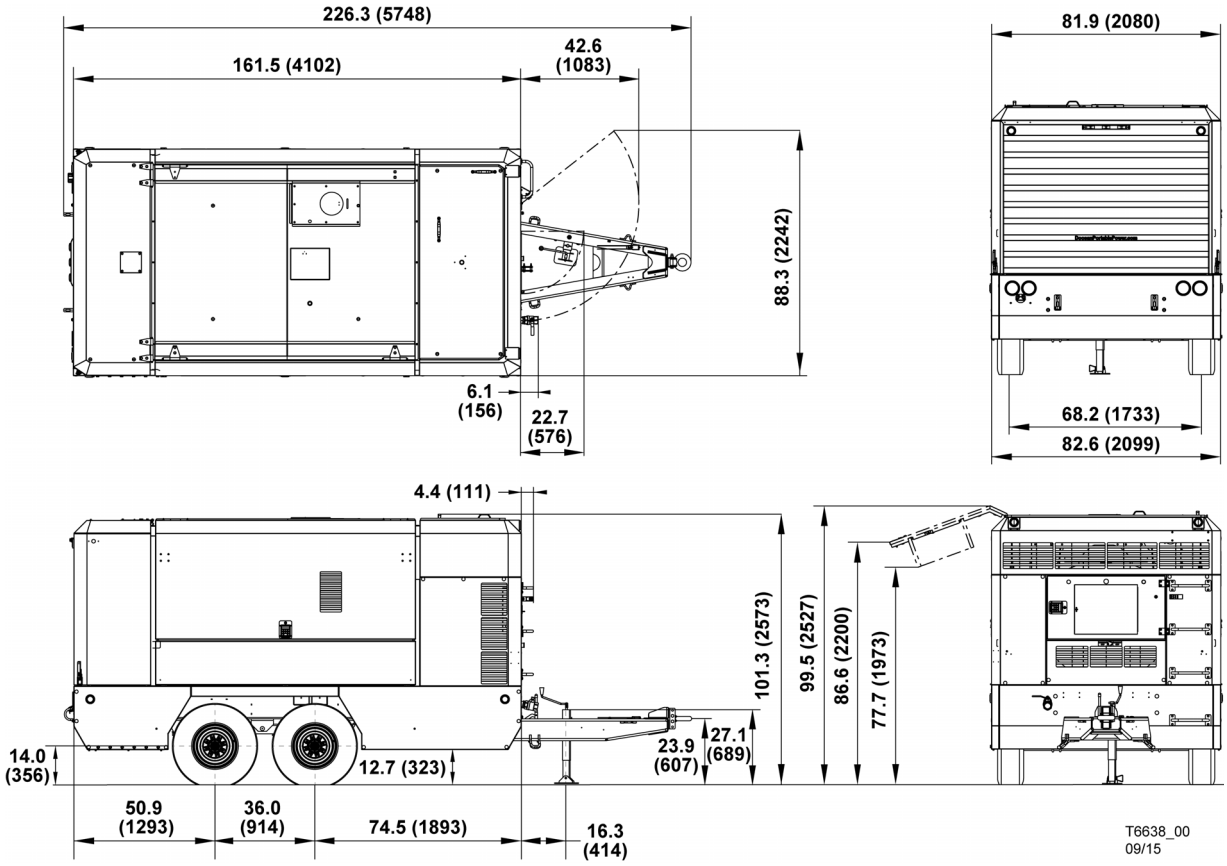
Safety chains/breakaway cable and their adjustment (where fitted).

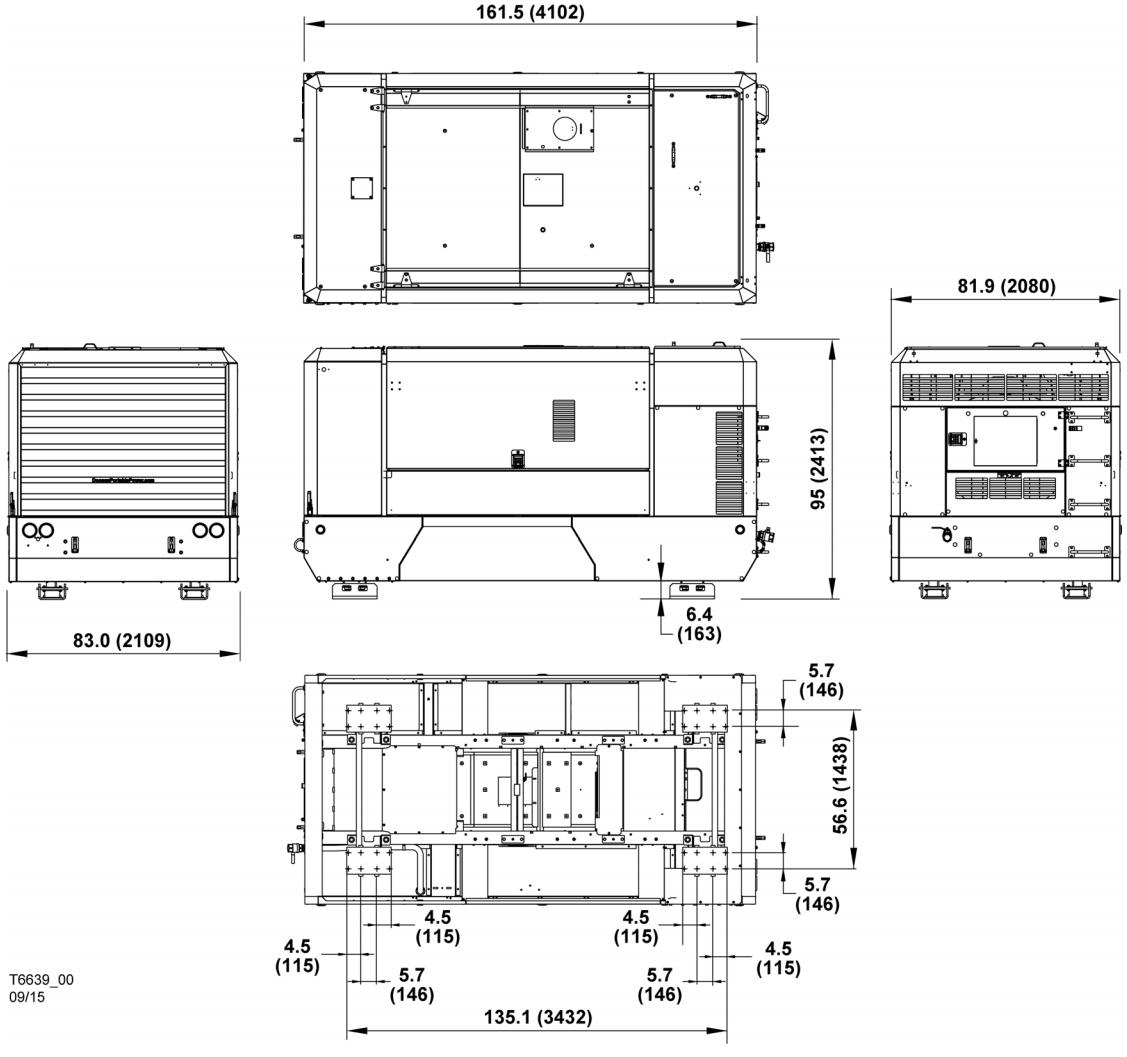
Ensure that the breakaway cable is securely coupled to the towed compressor and also to a substantial anchorage point on the towing vehicle.

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 proper operation of the breakaway cable.





All dimensions in inches (mm)

MODEL		HP915	XP1000	XHP750
COMPRESSOR				
Actual free air delivery.	cfm (m3)	915 (25)	1000 (28.3)	750 (21.2)
Normal operating discharge pressure.	psi (bar)	150 (10)	125 (9)	350 (24.1)
Safety valve setting	psi (bar)	217 (15)	217 (15)	425 (29.3)
Operating ambient temperature range (standard)	°F (°C)	14/120 (-12/+49)	14/120 (-12/+49)	14/120 (-12/+49)
Operating ambient temperature range (with options)	°F (°C)	-20/120 (-29/+49)	-20/120 (-29/+49)	-20/120 (-29/+49)
Maximum discharge temperature	°F (°C)	248 (120)	248 (120)	248 (120)
COMPRESSOR				
Oil capacity.	Gallons (Liter)	22.5 (85)	22.5 (85)	22.5 (58)
LUBRICATING OIL SPECIFICATION (for the specified ambient temperatures).	**SEE 'COMPRESSOR LUBRICATION' IN THE MAINTENANCE SECTION.**			

MODEL		HP915	XP1000	XHP750
ENGINE		**QSL**	**QSL**	
Number of cylinders / Displacement	Displacement	6/8.9	6/8.9	6/8.9
Oil capacity.	gal (liter)	20	20	20
Speed at full load.	Rev min^{-1}	1800	1800	1800
Speed at idle.	Rev min^{-1}	1200	1200	1350
Electrical system.	V DC	24	24	24
Power	hp (kW)	303 (223)	303 (223)	340 (254)
Fuel tank capacity.	gal (liter)	128 (485)	128 (485)	128 (485)
Coolant capacity	gal (liter)	15.3 (58)	15.3 (58)	15.3 (58)
DEF tank capacity	gal (liter)	8.1 (31)	8.1 (31)	8.1 (31)
Max. gross weight	lb (kg)	11,618 (5270)	11,618 (5270)	12,566 (5700)
Shipping weight (without fuel + DEF)	lb (kg)	10,759 (4880)	10,759 (4880)	TBA

SOUND LEVEL DATA ('W' MODEL)

A) To Pneurop code PN8NTC2.

Equivalent continuous sound pressure level.*****

• Rated load 83 dB (A) Estimated

B) In compliance with 86/188/EEC.

Average sound pressure level at 10M to 79/113/EEC.
***** 72dB(A) estimated

(* Machine only:- at maximum load in open site conditions)

C) US EPA 76dB(A).

WHEELS AND TIRES - ROAD RUNNING GEAR

Number of wheels.	4
Tire size.	ST235/80-R16
Tire pressure.	80 psi (4.5 bar)

TOWING SPEED

Maximum towing speed.	65 mph (105 kph)

Further information may be obtained by request through the customer services department.

SERVICE PARTS

Maintenance Interval Kits HP915/XP1000

46695988 . . . . . 50 hours

46678201 . . . . . 500 hours

46678202 . . . . . 1000 hours

PART NUMBER	DESCRIPTION	WHERE USED	QUANTITY
46671454	Element, Compressor Oil Filter	Airend	2
46551064	Separator Tank Filter Kit	Airend	1
46551026	Element, Air Inlet Primary Filter	Engine & Airend	2
46551027	Element, Air Inlet Safety Filter	Engine & Airend	2
22177737	Element, Engine Oil Filter	Engine	1
46652911	Element, Engine Fuel Filter (Primary)	Engine	1
46587383	Element, Engine Fuel Filter (Final)	Engine	1
46575239	Element, Crankcase Breather	Engine	1
46553259	Element, Corrosion Resistor	Engine	1
23178965*	Element, IQ Primary Filter	IQ System	1
23178957*	Element, IQ Secondary Filter	IQ System	1

*Optional IQ System

Maintenance Interval Kits XHP750

46551366 . . . . . 50 hours

46696102 . . . . . 500 hours

46696103 . . . . . 1000 hours

PART NUMBER	DESCRIPTION	WHERE USED	QUANTITY
36860336	Element, Compressor Oil Filter	Airend	2
46551369	Separator Tank Filter Kit	Airend	1
46551026	Element, Air Inlet Primary Filter	Engine & Airend	2
46551027	Element, Air Inlet Safety Filter	Engine & Airend	2
22177737	Element, Engine Oil Filter	Engine	1
46652911	Element, Engine Fuel Filter (Primary)	Engine	1
46587383	Element, Engine Fuel Filter (Final)	Engine	1
46575239	Element, Crankcase Breather	Engine	1
46553259	Element, Corrosion Resistor	Engine	1
54739032*	Element, IQ Primary Filter	IQ System	1
54739040*	Element, IQ Secondary Filter	IQ System	1

*Optional IQ System

CAUTION: Any departure from the specifications may make this equipment unsafe.

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 recognised 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) and that the handbrake is functioning correctly (refer to the *MAINTENANCE* 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.

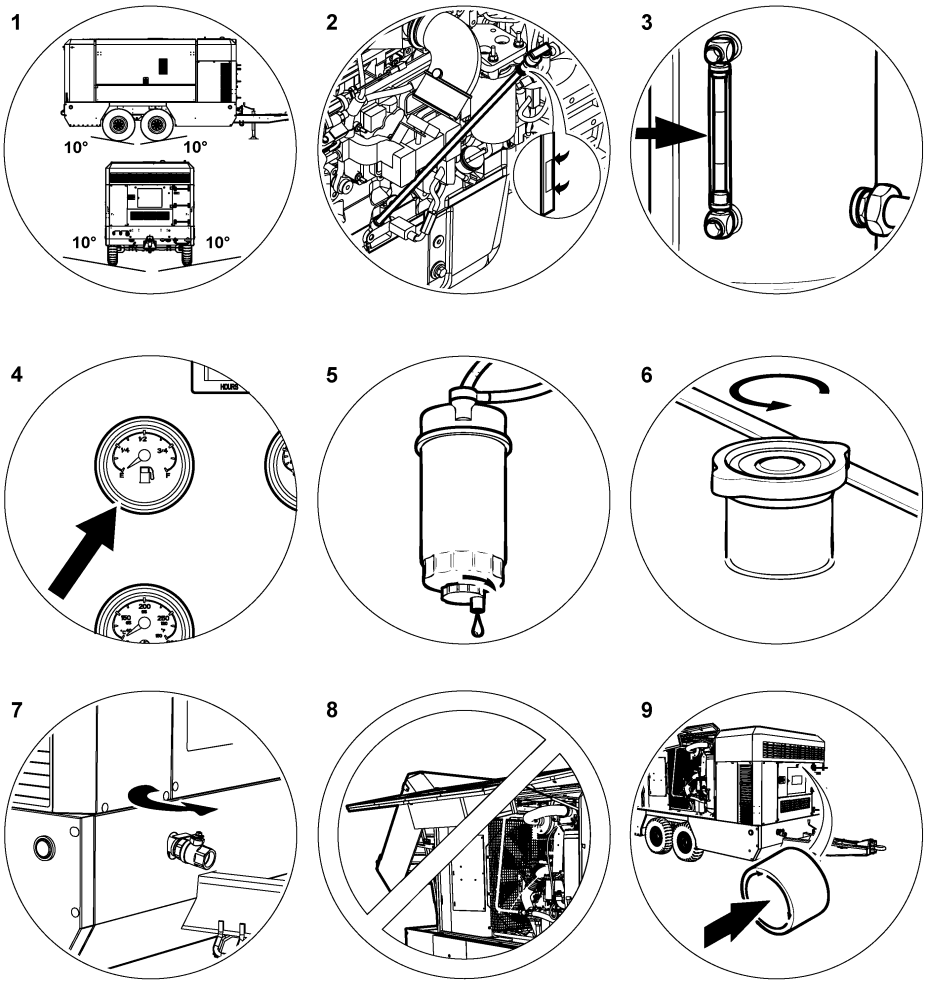
Ensure that the machine is positioned securely and on a stable foundation. Any risk of movement should be removed by suitable means, especially to avoid strain on any rigid discharge piping.

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 pressurised / over pressurised by another.

WARNING: If flexible discharge hoses are to carry more than 7 bar pressure then it is recommended that safety retaining wires are used on the hoses.



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PRIOR TO STARTING

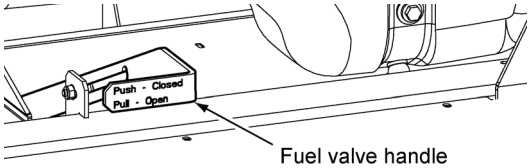
1. Place the unit in a position that is as level as possible. The design of the unit permits a 10 degree lengthways and sideways limit on out of level operation. It is the engine, not the compressor, that is the limiting factor.

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: Always ensure the fuel tank isolation valve is open prior to starting.



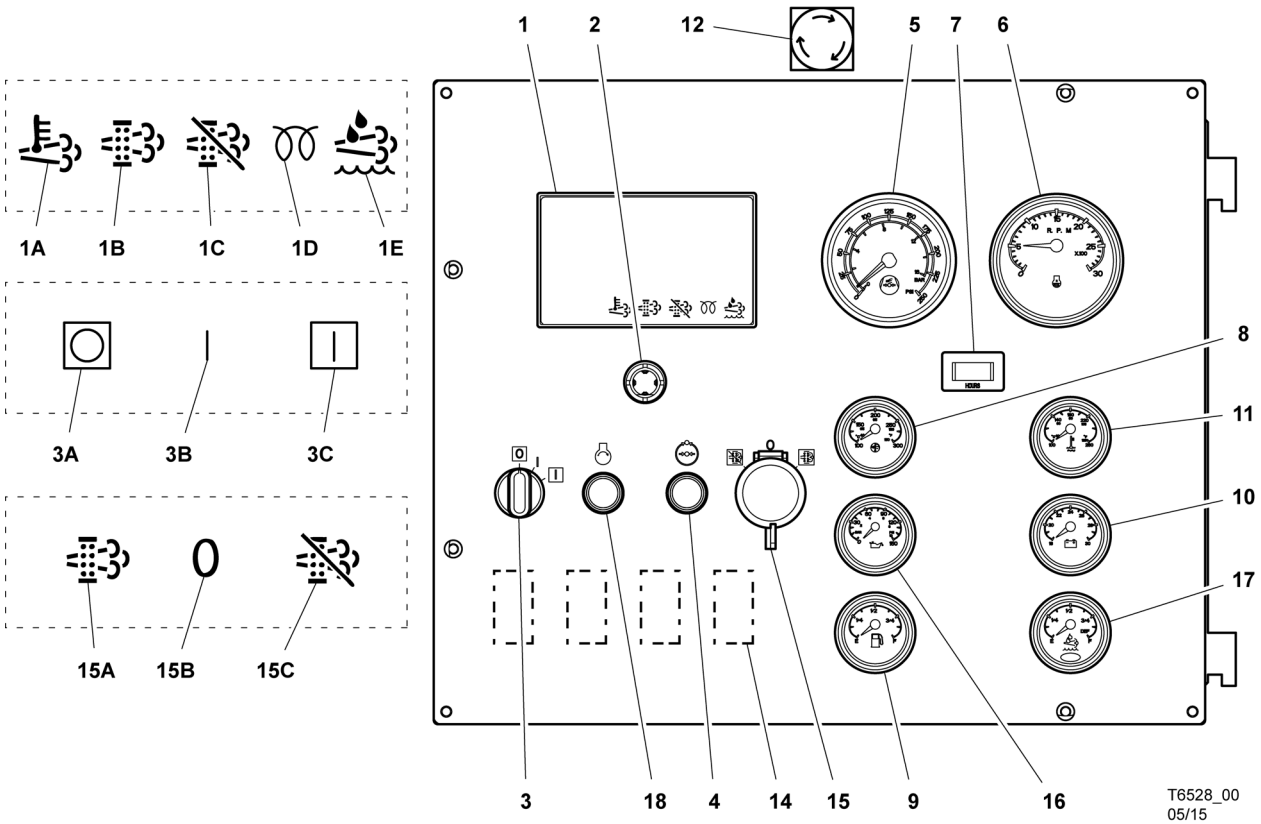
CAUTION: When refuelling:-
- **switch off the engine.**
- **do not smoke.**
- **extinguish all naked lights.**
- **do not allow the fuel to come into contact with hot surfaces.**
- **wear personal protective equipment.**
- **ensure the fuel tank isolation valve is open.**

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

8. CAUTION: Do not operate the machine with the canopy/doors in the open position as this may cause overheating and operators to be exposed to high noise levels.

9. Check the emergency stop. Pull knob to release.
10. Close the manual relief valve inside the unit, on the top of the separator tank.

When starting or operating the machine in temperatures below or approaching 0°C (32°F), 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.



OPERATING CONTROLS AND INSTRUMENTS

The operating controls and instruments are arranged on the control panel as shown above. A description of each panel device is as follows:

1. **ViewPort:** Graphic display showing information about performance parameters, warnings, faults, Maintenance Manual and Parts Catalogue.

1A. **High Exhaust System Temperature (HEST) Lamp:** Illuminates when exhaust temperatures are elevated due to automatic or manual cleaning of the DOC-SCR aftertreatment.

1B. **Exhaust System Cleaning Lamp:** Illuminates when the DOC-SCR system requires elevated temperatures to clean.

1C. **Exhaust System Cleaning Disabled Lamp:** Illuminates when cleaning is disabled by the Exhaust System Cleaning switch.

1D. **Wait to Start Lamp:** Illuminates when the operator should wait before starting the engine because the intake air heater is heating.

1E. **Diesel Exhaust Fluid Lamp:** Illuminates when the DEF level is low.

2. **Joystick:** Device to move in graphic menu.

3. **Main Control Switch:** Used for starting and stopping the compressor.

3A. **OFF:** Stops the compressor.

3B. **ON:** Turns on compressor control system and ViewPort.

3C. **RUN:** Turns on engine control system.

4. **Service Air Switch:** Momentary contact switch. Allows engine to warm up at low compressor pressure.

5. **Discharge Air Pressure Gauge:** Indicates pressure in receiver tank, normally from 0 psi (kPa) to the rated pressure of the machine.

6. **Engine Tachometer:** Indicates engine speed in RPM from 0 when stopped to full speed.

7. **Hourmeter:** Indicates machine operating hours.

8. **Compressor Oil Temp Gauge:** Indicates compressor oil temperature.

9. **Fuel Level Gauge:** Indicates fuel level in tank.

10. **Battery Voltage Gauge:** Indicates battery voltage.

11. **Engine Water Temp Gauge:** Indicates engine oil temperature.

12. **E-STOP:** Emergency Stop Push Button. Push to stop, turn to release.

13. **Panel Light:** Illuminates the instrument control panel.

14. Position for optional switches.

15. **Exhaust System Cleaning Switch:** Provides operator control of the Exhaust Cleaning System.

    Normal Position: Allows automatic exhaust system cleaning to take place as needed.

    Disable Position: Inhibits automatic and manual cleaning of the exhaust system.

    Initiate Position: Requests manual (non-mission) cleaning of the exhaust system if entry conditions are within proper range. Momentary position.

16. **Engine Oil Pressure Gauge:** Indicates engine oil pressure.

17. **DEF Level Gauge:** Indicates DEF level in DEF Tank.

18. **Start Switch:** Initiates engine cranking. Momentary position.

VIEWPORT

Navigation Button

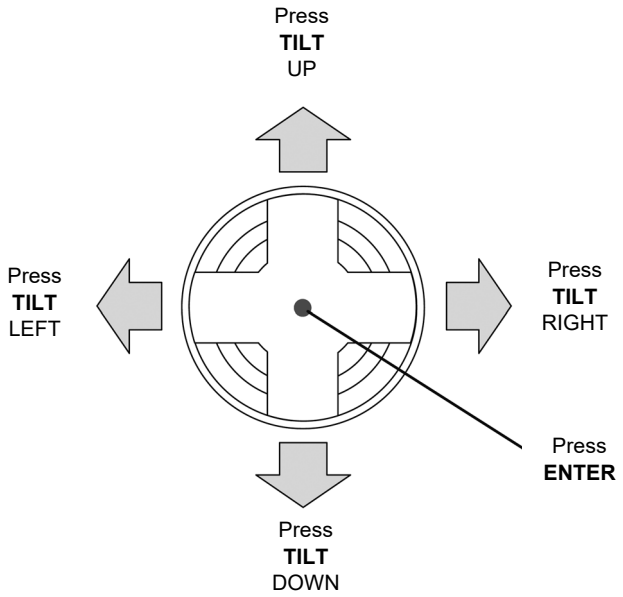


Figure 1

The Navigation Button is located directly below the Viewport LCD display. The button allows the user to navigate between and within screens, make selections, scroll gauges, manuals, and information. The available functions of the button are shown in Figure 1.

Throughout this description of the Viewport Screens and operation we will refer to TILT LEFT, TILT RIGHT, TILT UP, TILT DOWN, and ENTER. (Refer to Figure 1).

Default Screen

If at anytime you would need to return the Viewport to its Default settings, navigate to the Set Up screen and select Default in the Gauges Configuration panel. All previous changes to the Viewport will be reset with the exception of Machine ID and Date and Time.

Screen Definitions

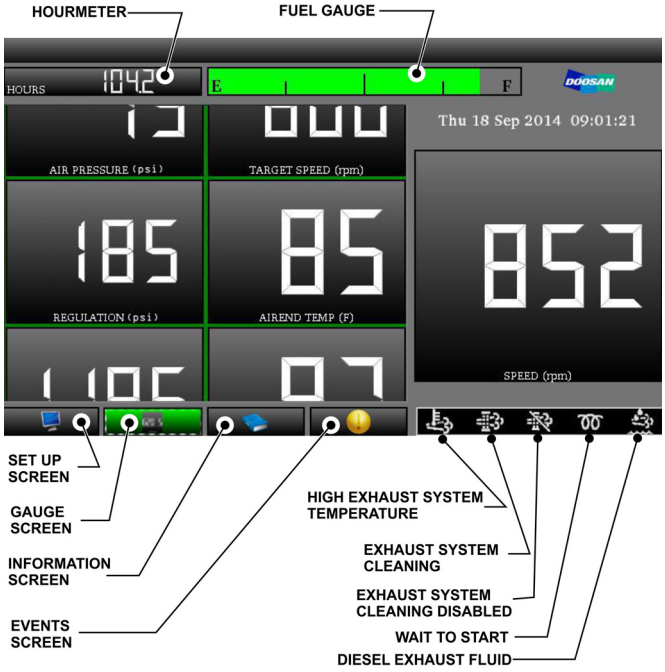


Figure 2

The available display screens are displayed along the bottom of the Viewport LCD display. Also, the Hourmeter which counts cumulative hours of machine operation and the Fuel Gauge which approximates the level of fuel remaining are displayed above the gauges. Along the lower right of the Viewport is a series of indicators of additional machine operation functions/parameters.

During machine operation Figure 2 represents the Viewport screen required to monitor machine performance.

*** Note:** All of the following navigation instructions are based on starting from the Gauge Screen (Figure 2).

Setup Screen

TILT LEFT to highlight the Set Up Screen and press ENTER. The screen represented by Figure 3 will appear.

Figure 3

The Set Up Screen is comprised of 4 sections: Units, Language and Machine ID, System Configuration, and Gauges Configuration.

When the window opens, PRESSURE will be highlighted.

To navigate between available fields, TILT LEFT or TILT RIGHT. To change information to be displayed in highlighted field, TILT UP or TILT DOWN.

To exit screen, navigate to Quit button,TILT LEFT or RIGHT until Quit button is highlighted. Press ENTER.

Note: Changes to parameters in first 3 sections take effect immediately.

Units

Pressure - Allows user to select units of pressure measurement to be displayed on pressure gauge.

Temperature - Allows user to select units of temperature measurement to be displayed on temperature gauge.

Language and Machine ID

Language - Allows user to select language to display on available screens and Operation and Maintenance Manual. (Note: English is the default language).

Machine ID - Allows user to select Machine ID. Machine ID must match Unit Model Number as shown on the machine's Data Plate.

System Configuration

Alert Duration - Allows user to select the desired duration of ALERT notification. During machine operation, if an ALERT condition occurs, the EVENTS Screen will display (over-riding currently viewed screen) for a predetermined set time.

Save Data - Allows user to select length of time (in days) data will be stored internally and be available to copy.

Date and Time - Allows user to set correct date and time. Date and time will be displayed on the Gauges Screen and will be used to time/date stamp ALERTS, FAULTS, and saved information. (**Note:** Date and Time Settings are saved automatically).

Time Zone - Allows user to select appropriate time zone of machine operation. (**Note:** UTC-05 US/Eastern is the default setting).

Gauges Configuration - This panel shows the available gauges for the machine. The Scrolling Gauges are displayed in 2 columns, the Main Gauge is in the upper right corner. The order of the Scrolling Gauges and selection of the Main Gauge are set in this panel.

To arrange the order the Scrolling Gauges are displayed on the Gauge Screen do the following:

- Navigate to the desired gauge by TILTING LEFT and press ENTER. The gauge and its numeric display will be highlighted Green.

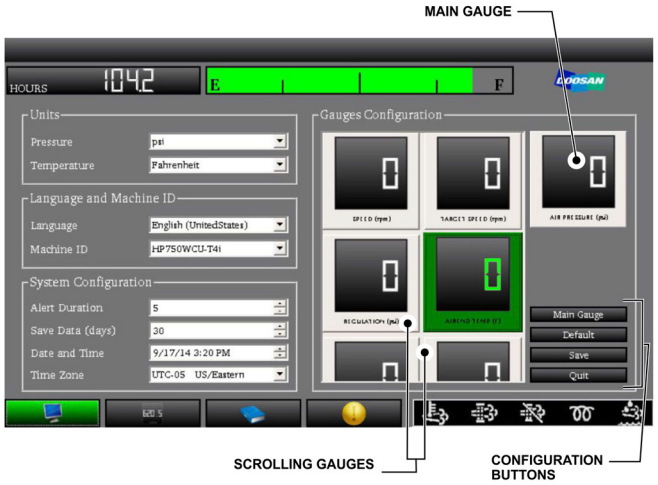


Figure 4

- If gauge in left column, TILT RIGHT or TILT UP/DOWN to reposition gauge to new location. Press ENTER to deselect.
- If gauge in right column, TILT LEFT or TILT UP/DOWN to reposition gauge to new location. Press ENTER to deselect.
- Repeat until desired layout is set.
- TILT right until Main Gauge Button is highlighted. Continue to TILT RIGHT until the Save Button is highlighted. Press ENTER to save set up.
- To exit, TILT RIGHT to highlight Quit Button and press ENTER.

The Main Gauge is the largest, most prominent gauge displayed on the Gauge Screen. Any of the available machine gauges can be set as the Main Gauge.

To set the Main Gauge, do the following:

- Navigate the Gauges Configuration area in the Set Up Screen.
- Navigate to the desired gauge and press ENTER. The selected gauge and its numeric display will be highlighted Green.
- If the highlighted gauge is in the left column, TILT LEFT to highlight the Main Gauge Button.
- If the highlighted gauge is in the right column, TILT RIGHT to highlight the Main Gauge Button.
- Press ENTER.

Figure 5

- TILT RIGHT to highlight Save Button and press ENTER.
- To exit, TILT RIGHT to highlight Quit Button and press ENTER.

Note: Gauge Configuration changes are immediate. However, to ensure settings are saved after a power cycle the Save Button must be pressed.

Gauge Screen

Figure 6

The Gauge Screen consists of the Main Gauge and Scrolling Gauges. These gauges allow the user to monitor machine operating and performance parameters.

The Main Gauge and the order of the Scrolling Gauges is defined in the Set Up Screen procedure.

To view gauges, Gauge Screen must be selected. To scroll gauges, TILT UP or TILT DOWN.

Information Screen

TILT RIGHT to navigate to the Information Screen. The Information Screen will open.

Figure 7

The Information Screen is comprised of 3 areas: Manuals, System Info, and Gauge Data.

Manuals

Press ENTER. The Engine Manual Button will be highlighted. **Note:** At this time the Engine Manual is not loaded.

TILT RIGHT. The Operation Button will be highlighted. Select Operation and the Operation and Maintenance Manual will open in a new screen. 4 buttons are located at the bottom of the screen. TOC (Table of Contents) button will be highlighted. Pressing ENTER will open the manual at the Table of Contents.

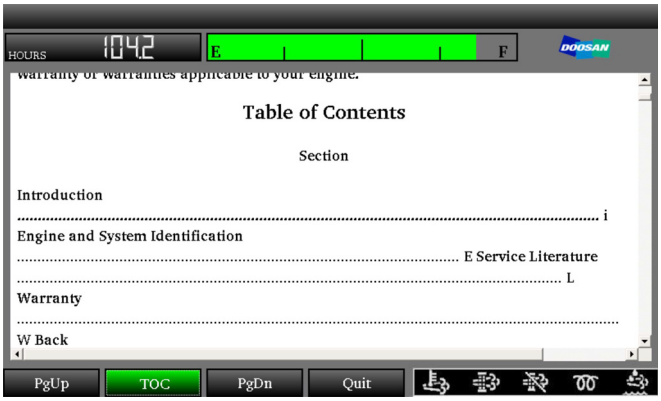


Figure 8

There are two methods of viewing displayed manuals. Use the PgUp and Pg Dn button on either side of the TOC Button. TILT LEFT or RIGHT from the TOC Button. Using the PgUp or PgDn will step through the manual page by page (approximately).

To scroll the chosen manual, TILT UP or TILT DOWN. Any button can be highlighted.

To exit, TILT RIGHT to highlight the Quit Button. Press ENTER. You will be returned to the Information Screen.

The procedure to view the Parts Manual and the Service Manual is the same as noted before.

System Info

Navigate by TILTING RIGHT until CAN Devices Button is highlighted. Press ENTER. A new screen will open displaying information for all devices attached to the machine's CAN Bus.

Figure 9

There are 4 buttons at the bottom of the screen. CAN Device Info will be highlighted.

TILT LEFT to highlight Save List Button. Press ENTER to save a snapshot of the displayed information. The snapshot will be stored internally for a predetermined length of time (see Set Up Screen) and available for retrieval.

To retrieve saved information, TILT RIGHT to highlight the Copy to USB Button. Press ENTER. A new smaller screen will open. The smaller screen consists of 2 buttons - Cancel and Save, and a status bar.

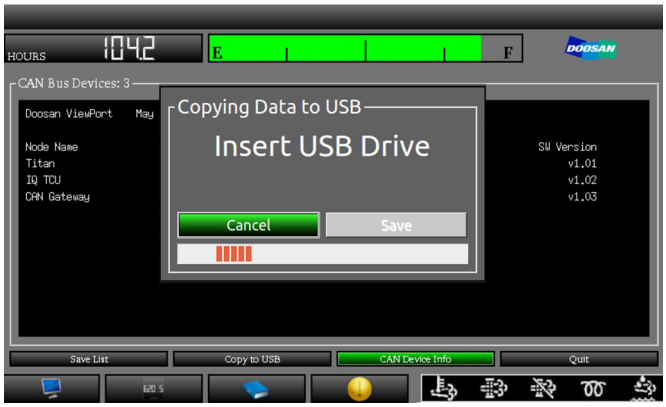


Figure 10

Cancel will close smaller screen and return the user to the CAN Devices Screen.

To save stored information, insert a removable data storage device into the USB port located on the back of the Viewport. Navigate to the Copy to USB Button and press ENTER. The status of the data download will be shown along the status bar. When download is complete, user will be returned to the CAN Devices Screen.

With the CAN Devices Info Button highlighted press ENTER. A new screen will open.

Figure 11

The new screen consists of 2 panels. The left panel lists all devices attached to the machines CAN Bus. TILT UP or TILT DOWN to highlight any of the devices. Press ENTER to select a drive.

The right panel shows all vital information of device selected. To scroll the information in the right panel, TILT RIGHT to enter panel and then TILT UP or TILT DOWN to scroll.

To save displayed information, TILT RIGHT until Save Data Button is highlighted, press ENTER. Data will be stored internally for retrieval.

To retrieve stored information, insert removable data storage device to USB port located on the back of the Viewport. Navigate to the Copy to USB button and press ENTER. A new smaller screen will open. The smaller screen consists of 2 buttons - Cancel and Save - and a status bar.

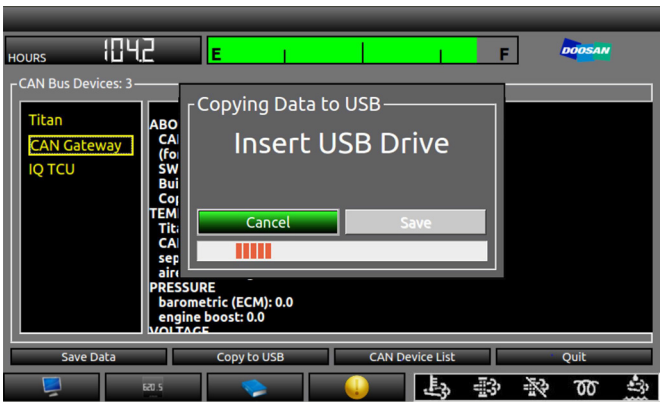


Figure 12

Cancel will close the smaller screen and return the user to the CAN Devices info screen.

To save stored information, insert a removable data storage device into the USB port located on the back of the Viewport. Navigate to the Copy to USB Button and press ENTER. The status of the download will be displayed along the status bar. When download is complete, user will be returned to the CAN Devices Info Screen.

Navigate to the Fault Log Button. Once button is highlighted, press TILT UP or TILT DOWN to view available Fault Logs arranged by date. To view Fault Log, highlight date desired and press ENTER.

The Fault Log retains all Faults/Alerts generated for the time duration set in the Set Up Screen. If at any time data is copied to a USB device, the Fault Log is included in the saved data.

TILT DOWN to highlight Information Screen Button to exit Fault Log.

Navigate to the Gauge Data Section. The Gauge Data Section consists of a Strip Chart Information panel and 5 buttons.

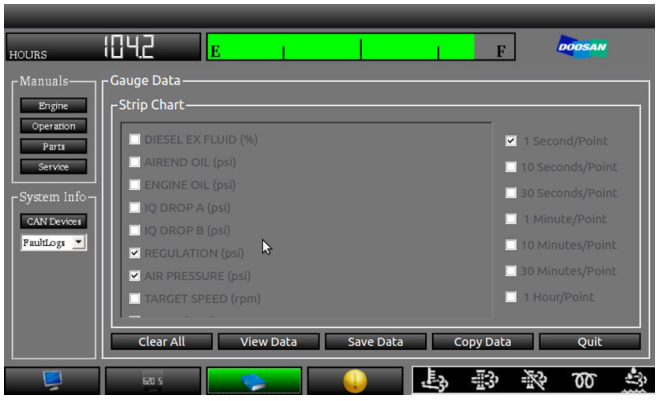


Figure 13

The Strip Chart Information panel allows the user to select information to be displayed on Strip Chart and to define time interval points for data displayed.

The 5 buttons are:

Clear All - allows user to deselect information selected (if any) from previous data gathering. Navigate to select Clear All button and press ENTER.

View Data - allows user to view data selected in the form of a Strip Chart. Select desired channel(s), then navigate to View Data and press ENTER.

A new screen will open displaying chart of selected data in the left panel. On the right is the color-code legend of the data. Navigating to any of the legend buttons and pressing ENTER allows the user to toggle ON/OFF selected information.

Navigate to the Information Screen button and press ENTER to return to Information Screen. Navigate to the Gauge Data Section and select Save Data.

Save Data - Allows user to save a snapshot of Strip Chart. Press ENTER.

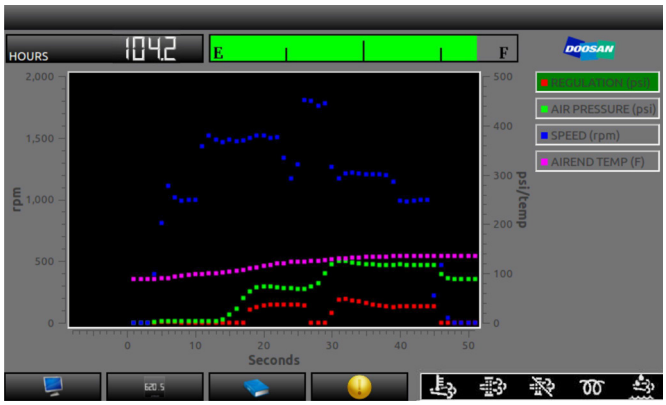


Figure 14

Quit - Press ENTER. Highlights System Info Button.

Copy Data - To save stored information, insert a removable data storage device into the USB port located on the back of the Viewport. Navigate to the Copy to USB button and press ENTER. The status of the data download will be shown along the status bar. When download is complete, user will be returned to the System Info screen.

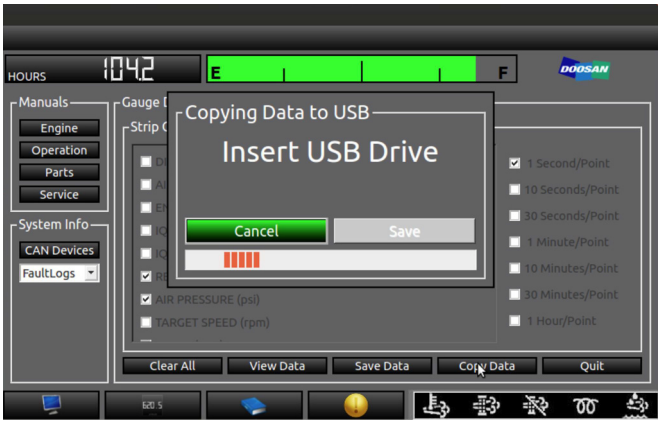


Figure 15

Events Screen

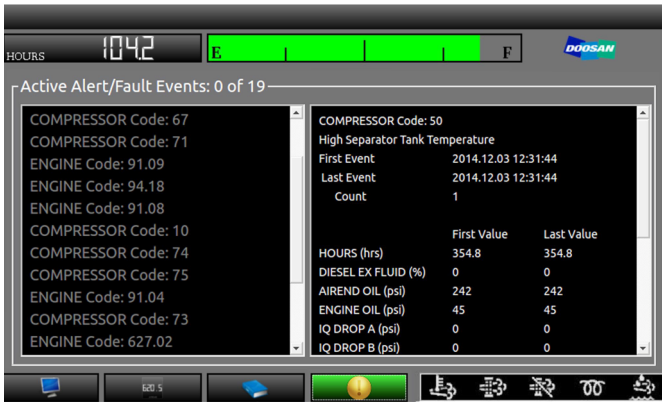


Figure 16

TILT Right to highlight Events Screen. Press ENTER. The Events Screen opens and consists of 2 panels. The left panel lists ALERTS and FAULTS and the right panel displays information for ALERTS and FAULTS.

FAULTS and ALERTS are color-coded as follows:

FAULT - Red - Will shut down machine until user investigates and corrects issue. A FAULT will never time-out.

ALERT - Yellow - An active ALERT. Will not immediately shut down machine but may become a FAULT if not investigated and corrected.

ALERT - Gray - An active ALERT. Either the user has intervened and corrected the ALERT or the machine has determined the original ALERT reading data point has returned to within acceptable operational parameters.

To view detailed information for a particular ALERT/FAULT, TILT UP or DOWN within left panel. An ALERT will be highlighted with a Yellow bounding box while a FAULT will be highlighted by a Red bounding box.

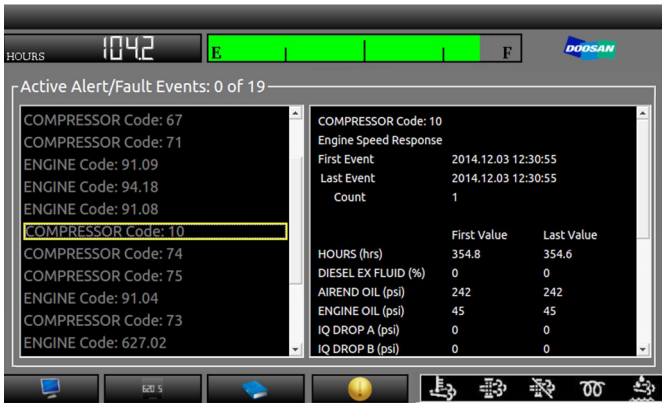


Figure 17

TILT RIGHT to enter right panel and then TILT UP or DOWN to scroll information. Information displayed includes first event, last event, relevant values, and operational data readings at time of events.

Press ENTER to return to ALERT/FAULT list to select another ALERT/FAULT to view. To exit, TILT LEFT from ALERT/FAULT lists. Gauge Screen will open.

AIR HOSE RESTRAINT INSTALLATION

Safety devices such as hose restraints (whipchecks) must be used to prevent hose whipping if a connection fails. Whipchecks are to be constructed of woven stainless steel, galvanized steel wire rope or chain with a minimum strength adequate for the supplied pressure and hose diameter. Whipchecks must be fastened to suitable mounting points or shackles.

The mounts and/or shackles are to be of the same or greater strength as the whipchecks. An engineer should be consulted about suitability of whipchecks, mounts, mounting points, shackles and fittings as well as strength rating of materials. Whipchecks must be used at the hose origination, termination and each hose to hose connection.

Hoses can fail in areas other than at connecting points and require daily inspection of the hoses for:

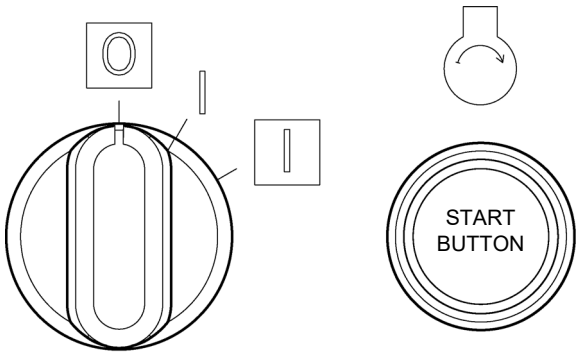
- *Cuts, cracks or kinks*
- *Weakened clamps due to rust and corrosion*
- *Damaged connections*
- *Deformity*
- *Incorrect or incompatible components or fittings*
- *Any visual damage*

Hoses must be selected that are rated for the application as to the maximum pressure and temperature to be encountered as well as compatible with the materials being conveyed inside the hose. Hoses must be compatible with the compressor oil.

STARTING THE MACHINE

Ensure emergency stop button is reset.

WARNING: Under no circumstances should volatile fluids such as ether be used for starting this machine.



T3847_00
05/15

This compressor is equipped with a battery disconnect switch which disconnects power for long term storage. The switch is located near the battery.

This switch must be turned ON to provide power to the control panel for starting the compressor.

1. Close the service valve(s) to isolate the compressor.
2. Turn the main control switch to the on position (second position). The ViewPort and compressor control system will power-up. When the ViewPort is ready, it will show compressor operating parameters and any active diagnostic codes.
3. Turn the main control switch to the run position (third position). The engine control system will power-up. The wait to start lamp will illuminate. Wait for this lamp to turn off before starting the engine.
4. With the main control switch in position 3, push the start button. The engine starter motor will engage. Hold this position until the engine starts and runs freely. Do not operate the engine starter for more than 15 seconds before waiting at least 1 minute between start attempts.
5. Following a successful start, the engine will accelerate to idle speed, and separator tank pressure will rise to the start pressure, approximately 4.1 bar (60 psi). If necessary for warm-up, the engine will accelerate to the warm-up idle speed, and then return to idle speed after warming up.
6. When ready for full pressure, and after the compressor has warmed up, press the service air button. The engine will accelerate to full load speed until the rated operating pressure is reached.
7. Open the service valve(s) to supply air from the compressor and begin normal operation.

CAUTION: To ensure an adequate flow of oil to the airend, never allow the discharge pressure to fall below 50 psi.

Normal Operation

The Operator may observe and monitor operating parameters using the ViewPort and gauge(s). In the event the compressor controller detects a parameter outside normal operating limits, the compressor will alert and/or shutdown, and display a diagnostic code.

In the event the compressor controller detects a parameter at a dangerously high or low level, the compressor will be automatically be stopped with the cause of the shutdown shown on the ViewPort.

Delivered air volume at load point pressure is accomplished by two methods, which work together:

1. The compressor is loaded (inlet valve fully open or modulated partially open) or unloaded (inlet valve fully closed).
2. Engine speed varies between idle speed and full load speed while compressor is loaded to match the required volume flow.

Operation - Loaded

Assume engine has been started and is running in the unload state at idle speed. If there is air demand (pressure falls below the load point pressure), compressor will load at idle speed by opening the inlet valve. As air demand rises and falls, engine speed is controlled between idle speed and full load speed to match the required flow while maintaining load point pressure.

Operation - Unloaded

If there is no air demand at idle speed (pressure rises above the unload point pressure), the compressor will unload by closing the inlet valve. The compressor then runs at idle speed unloaded with no air delivery. If air demand increases (pressure falls below the load point pressure), the compressor reloads to meet the required air demand.

STOPPING THE MACHINE

1. Close the service valve(s).
2. **Allow the compressor to run at idle speed for 3 to 5 minutes to allow cool-down.**
3. Turn the main control switch to the on position (second position). This will stop the engine. The ViewPort will remain active. Operating parameters and any active diagnostic codes may be viewed, if desired.
4. Turn the main control switch to the off position (first position). This turns off the ViewPort and compressor control system.

NOTE: As soon as the engine stops, the automatic blowdown valve will relieve all pressure from the system, except for the discharge pipe / manifold area. This area should be depressurised by opening the discharge valve, keeping clear of any airflow from it.

If the automatic blowdown valve fails to operate, then pressure must be relieved from the system by means of the manual blow down valve.

WARNING: When relieving system pressure by means of the service valve(s), a small amount of pressure will remain in the system. No maintenance work should be carried out whilst this situation exists. This pressure may be relieved by slowly operating the manual blowdown valve.

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, **PRESS THE EMERGENCY STOP SWITCH ON THE FRONT OF THE MACHINE AND ENSURE THAT IT ENGAGES IN DEPRESSED POSITION.**

If the unit is not fitted with an emergency stop switch, rotate the start switch to the (0) off position.

RE-STARTING AFTER AN EMERGENCY

Disengage emergency stop control from engaged (depressed) position.

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 safety shut–down conditions occur, the unit will stop.

Refer to the 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.

AFTERTREATMENT DEVICES

The Aftertreatment Architecture for the QSL9 T4F engine used in this compressor is based on three key subsystems:

1. Diesel Oxidation Catalyst (DOC)
2. Selective Catalytic Reduction (SCR)
3. Diesel Exhaust Fluid (DEF) Dosing System

Diesel Oxidation Catalyst (DOC)

Modern catalytic converters consist of a monolith honeycomb substrate coated with platinum group metal catalyst, packaged in a stainless steel container. The honeycomb structure with many small parallel channels presents a high catalytic contact area to exhaust gasses. As the hot gases contact the catalyst, several exhaust pollutants are converted into harmless substances: carbon dioxide and water.

The diesel oxidation catalyst is designed to oxidize carbon monoxide, gas phase hydrocarbons, and the SOF fraction of diesel particulate matter to CO_2 and H_2O.

Selective Catalytic Reduction (SCR)

The purpose of the SCR system is to reduce levels of NOx (oxides of nitrogen emitted from engines) that are harmful to our health and the environment. SCR is the aftertreatment technology that treats exhaust gas downstream of the engine. Small quantities of diesel exhaust fluid (DEF) are injected into the exhaust upstream of a catalyst, where it vaporizes and decomposes to form ammonia and carbon dioxide. The ammonia (NH_3) is the desired product which in conjunction to the SCR catalyst, converts the NOx to harmless nitrogen (N_2) and water (H_2O).

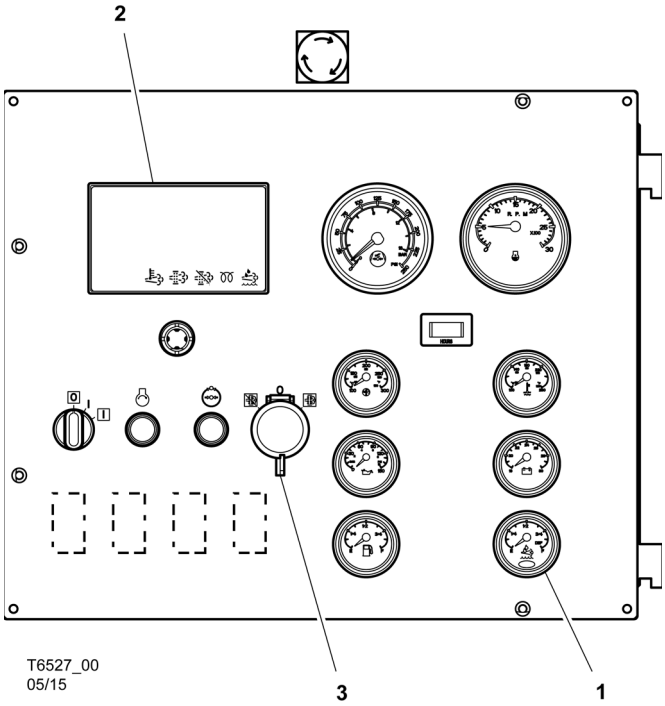
Diesel Exhaust Fluid (DEF)

DEF is the reactant necessary for the functionality of the SCR system. It is a carefully blended aqueous urea solution of 32.5% high purity urea and 67.5% deionized water.

A 32.5% solution of DEF will begin to crystallize and freeze at 12 deg F (-11 deg C). At 32.5%, both the urea and water will freeze at the same rate, ensuring that as it thaws, the fluid does not become diluted, or over concentrated. The freezing and thawing of DEF will not cause degradation of the product.

During cold weather engine operation the engine coolant will be used to heat up and thaw the DEF fluid, there is a delay built in to the engine software to ensure engine operation even with frozen DEF fluid during warm-up.

OPERATION OF THE AFTERTREATMENT DEVICES



1. DEF tank fluid level gauge
2. Aftertreatment system warning lights
3. Exhaust system cleaning switch

SCR/exhaust system cleaning

SCR/exhaust system cleaning occurs to diminish DEF deposits and condition the aftertreatment system.

Passive SCR/exhaust system cleaning occurs when the exhaust temperatures are naturally high enough to meet cleaning requirements.

This occurs during high engine duty cycles. Since passive SCR/exhaust system cleaning occurs naturally, it is considered to be normal engine operation. No fuel is added to the exhaust stream during passive SCR/exhaust system cleaning and no operator intervention is required.

Active SCR/exhaust system cleaning occurs when the exhaust temperatures are not naturally high enough to meet cleaning requirements.

Active SCR/exhaust system cleaning requires assistance from the engine in order to increase the exhaust temperature. This is typically done by injecting a small amount of diesel fuel into the exhaust stream (called aftertreatment injection) which is then oxidized by the aftertreatment DOC. The oxidation of this additional fuel creates the heat needed to clean the aftertreatment system.

For active SCR/exhaust system cleaning to occur, the ECM must detect that the aftertreatment time or duty cycle-based algorithms have reached a certain limit. Once this limit is reached, the engine will alter its operation in order to create exhaust temperatures high enough to actively clean the aftertreatment system.

Aftertreatment Operation

Aftertreatment injection requires that temperatures in the aftertreatment system reach approximately 250°C [482°F]. At this temperature and above, the small quantities of fuel injected into the exhaust will properly oxidize across the aftertreatment DOC, creating the additional heat required to actively clean the aftertreatment system.

During active SCR/exhaust system cleaning, the engine ECM monitors the exhaust temperatures before and after the aftertreatment DOC and maintains the temperatures in a predetermined range. The quantity of fuel used for aftertreatment injection will vary as the temperature is controlled within these limits.

The temperatures achieved during active SCR/exhaust system cleaning are typically higher than those achieved during passive SCR/exhaust system cleaning. The conversion of soot to carbon dioxide occurs much faster as temperatures increase.

A typical active SCR/exhaust system cleaning event will take approximately 20 to 60 minutes to complete while the equipment is operating. The equipment operator may notice additional turbocharger noise during this time, along with an illuminated high exhaust temperature lamp.

The engine ECM also contains a time-based feature for active SCR/exhaust system cleanings which is used to verify correct aftertreatment operation when the equipment duty cycle is typically high enough that active SCR/exhaust system cleanings are not necessary.

If the engine has not completed an active SCR/exhaust system cleaning within the last 60 hours of operation, the engine ECM will call for a time-based active SCR/exhaust system cleaning event.

The 60-hour timer resets each time the ECM detects that an active SCR/exhaust system cleaning has been completed.

Under some operating conditions, such as low speed, low load, or stop-and-go duty cycles, the engine may not have enough opportunity to clean the aftertreatment system during normal equipment operation. When this occurs, the engine illuminates the SCR system cleaning lamp to inform the equipment operator that assistance is required, typically in the form of a manual (non-mission) SCR/exhaust system cleaning.

Manual (non-mission) SCR/exhaust system cleaning is a form of active cleaning that is initiated by the equipment operator by switching the Exhaust system cleaning switch to the left hand position.

DEF System Operation

Priming State

Once the SCR reaches a temperature of 190°C [375°F] the ECM will command the aftertreatment DEF dosing unit to start its priming process. The aftertreatment DEF dosing unit will draw DEF from the DEF tank, pressurize and filter the DEF before sending to the aftertreatment DEF dosing valve. The aftertreatment DEF dosing valve will open and close to rid any air from the system. Once the system is able to build up pressure and has removed most of the air bubbles from the DEF lines, the aftertreatment DEF dosing system is capable of dosing.

Dosing State

The aftertreatment DEF dosing valve will open and spray DEF in the exhaust stream when the engine ECM aftertreatment calibration limits are met. The DEF will then be chemically altered by the aftertreatment SCR catalyst to clean the exhaust gases. As long as the dosing system is in the dosing state, the aftertreatment DEF dosing unit will continue to run regardless if the aftertreatment DEF dosing valve is or is not spraying DEF. DEF dosing rates are dependent on engine duty cycle. The dosing rates are not necessarily constant under most duty cycles. The aftertreatment DEF dosing valve will pulse the demanded amount of DEF into the exhaust stream. Any DEF that is not used by the aftertreatment DEF dosing valve is returned to the DEF tank.

Purging State

When a driver keys OFF, the dosing system will shut itself down with a purge cycle to prevent DEF from being left in the system, and in cold climates, potentially freezing. An audible click and pumping sound will be heard from the DEF dosing unit when it is in a purge cycle. The DEF dosing unit will slide its internal reverting valve and cause a change in the flow direction of the DEF.

The DEF dosing unit will pull all of the DEF out of the aftertreatment DEF dosing valve and pressure line, and then return the unused DEF to the DEF tank. In this process the aftertreatment DEF dosing valve will open, eliminating the vacuum created in the lines for a more complete purge process. After a complete purge the majority of the system will be free of any remaining DEF. If the main power to the ECM is removed, via battery cut off or other means before the purging state is completed, an internal fault will be logged in the ECM.

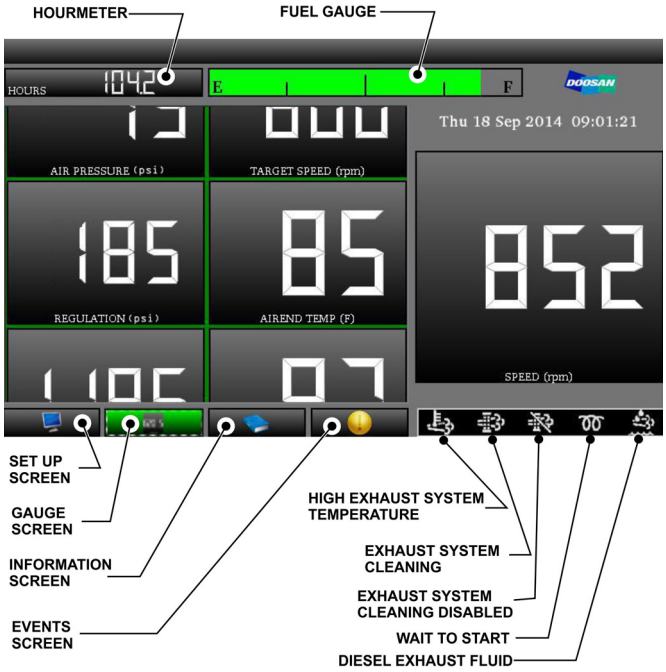
Heating State

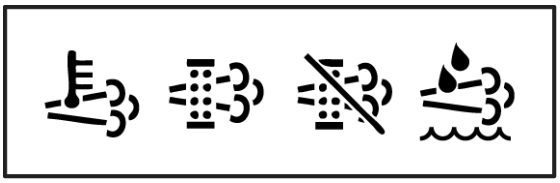
DEF freezes at -11°C [12°F]. If the operator starts the engine in a cold climate the dosing heating state will be activated. If the ambient conditions are below -4°C [25°F] the ECM will command the dosing system to go into the defrost state.

The aftertreatment dosing unit will turn on its internal heater to defrost any remaining DEF that still may be inside it. The heated DEF lines will also be commanded on. If the DEF tank temperature drops below -5°C [23°F], the DEF Tank coolant valve will be commanded open by the ECU. Engine coolant will flow through the tank multi function head unit to defrost the frozen DEF. The DEF dosing system will not prime until every component is completely defrosted. If ambient conditions continue to be cold after the system has primed, the ECM will command a maintenance heating feature to prevent the DEF dosing system from refreezing. This feature will cycle the heating on and off to the DEF lines, DEF tank, and aftertreatment DEF dosing unit.

Overview

Diesel Aftertreatment Device specific lights





HEST Lamp

High Exhaust System Temperature

- Lights when the engine is in an active cleaning phase.
- Higher-than-normal exhaust temperatures may exist due to active aftertreatment system cleaning.
- Operator should make sure the exhaust pipe outlet is not directed at any surface or material that may become hazardous.

Exhaust System Cleaning Lamp

The Exhaust System Cleaning Lamp notifies the operator that the aftertreatment system has not auto cleaned at the required time limit and requires an exhaust system cleaning.

- Operator should check to make sure the Exhaust System Cleaning Switch is in Normal Position.
- Operator can switch the Exhaust System Cleaning Switch to the manual clean (INITIATE) position and machine can be used as normal.

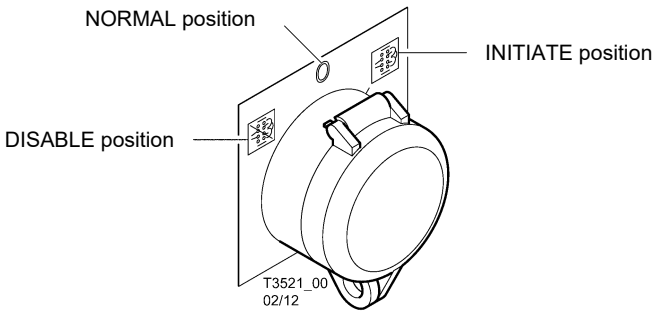
Exhaust System Cleaning Disabled

- Lights when the aftertreatment is prevented from starting active cleaning. Prolonged running with this switch in Exhaust System Cleaning Disabled Position will cause the aftertreatment system to become blocked and may result in engine shutdown requiring Cummins intervention to reset the aftertreatment cycle.
- This position should only be used when the compressor is to be utilized in hazardous environments (Petrochemical, chemical, others).

Diesel Exhaust Fluid (DEF) Level Lamp

- Lights when the DEF fluid is low.

Exhaust System Cleaning Switch



The exhaust system cleaning switch provides operator control of the exhaust cleaning system. When the switch is turned to the NORMAL position (0), the engine ECM will automatically perform the exhaust system cleaning when required.

When the switch is turned to the INITIATE position (Right), a request is sent to the engine ECM for a manual cleaning of the exhaust system. This manual cleaning will only happen when the engine ECM determines conditions for cleaning are met.

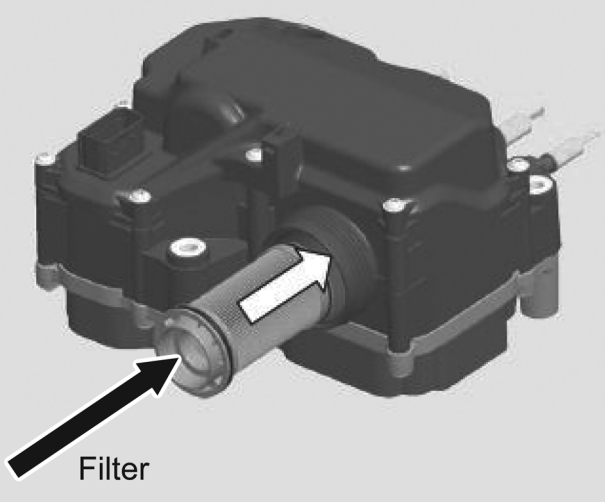
When the switch is turned to the DISABLE position (Left), the engine ECM disallows any automatic or manual (non-mission) cleaning of the exhaust system.

WARNING: Continued use of the Exhaust System Cleaning Inhibit position will at first lead to warning messages being displayed on the Viewport. Failure to respond with a return to the Normal switch position will eventually create a severe engine power derate and shutdown, running in this condition until shutdown could also damage the SCR core requiring replacement instead of cleaning.

Aftertreatment Systems Maintenance:

The DOC is a maintenance free device and will under normal conditions remain operational for as long as the engine.

The DEF system requires maintenance of the filter situated in the Bosch dosing pump at the required intervals (see scheduled maintenance).



Using any fluid other then the proper DEF fluid will contaminate and render the dosing system inoperable causing the engine to stop.

Should any contamination occur, then the tank needs to be removed and cleaned before filling with the correct DEF fluid.

DEF fluid should only be used from clean receptacles or filtered pumping systems.

Never use additives to change the DEF fluid properties.

AFTERTREATMENT PROTECTION AFFECTING COMPRESSOR OPERATION

DEF Quality

Adequate DEF quality is essential to meet emission targets. If an issue with the DEF quality is detected the system will warn the operator of the issue by the use of warning lights. If the warnings are ignored the engine derate will apply, resulting in lower compressor flow output.

WARNING: The ultimate engine protection level will be activated after several restarts with the incorrect DEF quality in the DEF tank and requires a Cummins technician to reset protection parameters to allow engine restart.

DEF Equipment Tampering

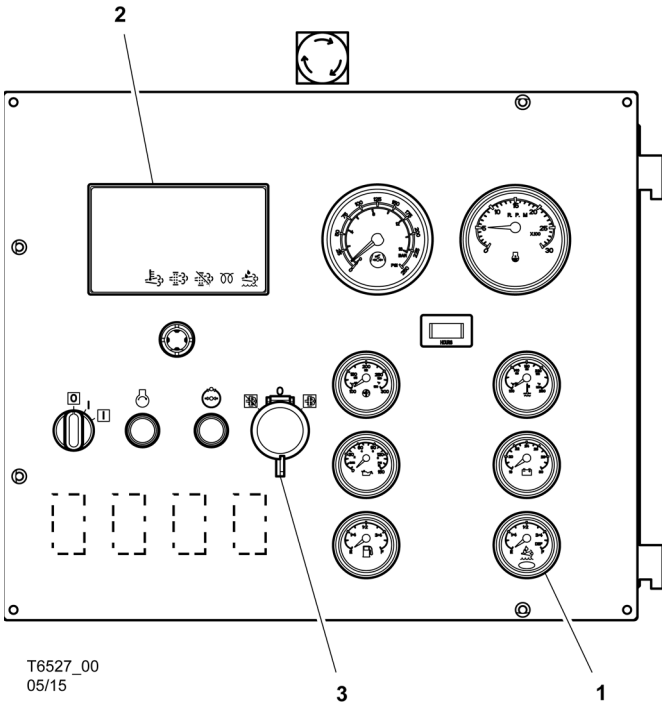
When any hardware or performance issues cause the NOx emissions to exceed the legislated limits, the operator is warned with the respective engine fault codes. If the warnings are ignored, the inducements will start.

Tampering/Malfunction events include, but are not limited to:

- Disconnected tank level and/or quality sensor
- Blocked DEF line or dosing unit
- Disconnected DEF dosing unit
- Disconnected DEF pump
- Disconnected SCR Wiring Harness
- Disconnected NOx Sensor
- EGR Valve malfunction
- Disconnected coolant level sensor
- Any hardware or performance issues that will cause the NOx emission exceeding a legislated threshold.

WARNING: The ultimate engine protection level will be activated after several restarts with tampering uncorrected and may require a Cummins technician to reset protection parameters to allow engine restart.

DEF Fluid Level



1. DEF tank fluid level gauge
2. Aftertreatment system warning lights
3. Exhaust system cleaning switch

- At 10% DEF level in the tank, the DEF lamp (on the DEF gauge) is turned ON. Cummins Fault Code 3497, SPN 1761 FMI 17
- At 5% the DEF lamp flashes. FC 3498, SPN 1761 FMI 18
- At 2.5%, the yellow lamp is turned ON, FC 1673, 3714, and 4863.
- Primary inducement: RPM limited to 1500 RPM
- At 0%, FC 3547 is added. Secondary inducement activates: RPM limited to 1200 RPM
- After 30 minutes at 0%, the RED lamp is turned ON, FC 3712 appears.

At any time during the previous protection stages the operator can refill the DEF tank and run the engine to clear the fault codes.

WARNING: If after final inducement the DEF tank is still not refilled, the operator will be able to start and run the engine for 4 consecutive periods of 15 minutes.
Once these 4 attempts have been used and DEF tank is still not refilled the engine ECU will lock engine operation and it requires a Cummins technician to reset protection parameters to allow engine restart.

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.

LONG TERM STORAGE RECOMMENDATIONS (6 months or more)

Spare Airends

- Long-term storage of airends should include filling the airend with the standard compressor fluid, PRO-TEC, XHP605 or XHP405. Upon installation of the airend, drain the storage oil from the airend and proceed with the installation, ensuring fresh oil is poured into the intake prior to start up.

Portable Compressors

- Airend – Remove the intake connection and pour the airend intake full with Doosan compressor fluid PRO-TEC, XHP605 or XHP405. Reconnect the intake connection.
- Engine cooling system – Treat with rust inhibitor and drain. Check with engine dealer for further recommendations.
- Compressor Oil Filter/s- fill with Doosan compressor fluid PRO-TEC, XHP605 or XHP405.
- Seal all openings with waterproof tape
- Place a desiccant in the exhaust pipes, engine and compressor air intake pipes.
- Loosen tension on belts, fan, airend, etc.
- Block axles so tires are off ground and do not support any weight.
- Disconnect battery cables.
- Drain fuel system.

SHORT TERM STORAGE

Machines that stand idle for extended periods of time greater than 30 days:

- Start and operate the machine every 30 days. Operate long enough to allow the engine and compressor to reach operating temperature.
- Open and close the service valve to exercise machine from full load to idle RPM.
- Drain fuel tank to remove any water.
- Drain water from fuel water separator.

COMPRESSOR MOUNTING

Portable compressors, which are modified to remove the running gear and mount the compressor directly to trailers, truck beds or frames, etc. may experience failure of the enclosure, frame, and/or other components.

It is necessary to isolate the compressor package from the carrier base with a flexible mounting system. Such a system must also prevent detachment of the package from the carrier base in the event the isolators fail.

Contact your Portable Power representative for flexible mounting kits.

Warranty does not cover failures attributable to mounting of the compressor package to the carrier base unless it is a Portable Power provided system.

NOTE: The maintenance schedule in this manual describes the service intervals that should be followed for "normal" applications of this compressor. This page may be reproduced and used as a checklist by service personnel.

In more 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.

Dust and dirt, high humidity, and high temperatures will affect lubricant life and service intervals for components such as inlet air filters, oil separation elements and oil filters.

MAINTENANCE

	Daily	Weekly	Monthly	6 Months (500 hrs.)	1 Year (1000 hrs)	2000 hrs	5000hrs
Compressor Oil Level	C						
Engine Oil Level	C						
Coolant Level	C						
Gauges/Lamps	C						
Air Cleaner Service Indicators	C						
Air Cleaner Dust Ejector Valve	C						
Aftertreatment Exhaust Piping	C						
Fuel Tank	C/Refill						
Fuel/Water Separator Drain	D						
Fluid Leaks	C						
Radiator Filler Cap	C						
Diesel Exhaust Fluid (DEF) Level	C/Refill						
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				
Coolers and Radiator			C				
Fasteners, Guards			C				
Primary Air Cleaner Elements					R/WI		
Secondary Air Cleaner Elements						R/WI	
Fuel/Water Separator Element				R			
Final Fuel Filter				R			
Engine Oil Filter				R			
Engine Oil				R			
Engine Breather Filter						R	
Engine Coolant Conditioner Filter				R			

C = Check and act if required

T = Test

D = Drain

R = Replace

CBT = Check before towing

R/WI = Replace or when indicated earlier

C/R = Check and replace if required

G/C = Grease and check

C/A = Check and adjust if required

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

NOTE: 500 and 1000 hour intervals are meant to be repeated at every 500 or 1000 hours. Other intervals only to be performed at hours indicated.

NOTE: All fluid and filter intervals are valid for near perfect conditions only. High ambient temperatures - high dust concentration - high humidity as well as using lower grade oils and fuels will require a decrease in maintenance intervals. Contact your Doosan Infracore Portable Power dealer for more information or assistance in determining the optimum intervals for your application.

MAINTENANCE

	Daily	Weekly	Monthly	6 Months (500 hrs.)	1 Year (1000 hrs)	2000 hrs	5000hrs
Engine Valve Lash							C/A
Aftertreatment DEF Unit Filter						R	
Compressor Oil Filter				R			
Compressor Oil					R		
Oil Separator Element						R	
Engine Coolant				C		R	
Wheels (bearings, seals, etc.)				C			
Shutdown Switch Settings					T		
Scavenger Orifice and related					C		
Lights (brake, running and turn)	CBT						
Pintle Eye Bolts	CBT						
Brakes	C			C			
Brake Linkage	C						
Emergency Stop	T						
Fasteners	C						
Running Gear Linkage and Bolts			G/C				
Safety Valve				C			
Minimum Pressure Valve				C			
Pressure System					C		
Pressure Gauge					C		
Pressure Regulator					C		
Separator Tank Exterior					C		
Lubricator (Fill)	C						
Engine Air Inlet Shutdown Valve					C		
Engine Vibration Damper						C/R	

C = Check and act if required

T = Test

D = Drain

R = Replace

CBT = Check before towing

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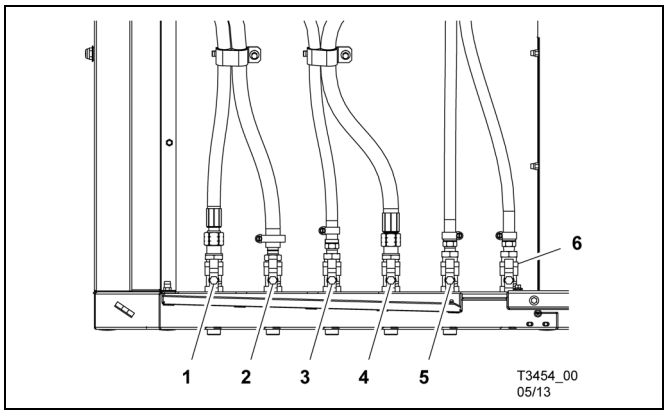
DRAIN LOCATIONS



1. Compressor coolant drain.
2. Engine coolant drain.
3. Engine oil drain.
4. Separator tank drain.
5. Front fuel tank drain.
6. Rear fuel tank drain.

Ensure the compressor is stopped and all pressure is relieved before draining fluids. Check and close all drain valves, remove the plug from the drain outlet using the tool provided. Place the empty container underneath the drain outlet and open the valve. Do not leave unattended as some fluids will drain very rapidly and could spill.

WARNING: Use caution when draining fluids as these can be hot and could cause injury.

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 is recommended. 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.

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 (mains 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. pressurised 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, jewellery, 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.

PROTECTIVE SHUTDOWN SYSTEM

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

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 anticlockwise 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 $^{1}/_{2}$ to $^{3}/_{4}$ 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

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

Disconnect all hoses and tubes from the separator tank cover plate. Remove the drop-tube from the separator tank cover plate and then slide the cover plate towards the airend. 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 install a new o-ring before reassembly. Install the new element.

Reposition the cover plate, taking care not to damage the o-ring, 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).

Replace the drop-tube and 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 AIR CHARGE COOLER

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 depressurised.

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 ELEMENT

The air filter should be inspected regularly (refer to the SERVICE/ MAINTENANCE CHART) and the element replaced when the restriction indicator lamp illuminates. The dust collector box(es) should be cleaned daily (more frequently in dusty operating conditions) and not allowed to become more than half full.

The safety element should be renewed every 2000 hours or every other main filter element change, whichever comes first.

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.

If the safety element is to be renewed, thoroughly clean the interior of the filter housing prior to removing the safety element.

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.

CAUTION: If inspection reveals damage to the main element, the safety element must be replaced.

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.

Secure the element in the housing by hand tightening the nut.

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

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

CAUTION: Safety elements must not be cleaned or re-used.

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 bolt in the fan hub has not loosened. If, for any reason, it becomes necessary to remove the fan or re-tighten the fan mounting bolt, 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.

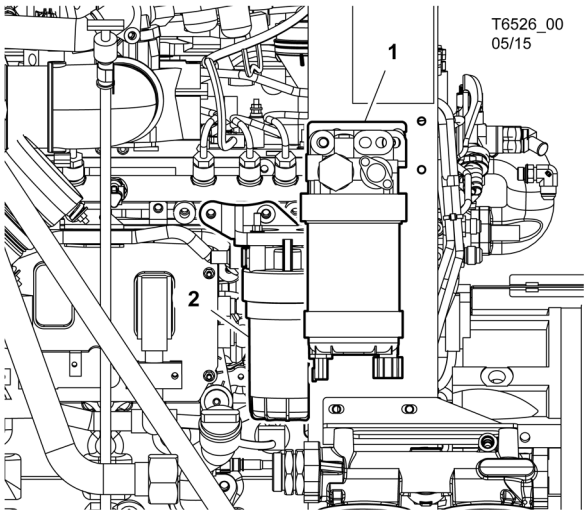
The fan belt(s) should be checked regularly for wear and correct tensioning.

FUEL SYSTEM

The fuel tank should be filled daily or every eight hours. To minimise 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 MAINTENANCE

This compressor is equipped with 3 fuel filters in series to be replaced at every 500 hr interval or sooner if required.



1. Primary Fuel Filter / Water Separator (10 microns).
2. Final Fuel Filter / Water Separator (3 microns).

Primary Fuel Filter / Water Separator

Mounted to the lifting structure on the separator tank side of the compressor, this filter is capable of separating water from fuel and will filter solid contaminants to 10 microns in size.

Replace: Remove the Water In Fuel sensor connector from the bottom of the filter element, remove and discard the filter. Install a new element taking care all seals are in place, install the sensor connector.

Final Fuel Filter / Water Separator

The final fuel filter (3 micron) is mounted on the engine. For maintenance details, refer to the engine section of this manual.

WARNING: The Primary as well as Secondary filter elements may be filled with the appropriate quality of fuel from a clean source. NEVER fill the Final fuel filter before installing.

The correct procedure would be to fill Primary and Secondary filters with clean fuel, leave the Final filter empty and prime the system using the hand prime pump on the Primary filter head.

FUEL FILTER WATER SEPARATOR

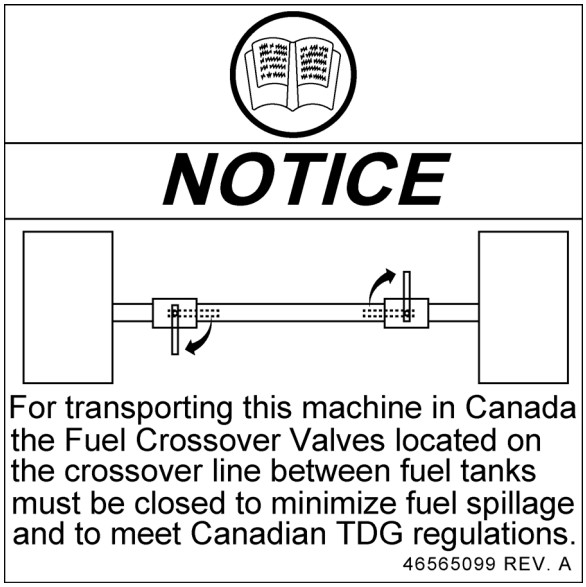
The fuel filter water separator contains a filter element which should be replaced at regular intervals (see the SERVICE/MAINTENANCE CHART).

AUTOMATIC FUEL SUPPLY

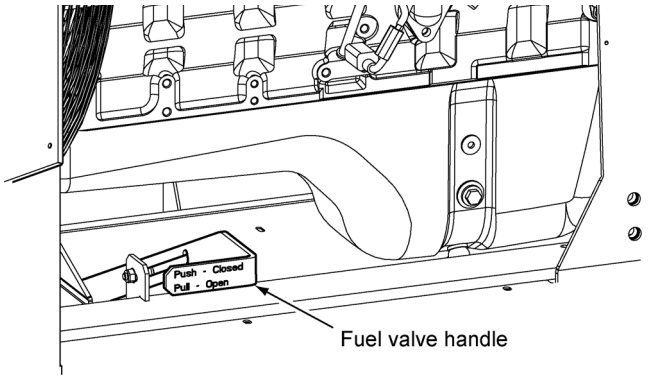
The engine has an electric fuel priming pump. After a filter change, let the lift pump run its 30 second cycle before cranking.

FUEL TANK ISOLATION VALVE

This compressor is fitted with a fuel isolator valve to allow for tank isolation according to Canadian TDG regulations.



NOTE: Before resuming operation this isolator valve must be returned to the open position for tanks to equalize and vent.



CHARGE 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 pipework for cracks, leaks, etc. and replace immediately if damaged.

ELECTRICAL SYSTEM

WARNING: Always disconnect the battery switch before performing any maintenance or service.

When removing connectors from electrical devices and sensors, inspect the terminals to ensure they have electrical grease on them. If electrical grease is not present or very minimal, then add a small amount of Doosan Part No. 22409114 electrical grease to the terminals. Dirty and or corroded electrical terminals can be cleaned using electrical contact cleaner.

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.

CAUTION: 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.

PRESSURE SYSTEM

At 3 month 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.

TIRES/TIRE PRESSURE

See the GENERAL INFORMATION section of this manual.

RUNNING GEAR/WHEELS

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

The bolts securing the running gear to the frame 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.

LUBRICATION

The engine is initially supplied with engine oil sufficient for a nominal period of operation (for more information, consult The Engine Manufacturer's 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 SERVICE / MAINTENANCE CHART.

ENGINE LUBRICATING OIL SPECIFICATION

Refer to the Engine Manufacturer's Manual or Lubrication Specification list.

ENGINE OIL FILTER ELEMENT

The engine oil filter element should be changed at the engine manufacturer's recommended intervals. Refer to the SERVICE / MAINTENANCE CHART.

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.

RUNNING GEAR WHEEL BEARINGS

Wheel bearings should be packed with heavy duty wheel bearing grease every 6 months.

Wheel bearings should be greased per the Maintenance Schedule in this manual. The type of grease used should conform to specifications below:

Grease

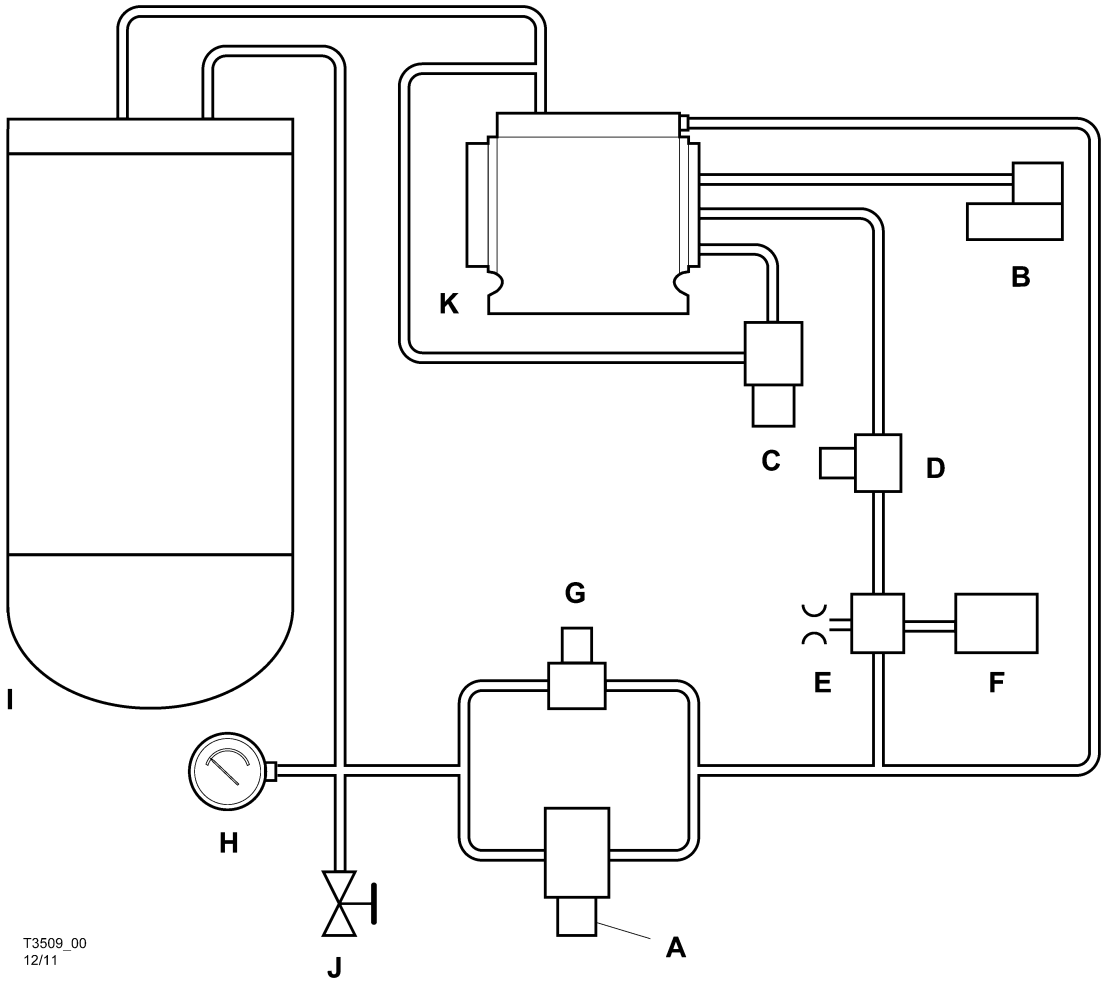
Thickener Type Lithium Complex

Dropping Point 215°C (419°F) Minimum

Consistency NLGI No.2

Additives EP, Corrosion & Oxidation Inhibitors

Viscosity Index 80 Minimum



HP915 / XP1000

KEY

A	Regulator	**E**	Orifice	**I**	Separator tank
B	Mini compressor	**F**	Regulation pressure transducer	**J**	Manual blowdown valve
C	Auto blowdown valve	**G**	Start/Run solenoid	**K**	Unloader
D	Unloader solenoid	**H**	Panel pressure gauge		

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 knob

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

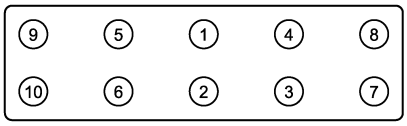
Adjust the service valve on the outside of the machine to maintain normal operating discharge pressure (refer to GENERAL INFORMATION) and full speed position. If the tachometer moves away from the full speed position before normal operating discharge pressure is attained, then turn the adjusting knob 'A' clockwise to increase the pressure. Optimum adjustment is achieved when the throttle just moves from its full speed position and the pressure increases slightly.

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

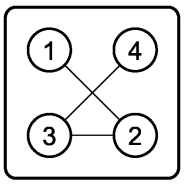
CAUTION: Never allow the idle pressure to exceed maximum allowable pressure (refer to GENERAL INFORMATION).

TORQUE VALUES

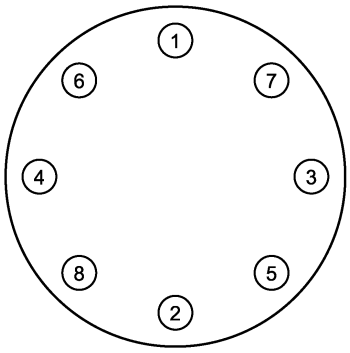
TABLE 1 INCH FASTENERS				
CAPSCREW OR NUT THREAD SIZE AND PITCH	NOMINAL DESIGN TORQUE			
	8AE J249 GRADE 5 (HEAD MARKING)		8AE J249 GRADE 8 (HEAD MARKING)	
	(Nm.)	(FT-LBF)	(Nm.)	(FT-LBF)
1/4 - 20	11	8	16	12
5/16 - 18	24	17	33	25
3/8 - 16	42	31	59	44
7/16 - 14	67	49	95	70
1/2 - 13	102	75	144	106
9/16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



TYPICAL RECTANGULAR TORQUE PATTERN



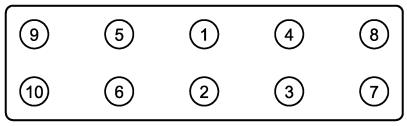
TYPICAL SQUARE TORQUE PATTERN



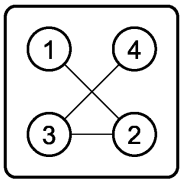
TYPICAL CIRCULAR TORQUE PATTERN

TABLE 2 METRIC FASTENERS

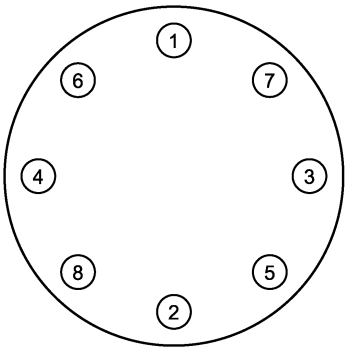
CAPSCREW OR NUT THREAD SIZE AND PITCH	NOMINAL DESIGN TORQUE					
	PROPERTY GRADE 8.8 (HEAD MARKING)		PROPERTY GRADE 10.9 (HEAD MARKING)		PROPERTY GRADE 12.9 (HEAD MARKING)	
	(Nm.)	(FT-LBF)	(Nm.)	(FT-LBF)	(Nm.)	(FT-LBF)
M6 X 1.0	11	8	15	11	18	13
M8 X 1.25	26	19	36	27	43	31
M10 X 1.5	52	38	72	53	84	62
M12 X 1.75	91	67	126	93	147	109
M14 X 2	145	107	200	148	234	173
M16 X 2	226	166	313	231	365	270
M20 X 2.5	441	325	610	450	713	526



TYPICAL RECTANGULAR TORQUE PATTERN



TYPICAL SQUARE TORQUE PATTERN



TYPICAL CIRCULAR TORQUE PATTERN

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 ensure 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 Fluid Chart.

NOTE: 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.

NOTE: 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.

COMPRESSOR LUBRICATION

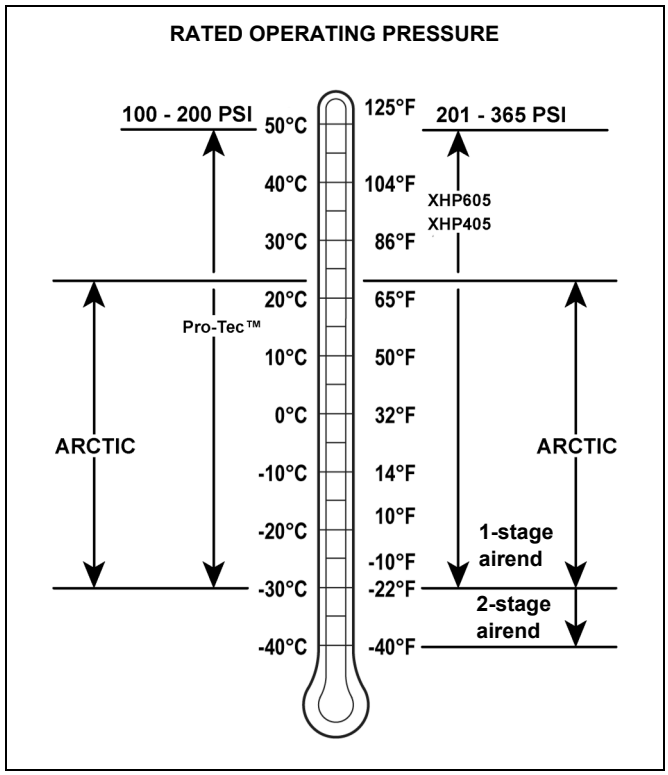
Portable Compressor Fluid Chart

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.

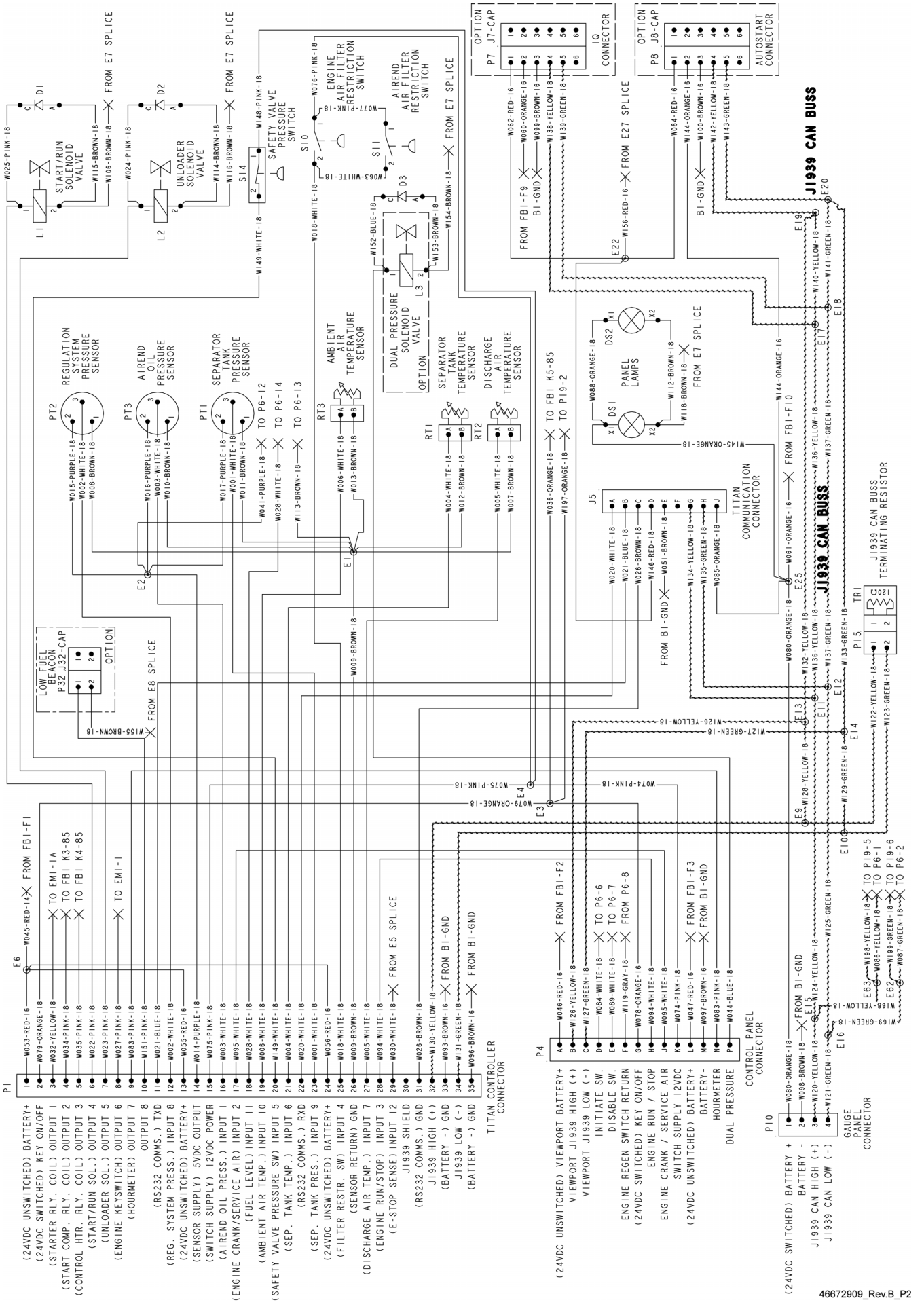
Design operating pressure	Ambient temperature	Compressor oil specification
(100 psi to 200 psi)	-23°C to 49°C (-10°F to 120°F)	Preferred: **PRO-TEC** Alternate: ISO Viscosity Grade 46 with rust and oxidization inhibitors, designed for air compressor service.
	ARCTIC -22° F to 68 F (-30° C to 20° C)	Alternate: **Mobil 1 SYNTHETIC ATF** **Mobil SHC RARUS 32**
(201 psi to 365 psi)	-23°C to 49°C (-10°F to 120°F)	Preferred: **XHP 605 (required for extended warranty)** Alternate: **XHP 405** ISO Viscosity Grade 68 Group 3 or 4 with rust and oxidization inhibitors, designed for air compressor service.
	ARCTIC 1-Stage Airend -22° F to 68 F (-30° C to 20° C)	Alternate: **Mobil 1 SYNTHETIC ATF** **Mobil SHC RARUS 32**
	2-Stage Airend -40° F to 68 F (-40° C to 20° C)	



Doosan preferred fluids - the use of these fluids with original Doosan branded filters can extend airend warranty. Refer to operator's manual warranty section for details or contact your Portable Power representative.

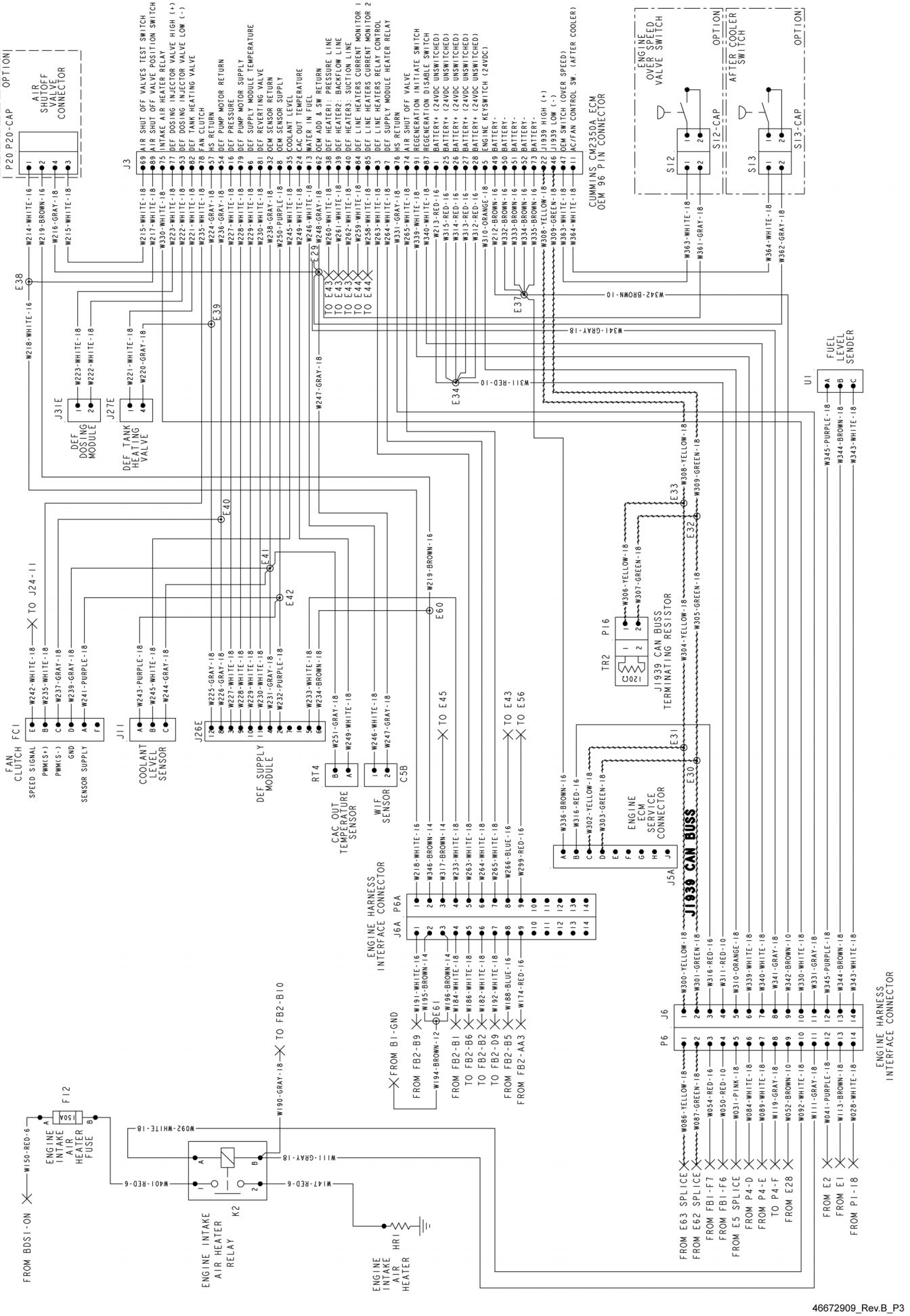
Doosan preferred fluids	1 gal. (3.8 Litre)	5 gal. (19.0 Litre)	55 gal. (208.2 Litre)	220 gal. (836 Litre)
Pro-Tec™	36899698	36899706	36899714	36899722 (275 gal.)
XHP605	-	22252076	22252050	22252068 (220 gal.)
XHP405	-	22252126	22252100	-

Note: Stage 3B & Stage 4 engines are required to use CJ-4/ACEA E9 engine oil only, failure to do so will result in engine after treatment damage. Please read the engine manual for more details.


J1939 CAN BUSS
J1939 CAN BUSS
J1939 CAN BUSS
TERMINATING RESISTOR
46672909_Rev.B_P2

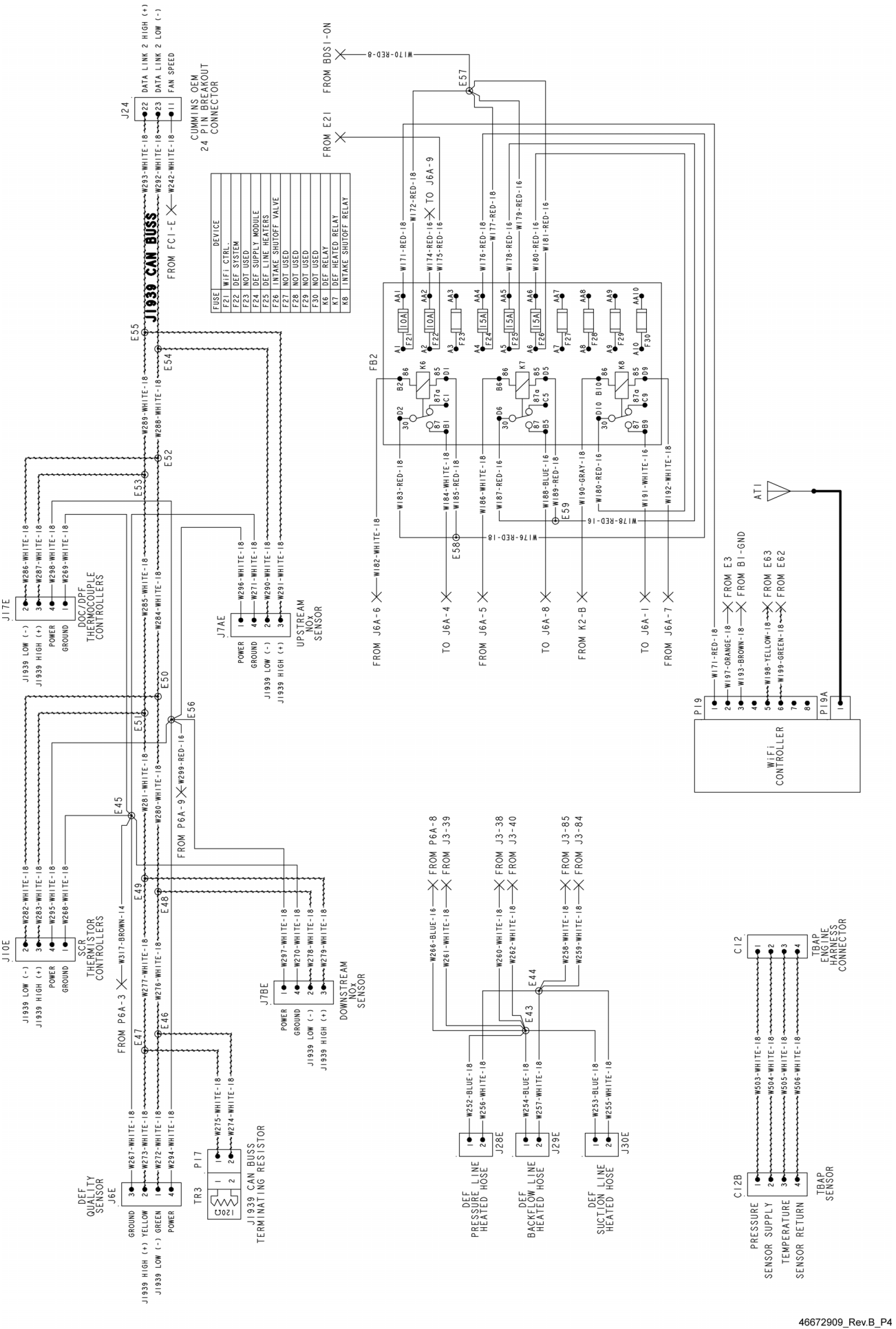
KEY

DS1	Lamp, panel
DS2	Lamp, panel
J5	Connector, Titan communication
L1	Valve, start/run solenoid
L2	Valve, unloader solenoid
L3	Valve, dual pressure solenoid
P1	Connector, Titan controller
P4	Connector, control panel
P7	Connector, IQ
P8	Connector, autostart
P10	Connector, gauge panel
P15	J1939 Can buss
P32	Beacon, low fuel
PT1	Sensor, separator tank pressure
PT2	Sensor, regulation system pressure
PT3	Sensor, airend oil pressure
RT1	Sensor, separator tank temperature
RT2	Sensor, discharge air temperature
RT3	Sensor, ambient air temperature
S10	Switch, engine air filter restriction
S11	Switch, airend air filter restriction
S14	Switch, safety valve pressure
TR1	Resistor, terminating


P20 P20-CAP OPTION
AIR SHUTOFF VALVE CONNECTOR
J3
CUMMINS CM2350A ECM OEM 96 PIN CONNECTOR
ENGINE OVER SPEED VALVE SWITCH
S12
S12-CAP
OPTION
AFTER COOLER SWITCH
S13
S13-CAP
OPTION
J31E
DEF DOSING MODULE
J27E
DEF TANK HEATING VALVE
U1
FUEL LEVEL SENDER
FAN CLUTCH FC1
SPEED SIGNAL
PWM(S+)
PWM(S-)
GND
SENSOR SUPPLY
J11
COOLANT LEVEL SENSOR
J26E
DEF SUPPLY MODULE
RT4
CAC OUT TEMPERATURE SENSOR
WIF SENSOR
C5B
TR2 P16
J1939 CAN BUSS TERMINATING RESISTOR
C021
ENGINE ECM SERVICE CONNECTOR
J5A
J1939 CAN BUSS
ENGINE HARNESS INTERFACE CONNECTOR
J6A P6A
P6 J6
ENGINE HARNESS INTERFACE CONNECTOR
F12
ENGINE INTAKE AIR HEATER FUSE
150A
ENGINE INTAKE AIR HEATER RELAY
K2
ENGINE INTAKE AIR HEATER
HRI
FROM BDSI-ON
TO J24-11
TO FB2-B10
FROM B1-GND
FROM FB2-B9
FROM FB2-B1
TO FB2-B6
TO FB2-B2
TO FB2-D9
FROM FB2-B5
FROM FB2-AA3
TO E43
TO E56
TO E45
FROM E63 SPLICE
FROM E62 SPLICE
FROM FB1-F7
FROM FB1-F6
FROM E5 SPLICE
FROM P4-D
FROM P4-E
TO P4-F
FROM E28
FROM E2
FROM E1
FROM P1-18
W342-BROWN-10
W341-GRAY-18
W311-RED-10
W247-GRAY-18
W219-BROWN-16
W218-WHITE-16
W190-GRAY-18
W092-WHITE-18
W401-RED-6
W147-RED-6
W111-GRAY-18
W150-RED-6
E38
E39
E40
E41
E42
E29
E34
E37
E33
E32
E31
E30
E60
E61
E62
E63
E5
E28
E2
E1
P1-18
46672909_Rev.B_P3

KEY

C5B	Sensor, water in fuel
F12	Fuse, engine intake air heater fuse (150A)
FC1	Clutch, fan
HR1	Heater, engine intake air
J3	Connector, Cummins CM2350A ECM OEM 96 PIN
J5A	Connector, engine ECM service
J6	Connector, engine harness interface
J6A	Connector, engine harness interface
J11	Sensor, coolant level
J26E	Supply module, DEF
J27E	Valve, DEF tank heating
J31E	Module, DEF tank dosing
K2	Relay, engine intake air heater
P6	Connector, engine harness interface
P6A	Connector, engine harness interface
P20	Connector, air shutoff valve
RT4	Sensor, CAC out temperature
TR2	Resistor, J1939 Can buss terminating
U1	Sensor, fuel level

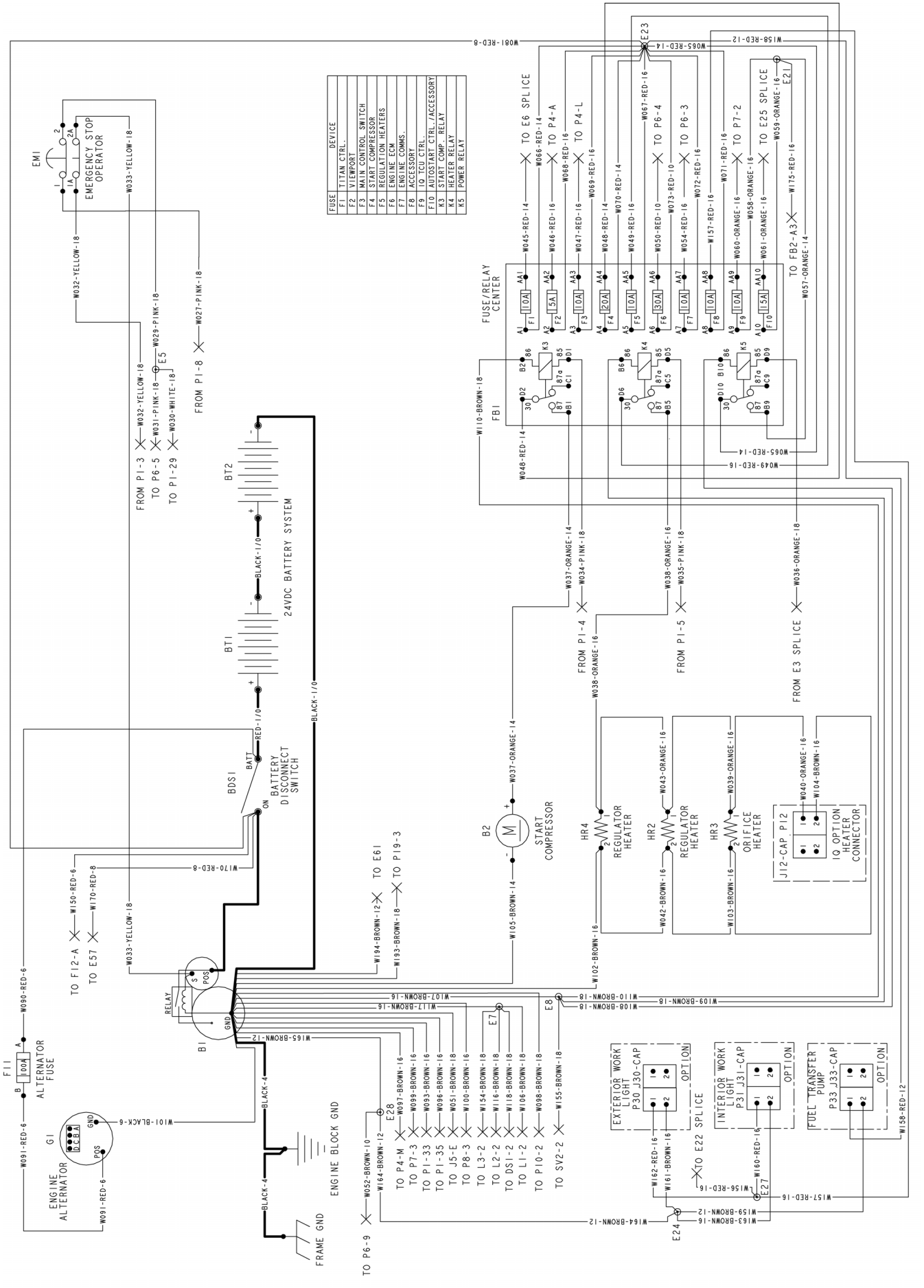


46672909_Rev.B_P4

KEY

C12 Connector, TBAP engine harness
C12B Sensor, TBAP
FB2 Center, fuse / relay
J6E Sensor, DEF quality
J7AE Sensor, upstream NOx
J7BE Sensor, downstream NOx
J10E Controller, SCR thermistor
J17E Controller, DOC / DPF thermocouple
J24 Connector, Cummins OEM 24 pin breakout
J28E Hose, DEF pressure line heated
J29E Hose, DEF backflow line heated
J30E Hose, DEF suction line heated
P19 Controller, WiFi
TR3 Resistor, J1939 Can buss terminating

FUSE	DEVICE
F21	WiFi CONTROLLER
F22	DEF SYSTEM
F23	NOT USED
F24	DEF SUPPLY MODULE
F25	DEF LINE HEATERS
F26	INTAKE SHUTOFF VALVE
F27	NOT USED
F28	NOT USED
F29	NOT USED
F30	NOT USED
K6	DEF RELAY
K7	DEF HEATED RELAY
F10	INTAKE SHUTOFF RELAY

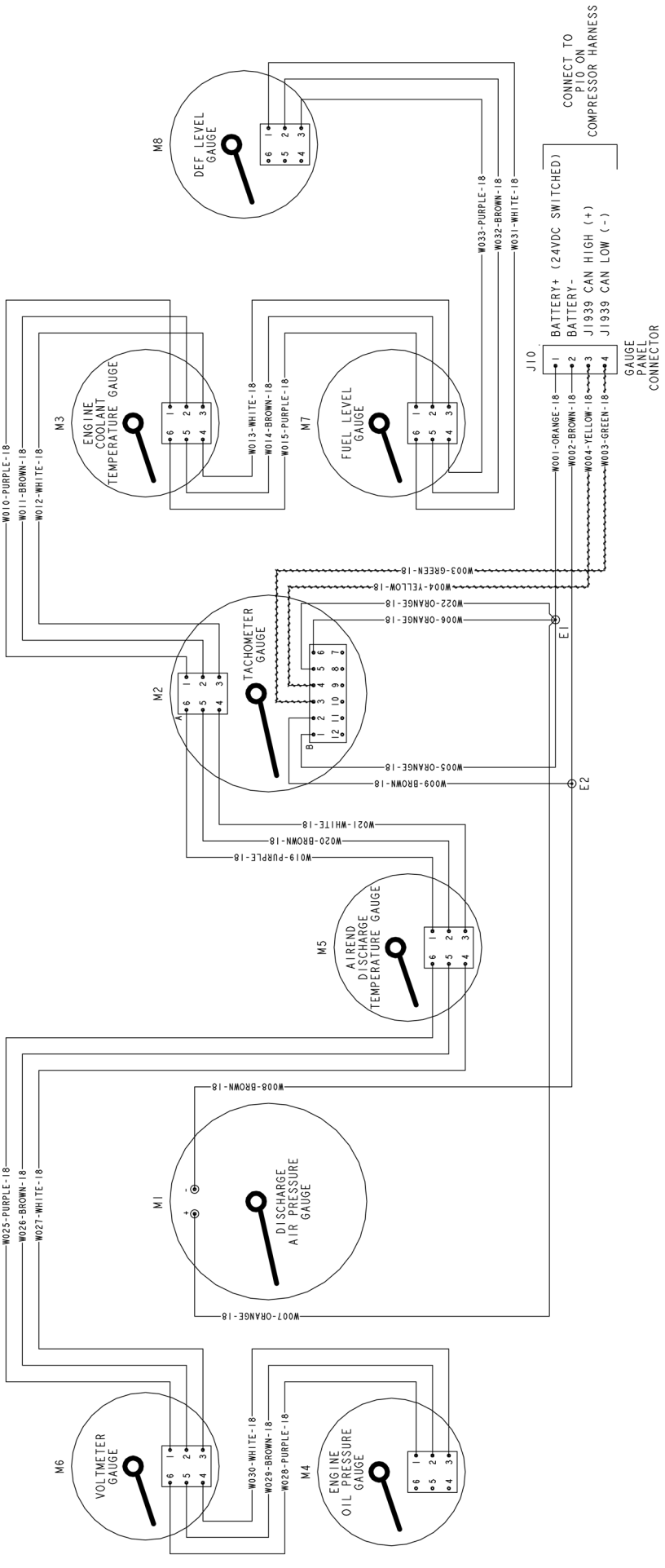


46672909_Rev.B_P5

KEY

B1 Relay
B2 Start compressor
BDS1 Switch, battery disconnect
BT1 Battery
BT2 Battery
EM1 Operator, emergency stop
F11 Fuse, alternator
FB1 Center, fuse / relay
G1 Alternator, engine
HR2 Heater, regulator
HR3 Heater, regulator
HR4 Heater, regulator
J12 Connector, IQ option heater
P30 Light, exterior work
P31 Light, interior work
P33 Pump, fuel transfer

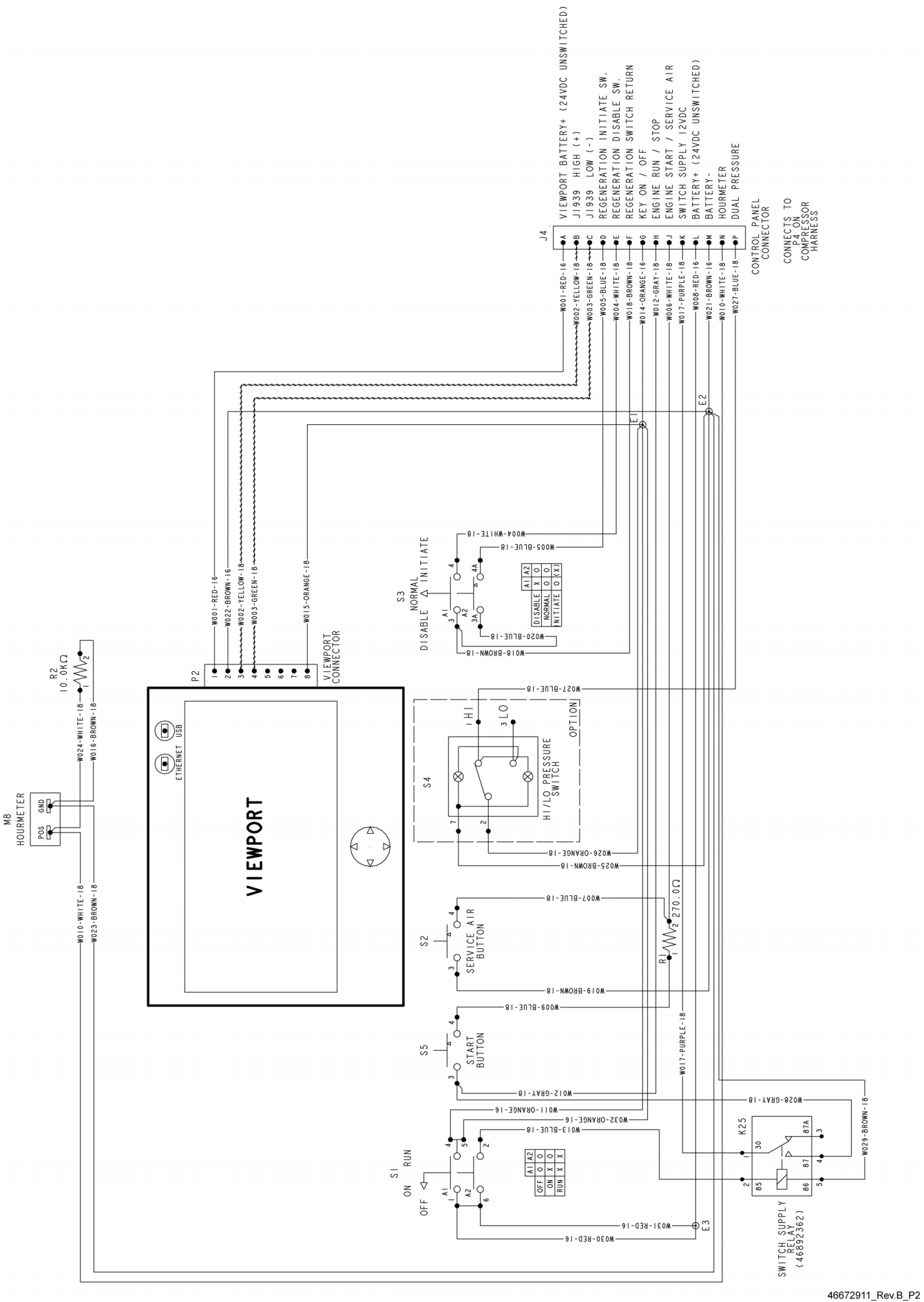
FUSE	DEVICE
F1	TITAN CONTROLLER
F2	VIEWPORT
F3	MAIN CONTROL SWITCH
F4	START COMPRESSOR
F5	REGULATION HEATERS
F6	ENGINE ECM
F7	ENGINE COMMS
F8	ACCESSORY
F9	IQ TCU CONTROL
F10	AUTOSTART CONTROLLER / ACCESSORY
K3	START COMP RELAY
K4	HEATER RELAY
F5	POWER RELAY



46672910_Rev.A_P2

KEY

J10	Connector, gauge panel
M1	Gauge, discharge air pressure
M2	Gauge, tachometer
M3	Gauge, engine coolant temperature
M4	Gauge, engine oil pressure
M5	Gauge, airend discharge temperature
M6	Gauge, voltmeter
M7	Gauge, fuel level
M8	Gauge, DEF level

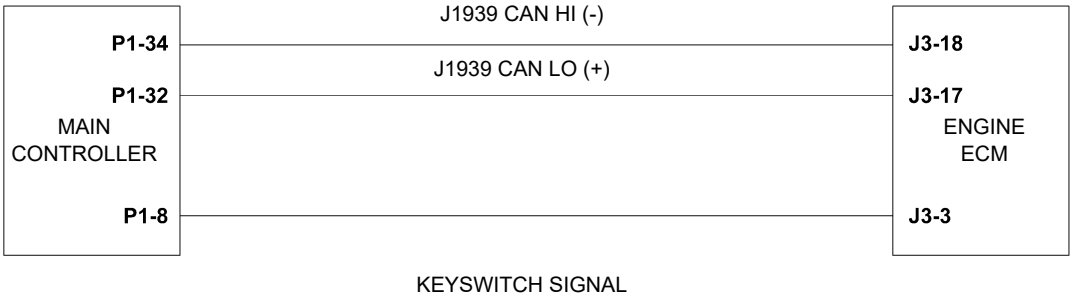


46672911_Rev.B_P2

KEY

J4	Connector, control panel
K25	Relay, switch supply
M8	Hourmeter
P2	Connector, ViewPort
S1	Switch, main control
S2	Button, service air
S3	Switch, disable / initiate
S4	Switch, dual pressure
S5	Button, start

TITAN TO ENGINE ECM CONNECTION LAYOUT
CUMMINS CM2250 ENGINE ECM



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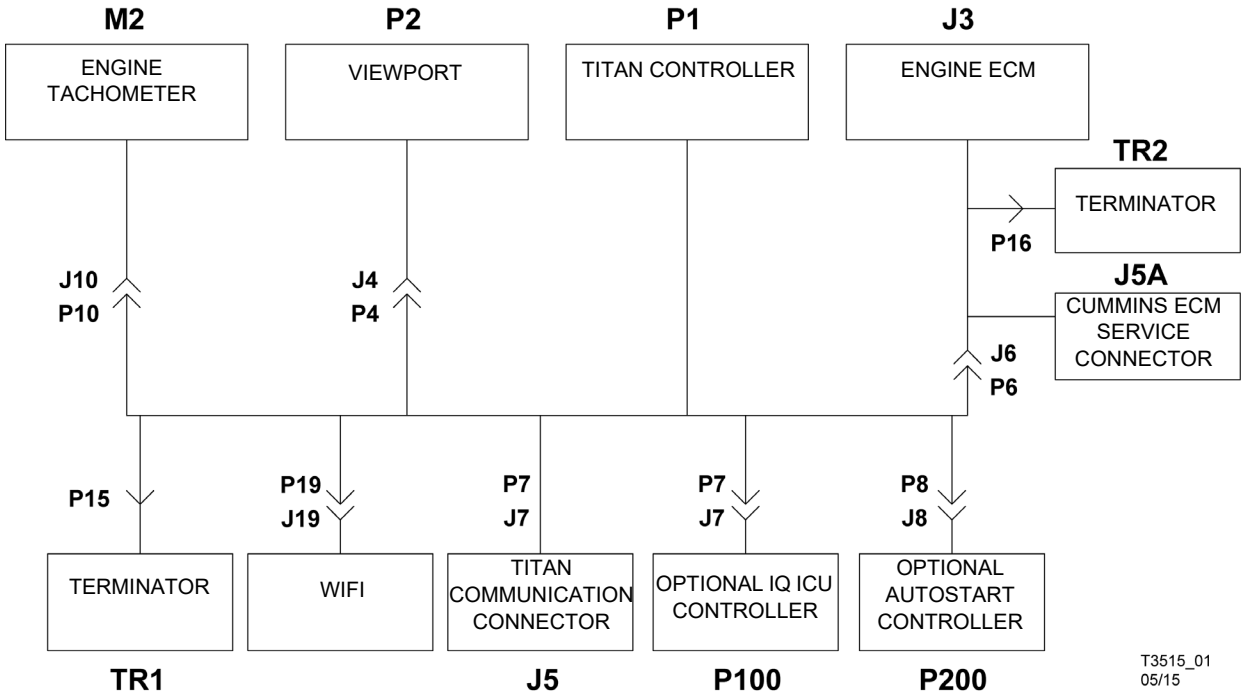
J1939 CAN BUSS CONNECTION LAYOUT



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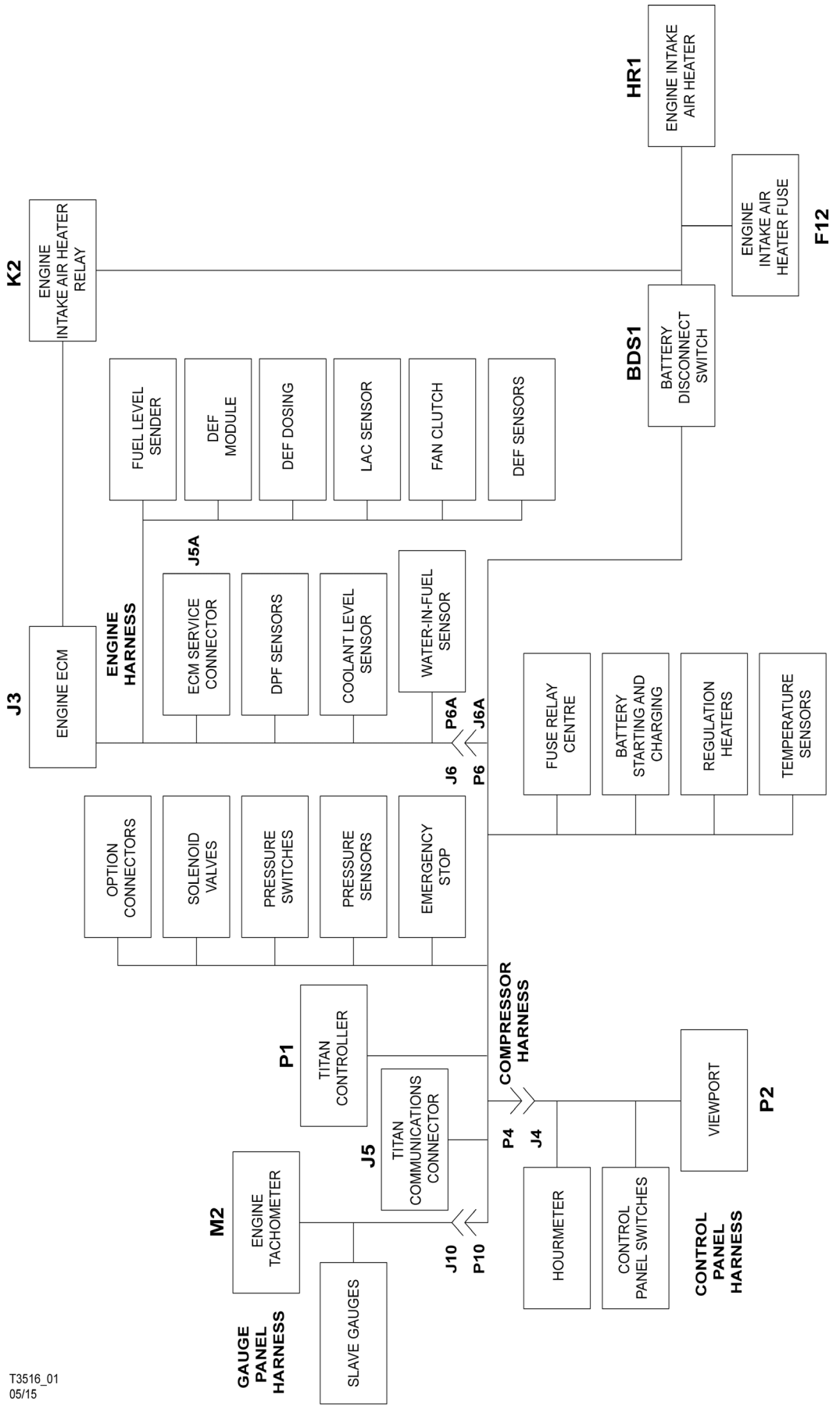
HARNESS SYSTEM CONNECTION LAYOUT



T3516_01
05/15

ELECTRICAL PARTS HP915, XP1000

PART NUMBERS	DESCRIPTION	QTY PER MACHINE
36844975	BATTERY, 12V, 900CCA	2
46561979	BATTERY, JUMPER	1
46562040	BATTERY CABLE, NEGATIVE	1
46562039	JUMPER BATTERY CABLE POS	1
36896975	BAT SWITCH DISC 2000AMP	1
46562019	BATTERY, CABLE POSITIVE	1
46569684	ENGINE EARTH STRAP	1
46569681	FRAME EARTH STRAP	1
46624448	HARNESS, COMPRESSOR	1
46642388	HARNESS, ENGINE	1
46571979	HARNESS, ENGINE INTAKE	1
46561862	FUSEHOLDER	1
46561563	FUSE AMG 150A	1
46562041	CONTACTOR, 24VDC	1
89303127	E-STOP BUTTON	1
89303135	EM STOP NC CONTACTS	2
54496773	PRES. TRANS. 0-225 PSIG	2
36920825	PRES. TRANS. 0-100 PSIG	1
23294820	SENSOR,TEMPERATURE 3/8 NPT	4
23294820*	SENSOR,TEMPERATURE 3/8 NPT	1
36847838	SWITCH, VAC 20" WATER	2
22769186	SENSOR, COOLANT LVL 5V	1
46615303	SENSOR, FUEL LEVEL	1
46568519	SWITCH, PRESSURE 12 PSI NPT	1
46594821	VIEWPORT	1
46641633	SWITCH, SELECTOR 3 POSITION	1
46641805	SWITCH, PUSHBUTTON	1
46559026	SWITCH, PUSHBUTTON	1
46558799	GAUGE, PRESSURE MECHANICAL	1
46557109	HOURMETER, DIGITAL	1
46558802	GAUGE, CAN BUSS TACHOMETER	1
46558803	GAUGE, CAN BUSS ENGINE OIL PRESSURE SLAVE 24VDC	1
46558804	GAUGE, CAN BUSS ENGINE	1

*Optional IQ System and Dual Pressure System

ELECTRICAL PARTS HP915, XP1000

PART NUMBERS	DESCRIPTION	QTY PER MACHINE
46565479	GAUGE, FUEL LEVEL CAN BUSS	1
46558805	GAUGE, CAN BUSS VOLTMETER	1
46558806	GAUGE, CAN BUSS AIREND DISCHARGE	1
46636464	GAUGE, DEF LEVEL CAN BUS SLAVE 24VDC	1
46672899	HARNESS, TIER 4	1
46672898	HARNESS, TIER 4 OPERATOR	1
36892362	RELAY, 24V SPDT	1
46556142	SWITCH, SELECTOR 3 POSITION	1
46556145	COVER, SWITCH PADLOCKABLE	1
46651420	CONTROLLER, TITAN	1
46556345	LAMP, PANEL 24 VDC	2
36850691	COMPRESSOR, ELEC 24VDC	1
36840841*	VALVE, SOL 24V .375NPT	1
36840841	VALVE, SOL 24V .375NPT	2
36841526	HEATER, 24VDC 075HEX	2
36841526*	HEATER, 24VDC 075HEX	5

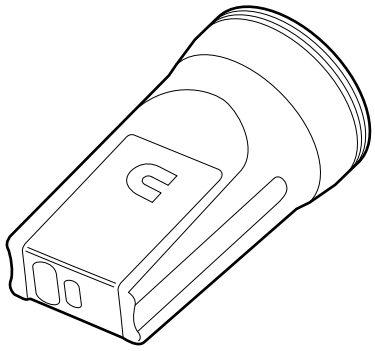
*Optional IQ System and Dual Pressure System

DIAGNOSTIC CODES

The ViewPort displays diagnostic codes for the compressor system and the engine. Listings of these codes are provided in this section.

The engine diagnostic codes can also be read with the engine manufacturer's service tool. A service tool connector is provided in the electrical harness, providing access to the J1939 CAN network. For advanced engine troubleshooting, it is recommended that the manufacturer's service tools and service literature be used.

Cummins Inline Diagnostic tool



This Bluetooth-enabled INLINE mini features a nine-pin connector that plugs directly into the standard SAE J1939-13 interface, allowing customers to quickly retrieve engine information using a Bluetooth-equipped iOS® or Android® smartphone or tablet. Sharing this information with a service provider can help improve communication and speed up repairs.

The mobile app reduces the need to drive to a certified service location or wait for a technician to arrive on site. Customers can view prioritized engine faults using the Guidanz mobile app paired with an INLINE™ mini Bluetooth® adapter, which provides critical information they can quickly share with their operations manager or service provider. By either emailing the operations manager directly from the app or calling Cummins Care, initiating the service process is faster and easier than ever with data available at the fingertips of our customers. The app also links customers to an online service locator, helping them identify the closest certified repair location. Even when offline, Guidanz can provide a list of engine faults to the customer.

COMPRESSOR DIAGNOSTIC CODES

Compressor Code	Display Name	Description	Code Type
1	Low Engine Speed	Engine speed less than 900 RPM for 30 seconds.	FAULT
2	High Engine Speed	Engine speed greater than 2100 RPM for 30 seconds.	FAULT
3	Engine Crank Timeout	Engine crank attempt longer than 15 seconds.	ALERT
4	Out of Fuel	Fuel level in tank below usable limit.	FAULT
9	Engine Diagnostic Code	Engine diagnostic code present in ViewPort history log.	ALERT
10	Engine Speed Response	Engine target idle speed not met within 10 seconds after loading compressor.	ALERT
11	AutoStart Attempts Exceeded	Compressor not started after 3 crank attempts.	FAULT
12	Low Fuel Level	Fuel level in tank approaching empty.	ALERT
29	Engine Shutdown Unknown	Engine stopped without an engine diagnostic code.	FAULT
30	High Airend Discharge Temperature	Airend discharge temperature greater than or equal to 248°F.	FAULT
31	Low Airend Oil Pressure	Airend oil pressure below 10 psi.	FAULT
32	Airend Discharge Temperature Sensor	Airend discharge temperature sensor reading out of range.	FAULT
33	Separator Tank Pressure Sensor	Separator tank pressure sensor reading out of range.	FAULT

Compressor Code	Display Name	Description	Code Type
34	High Separator Tank Pressure At Start	Separator tank pressure greater than 20 psi at crank attempt.	ALERT
35	High Separator Tank Pressure	Air pressure in the separator tank exceeded limit.	FAULT
36	Safety Valve Open	Safety relief valve on separator tank opened.	FAULT
37	Low Airend Discharge Temperature	Airend discharge temperature 5°F below calculated setpoint for 20 minutes.	FAULT
38	Intake Air Filters Restricted	Intake filters restricting air flow.	ALERT
39	Low System Voltage	Electrical system voltage below 25.5VDC.	ALERT
41	Airend Oil Pressure Sensor	Airend oil pressure sensor reading out of range.	FAULT
42	Fuel Level Sensor	Fuel level sensor reading out of range.	ALERT
43	Low Separator Tank Pressure	Separator tank pressure below 40 psi after compressor is loaded.	FAULT
44	High IQ Filter Restriction	IQ filters restricting air flow.	ALERT
50	High Separator Tank Temperature	Separator tank temperature greater than or equal to 248°F.	FAULT
51	Compressor ID Invalid	The Titan controller and ViewPort do not have a valid compressor ID.	FAULT
52	IQ Filters Restricted	IQ filters restricted past usable level.	FAULT
53	Separator Tank Temperature Sensor	Separator tank temperature sensor reading out of range.	FAULT
54	Regulation System Pressure Sensor	Regulation system pressure sensor reading out of range.	FAULT
55	Emergency Stop Activated	Emergency Stop button has been activated.	FAULT
56	Low Start Pressure	Separator tank pressure below 50 psi 20 seconds after start.	ALERT
58	Ambient Temperature Sensor	Ambient temperature sensor reading out of range.	ALERT
59	OTBV Solenoid Malfunction	Oil temperature bypass valve solenoid current out of range.	ALERT
60	OTC System Temperature Sensor	OTC system airend discharge temperature sensor reading out of range.	ALERT
61	IQ Filter Pressure Error	IQ filter outlet pressure reading higher than inlet pressure.	ALERT
62	IQ System Louvers Malfunction	Louvers or louver actuator not operating properly.	ALERT
63	Primary IQ Differential Pressure Sensor	IQ differential pressure sensor reading out of range.	ALERT
64	Secondary IQ Differential Pressure Sensor	IQ differential pressure sensor reading out of range.	ALERT
66	IQ Aftercooler Temperature Sensor	IQ Aftercooler Temperature Sensor reading out of range.	ALERT
67	IQ Actuator Position Sensor	IQ louver actuator position sensor reading out of range.	ALERT
71	Engine ECM Communication	Communication between Titan controller and engine ECM not functional.	FAULT
73	AutoStart Controller Communication	Communication between Titan controller and AutoStart controller not functional.	ALERT
74	OTC Controller Communication	Communication between Titan controller and OTC controller not functional.	ALERT
75	IQ TCU Controller Communication	Communication between Titan controller and IQ TCU controller not functional.	ALERT
76	Titan Controller Communication	Communication between Titan controller and ViewPort not functional.	ALERT

ENGINE DIAGNOSTIC CODES					
FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
111	629	12	Red	Controller #1	Engine Control Module Critical Internal Failure - Bad intelligent device or component
115	612	2	Red	System Diagnostic Code #2	Engine Magnetic Speed/Position Lost Both of Two Signals - Data erratic, intermittent or incorrect
122	102	3	Amber	Engine Intake Manifold #1 Pressure	Intake Manifold 1 Pressure Sensor Circuit - Voltage above normal, or shorted to high source
123	102	4	Amber	Engine Intake Manifold #1 Pressure	Intake Manifold 1 Pressure Sensor Circuit - Voltage below normal, or shorted to low source
124	102	16	Amber	Engine Intake Manifold #1 Pressure	Intake Manifold 1 Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level
131	91	3	Red	Accelerator Pedal Position 1	Accelerator Pedal or Lever Position Sensor 1 Circuit - Voltage above normal, or shorted to high source
132	91	4	Red	Accelerator Pedal Position 1	Accelerator Pedal or Lever Position Sensor 1 Circuit - Voltage below normal, or shorted to low source
133	974	3	Red	Remote Accelerator Pedal Position	Remote Accelerator Pedal or Lever Position Sensor 1 Circuit - Voltage above normal, or shorted to high source
134	974	4	Red	Remote Accelerator Pedal Position	Remote Accelerator Pedal or Lever Position Sensor 1 Circuit - Voltage below normal, or shorted to low source
135	100	3	Amber	Engine Oil Pressure	Engine Oil Rifle Pressure 1 Sensor Circuit - Voltage above normal, or shorted to high source
141	100	4	Amber	Engine Oil Pressure	Engine Oil Rifle Pressure 1 Sensor Circuit - Voltage below normal, or shorted to low source
143	100	18	Amber	Engine Oil Pressure	Engine Oil Rifle Pressure - Data Valid But Below Normal Operating Range - Moderately Severe Level
144	110	3	Amber	Engine Coolant Temperature	Engine Coolant Temperature 1 Sensor Circuit - Voltage above normal, or shorted to high source
145	110	4	Amber	Engine Coolant Temperature	Engine Coolant Temperature 1 Sensor Circuit - Voltage below normal, or shorted to low source
146	110	16	Amber	Engine Coolant Temperature	Engine Coolant Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level
147	91	1	Red	Accelerator Pedal Position 1	Accelerator Pedal or Lever Position 1 Sensor Circuit Frequency - Data valid but below normal operating Range
148	91	0	Red	Accelerator Pedal Position 1	Accelerator Pedal or Lever Position Sensor 1 - Data valid but above normal operational range - Most Severe Level
151	110	0	Red	Engine Coolant Temperature	Engine Coolant Temperature - Data valid but above normal operational range - Most Severe Level
153	105	3	Amber	Engine Intake Manifold 1 Temperature	Intake Manifold 1 Temperature Sensor Circuit - Voltage above normal, or shorted to high source
154	105	4	Amber	Engine Intake Manifold 1 Temperature	Intake Manifold 1 Temperature Sensor Circuit - Voltage below normal, or shorted to low source
155	105	0	Red	Engine Intake Manifold 1 Temperature	Intake Manifold 1 Temperature - Data valid but above normal operational range - Most Severe Level
187	3510	4	Amber	Sensor supply voltage 2	Sensor Supply 2 Circuit - Voltage below normal, or shorted to low source

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
195	111	3	Amber	Engine Coolant Level	Coolant Level Sensor 1 Circuit - Voltage above normal, or shorted to high source
196	111	4	Amber	Engine Coolant Level	Coolant Level Sensor 1 Circuit - Voltage below normal, or shorted to low source
197	111	18	Amber	Engine Coolant Level	Coolant Level - Data Valid But Below Normal Operating Range - Moderately Severe Level
221	108	3	Amber	Barometric Pressure	Barometric Pressure Sensor Circuit - Voltage above normal, or shorted to high source
222	108	4	Amber	Barometric Pressure	Barometric Pressure Sensor Circuit - Voltage above normal, or shorted to low source
227	3510	3	Amber	Sensor supply voltage 2	Sensor Supply 2 Circuit - Voltage above normal, or shorted to high source
234	190	0	Red	Engine Speed	Engine Crankshaft Speed/Position - Data valid but above normal operational range - Most Severe Level
235	111	1	Red	Engine Coolant Level	Coolant Level - Data valid but below normal operational range - Most Severe Level
238	3511	4	Amber	Sensor supply voltage 3	Sensor Supply 3 Circuit - Voltage below normal, or shorted to low source
239	3511	3	Amber	Sensor supply voltage 3	Sensor Supply 3 Circuit - Voltage above normal, or shorted to high source
241	84	2	Amber	Wheel-Based Vehicle Speed	Wheel-Based Vehicle Speed - Data erratic, intermittent or incorrect
242	84	10	Amber	Wheel-Based Vehicle Speed	Wheel-Based Vehicle Speed Sensor Circuit tampering has been detected - Abnormal rate of change
245	647	4	Amber	Engine Fan Clutch 1 Output Device Driver	Fan Control Circuit - Voltage below normal, or shorted to low source
249	171	3	Amber	Ambient Air Temperature	Ambient Air Temperature Sensor 1 Circuit - Voltage above normal, or shorted to high source
256	171	4	Amber	Ambient Air Temperature	Ambient Air Temperature Sensor 1 Circuit - Voltage below normal, or shorted to low source
271	1347	4	Amber	Engine Fuel Pump Pressurizing Assembly #1	Engine Fuel Pump Pressurizing Assembly 1 Circuit - Voltage below normal, or shorted to low source
272	1347	3	Amber	Engine Fuel Pump Pressurizing Assembly #2	Engine Fuel Pump Pressurizing Assembly 1 Circuit - Voltage above normal, or shorted to high source
281	1347	7	Amber	Engine Fuel Pump Pressurizing Assembly #3	Engine Fuel Pump Pressurizing Assembly 1 - Mechanical system not responding or out of adjustment
285	639	9	Amber	J1939 Network #1, Primary Vehicle Network (previously SAE J1939 Data Link)	SAE J1939 Multiplexing PGN Timeout Error - Abnormal update rate
286	639	13	Amber	J1939 Network #1, Primary Vehicle Network (previously SAE J1939 Data Link)	SAE J1939 Multiplexing Configuration Error - Out of Calibration
288	974	19	Red	Remote Accelerator Pedal Position	SAE J1939 Multiplexing Remote Accelerator Pedal or Lever Position Sensor System - Received Network Data In Error
291	625	9	Red	Proprietary Datalink	Proprietary Datalink Error (OEM/Vehicle Datalink) - Abnormal update rate
292	441	14	Red	Auxiliary Temperature 1	Auxiliary Temperature Sensor Input 1 - Special Instructions
293	441	3	Amber	Auxiliary Temperature 1	Auxiliary Temperature Sensor Input 1 Circuit - Voltage above normal, or shorted to high source
294	441	4	Amber	Auxiliary Temperature 1	Auxiliary Temperature Sensor Input 1 Circuit - Voltage below normal, or shorted to low source
296	1388	14	Red	Auxiliary Pressure #2	Auxiliary Pressure Sensor Input 2 - Special Instructions

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
297	1388	3	Amber	Auxiliary Pressure #2	Auxiliary Pressure Sensor Input 2 Circuit - Voltage above normal, or shorted to high source
298	1388	4	Amber	Auxiliary Pressure #2	Auxiliary Pressure Sensor Input 2 Circuit - Voltage below normal, or shorted to low source
322	651	5	Amber	Engine Injector Cylinder #01	Injector Solenoid Driver Cylinder 1 Circuit - Current below normal or open circuit
323	655	5	Amber	Engine Injector Cylinder #05	Injector Solenoid Driver Cylinder 5 Circuit - Current below normal or open circuit
324	653	5	Amber	Engine Injector Cylinder #03	Injector Solenoid Driver Cylinder 3 Circuit - Current below normal or open circuit
325	656	5	Amber	Engine Injector Cylinder #06	Injector Solenoid Driver Cylinder 6 Circuit - Current below normal or open circuit
331	652	5	Amber	Engine Injector Cylinder #02	Injector Solenoid Driver Cylinder 2 Circuit - Current below normal or open circuit
332	654	5	Amber	Engine Injector Cylinder #04	Injector Solenoid Driver Cylinder 4 Circuit - Current below normal or open circuit
338	1267	3	Amber	Idle Shutdown Vehicle Accessories Relay Driver Circuit	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage above normal, or shorted to high source
339	1267	4	Amber	Idle Shutdown Vehicle Accessories Relay Driver Circuit	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage below normal, or shorted to low source
343	629	12	Amber	Controller #1	Engine Control Module Warning Internal Hardware Failure - Bad intelligent device or component
349	191	16	Amber	Transmission Output Shaft Speed	Transmission Output Shaft Speed - Data Valid But Above Normal Operating Range - Moderately Severe Level
351	3597	12	Amber	ECU Power Output Supply Voltage #1	Injector Power Supply - Bad intelligent device or component
352	3509	4	Amber	Sensor supply voltage 1	Sensor Supply 1 Circuit - Voltage below normal, or shorted to low source
386	3509	3	Amber	Sensor supply voltage 1	Sensor Supply 1 Circuit - Voltage above normal, or shorted to high source
415	100	1	Red	Engine Oil Pressure	Engine Oil Rifle Pressure - Data valid but below normal operational range - Most Severe Level
418	97	15	Amber (Blinking)	Water In Fuel Indicator	Water in Fuel Indicator - Data Valid But Above Normal Operating Range - Least Severe Level
428	97	3	Amber	Water In Fuel Indicator	Water in Fuel Indicator Sensor Circuit - Voltage above normal, or shorted to high source
429	97	4	Amber	Water In Fuel Indicator	Water in Fuel Indicator Sensor Circuit - Voltage below normal, or shorted to low source
431	558	2	Amber	Accelerator Pedal 1 Low Idle Switch	Accelerator Pedal or Lever Idle Validation Switch - Data erratic, intermittent or incorrect
432	558	13	Red	Accelerator Pedal 1 Low Idle Switch	Accelerator Pedal or Lever Idle Validation Switch Circuit - Out of Calibration
435	100	2	Amber	Engine Oil Pressure	Engine Oil Rifle Pressure - Data erratic, intermittent or incorrect
441	168	18	Amber	Battery Potential / Power Input 1	Battery 1 Voltage - Data Valid But Below Normal Operating Range - Moderately Severe Level
442	168	16	Amber	Battery Potential / Power Input 1	Battery 1 Voltage - Data Valid But Above Normal Operating Range - Moderately Severe Level
449	157	0	Red	Engine Injector Metering Rail 1 Pressure	Injector Metering Rail 1 Pressure - Data valid but above normal operational range - Most Severe Level
451	157	3	Amber	Engine Injector Metering Rail 1 Pressure	Injector Metering Rail 1 Pressure Sensor Circuit - Voltage above normal, or shorted to high source

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
452	157	4	Amber	Engine Injector Metering Rail 1 Pressure	Injector Metering Rail 1 Pressure Sensor Circuit - Voltage below normal, or shorted to low source
483	1349	3	Amber	Engine Injector Metering Rail 2 Pressure	Injector Metering Rail 2 Pressure Sensor Circuit - Voltage above normal, or shorted to high source
488	105	16	Amber	Engine Intake Manifold Temperature	Intake Manifold 1 Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level
489	191	18	Amber	Transmission Output Shaft Speed	Transmission Output Shaft Speed - Data Valid But Below Normal Operating Range - Moderately Severe Level
497	1377	2	Amber	Engine Synchronization Switch	Multiple Unit Synchronization Switch - Data erratic, intermittent or incorrect
515	3514	3	Amber	Sensor supply voltage 6	Sensor Supply 6 Circuit - Voltage above normal, or shorted to high source
516	3514	4	Amber	Sensor supply voltage 6	Sensor Supply 6 Circuit - Voltage below normal, or shorted to low source
523	611	2	Amber	System Diagnostic Code #1	Auxiliary Intermediate (PTO) Speed Switch Validation - Data erratic, intermittent or incorrect
527	702	3	Amber	Auxiliary I/O #02	Auxiliary Input/Output 2 Circuit - Voltage above normal, or shorted to high source
529	703	3	Amber	Auxiliary I/O #03	Auxiliary Input/Output 3 Circuit - Voltage above normal, or shorted to high source
546	94	3	Amber	Engine Fuel Delivery Pressure	Fuel Delivery Pressure Sensor Circuit - Voltage above normal, or shorted to high source
547	94	4	Amber	Engine Fuel Delivery Pressure	Fuel Delivery Pressure Sensor Circuit - Voltage below normal, or shorted to low source
553	157	16	Amber	Engine Injector Metering Rail 1 Pressure	Injector Metering Rail 1 Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level
555	101	16	Amber	Engine Crankcase Pressure	Crankcase Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level
556	101	0	Red	Engine Crankcase Pressure	Crankcase Pressure - Data valid but above normal operational range - Most Severe Level
559	157	18	Amber	Engine Injector Metering Rail 1 Pressure	Injector Metering Rail 1 Pressure - Data Valid But Below Normal Operating Range - Moderately Severe Level
584	677	3	Amber	Engine Starter Motor Relay	Starter Relay Driver Circuit - Voltage above normal, or shorted to high source
585	677	4	Amber	Engine Starter Motor Relay	Starter Relay Driver Circuit - Voltage below normal, or shorted to low source
595	103	16	Amber	Engine Turbocharger 1 Speed	Turbocharger 1 Speed - Data Valid But Above Normal Operating Range - Moderately Severe Level
599	640	14	Red	Engine External Protection Input	Auxiliary Commanded Dual Output Shutdown - Special Instructions
649	1378	31	Amber (Blinking)	Engine Oil Change Interval	Engine Oil Change Interval - Condition Exists
687	103	18	Amber	Engine Turbocharger 1 Speed	Turbocharger 1 Speed - Data Valid But Below Normal Operating Range - Moderately Severe Level
689	190	2	Amber	Engine Speed	Engine Crankshaft Speed/Position - Data erratic, intermittent or incorrect
691	1172	3	Amber	Engine Turbocharger 1 Compressor Intake Temperature	Turbocharger 1 Compressor Intake Temperature Circuit - Voltage above normal, or shorted to high source
692	1172	4	Amber	Engine Turbocharger 1 Compressor Intake Temperature	Turbocharger 1 Compressor Intake Temperature Circuit - Voltage below normal, or shorted to low source

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
731	723	7	Amber	Engine Speed 2	Engine Speed / Position Camshaft and Crankshaft Misalignment - Mechanical system not responding or out of adjustment
741	1176	3	Amber	Engine Turbocharger 1 Compressor Intake Pressure	Turbocharger 1 Compressor Intake Pressure Circuit - Voltage above normal, or shorted to high source
742	1176	4	Amber	Engine Turbocharger 1 Compressor Intake Pressure	Turbocharger 1 Compressor Intake Pressure Circuit - Voltage below normal, or shorted to low source
743	1176	2	Amber	Engine Turbocharger 1 Compressor Intake Pressure	Turbocharger 1 Compressor Intake Pressure - Data erratic, intermittent or incorrect
771	597	4	Amber	Brake Switch	Brake Switch Circuit - Voltage below normal, or shorted to low source
778	723	2	Amber	Engine Speed 2	Engine Camshaft Speed / Position Sensor - Data erratic, intermittent or incorrect
1117	3597	2	None	ECU Power Output Supply Voltage #1	Power Supply Lost With Ignition On - Data erratic, intermittent or incorrect
1141	652	7	Amber	Engine Injector Cylinder #02	Injector Solenoid Driver Cylinder 2 - Mechanical system not responding or out of adjustment
1142	653	7	Amber	Engine Injector Cylinder #03	Injector Solenoid Driver Cylinder 3 - Mechanical system not responding or out of adjustment
1143	654	7	Amber	Engine Injector Cylinder #04	Injector Solenoid Driver Cylinder 4 - Mechanical system not responding or out of adjustment
1144	655	7	Amber	Engine Injector Cylinder #05	Injector Solenoid Driver Cylinder 5 - Mechanical system not responding or out of adjustment
1145	656	7	Amber	Engine Injector Cylinder #06	Injector Solenoid Driver Cylinder 6 - Mechanical system not responding or out of adjustment
1239	2623	3	Amber	Accelerator Pedal #1 Channel 2	Accelerator Pedal or Lever Position Sensor 2 Circuit - Voltage above normal, or shorted to high source
1241	2623	4	Amber	Accelerator Pedal #1 Channel 2	Accelerator Pedal or Lever Position Sensor 2 Circuit - Voltage below normal, or shorted to low source
1242	91	2	Red	Accelerator Pedal Position 1	Accelerator Pedal or Lever Position Sensor 1 - Data erratic, intermittent or incorrect
1427	4185	31	Amber	Overspeed Shutdown Relay Driver	Overspeed Shutdown Relay Driver Diagnostic has detected an error - Condition Exists
1428	4186	31	Amber	Low Oil Pressure Shutdown Relay Driver	Low Oil Pressure (LOP) Shutdown Relay Driver Diagnostic has detected an error - Condition Exists
1429	4187	31	Amber	High Engine Temperature Shutdown Relay Driver	High Engine Temperature (HET) Shutdown Relay Driver Diagnostic has detected an error - Condition Exists
1431	4188	31	Amber	Pre-Low Oil Pressure Indicator Relay Driver	Pre-Low Oil Pressure Warning Relay Driver Diagnostic has detected an error - Condition Exists
1432	4223	31	Amber	Pre-High Engine Temperature Warning Relay Driver	Pre-High Engine Temperature Warning Relay Driver Diagnostic has detected an error - Condition Exists
1515	91	19	Red	Accelerator Pedal Position 1	SAE J1939 Multiplexed Accelerator Pedal or Lever Sensor System - Received Network Data In Error
1539	1387	3	Amber	Auxiliary Pressure #1	Auxiliary Pressure Sensor Input 1 Circuit - Voltage above normal, or shorted to high source
1621	1387	4	Amber	Auxiliary Pressure #1	Auxiliary Pressure Sensor Input 1 Circuit - Voltage below normal, or shorted to low source
1654	1323	31	Amber	Engine Misfire Cylinder #1	Engine Misfire Cylinder 1 - Condition Exists
1655	1324	31	Amber	Engine Misfire Cylinder #2	Engine Misfire Cylinder 2 - Condition Exists
1656	1325	31	Amber	Engine Misfire Cylinder #3	Engine Misfire Cylinder 3 - Condition Exists
1657	1326	31	Amber	Engine Misfire Cylinder #4	Engine Misfire Cylinder 4 - Condition Exists
1658	1327	31	Amber	Engine Misfire Cylinder #5	Engine Misfire Cylinder 5 - Condition Exists

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
1659	1328	31	Amber	Engine Misfire Cylinder #6	Engine Misfire Cylinder 6 - Condition Exists
1664	4796	31	Amber	Aftertreatment 1 Diesel Oxidation Catalyst Missing	Aftertreatment 1 Diesel Oxidation Catalyst Missing - Condition Exists
1668	1761	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Level	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor Circuit - Voltage below normal, or shorted to low source
1669	1761	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Level	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor Circuit - Voltage above normal, or shorted to high source
1673	1761	1	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Level	Aftertreatment 1 Diesel Exhaust Fluid Tank Level - Data valid but below normal operational range -Most Severe Level
1677	3031	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor - Voltage below normal, or shorted to low source
1678	3031	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor - Voltage above normal, or shorted to high source
1679	3031	2	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature - Data erratic, intermittent or incorrect
1682	3362	31	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Input Lines	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Input Lines - Condition Exists
1683	3363	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Heater	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Voltage above normal, or shorted to high source
1684	3363	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Heater	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Voltage below normal, or shorted to low source
1685	3364	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality Sensor Circuit - Voltage below normal, or shorted to low source
1686	3364	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality Sensor Circuit - Voltage above normal, or shorted to high source
1691	5298	18	Amber	Aftertreatment 1 Diesel Oxidation Catalyst Conversion Efficiency	Aftertreatment 1 Diesel Oxidation Catalyst Conversion Efficiency - Data Valid But Below Normal Operating Range - Moderately Severe Level
1694	3226	2	Amber	Aftertreatment 1 Outlet NOx	Aftertreatment 1 Outlet NOx Sensor - Data erratic, intermittent or incorrect
1695	3513	3	Amber	Sensor supply voltage 5	Sensor Supply 5 - Voltage above normal, or shorted to high source
1696	3513	4	Amber	Sensor supply voltage 5	Sensor Supply 5 - Voltage below normal, or shorted to low source
1712	3363	18	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Heater	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Data Valid But Below Normal Operating Range - Moderately Severe Level
1713	3363	16	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Heater	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Data Valid But Above Normal Operating Range - Moderately Severe Level
1714	3364	13	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality - Out of Calibration
1715	3364	11	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality - Root Cause Not Known
1843	101	3	Amber	Engine Crankcase Pressure	Crankcase Pressure Circuit - Voltage above normal, or shorted to high source
1844	101	4	Amber	Engine Crankcase Pressure	Crankcase Pressure Circuit - Voltage below normal, or shorted to low source
1852	97	16	Amber	Water In Fuel Indicator	Water in Fuel Indicator - Data Valid But Above Normal Operating Range - Moderately Severe Level

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
1866	411	2	Amber	Engine Exhaust Gas Recirculation 1 Differential Pressure	Exhaust Gas Recirculation Differential Pressure - Data erratic, intermittent or incorrect
1885	3216	4	Amber	Aftertreatment 1 Intake NOx	Aftertreatment 1 Intake NOx Sensor Circuit - Voltage below normal, or shorted to low source
1887	3226	4	Amber	Aftertreatment 1 Outlet NOx	Aftertreatment 1 Outlet NOx Sensor Circuit - Voltage below normal, or shorted to low source
1896	2791	13	Amber	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control	EGR Valve Controller - Out of Calibration
1898	641	13	Amber	Engine Variable Geometry Turbocharger Actuator #1	VGT Actuator Controller - Out of Calibration
1938	3597	18	Amber	ECU Power Output Supply Voltage #1	ECU Power Output Supply Voltage 1 - Data Valid But Below Normal Operating Range - Moderately Severe Level
1942	101	2	Amber	Engine Crankcase Pressure	Crankcase Pressure - Data erratic, intermittent or incorrect
1961	2791	15	Amber	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control	EGR Valve Control Circuit Over Temperature - Data Valid But Above Normal Operating Range - Least Severe Level
1962	641	15	Amber	Engine Variable Geometry Turbocharger Actuator #1	VGT Actuator Driver Over Temperature (Calculated) - Data Valid But Above Normal Operating Range - Least Severe Level
1974	101	15	Amber (Blinking)	Engine Crankcase Pressure	Crankcase Pressure - Data Valid But Above Normal Operating Range - Least Severe Level
2182	1072	3	Amber	Engine (Compression) Brake Output #1	Engine Brake Actuator Driver 1 Circuit - Voltage above normal, or shorted to high source
2183	1072	4	Amber	Engine (Compression) Brake Output #1	Engine Brake Actuator Driver 1 Circuit - Voltage below normal, or shorted to low source
2185	3512	3	Amber	Sensor supply voltage 4	Sensor Supply 4 Circuit - Voltage above normal, or shorted to high source
2186	3512	4	Amber	Sensor supply voltage 4	Sensor Supply 4 Circuit - Voltage below normal, or shorted to low source
2198	641	11	Amber	Engine Variable Geometry Turbocharger Actuator #1	VGT Actuator Driver Circuit - Root Cause Not Known
2265	1075	3	Amber	Engine Electric Lift Pump for Engine Fuel Supply	Electric Lift Pump for Engine Fuel Supply Circuit - Voltage above normal, or shorted to high source
2266	1075	4	Amber	Engine Electric Lift Pump for Engine Fuel Supply	Electric Lift Pump for Engine Fuel Supply Circuit - Voltage below normal, or shorted to low source
2272	27	4	Amber	Engine Exhaust Gas Recirculation 1 Valve Position	EGR Valve Position Circuit - Voltage below normal, or shorted to low source
2273	411	3	Amber	Engine Exhaust Gas Recirculation 1 Differential Pressure	Exhaust Gas Recirculation Differential Pressure Sensor Circuit - Voltage above normal, or shorted to high source
2274	411	4	Amber	Engine Exhaust Gas Recirculation 1 Differential Pressure	Exhaust Gas Recirculation Differential Pressure Sensor Circuit - Voltage below normal, or shorted to low source
2288	103	15	None	Engine Turbocharger 1 Speed	Turbocharger 1 Speed - Data Valid But Above Normal Operating Range - Least Severe Level
2311	633	31	Amber	Engine Fuel Actuator 1 Control Command	Electronic Fuel Injection Control Valve Circuit - Condition Exists
2321	190	2	None	Engine Speed	Engine Crankshaft Speed/Position - Data erratic, intermittent or incorrect
2322	723	2	None	Engine Speed 2	Engine Camshaft Speed / Position Sensor - Data erratic, intermittent or incorrect
2346	2789	15	None	Engine Turbocharger 1 Calculated Turbine Intake Temperature	Turbocharger Turbine Intake Temperature - Data Valid But Above Normal Operating Range - Least Severe
2349	2791	5	Amber	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control	EGR Valve Control Circuit - Current below normal or open circuit
FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION

2353	2791	6	Amber	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control	EGR Valve Control Circuit - Current above normal or grounded circuit
2357	2791	7	Amber	Engine Exhaust Gas Recirculation 1 (EGR1) Valve Control	EGR Valve Control Circuit - Mechanical system not responding or out of adjustment
2363	1073	4	Amber	Engine (Compression) Brake Output #2	Engine Brake Actuator Driver Output 2 Circuit - Voltage below normal, or shorted to low source
2367	1073	3	Amber	Engine (Compression) Brake Output #2	Engine Brake Actuator Driver Output 2 Circuit - Voltage above normal, or shorted to high source
2372	95	16	Amber	Engine Fuel Filter Differential Pressure	Fuel Filter Differential Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level
2373	1209	3	Amber	Engine Exhaust Gas Pressure 1	Exhaust Gas Pressure Sensor 1 Circuit - Voltage above normal, or shorted to high source
2374	1209	4	Amber	Engine Exhaust Gas Pressure 1	Exhaust Gas Pressure Sensor 1 Circuit - Voltage below normal, or shorted to low source
2375	412	3	Amber	Engine Exhaust Gas Recirculation 1 Temperature	Exhaust Gas Recirculation Temperature Sensor Circuit - Voltage above normal, or shorted to high source
2376	412	4	Amber	Engine Exhaust Gas Recirculation 1 Temperature	Exhaust Gas Recirculation Temperature Sensor Circuit - Voltage below normal, or shorted to low source
2377	647	3	Amber	Engine Fan Clutch 1 Output Device Driver	Fan Control Circuit - Voltage above normal, or shorted to high source
2387	641	7	Amber	Engine Variable Geometry Turbocharger Actuator #1	VGT Actuator Driver Circuit (Motor) - Mechanical system not responding or out of adjustment
2448	111	17	Amber (Blinking)	Engine Coolant Level	Coolant Level - Data Valid But Below Normal Operating Range - Least Severe Level
2449	641	13	Red	Engine Variable Geometry Turbocharger Actuator #1	VGT Actuator Controller - Out of Calibration
2468	190	16	Amber	Engine Speed	Engine Crankshaft Speed/Position - Data Valid But Above Normal Operating Range - Moderately Severe Level
2554	1209	2	Amber	Engine Exhaust Gas Pressure 1	Exhaust Gas Pressure 1 - Data erratic, intermittent or incorrect
2555	729	3	Amber	Engine Intake Air Heater Driver #1	Engine Intake Air Heater 1 Circuit - Voltage above normal, or shorted to high source
2556	729	4	Amber	Engine Intake Air Heater Driver #1	Engine Intake Air Heater 1 Circuit - Voltage below normal, or shorted to low source
2557	697	3	Amber	Auxiliary PWM Driver #1	Auxiliary PWM Driver 1 Circuit - Voltage above normal, or shorted to high source
2558	697	4	Amber	Auxiliary PWM Driver #1	Auxiliary PWM Driver 1 Circuit - Voltage below normal, or shorted to low source
2571	2630	3	Amber	Engine Charge Air Cooler 1 Outlet Temperature	Engine Charge Air Cooler Outlet Temperature - Voltage above normal, or shorted to high source
2572	2630	4	Amber	Engine Charge Air Cooler 1 Outlet Temperature	Engine Charge Air Cooler Outlet Temperature - Voltage below normal, or shorted to low source
2634	641	12	Red	Engine Variable Geometry Turbocharger Actuator #1	VGT Actuator Controller - Bad intelligent device or component
2635	641	31	Red	Engine Variable Geometry Turbocharger Actuator #1	VGT Actuator Driver Circuit - Condition Exists
2636	641	9	Red	Engine Variable Geometry Turbocharger Actuator #1	VGT Actuator Driver Circuit - Abnormal update rate
2637	5018	11	None	Aftertreatment Diesel Oxidation Catalyst	Aftertreatment 1 Diesel Oxidation Catalyst Face Plugged - Root Cause Not Known
2646	110	31	Amber	Engine Coolant Temperature	Engine Coolant Temperature - Condition Exists
2659	110	31	None	Engine Coolant Temperature	Engine Coolant Temperature - Condition Exists

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
2754	81	16	Amber	Engine Diesel Particulate Filter Intake Pressure	Engine Diesel Particulate Filter Intake Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level
2771	3226	9	Amber	Aftertreatment 1 Outlet NOx	Aftertreatment 1 Outlet NOx Sensor - Abnormal update rate
2961	412	15	None	Engine Exhaust Gas Recirculation 1 Temperature	Exhaust Gas Recirculation Temperature - Data Valid But Above Normal Operating Range - Least Severe Level
2962	412	16	Amber	Engine Exhaust Gas Recirculation 1 Temperature	Exhaust Gas Recirculation Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level
2964	105	15	None	Engine Intake Manifold #1 Temperature	Intake Manifold 1 Temperature - Data Valid But Above Normal Operating Range - Least Severe Level
2976	3361	2	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Temperature - Data erratic, intermittent or incorrect
2998	1632	14	Amber	Engine Torque Limit Feature	Engine Torque Limit Feature - Special Instructions
3139	3667	3	Amber	Engine Air Shutoff Status	Engine Air Shutoff Circuit - Voltage above normal, or shorted to high source
3141	3667	4	Amber	Engine Air Shutoff Status	Engine Air Shutoff Circuit - Voltage below normal, or shorted to low source
3142	4360	3	Amber	Aftertreatment 1 SCR Catalyst Intake Gas Temperature	Aftertreatment 1 SCR Intake Temperature Sensor Circuit - Voltage above normal, or shorted to high source
3143	4360	4	Amber	Aftertreatment 1 SCR Catalyst Intake Gas Temperature	Aftertreatment 1 SCR Intake Temperature Sensor Circuit - Voltage below normal, or shorted to low source
3144	4360	2	Amber	Aftertreatment 1 SCR Catalyst Intake Gas Temperature	Aftertreatment 1 SCR Intake Temperature Sensor - Data erratic, intermittent or incorrect
3146	4363	3	Amber	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature	Aftertreatment 1 SCR Outlet Temperature Sensor Circuit - Voltage above normal, or shorted to high source
3147	4363	4	Amber	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature	Aftertreatment 1 SCR Outlet Temperature Sensor Circuit - Voltage below normal, or shorted to low source
3148	4363	2	Amber	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature	Aftertreatment 1 SCR Outlet Temperature Sensor - Data erratic, intermittent or incorrect
3151	4794	31	Amber	Aftertreatment 1 SCR Catalyst System	Aftertreatment 1 SCR Catalyst System Missing - Condition Exists
3164	4360	15	None	Aftertreatment 1 SCR Catalyst Intake Gas Temperature	Aftertreatment 1 SCR Intake Temperature - Data Valid But Above Normal Operating Range - Least Severe
3165	4363	0	Red	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature	Aftertreatment 1 SCR Outlet Temperature - Data valid but above normal operational range - Most Severe
3186	1623	9	Amber	Tachograph output shaft speed	Tachograph Output Shaft Speed - Abnormal update rate
3213	1623	19	Amber	Tachograph output shaft speed	Tachograph Output Shaft Speed - Received Network Data In Error
3228	3216	2	Amber	Aftertreatment 1 Intake NOx	Aftertreatment 1 Intake NOx Sensor - Data erratic, intermittent or incorrect
3229	4360	0	Red	Aftertreatment 1 SCR Catalyst Intake Gas Temperature	Aftertreatment 1 SCR Intake Temperature - Data valid but above normal operational range - Most Severe Level
3231	4360	16	Red	Aftertreatment 1 SCR Catalyst Intake Gas Temperature	Aftertreatment 1 SCR Intake Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
3232	3216	9	Amber	Aftertreatment 1 Intake NOx	Aftertreatment 1 Intake NOx Sensor - Abnormal update rate
3235	4363	16	Red	Aftertreatment 1 SCR Catalyst Outlet Gas Temperature	Aftertreatment 1 SCR Outlet Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level
3237	4340	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 State	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 Circuit - Voltage above normal, or shorted to high source
3238	4340	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 State	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 Circuit - Voltage below normal, or shorted to low source
3239	4342	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 State	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 Circuit - Voltage above normal, or shorted to high source
3241	4342	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 State	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 Circuit - Voltage below normal, or shorted to low source
3242	3363	7	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Heater	Aftertreatment 1 Diesel Exhaust Fluid Tank Heater - Mechanical system not responding or out of adjustment
3251	4765	16	Red	Aftertreatment Diesel Oxidation Catalyst Intake Temperature	Aftertreatment 1 Diesel Oxidation Catalyst Intake Temperature - Data Valid But Above Normal Operating Range
3258	4340	5	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 State	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 1 Circuit - Current below normal or open circuit
3261	4342	5	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 State	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 2 Circuit - Current below normal or open circuit
3298	1194	13	Red	Anti-theft Encryption Seed Present Indicator	Anti-theft Encryption Seed - Out of Calibration
3313	4765	4	Amber	Aftertreatment Diesel Oxidation Catalyst Intake Temperature	Aftertreatment 1 Diesel Oxidation Catalyst Intake Temperature Sensor Circuit - Voltage below normal, or shorted to low source
3314	4765	3	Amber	Aftertreatment Diesel Oxidation Catalyst Intake Temperature	Aftertreatment 1 Diesel Oxidation Catalyst Intake Temperature Sensor Circuit - Voltage above normal, or shorted to high source
3315	4765	2	Amber	Aftertreatment Diesel Oxidation Catalyst Intake Temperature	Aftertreatment 1 Diesel Oxidation Catalyst Intake Temperature - Data erratic, intermittent or incorrect
3319	3246	3	Amber	Aftertreatment 1 Diesel Particulate Filter Outlet Gas Temperature	Aftertreatment 1 Diesel Particulate Filter Outlet Temperature Sensor Circuit - Voltage above normal, or shorted to high source
3326	91	9	Red	Accelerator Pedal Position 1	SAE J1939 Multiplexed Accelerator Pedal or Lever Sensor System - Abnormal update rate
3328	191	9	Amber	Transmission Output Shaft Speed	Transmission Output Shaft Speed - Abnormal update rate
3329	1231	2	None	J1939 Network #2	J1939 Network #2 - Data erratic, intermittent or incorrect
3331	1235	2	None	J1939 Network #3	J1939 Network #3 - Data erratic, intermittent or incorrect

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
3341	107	16	Amber	Engine Air Filter 1 Differential Pressure	Engine Air Filter Differential Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level
3418	191	19	Amber	Transmission Output Shaft Speed	Transmission Output Shaft Speed - Received Network Data In Error
3419	5125	3	Amber	Sensor supply voltage 7	Sensor Supply 7 Circuit - Voltage above normal, or shorted to high source
3421	5125	4	Amber	Sensor supply voltage 7	Sensor Supply 7 Circuit - Voltage below normal, or shorted to low source
3422	4344	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 3 State	Aftertreatment Diesel Exhaust Fluid Line Heater 3 Circuit - Voltage above normal, or shorted to high source
3423	4344	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 3 State	Aftertreatment Diesel Exhaust Fluid Line Heater 3 Circuit - Voltage below normal, or shorted to low source
3425	4344	5	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater 3 State	Aftertreatment Diesel Exhaust Fluid Line Heater 3 Circuit - Current below normal or open circuit
3488	563	9	Amber	Anti-Lock Braking (ABS) Active	Anti-Lock Braking (ABS) Controller - Abnormal update rate
3497	1761	17	Amber (Blinking)	Aftertreatment 1 Diesel Exhaust Fluid Tank Level	Aftertreatment 1 Diesel Exhaust Fluid Tank Level - Data Valid But Below Normal Operating Range - Least Severe Level
3498	1761	18	Amber (Blinking)	Aftertreatment 1 Diesel Exhaust Fluid Tank Level	Aftertreatment 1 Diesel Exhaust Fluid Tank Level - Data Valid But Below Normal Operating Range - Moderately Severe Level
3525	84	19	Amber	Wheel-Based Vehicle Speed	Wheel-Based Vehicle Speed - Received Network Data In Error
3527	558	19	Red	Accelerator Pedal 1 Low Idle Switch	Accelerator Pedal or Lever Idle Validation Switch - Received Network Data In Error
3531	171	9	Amber	Ambient Air Temperature	Ambient Air Temperature - Abnormal update rate
3543	4094	31	Amber	NOx limits exceeded due to Insufficient Diesel Exhaust Fluid Quality	NOx limits exceeded due to Insufficient Reagent Quality - Condition Exists
3545	3226	10	Amber	Aftertreatment 1 Outlet NOx	Aftertreatment 1 Outlet NOx Sensor - Abnormal rate of change
3547	4096	31	Amber	NOx limits exceeded due to Empty Diesel Exhaust Fluid Tank	Aftertreatment Diesel Exhaust Fluid Tank Empty - Condition Exists
3555	1081	9	Amber	Engine Wait to Start Lamp	Engine Wait to Start Lamp - Abnormal update rate
3558	3361	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit - Voltage above normal, or shorted to high source
3559	3361	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit - Voltage below normal, or shorted to low source
3562	5491	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater Relay	Aftertreatment Diesel Exhaust Fluid Line Heater Relay - Voltage above normal, or shorted to high source

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
3563	5491	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Line Heater Relay	Aftertreatment Diesel Exhaust Fluid Line Heater Relay - Voltage below normal, or shorted to low source
3567	5394	5	Amber	Aftertreatment Diesel Exhaust Fluid Dosing Valve	Aftertreatment Diesel Exhaust Fluid Dosing Valve - Current below normal or open circuit
3568	5394	7	Amber	Aftertreatment Diesel Exhaust Fluid Dosing Valve	Aftertreatment Diesel Exhaust Fluid Dosing Valve - Mechanical system not responding or out of adjustment
3571	4334	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Voltage above normal, or shorted to high source
3572	4334	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Voltage below normal, or shorted to low source
3574	4334	18	Amber	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Data Valid But Below Normal Operating Range
3575	4334	16	Amber	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Data Valid But Above Normal Operating Range
3577	4376	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Return Valve	Aftertreatment Diesel Exhaust Fluid Return Valve - Voltage above normal, or shorted to high source
3578	4376	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Return Valve	Aftertreatment Diesel Exhaust Fluid Return Valve - Voltage below normal, or shorted to low source
3582	4364	18	Amber	Aftertreatment 1 SCR Conversion Efficiency	Aftertreatment SCR Catalyst Conversion Efficiency - Data Valid But Below Normal Operating Range - Moderately Severe Level
3583	5031	10	Amber	Aftertreatment 1 Outlet Gas NOx Sensor Heater Ratio	Aftertreatment 1 Outlet NOx Sensor Heater - Abnormal rate of change
3596	4334	2	Amber	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Data erratic, intermittent or incorrect
3613	111	9	Amber	SAE J1939 Multiplexing PGN Timeout	SAE J1939 Multiplexing PGN Timeout Error - Abnormal update rate
3614	111	19	Amber	SAE J1939 Multiplexing PGN Timeout	Coolant Level Sensor - Received Network Data in Error
3633	5484	3	Amber	Engine Fan Clutch 2 Output Device Driver	Engine Fan Clutch 2 Control Circuit - Voltage above normal, or shorted to high source
3634	5484	4	Amber	Engine Fan Clutch 2 Output Device Driver	Engine Fan Clutch 2 Control Circuit - Voltage below normal, or shorted to low source
3641	748	9	Amber	Transmission Output Retarder	Transmission Output Retarder - Abnormal update rate
3649	5024	10	Amber	Aftertreatment 1 Intake Gas NOx Sensor Heater Ratio	Aftertreatment 1 Intake NOx Sensor Heater - Abnormal rate of change
3681	3228	2	Amber	Aftertreatment 1 Outlet Gas Sensor Power Status	Aftertreatment 1 Outlet NOx Sensor Power Supply - Data erratic, intermittent or incorrect

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
3682	3218	2	Amber	Aftertreatment 1 Intake Gas Sensor Power Status	Aftertreatment 1 Intake NOx Sensor Power Supply - Data erratic, intermittent or incorrect
3575	4334	16	Amber	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Data Valid But Above Normal Operating Range
3577	4376	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Return Valve	Aftertreatment Diesel Exhaust Fluid Return Valve - Voltage above normal, or shorted to high source
3578	4376	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Return Valve	Aftertreatment Diesel Exhaust Fluid Return Valve - Voltage below normal, or shorted to low source
3582	4364	18	Amber	Aftertreatment 1 SCR Conversion Efficiency	Aftertreatment SCR Catalyst Conversion Efficiency - Data Valid But Below Normal Operating Range - Moderately Severe Level
3583	5031	10	Amber	Aftertreatment 1 Outlet Gas NOx Sensor Heater Ratio	Aftertreatment 1 Outlet NOx Sensor Heater - Abnormal rate of change
3596	4334	2	Amber	Aftertreatment 1 Diesel Exhaust Fluid Doser Absolute Pressure	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor - Data erratic, intermittent or incorrect
3613	111	9	Amber	SAE J1939 Multiplexing PGN Timeout	SAE J1939 Multiplexing PGN Timeout Error - Abnormal update rate
3614	111	19	Amber	SAE J1939 Multiplexing PGN Timeout	Coolant Level Sensor - Received Network Data in Error
3633	5484	3	Amber	Engine Fan Clutch 2 Output Device Driver	Engine Fan Clutch 2 Control Circuit - Voltage above normal, or shorted to high source
3634	5484	4	Amber	Engine Fan Clutch 2 Output Device Driver	Engine Fan Clutch 2 Control Circuit - Voltage below normal, or shorted to low source
3641	748	9	Amber	Transmission Output Retarder	Transmission Output Retarder - Abnormal update rate
3649	5024	10	Amber	Aftertreatment 1 Intake Gas NOx Sensor Heater Ratio	Aftertreatment 1 Intake NOx Sensor Heater - Abnormal rate of change
3681	3228	2	Amber	Aftertreatment 1 Outlet Gas Sensor Power Status	Aftertreatment 1 Outlet NOx Sensor Power Supply - Data erratic, intermittent or incorrect
3682	3218	2	Amber	Aftertreatment 1 Intake Gas Sensor Power Status	Aftertreatment 1 Intake NOx Sensor Power Supply - Data erratic, intermittent or incorrect
3741	5571	0	Amber	High Pressure Common Rail Fuel Pressure Relief Valve	High Pressure Common Rail Fuel Pressure Relief Valve - Data valid but above normal operational range
3748	3216	20	Amber	Aftertreatment 1 Intake NOx	Aftertreatment 1 Intake NOx Sensor - Data not Rational - Drifted High
3749	3226	20	Amber	Aftertreatment 1 Outlet NOx	Aftertreatment 1 Outlet NOx Sensor - Data not Rational - Drifted High
3751	4792	7	None	Aftertreatment SCR Catalyst System	Aftertreatment SCR Catalyst System - Mechanical system not responding or out of adjustment
3755	5394	2	None	Aftertreatment Diesel Exhaust Fluid Dosing Valve	Aftertreatment Diesel Exhaust Fluid Dosing Valve - Data erratic, intermittent or incorrect

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
3765	442	3	Amber	Auxiliary Temperature 2	Auxiliary Temperature Sensor Input 2 Circuit - Voltage above normal, or shorted to high source
3766	442	4	Amber	Auxiliary Temperature 2	Auxiliary Temperature Sensor Input 2 Circuit - Voltage below normal, or shorted to low source
3843	5603	9	None	Cruise Control Disable Command	Cruise Control Disable Command - Abnormal update rate
3844	5605	31	None	Cruise Control Pause Command	Cruise Control Pause Command - Condition Exists
3845	5603	31	None	Cruise Control Disable Command	Cruise Control Disable Command - Condition Exists
3867	3364	18	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality - Data Valid But Below Normal Operating Range - Moderate Severe Level
3868	3364	9	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality - Abnormal update rate
3876	3364	7	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality Sensor - Mechanical system not responding or out of adjustment
3877	3364	12	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality Sensor - Bad intelligent device or component
3878	3364	2	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality - Data erratic, intermittent or incorrect
4151	5742	9	Amber	Aftertreatment Diesel Particulate Filter Temperature Sensor Module	Aftertreatment Diesel Particulate Filter Temperature Sensor Module - Abnormal update rate
4152	5743	9	Amber	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Abnormal update rate
4155	5746	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Relay	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Relay - Voltage Above Normal, or Shorted to high source
4156	5746	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Relay	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Relay - Voltage below normal, or shorted to low source
4157	4376	7	Amber	Aftertreatment 1 Diesel Exhaust Fluid Return Valve	Aftertreatment Diesel Exhaust Fluid Return Valve - Mechanical system not responding or out of adjust
4158	5742	12	Amber	Aftertreatment Diesel Particulate Filter Temperature Sensor Module	Aftertreatment Diesel Particulate Filter Temperature Sensor Module - Bad intelligent device or component
4159	5743	12	Amber	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Bad intelligent device or component
4161	5742	3	Amber	Aftertreatment Diesel Particulate Filter Temperature Sensor Module	Aftertreatment Diesel Particulate Filter Temperature Sensor Module - Voltage Above Normal, or Shorted to high source

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
4162	5742	4	Amber	Aftertreatment Diesel Particulate Filter Temperature Sensor Module	Aftertreatment Diesel Particulate Filter Temperature Sensor Module - Voltage below normal, or shorted to low source
4163	5742	16	Amber	Aftertreatment Diesel Particulate Filter Temperature Sensor Module	Aftertreatment Diesel Particulate Filter Temperature Sensor Module- Data Valid But Above Normal Operating Range
4164	5743	3	Amber	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Voltage Above Normal, or Shorted to high source
4165	5743	4	Amber	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Voltage below normal, or Shorted to low source
4166	5743	16	Amber	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Data Valid But Above Normal
4168	5745	3	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater - Voltage Above Normal, or Shorted to High
4169	5745	4	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater - Voltage below normal, or shorted to low source
4171	5745	18	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater - Data Valid But Below Normal Operating Range
4213	3695	2	Amber	Aftertreatment Regeneration Inhibit Switch	Aftertreatment Regeneration Inhibit Switch - Data erratic, intermittent or incorrect
4215	563	31	None	Anti-Lock Braking (ABS) Active	Anti-Lock Braking (ABS) Active - Condition Exists
4241	3364	19	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality - Received Network Data In Error
4243	3515	10	Amber	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 - Abnormal Rate of Change
4249	4337	10	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Temperature	Aftertreatment 1 Diesel Exhaust Fluid Dosing Temperature - Abnormal Rate of Change
4251	5798	10	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Temperature	Aftertreatment 1 Diesel Exhaust Fluid Dosing Unit Heater Temperature - Abnormal Rate of Change
4261	5743	11	Amber	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module	Aftertreatment Selective Catalytic Reduction Temperature Sensor Module - Root Cause Not Known
4277	3364	10	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality - Abnormal Rate of Change
4437	1668	2	None	J1939 Network #4 - Data erratic	J1939 Network #4 - Data erratic, intermittent or incorrect
4484	3667	7	Red	Engine Air Shutoff	Engine Air Shutoff - Mechanical System Not Responding or Out of Adjustment
4517	237	13	Amber	Vehicle Identification Number	Vehicle Identification Number - Out of Calibration
4533	4766	3	Amber	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature Sensor Circuit	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature Sensor Circuit - Voltage above normal, or shorted to high source
4534	4766	4	Amber	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature Sensor Circuit	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature Sensor Circuit - Voltage below normal, or shorted to low source
4572	3031	9	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature - Abnormal Update Rate
4585	4792	14	Red	Aftertreatment 1 SCR Catalyst System	Aftertreatment 1 SCR Catalyst System - Special Instructions
4731	3031	13	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor - Out of Calibration
4732	1761	13	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor - Out of Calibration

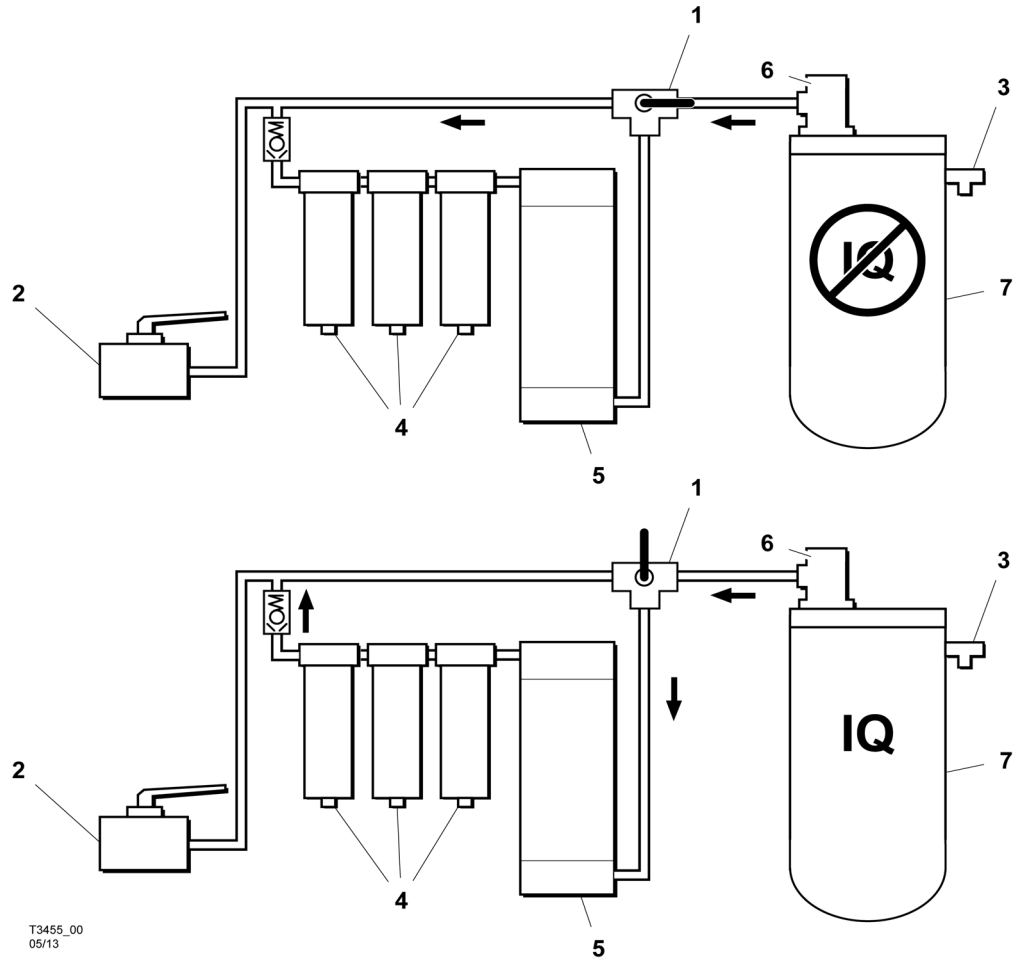
FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
4734	701	14	Red	Auxiliary I/O #01	Auxiliary Input/Output 1 - Special Instructions
4737	3031	11	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature - Root Cause Not Known
4739	1761	11	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Level	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor - Root Cause Not Known
4741	3364	5	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality Sensor Circuit - Current below normal or open circuit
4742	3364	6	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank 1 Quality	Aftertreatment Diesel Exhaust Fluid Quality Sensor Circuit - Current above normal or grounded circuit
4743	3515	5	Amber	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Sensor Circuit - Current below normal or open circuit
4744	3515	6	Amber	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 Sensor Circuit - Current above normal or grounded
4745	3515	11	Amber	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2	Aftertreatment 1 Diesel Exhaust Fluid Temperature 2 - Root Cause Not Known
4768	3521	11	Amber	Aftertreatment 1 Diesel Exhaust Fluid Property	Aftertreatment 1 Diesel Exhaust Fluid Property - Root Cause Not Known
4769	1761	10	Amber	Aftertreatment 1 Diesel Exhaust Fluid Tank Level	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor - Abnormal Rate of Change
4789	1639	0	Amber	Fan Speed	Fan Speed - Data Valid but Above Normal Operational Range - Most Severe Level
4791	1639	1	Amber	Fan Speed	Fan Speed - Data Valid but Below Normal Operational Range - Most Severe Level
4842	3364	15	None	Aftertreatment Diesel Exhaust Fluid Quality	Aftertreatment Diesel Exhaust Fluid Quality - Data Valid But Above Normal Operating Range - Least Severe Level
4863	5245	31	Amber	Aftertreatment Selective Catalytic Reduction Operator Inducement Active	Aftertreatment SCR Operator Inducement Active - Condition Exists
4951	6655	3	Amber	ECU Power Lamp	Maintain ECU Power Lamp - Voltage Above Normal, or Shorted to High Source
4952	6655	4	Amber	ECU Power Lamp	Maintain ECU Power Lamp - Voltage Below Normal, or Shorted to Low Source
4956	6713	13	Red	Variable Geometry Turbocharger Actuator	Variable Geometry Turbocharger Actuator Software - Out of Calibration
4957	6713	31	Red	Variable Geometry Turbocharger Actuator	Variable Geometry Turbocharger Actuator Software - Condition Exists
5177	6713	9	Amber	VGT Actuator Driver Circuit	VGT Actuator Driver Circuit - Abnormal update rate
5183	520784	3	Amber	Fan Blade Pitch Position Sensor Circuit	Fan Blade Pitch Position Sensor Circuit - Voltage Above Normal, or Shorted to High Source
5184	520784	4	Amber	Fan Blade Pitch Position Sensor Circuit	Fan Blade Pitch Position Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
5185	520784	5	Amber	Fan Blade Pitch	Fan Blade Pitch - Mechanical system not responding or out of adjustment
5221	3667	2	Red	Engine Air Shutoff Status	Engine Air Shutoff Status - Data erratic, intermittent or incorrect
5248	1623	13	Amber	Tachograph Output Shaft Speed	Tachograph Output Shaft Speed - Out of Calibration
5291	520808	31	Amber	Engine Emergency Shutdown Switch Actived	Engine Emergency Shutdown Switch Actived - Condition Exists
5292	520809	31	Amber	Excessive Time Since Last Engine Air Shutoff Maintenance Test	Excessive Time Since Last Engine Air Shutoff Maintenance Test - Condition Exists
5386	4766	2	Amber	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature - Data Erratic, Intermittent, or Incorrect

FAULT CODE	J1939 SPN	J1939 FMI	LAMP	J1939 SPN DESCRIPTION	CUMMINS DESCRIPTION
5387	4766	0	Amber	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature - Data Valid But Above Normal Operating Range - Most Severe Level
5388	4766	16	Red	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level
5389	4766	15	Amber	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature	Aftertreatment 1 Diesel Oxidation Catalyst Outlet Gas Temperature - Data Valid But Above Normal Operating Range - Least Severe Level
5391	6882	9	Amber	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module - Abnormal Update Rate
5392	6882	12	Amber	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module - Bad Intelligent Device or Component
5393	6882	3	Amber	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module - Voltage Above Normal or Shorted to High Source
5394	6882	4	Amber	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module - Voltage Below Normal or Shorted to Low Source
5395	6882	11	Amber	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module - Root Cause Not Known
5396	6882	16	Amber	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module	Aftertreatment Diesel Oxidation Catalyst Temperature Sensor Module - Data Valid But Above Normal Operating Range - Moderately Severe Level
5576	107	15	Amber	Engine Air Filter 1 Differential Pressure	Engine Air Filter Differential Pressure - Data Valid But Above Normal Operating Range - Least Severe Level
5585	5571	15	Amber	High Pressure Common Rail Fuel Pressure Relief Valve	High Pressure Common Rail Fuel Pressure Relief Valve - Data Valid But Above Normal Operating Range - Least Severe Level
5617	524286	31	Amber	Aftertreatment 1 Diesel Oxidation Catalyst System	Aftertreatment 1 Diesel Oxidation Catalyst System- Special Instruction
5631	6928	31	None	SCR System Cleaning Inhibited Due to System Timeout	SCR System Cleaning Inhibited Due to System Timeout - Condition Exists
5632	6918	31	Maintenance	SCR System Cleaning Inhibited Due to Inhibit Switch	SCR System Cleaning Inhibited Due to Inhibit Switch - Condition Exists
5653	6881	9	Amber	SCR Operator Inducement Override Switch	SCR Operator Inducement Override Switch - Abnormal Update Rate
5654	6881	13	Amber	SCR Operator Inducement Override Switch	SCR Operator Inducement Override Switch - Out of Calibration
5278	6802	31	Amber		Aftertreatment 1 Diesel Exhaust Fluid Dosing System Frozen - Condition Exists
5617	5018	14	Red		Aftertreatment 1 Diesel Oxidation Catalyst System - Special Instructions

FAULT	CAUSE	REMEDY
No reaction from instrument panel when key turned to (I) position.	*Emergency stop actuated.*	Reset emergency stop button.
	Batteries not connected.	Connect batteries.
	Fuse at starter motor 'blown'.	Replace fuse.
Engine fails to start.	*Low battery charge.*	Check the fan belt tension, battery and cable connections.
	Bad earth connection.	Check the earth cables, clean as required.
	Loose connection.	Locate and make the connection good.
	Fuel starvation.	Check the fuel level and fuel system components. Replace the fuel filter if necessary.
	Relay failed.	Replace the relay.
	Faulty stop solenoid	Check the stop solenoid.
Engine stops while in service or is reluctant to start.	*Low fuel level.*	Fill fuel tank and bleed air from fuel system if necessary. (Refer to *MAINTENANCE SECTION*).
	Safety shut–down system in operation.	Check the safety shut–down switches.
Engine starts but stalls when the switch returns to position *I*.	*Electrical fault*	Test the electrical circuits.
	Low engine oil pressure.	Check the oil level and the oil filter(s).
	Low water level	Check if the low water lamp is extinguished.
	Faulty relay	Check the relays.
	Faulty key-switch	Check the key-switch.
Engine starts but will not run or engine shuts down prematurely.	*Electrical fault.*	Test the electrical circuits.
	Low engine oil pressure.	Check the oil level and oil filter(s).
	Safety shut–down system in operation.	Check the safety shut–down switches.
	Fuel starvation.	Check the fuel level and fuel system components. Replace the fuel filter if necessary.
	Switch failure.	Test the switches.
	High compressor oil temperature.	Check the compressor oil level and oil cooler. Check the fan drive.
	Water present in fuel system.	Check the water separator and clean if required.
	Faulty relay.	Check the relay in the holder and replace if necessary.
Engine Overheats.	*Low water level*	Check the level and replenish if necessary.
	Blocked radiator.	Stop the machine and clean the cooling fins with compressed air or steam. Use reduced pressure for cleaning the fins.
	Reduced cooling air from fan.	Check the fan and the drive belts. Check for any obstruction inside the cowl.
	Faulty thermostat	Check the thermostat and replace if necessary.
Engine speed too low.	*Blocked fuel filter.*	Check and replace if necessary.
	Blocked air filter.	Check and replace the element if necessary.
	Faulty regulator valve.	Check the regulation system.
	Premature unloading.	Check the regulation and the operation of the air cylinder.
Excessive vibration.	*Engine speed too low.*	See "*Engine speed too low*"
Leaking oil seal	*Improperly fitted oil seal.*	Replace the oil seal
Refer also to the *Engine Manufacturer's Manual.*		

FAULT	CAUSE	REMEDY
Air discharge capacity too low.	*Engine speed too low.*	Check the air cylinder and air filter(s).
	Blocked air cleaner.	Check the restriction indicators and replace the element(s) if necessary.
	High pressure air escaping.	Check for leaks.
	Incorrectly set regulation system.	Reset the regulation system. Refer to *SPEED AND PRESSURE REGULATION ADJUSTMENT* in the *MAINTENANCE* section of this manual.
Compressor overheats.	*Low oil level.*	Top up the oil level and check for leaks.
	Dirty or blocked oil cooler.	Clean the oil cooler fins.
	Incorrect grade of oil.	Use Doosan recommended oil.
	Defective bypass valve.	Check the operation of the element and replace if necessary.
	Recirculation of cooling air.	Move the machine to avoid recirculation.
	Reduced cooling air from fan.	Check the fan and the drive belts. Check for any obstruction inside the fan cowl.
Excessive oil present in the discharge air.	*Blocked scavenge line.*	Check the scavenge line, drop tube and orifice. Clean and replace.
	Perforated separator element.	Replace the separator element.
	Pressure in the system is too low.	Check the minimum pressure valve or sonic orifice.
Safety valve operates.	*Operating pressure too high.*	Check the setting and operation of the regulator valve piping.
	Incorrect setting of the regulator.	Adjust the regulator.
	Faulty regulator.	Replace the regulator.
	Inlet valve set incorrectly.	Refer to *SPEED AND PRESSURE REGULATION ADJUSTMENT* in the *MAINTENANCE* section of this manual.
	Loose pipe/hose connections.	Check all pipe/hose connections.
	Faulty safety valve.	Check the relieving pressure. Replace the safety valve if faulty. **DO NOT ATTEMPT A REPAIR.**
Oil is forced back into the air filter.	*Incorrect stopping procedure used*	Always employ the correct stopping procedure. Close the discharge valve and allow the machine to run on idle before stopping.
	Faulty inlet valve.	Check for free operation of the inlet valve(s).
Machine goes to full pressure when started.	*Inlet valve set incorrectly. (17/244, 21/224)*	Refer to *SPEED AND PRESSURE REGULATION ADJUSTMENT* in the *MAINTENANCE* section of this manual. *(17/244, 21/224)*
	Faulty load valve.	Replace the valve.
Machine fails to load when the load button is pressed.	*Faulty load solenoid.*	Replace the valve.

OPTION - IQ SYSTEM



KEY

1	Three way valve	**5**	Aftercooler
2	Ball valve 2”	**6**	Minimum pressure valve
3	Safety valve	**7**	Separator tank
4	Filters		

IQ SYSTEM

The IQ System is a complete, self-contained system which provides cooler, cleaner air than from a standard portable compressor. The system utilises 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 vaporised 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 regulations.

When equipped with the low ambient feature, the IQ System automatically adjusts movable louvres to control airflow through the aftercooler, ensuring that the compressed air temperature always remains above freezing temperatures (typically 7°C (45°F)) at any ambient temperature down to -23°C (-20°F). This prevents the need for heat tracing systems, or any manual adjustment to prevent freezing of the compressed air system. All drain points for the condensate handling system are heated with 24VDC heaters, which are integral to the compressor heater system.

Standard Non-Louvred configuration not to be operated below freezing.

IQ SYSTEM OPERATING INSTRUCTIONS

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, which is controlled by movable louvres mounted on the aftercooler (if equipped with low ambient option). At most conditions, the louvres are fully open, and maximum aftercooling is available. The compressed air and condensate (water with a small amount of compressor lubricant) 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 oil - water and particles 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 minimising 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 minimum pressure valve, and out through the service air valve. The air pressure gauge on the instrument panel indicates the pressure inside the separator tank. A service air pressure gauge is located inside the front door of the compressor on the filter support.

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.

MAINTENANCE

Daily Maintenance:

Verify, during full-load (maximum compressed air delivery) that the IQ System does not show excessive restriction. Excessive restriction will be shown on the Viewport, and will shut down the compressor if restriction exceeds recommended values.

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.

Yearly Maintenance:

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

FILTER REPLACEMENT

- With engine stopped, ensure pressure is relieved from air system.
- Remove all wires and hoses connected to drains on 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 to the floor panel.
- Lower the housing to floor panel and lean it against the airend. Remove and replace the filter element, being careful not to damage outer wrap.

Verify the part number of new element vs. old element, as the two IQ filters are of different media.

PRIMARY AND SECONDARY FILTER MAINTENANCE

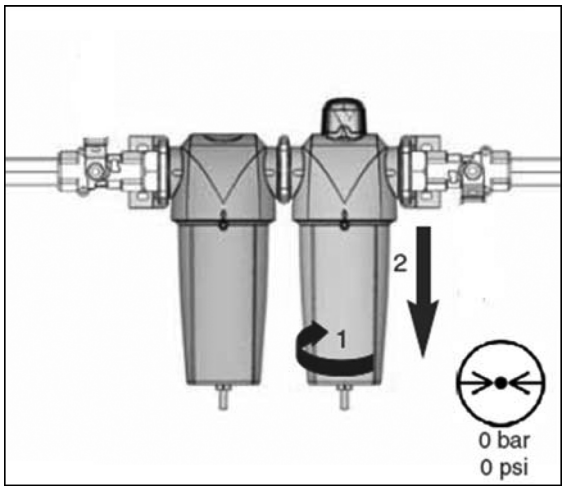


FIGURE 1.

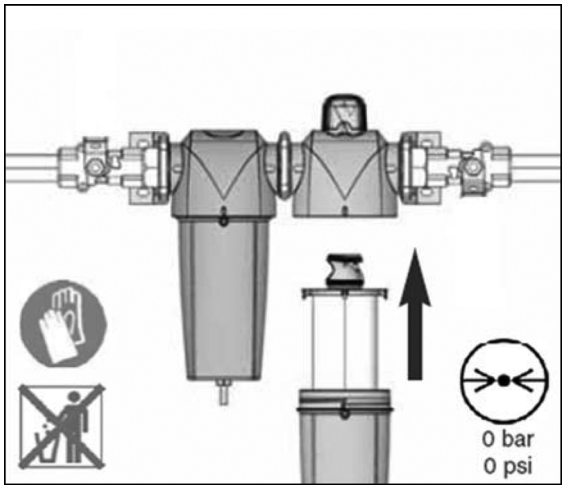


FIGURE 2.

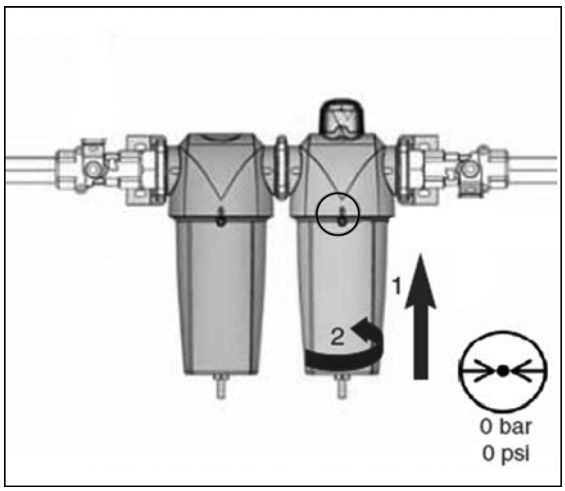


FIGURE 3.

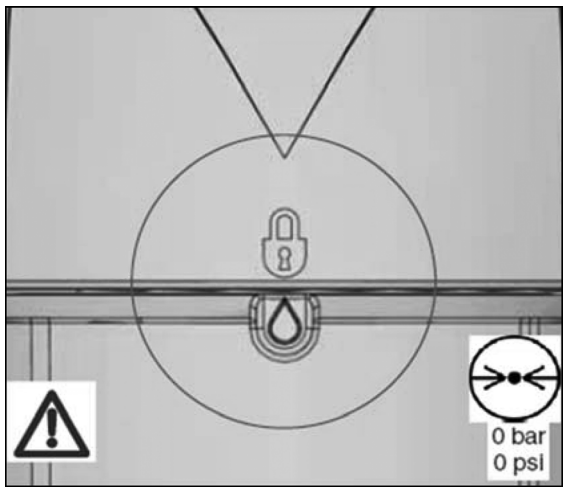


FIGURE 4.

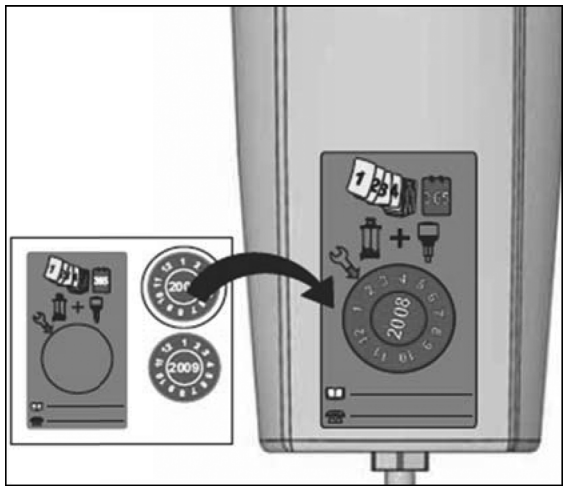


FIGURE 5.

WATER SEPARATOR MAINTENANCE

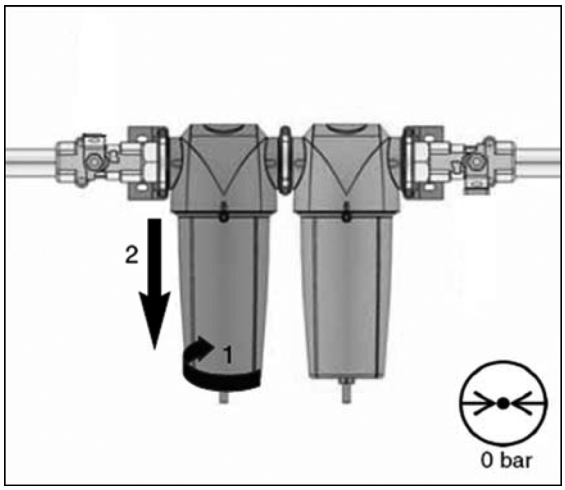


FIGURE 1.

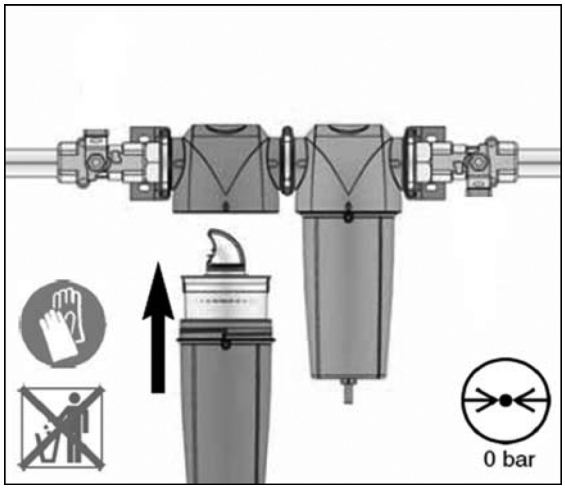


FIGURE 2.

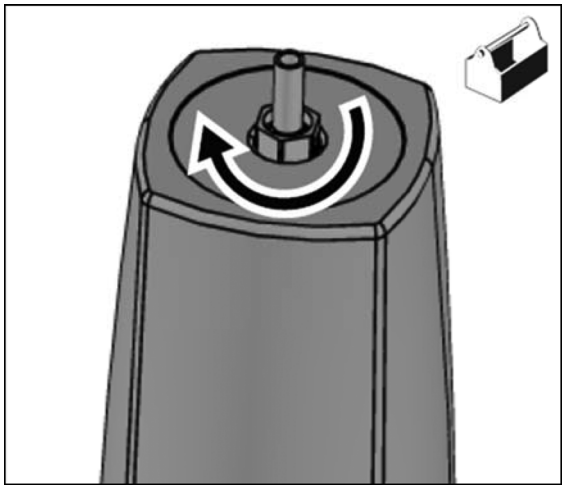


FIGURE 3.

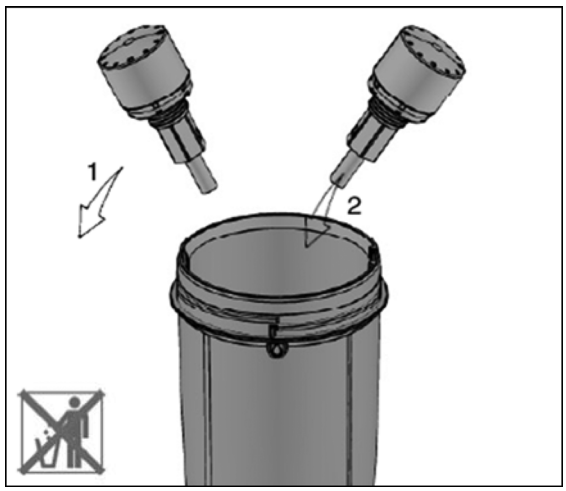


FIGURE 4.

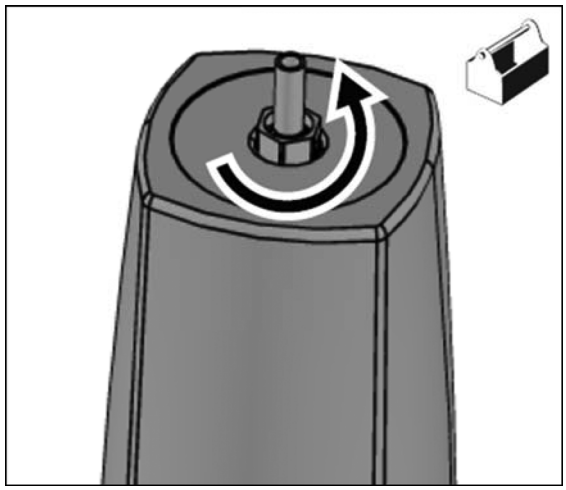


FIGURE 5.

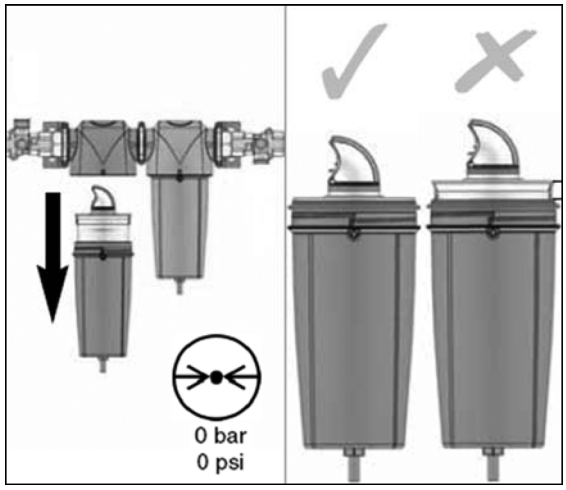


FIGURE 6.

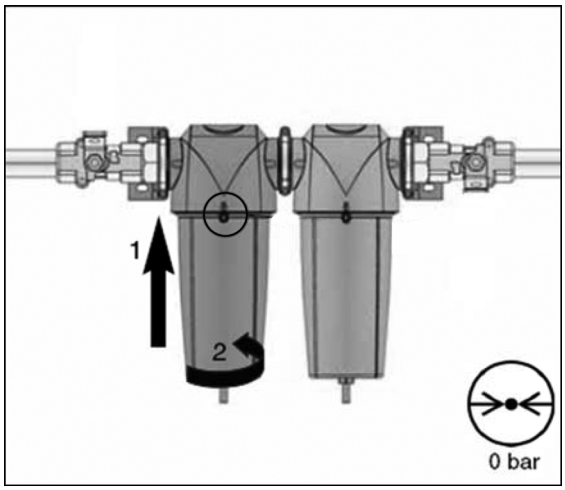


FIGURE 7.

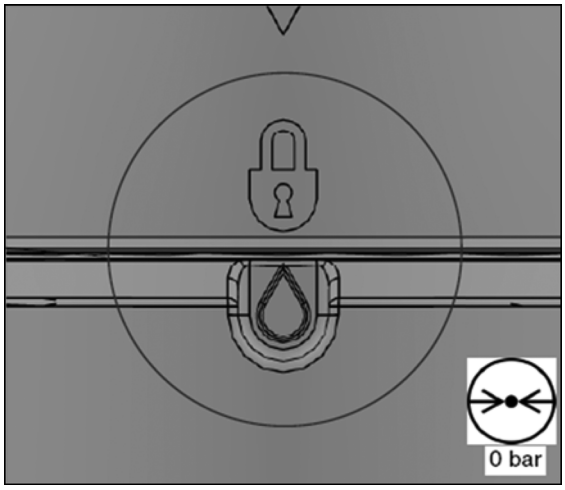


FIGURE 8.

SAFETY

CAUTION: The compressor regulation system is adjusted to maintain regulated pressure at the separator tank. DO NOT adjust regulation to provide full regulation 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.

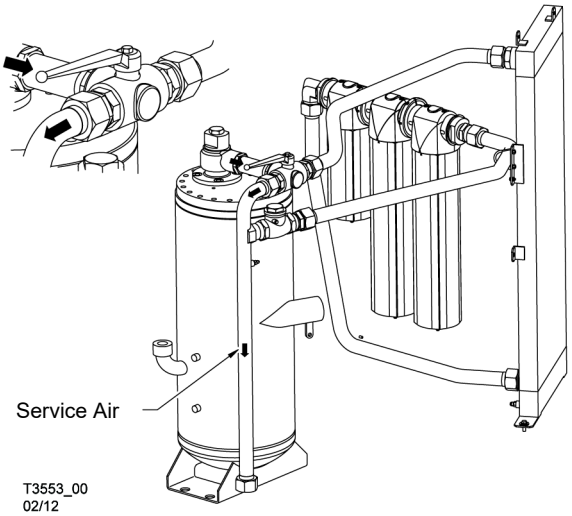
CAUTION: Excessively restricted filter elements may cause an increase in the amount of aerosol water and oil carryover, which could result in damage to downstream equipment. Normal service intervals should not be exceeded.

CAUTION: Blockage of the condensate will result in flooding of the vessels. If flooding occurs, excessive condensate may enter the air stream and could result in damage to downstream equipment.

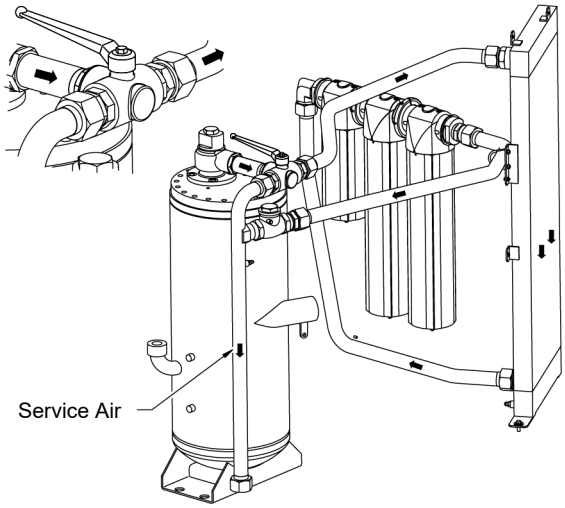
NOTE: Do not operate at temperatures less that 2°C (35°F).

HIGH IQ FILTER RESTRICTION - TROUBLESHOOTING

STANDARD OPERATION



IQ SYSTEM OPERATION



CONDITION	EFFECT	REMEDY
The TITAN controller has received a message over the J1939 CAN network from the IQ TCU controller indicating the IQ filters are starting to restrict air flow.	Code 44 is an ALERT condition and will not stop the compressor. Code 44 and the ALERT name will be displayed on the ViewPort.	1. Replace IQ filters. 2. Check all harness connections between IQ TCU and PT100 / PT101 differential pressure sensors. Repair harness as needed. 3. If steps 1 and 2 checkout OK, replace IQ TCU controller.
The TITAN controller has received a message over the J1939 CAN network from the IQ TCU controller indicating the IQ filters are restricting air flow past a usable level.	Code 52 is a FAULT condition and will stop the compressor. Code 52 and the FAULT name will be displayed on the ViewPort.	1. Replace IQ filters. 2. Check all harness connections between IQ TCU and PT100 / PT101 differential pressure sensors. Repair harness as needed. 3. If steps 1 and 2 checkout OK, replace IQ TCU controller.

OPTION - DUAL PRESSURE

Machines which operate in excess of 7 bar (100 psi) can be fitted with one of two dual pressure systems.

System A shows the standard machine without a dual pressure option.

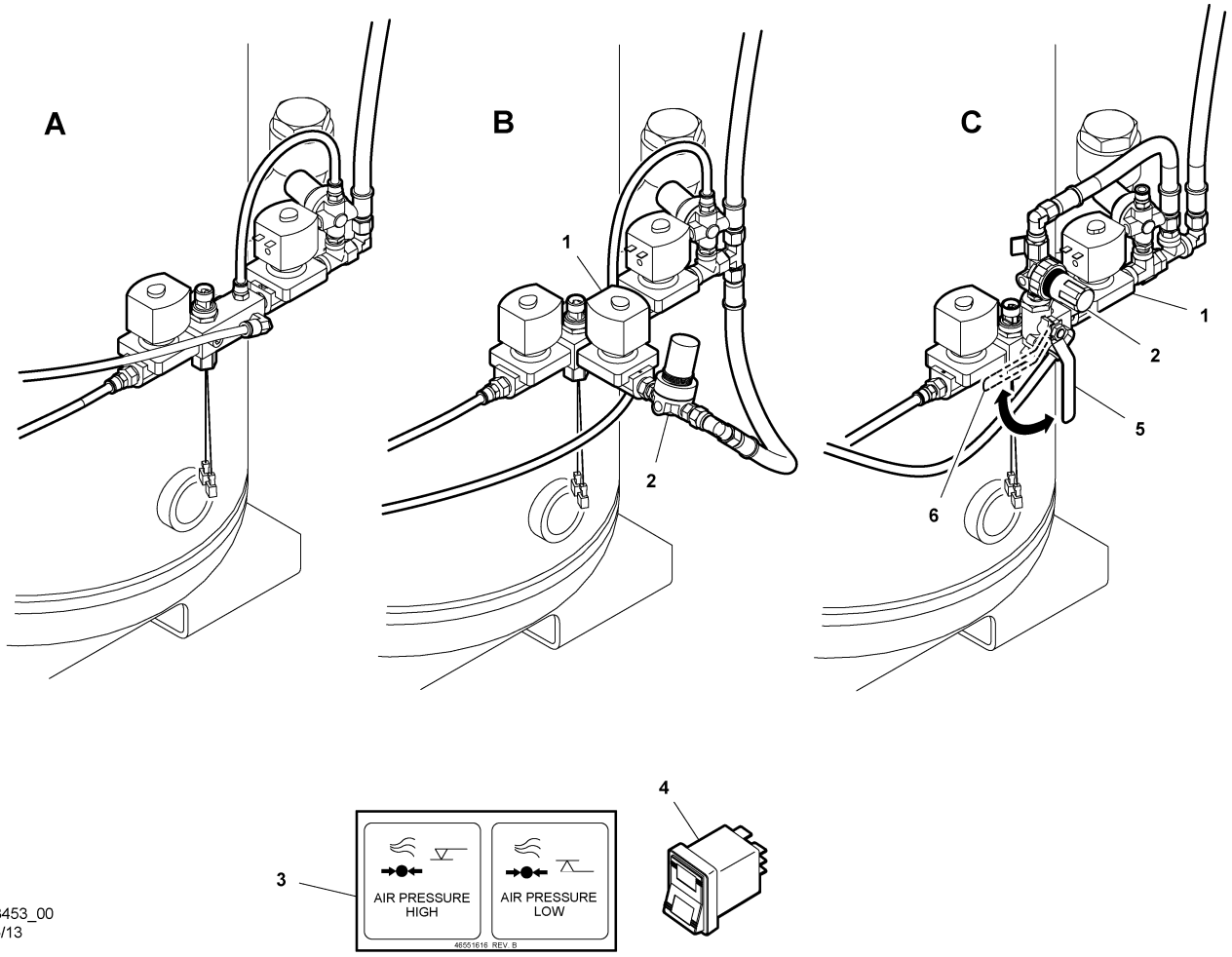
System B consists of one extra pressure regulator, a solenoid valve and a control panel switch. The extra pressure regulator will be used to set the high pressure and becomes active when the operator switches to high pressure.

System C consists of one extra pressure regulator to set high pressure but the solenoid valve and control panel switch in system B are now replaced by a manual ball valve. The operator will have to open the side door and manually switch the valve position to force either low or high pressure. Flow remains nominally constant.

Starting and stopping are unaffected by the selection and during normal running, the selector switch may be safely operated.

Caution must be taken to ensure that downstream equipment is rated to suit the available pressure.

The pressure gauge indicates which setting has been selected.



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A Standard regulation system

B Dual Pressure regulation system (switch operation)

C Dual Pressure regulation system (manual operation)

1 Dual Pressure Solenoid

2 Dual Pressure Regulator

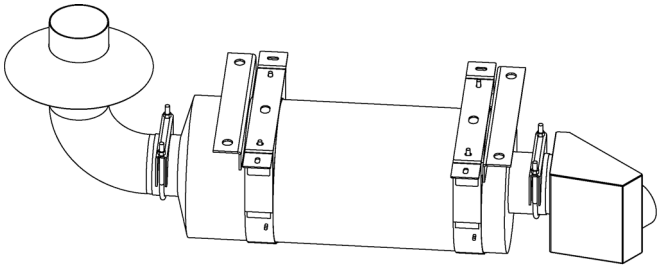
3 Dual Pressure Decal

4 Dual Pressure Selector Switch

5 Manual Operation Lever (in low pressure position)

6 Manual Operation Lever (in high pressure position)

OPTION - SPARK ARRESTOR



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DESCRIPTION

Diesel Engine exhaust spark arrestors are a key safety feature for both hazardous area and lower risk diesel engine applications where a stray spark may cause ignition of combustible material. Virtually all legislation regarding the operation of a diesel engine in a hazardous area includes a mandatory requirement to fit a tested and approved exhaust spark arrestor.

MAINTENANCE

Daily: Examine the spark arrestor for any sign of gas leakage, cracks or significant areas of damage, i.e. dents of more than a few millimetres in depth.

Three Monthly: Remove spark arrestor. Tap with a soft mallet to loosen any internal deposits and shake out. Also by shaking check for any loose internal baffles.

Six Monthly (or 1500 hours operation, whichever is sooner): Examine the exhaust discharge in darkness whilst repeatedly loading and accelerating the engine. If any sparks are observed, the spark arrestor is not suitable for further use.

NOTE: Ensure adequate ventilation if this check is carried out in an enclosed area.

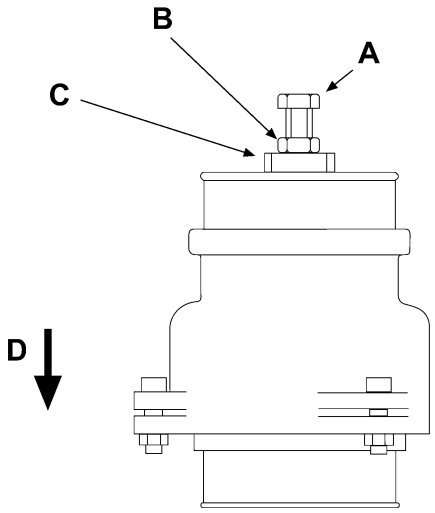
NOTE: The engine must not be put back into service until any problems identified by the above checks are rectified.

OPTION - OVERSPEED (CHALWYN) VALVE

DESCRIPTION

Chalwyn valves provide emergency overspeed shutdown protection for diesel engines and are the most effective way of preventing a runaway situation. The valves completely block the engine air intake system, cutting off an uncontrolled external fuel source and the air required to keep the engine running.

OPERATING INSTRUCTIONS



A. Adjuster

B. Locknut

C. Hold with spanner when adjusting

D. Air flow

Adjustment

Once the Chalwyn valve is installed, adjustment of the overspeed trip setting is carried out using the adjuster and locknut. Basically rotating the adjuster clockwise will increase the engine speed at which automatic shutdown occurs.

1. Start engine. Slowly accelerate. Note speed at which shutdown occurs.
2. Remove hose at air inlet to Chalwyn valve to expose the adjuster and locknut.
3. Release locknut. Turn adjuster clockwise one turn. Tighten locknut.
4. Refit inlet hose to Chalwyn valve.
5. Start engine. Slowly accelerate. Note speed at which shutdown occurs.
6. Repeat the above steps ”2” to ”5” until the first setting at which the engine does not shut down at high idle speed.

Then either:

A. Use the results of shutdown speed versus adjuster setting as a calibration check to make a final adjustment to give the required setting (typically 10% to 15% over high idle),

or:

B. If a very precise setting is not required, turn the adjuster a further one turn clockwise to take the shutdown above high idle speed by a suitable margin. When using this setting procedure it may be found that the engine occasionally shuts down during the normal operation. If so, turn the adjuster clockwise by a further one half turn.

7. Ensure the adjuster locknut is fully tightened.

MAINTENANCE

Three Monthly:

1. Disconnect the intake pipework and release the valve from any support brackets etc., to allow it to be removed.
2. Inspect the valve internally for cleanliness. If necessary, clean in paraffin or white spirit, taking normal precautions. Dry the valve thoroughly.
3. Check that there is no excessive wear and that the valve moves smoothly over its complete operating stroke. DO NOT LUBRICATE.
4. Refit the valve. Check valve setting.

NOTE: The recommended routine maintenance period is three months. This period is dependent on the operating conditions of the engine and, by experience, may need to be varied.

NOTE: Turbocharged engines - when setting up a valve on a turbocharged engine using the preceding method, it may be found that at high power outputs, the engine will shut down at lower speed than required. If this occurs, further small adjustments in steps of one half turn clockwise should be made until the problem is eliminated.

Insufficient Adjustment - should there be insufficient adjustment available to set the required overspeed trip-point, the outlet locknut should be released and the outlet adjuster rotated anticlockwise by four turns. The outlet locknut should then be treated with a thread lock adhesive and security tightened. Further adjustment to the inlet adjuster as per above instructions is then continued.

OPTION - AUTOSTART

DESCRIPTION

This AutoStart System is designed to be used with portable air compressors using the View Port and Titan Electronic System.

The AutoStart System provides the means of automatic start and stop for a portable air compressor. The AutoStart System has a dedicated controller that connects to the compressor J1939 CAN network and communicates with the compressor's Titan controller. The Auto Start controller collects input information from sensors and switches and determines if the compressor should be started or stopped. It sends commands to the Titan controller to crank and start the compressor or to stop and initiate a cool down sequence. The two controllers work together to implement the AutoStart functions.

The Titan controller automatically detects if the AutoStart controller is on the J1939 CAN network at power up. Once the AutoStart controller is detected, the Titan controller will check for its presence at each power up. If the Titan cannot detect the AutoStart controller, it will issue an AutoStart communication ALERT. This will not prohibit the operation of the compressor in manual mode even with an AutoStart communication ALERT.

For operation, safety and maintenance of the AutoStart System, please refer to the AutoStart System Operation Manual 46696687.

GENERAL

This publication, which contains an illustrated parts breakdown, has been prepared as an aid in locating those parts which may be required in the maintenance of the unit. All of the compressor parts, listed in the parts breakdown, are manufactured with the same precision as the original equipment. For the greatest protection always insist on genuine Doosan parts for your compressor.

NOTICE

Doosan can bear no responsibility for injury or damages resulting directly from the use of non-approved repair parts.

Doosan Infracore service facilities and parts are available worldwide.

There are Authorised Distributors or Company Sales offices in principal cities of many countries.

Special order parts may not be included in the manual. Contact Doosan Parts Department with the unit serial number for assistance with these special parts.

DESCRIPTION

The illustrated parts breakdown illustrates and lists the various assemblies, subassemblies and detailed parts which make up this particular machine. This covers the standard models and the more popular options that are available.

A series of illustrations show each part distinctly and in location relative to the other parts in the assembly. The part number, the description of the part and the quantity of parts required are shown on each illustration or on adjacent page. The quantities specified are the number of parts used per one assembly and are not necessarily the total number of parts used in the machine. Where no quantity is specified the quantity is assumed to be one.

Each description of a part is based upon the "noun first" method, i.e., the identifying noun or item name is always the first part of the description. The noun name is generally followed by a single descriptive modifier. The descriptive modifier may be followed by words or abbreviations such as upper, lower, inner, outer, front, rear, RH, LH, etc. when they are essential.

In referring to the rear, the front or to either side of the unit, always consider the **drawbar end** of the unit as the **front**. Standing at the rear of the unit facing the drawbar (front) will determine the right and left sides.

FASTENERS

Both SAE/inch, ISO/metric hardware have been used in the design and assembly of these units. In the disassembly and reassembly of parts, extreme care must be taken to avoid damaging threads by the use of wrong fasteners. In order to clarify the proper usage and for exact replacement parts, all standard fasteners have been identified by part number, size and description. This will enable a customer to obtain fasteners locally rather than ordering from the factory. These parts are identified in tables that will be found at the rear of the parts illustrations. Any fastener that has not been identified by both part number and size is a specially engineered part that must be ordered by part number to obtain the exact replacement part.

MARKINGS AND DECALS

NOTICE

Do not paint over safety warnings or instructional decals. If safety warning decals become illegible, immediately order replacements from the factory.

Part numbers for original individual decals and their mounting locations are shown within Parts List Section. These are available as long as a particular model is in production.

HOW TO USE PARTS LIST

a. Turn to Parts List.

b. Locate the area or system of the compressor in which the desired part is used and find illustration page number.

c. Locate the desired part on the illustration by visual identification and make note of part number and description.

HOW TO ORDER

The satisfactory ordering of parts by a purchaser is greatly dependent upon the proper use of all available information. By supplying your nearest sales office, autonomous company or authorised distributor, with complete information, you will enable them to fill your order correctly and to avoid any unnecessary delays.

In order that all avoidable errors may be eliminated, the following instructions are offered as a guide to the purchaser when ordering replacement parts:

a. Always specify the model number of the unit as shown on the general data decal attached to the unit.

b. Always specify the serial number of the unit. THIS IS IMPORTANT. The serial number of the unit will be found stamped on a plate attached to the unit. (The serial number on the unit is also permanently stamped in the metal of the frame side rail.)

c. Always specify the number of the parts list publication.

d. Always specify the quantity of parts required.

e. Always specify the part number, as well as the description of the part, or parts, exactly as it is given on the parts list illustration.

In the event parts are being returned to your nearest sales office, autonomous company or authorised distributor, for inspection or repair, it is important to include the serial number of the unit from which the parts were removed.

TERMS AND CONDITIONS ON PARTS ORDERS

Acceptance: Acceptance of an offer is expressly limited to the exact terms contained herein. If purchaser's order form is used for acceptance of an offer, it is expressly understood and agreed that the terms and conditions of such order form shall not apply unless expressly agreed to by Doosan Company ("Company") in writing. No additional or contrary terms will be binding upon the Company unless expressly agreed to in writing.

Taxes: Any tax or other governmental charge now or hereafter levied upon the production, sale, use or shipment of material and equipment ordered or sold is not included in the Company's price and will be charged to and paid for by the Purchaser.

Shipping dates shall be extended for delays due to acts of God, acts of Purchaser, acts of Government, fires, floods, strikes, riot, war, embargo, transportation shortages, delay or default on the part of the Company's vendors, or any other cause beyond the Company's reasonable control.

Should Purchaser request special shipping instruction, such as exclusive use of shipping facilities, including air freight when common carrier has been quoted and before change order to purchase order can be received by the Company, the additional charges will be honoured by the Purchaser.

Warranty: The Company warrants that parts manufactured by it will be as specified and will be free from defects in materials and workmanship. The Company's liability under this warranty shall be limited to the repair or replacement of any part which was defective at the time of shipment provided Purchaser notifies the Company of any such defect promptly upon discovery, but in no event later than three (3) months from the date of shipment of such part by the Company. The only exception to the previous statement is the extended warranty as it applies to the special airend exchange program.

Repairs and replacements shall be made by the Company F.O.B. point of shipment. The Company shall not be responsible for costs of transportation, removal or installation.

Warranties applicable to material and equipment supplied by the Company but wholly manufactured by others shall be limited to the warranties extended to the Company by the manufacturer which are able to be conveyed to the Purchaser.

Delivery: Shipping dates are approximate. The Company will use best efforts to ship by the dates specified; however, the Company shall not be liable for any delay or failure in the estimated delivery or shipment of material and equipment or for any damages suffered by reason thereof.

The company makes no other warranty or representation of any kind whatsoever, expressed or implied, except that of title, and all implied warranties, including any warranty of merchantability and fitness for a particular purpose, are hereby disclaimed.

Limitation of Liability:

The remedies of the Purchaser set forth herein are exclusive, and the total liability of the Company with respect to this order whether based on contract, warranty, negligence, indemnity, strict liability or otherwise, shall not exceed the purchase price of the part upon which such liability is based.

The Company shall in no event be liable to the Purchaser, any successors in interest or any beneficiary of this order for any consequential, incidental, indirect, special or punitive damages arising out of this order or any breach thereof, or any defect in, or failure of, or malfunction of the parts hereunder, whether based upon loss of use, lost profits or revenue, interest, lost goodwill, work stoppage, impairment of other goods, loss by reason of shutdown or non-operation, increased expenses of operation or claims of customers of Purchaser for service interruption whether or not such loss or damage is based on contract, warranty, negligence, indemnity, strict liability or otherwise.

AIREND EXCHANGE PROGRAM

Doosan offers an airend exchange program to benefit portable compressor users.

Your nearest sales office, autonomous company or authorised distributor must first contact the Parts Service Department at the factory at which your portable air compressor was manufactured for further instructions.

For parts, service or information regarding your local distributor (Europe, Middle East, Africa) please contact:

Facility:	Website:
Doosan Bobcat EMEA s.r.o. (DBEM),	www.doosanportablepower.eu
U Kodetky 1810, 263 12 Dobris,	
Czech Republic	

For parts, service or information regarding your local distributor (U.S, Latin America or Asia Pacific) please contact:

Facility:	Telephone:	Fax:
Doosan International USA, Inc	800-633-5206 (US & Canada)	336-751-1579 (US & Canada)
1293 Glenway Drive	305-222-0835 (Latin America)	336-751-4325 (Latin America)
Statesville	65-860-6863 (Asia Pacific)	336-751-4325 (Asia Pacific)
North Carolina 28625-9218		

Office hours: Monday to Friday 8:00 a.m. to 5:30 p.m. (EST)

Revision History

Rev.	EC Number	Comments
A		Original release
B		Revised Serial Numbers
C		Added Prop 65 Statement
D		Updated filter CCNs and Recommended parts Kit CCNs

Portable Power

Doosan Infracore Portable Power
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Statesville, N.C. 28625
www.doosanportablepower.com

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