

# OPERATING, MAINTENANCE, PARTS MANUAL

## **MODELS:**

P600WIR (7/170) HP450WIR (10/125) VHP400WIR (14/115)

## Code:



This manual contains important safety information. Do not destroy this manual.

This manual must be available to the personnel who operate and maintain this machine.

**Ingersoll Rand** 

Portable Power P.O. Box 868 – 501 Sanford Ave Mocksville, N.C. 27028 Doosan purchased Bobcat Company from Ingersoll-Rand Company in 2007. Any reference to Ingersoll-Rand Company or use of trademarks, service marks, logos, or other proprietary identifying marks belonging to Ingersoll-Rand Company in this manual is historical or nominative in nature, and is not meant to suggest a current affiliation between Ingersoll-Rand Company and Doosan Company or the products of either.

C.C.N.: 22199590 US DATE: MARCH 2003 Revised (09-12)

## **CALIFORNIA**

## **Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

1	CONTENTS	51	SERVICE TOOLS
2	FOREWORD	55	FAULT FINDING
3	WARRANTY	57	OPTIONS
8	DECALS	60	PARTS ORDERING
16	NOISE EMISSION		ABBREVIATIONS & SYMBOLS
20	MAINTENANCE RECORD FOR NOISE EMISSION CONTROL AND EXTENDED WARRANTY	#### number ->####	Contact Ingersoll-Rand for serial  Up to Serial No.
21	SAFETY	####->	From Serial No.
24	GENERAL INFORMATION Dimensions Data	* † AR D	Not illustrated Option As required Germany
31	OPERATING INSTRUCTIONS Commissioning Prior to starting Starting Stopping Emergency stopping Re-starting Monitoring during operation Decommissioning	DK E F GB HA I N NL P SF	Denmark Spain France Great Britain High ambient machine Italy Norway Netherlands Portugal Sweden Finland
38	MAINTENANCE Routine maintenance Lubrication Speed & pressure regulation Torque settings table Compressor lubrication	F.H.R.G	Fixed height running gear     Variable height running gear
48	MACHINE SYSTEMS Electrical system Piping & instrumentation system		

#### **FOREWORD**

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

Nothing contained in this document is intended to extend any promise, warranty or representation, expressed or implied, regarding the Ingersoll-Rand 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 Ingersoll-Randservice 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 Ingersoll-Rand.
- 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 Ingersoll-Rand Service departments.

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

Ingersoll-Rand 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 Ingersoll-Rand 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.

UNITS MANUFACTURED IN NORTH AMERICA: Generation of electricity at 120V (1ph) at 60 Hertz.

UNITS MANUFACTURED IN EUROPE: Generation of electricity not applicable.

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

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

#### 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.

Use of the machine where there is any actual or foreseeable risk of hazardous levels of flammable gases or vapours.

Use of the machine fitted with non Ingersoll-Rand approved components / lubricants / fluids.

Use of the machine with safety or control components missing or disabled.

Use of the machine for storage or transportation of materials inside or on the enclosure except when contained within the toolbox.

#### **GENERATOR**

Use of the generator to supply load(s) greater than those specified.

Use of unsafe or unserviceable electrical equipment connected to the generator.

Use of electrical equipment:

- (a) Having incorrect voltage and/or frequency ratings.
- (b) Containing computer equipment and/or similar electronics.

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

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#### WARRANTY

Ingersoll—Rand, through its distributor, warrants that each item of equipment manufactured by it and delivered hereunder to the initial user will be free of defects in material and workmanship.

With respect to the following types of equipment, the warranty period enumerated below will apply.

- Aftercoolers The earlier of nine (9) months from date of shipment to or six (6) months from start up by initial user.
- B. Portable Compressors, Portable Generator Sets (GENSET), Portable Light Towers and Air Dyers The earlier of twelve (12) months from shipment to or the accumulation of 2,000 hours of service by the initial user.
- C. Portable Compressor Air Ends The earlier of twenty–four (24) months from shipment to or the accumulation of 4,000 hours of service by the initial user. For Air Ends, the warranty against defects will include replacement of the complete Air End, provided the original Air End, is returned assembled and unopened.
- C.1 Portable Compressor Airend Limited Optional Warranty— The earlier of sixty (60) months from shipment to or the accumulation of 10,000 hours of service. The optional warranty is limited to defects in rotors, housings, bearings and gears and provided all the following conditions are met:

The original airend is returned assembled and unopened.

Continued use of genuine Ingersoll–Rand parts, fluids, oils and filters.

Maintenance is performed at prescribed intervals.

- D. Genset Generators The earlier of twenty–four (24) months from shipment to or the accumulation of 4,000 hours of service by the initial user.
- E. Portable Light Tower Generators The earlier of twelve (12) monthsfrom shipment to or the accumulation of 2,000 hours of service by the initial user. Light Source model only, the earlier of twenty–four (24) months from shipment to or the accumulation of 4,000 hours of service.
- F. Ingersoll-Rand Engines The earlier of twenty—four (24) months from shipment to or the accumulation of 4,000 hours of service.

G. Ingersoll–Rand Platinum Drive Train Warranty (Optional) – Platinum drive train pertains to the Ingersoll–Rand Engine and Airend combination. The earlier of sixty (60) months from shipment to, or the accumulation of 10,000 hours of service. The starter, alternator, fuel injection system and all electrical components are excluded from the extended warranty. The airend seal and drive coupling are included in the warranty (air–end drive belts are not included). The optional warranty is automatically available when meeting the following conditions:

The original airend is returned assembled and unopened.

Continued use of genuine Ingersoll–Rand parts, fluids, oil and filters.

Maintenance is performed at prescribed intervals.

It is the obligation of the user to provide verification that these conditions have been satisfied when submitting warranty claims.

H. Spare Parts – Six (6) months from date of installation

Ingersoll–Rand will provide a new part or repaired part, at its election, in place of any part which is found upon its inspection to be defective in material and workmanship during the period prescribed above. Such part will be repaired or replaced without charge to the initial user during normal working hours at the place of business of an Ingersoll–Rand distributor authorized to sell the type of equipment involved or other establishment authorized by Ingersoll – Rand. User must present proof of purchase at the time of exercising warranty.

The above warranty does not apply to failures occurring as a result of abuse; misuse, negligent repairs, corrosion, erosion and normal wear and tear, alterations or modifications made to the product without express written consent of Ingersoll–Rand; or failure to follow the recommended operating practices and maintenance procedures as provided in the product's operating and maintenance publications.

Accessories or equipment furnished by Ingersoll–Rand, but manufactured by others, including, but not limited to, engines, tires, batteries, engine electrical equipment, hydraulic transmissions, carriers, shall carry whatever warranty the manufacturers have conveyed to Ingersoll–Rand and which can be passed on to the initial user.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, (EXCEPT THAT OF TITLE), AND THERE ARE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FORA PARTICULAR PURPOSE.

# **GENERAL WARRANTY INFORMATION**

GENERAL WARRANTY			Extended Coverage
Portable Compressor	Package	1 year/2000 hrs	
	Airend	2 yrs/4000 hrs	5 yrs/10,000 hrs Limited warranty, major compo- nents (refer to operator's manual).
Portable Genset 8kW, 11KW, 20KVA thru 575KVA	Package	1 yr/2000 hrs	None
	Generator	2 yrs/4000 hrs	None
	•		•
Portable Genset 3.5KW thru 7.0KW and 10KW	Package	1 yr/2000 hrs (parts only)	None
	Generator	1 yrs/2000 hrs (parts only)	None
	-		
Light Tower	Package	1 yr/2000 hrs	
	Generator	1 yr/2000 hrs	2 years/4000 hours, for Lightsource introduced 8/16/99.

ENGINES			
CATERPILLAR	Months	Hours	Extended Coverage
	12	unlimited	Available at dealer
CUMMINS	24	2000	Major components 3 yrs/10,000 hrs Available at dealer
JOHN DEERE (in compressors)	24	2000	5 yrs/5000 hrs using OEM fluids and filters with \$250 deductible
(in generators as of 1/1/01)	24	2000	2 yrs/4000 hrs using IR fluids and filters
DEUTZ	24	2000	Available at dealer
INGERSOLL-RAND	24	4000	5 yrs/10,000 hrs when using genuine Inger- soll–Rand fluids and parts. Refer to operator's manual.
KUBOTA (North America only)	24	2000	Major components 36 mo/3000 hrs (parts only)
(Western Europe & Oceania)	24	2000	None
(Central & South America, Asia, Middle East & Africa)	12	1000	None
MITSUBISHI	24	2000	2 yrs/4000 hrs using IR fluids and filters
VOLVO	24	2000	2 yrs/4000 hrs using IR fluids and filters
HONDA	12	unlimited	None
VANGUARD	24	unlimited	None

PARTS			
	Months	Hours	Coverage
Ingersoll-Rand	6	No Limit	Parts Only

AIREND EXCHANGE			
	Months	Hours	Extended Coverage
Airend	12	2000	2 yrs/4000 hrs – available from IR.

Note: Actual warranty times may change. Consult the manufacturer's warranty policy as shipped with each new product.

## **Extended Limited Airend Warranty**

Ingersoll–Rand Portable Compressor Division is pleased to announce the availability of extended limited airend warranty. Announcement of the extended warranty coincides with the introduction of Pro–Tec <sup>™</sup> Compressor Fluid. Pro–Tec <sup>™</sup> Compressor Fluid is an amber coloured fluid specially formulated for Portable Compressors and is being provided as the factory filled fluid for all machines except <sup>1</sup> XHP650/900/1070

All machines have the standard airend warranty, – The earlier of 24 months from shipment to, or the accumulation of 4000 hours of service by the initial user.

The warranty against defects will include replacement of the complete Airend, provided the original Airend is returned assembled and unopened.

The optional limited warranty is the earlier of 60 months from shipment to, or the accumulation of 10,000 hours of service. The optional warranty is limited to defects in major components (rotors, housings, gears and bearings), and is automatically available when the following conditions are met:

- 1. The original airend is returned assembled and unopened.
- 2. Submissions of proof that Ingersoll–Rand fluid, filters and separators have been used. Refer to the Operation and Parts manual for the correct fluids, filters and separator elements required.
- 3. Submissions of proof that maintenance intervals have been followed.

WARRANTY	TIME	*BARE AIREND	**AIREND COMPONENTS
STANDARD	2YRS / 4,000HRS	100% PARTS & LABOUR	100% PARTS & LABOUR
OPTIONAL	5YRS / 10,000HRS	100% PARTS & LABOUR	0%

<sup>\*</sup>BARE AIREND – pertains to major airend parts (rotors, housings, gears and bearings).

Pro–Tec <sup>™</sup> and XHP505 Compressor Fluids are available from your local Ingersoll–Rand branch or distributor.

For units operating within the USA & Canada, call the Mocksville Product Support Department on 1–800–633–5206

<sup>\*\*</sup>AIREND COMPONENTS – pertains to auxiliary attachments to the bare airend (seals, pumps, valves, tubes, hoses, fittings and filter housing).

<sup>&</sup>lt;sup>1</sup> XHP650/900/1070 will continue to use XHP505 and will have the extended warranty when above conditions are met.

## WARRANTY REGISTRATION

## FOR UNITS SOURCED FROM MOCKSVILLE, USA

## **Complete Machine Registration**

<u>Machines shipped to locations within the United States</u> do not require a warranty registration unless the machine status changes (i.e. change of ownership).

Machines shipped outside the United States require notification be made to initiate the machine warranty.

# Fill out the Warranty Registration Form in this section, keep a copy for your records and mail form to:

Ingersoll-Rand Company P.O. Box 868 Mocksville, North Carolina 27028

Attn: Warranty Department

## Note: Completion of this form validates the warranty.

## **Engine Registration:**

I-R powered machines do not require separate engine registration.

John Deere requires a separate engine registration be completed and mailed direct to John Deere.

Separate engine registration material is included with this literature package for John Deere powered machines.

All other engine manufacturers do not require a separate engine registration.

You MUST present proof of in-service date at time of requesting engine warranty service.

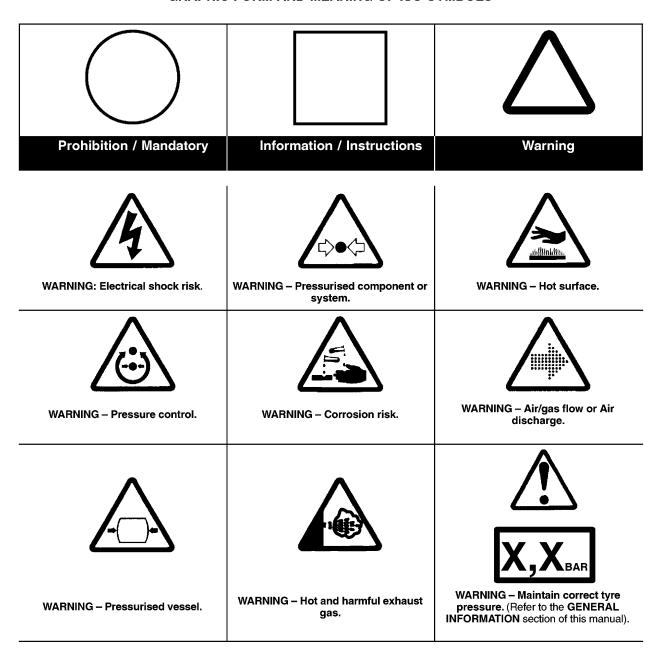
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					dress	Name	
					_		
	•				-		
County	County			٠.	ounty _		
State				_	ate _		
Zip code	Zip code			•	o code		
Telephone	Telephon	<u>e</u>		_ Te	lephone _		
	Completener/User Typ	e of Bus	`		ck one or		
Construction–Heavy (highway, excavation,	etc.)	Asphalt C	ontractor		Coal Minin	ng 🔲	Other Mining
Construction–Light (carpentry, plumbing, mason, etc.)		Governme (municipa county, et	al, state,		Quarry		Shallow Oil & Gas
Rental (rental center fleet, etc.)	r, rental $\square$	Building C	Contractor		Water well		Utility Company (gas, electric, water, etc.)
☐ Industrial (plant use)		Other specify _			Exploration	n 🗆	Utility Contractor
Model S/N	Unit S/N		Engine S	5/N		Date del	livered
Unit-Hours	Airend S/N		Truck S/ľ			Truck E	ngine S/N
	All Citations		II			,, <del>,</del> , , .	
SERV	VICING DISTRI	BUTOR /	USER ACI	KNO	WLEDGEM	ENT	
The Purchaser has been maintenance, general				ınual	and unders	tands pro	per preventative
2. The warranty and limit	tation of liability	has been	reviewed $\varepsilon$	and u	nderstood b	by the owi	ner/user.
In the event that this Ingersoll-Rand of suc protection from the ow	ch use so that	Ingersoll-	-Rand may				
Ingersoll–Rand reserve     at anytime without incu							

units.

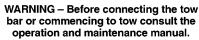
## **DECALS**

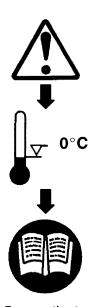
Look for these signs on machines manufactured in Europe, which point out potential hazards to the safety of you and others. Read and understand thoroughly. Heed warnings and follow instructions. If you do not understand, inform you supervisor.

#### GRAPHIC FORM AND MEANING OF ISO SYMBOLS









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



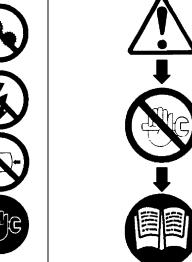
WARNING - Flammable liquid.

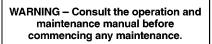














Do not breathe the compressed air from this machine.



WARNING - Do not undertake any

maintenance on this machine until the

electrical supply is disconnected and

the air pressure is totally relieved.

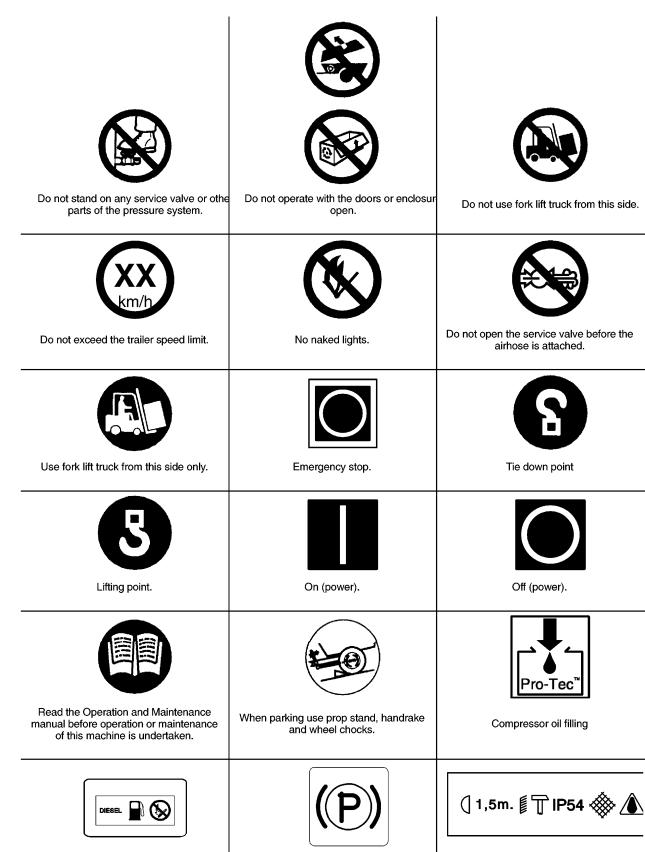
Do not remove the Operating and Maintenance manual and manual holder from this machine.

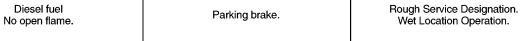


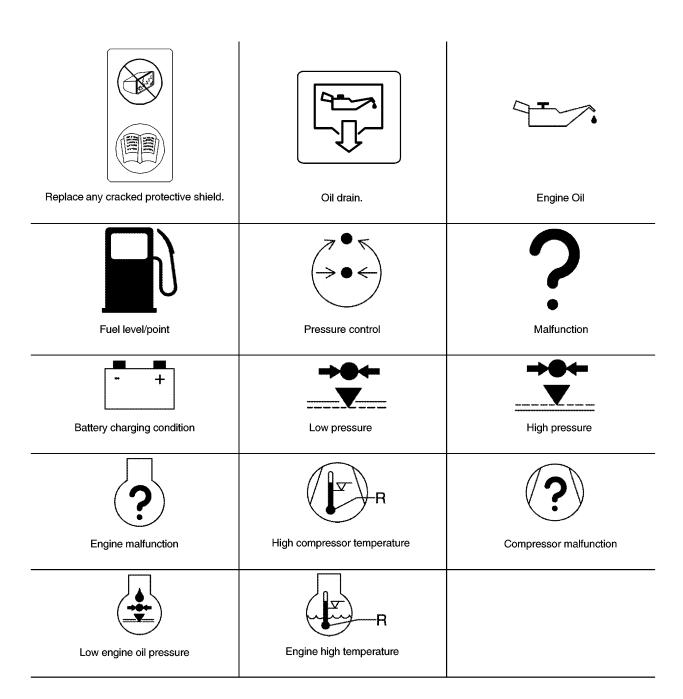
Do not stack.



Do not operate the machine without the guard being fitted.







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

# **A DANGER**

(Red Background)

# **MWARNING**

(Orange Background)

# **ACAUTION**

(Yellow Background)

# NOTICE

(Blue Background)

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

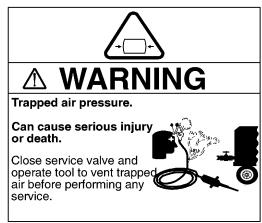
Indicates the presence of a hazard which CAN cause serious injury, death or property damage, if ignored.

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

Indicates important set-up, operating or maintenance information.











# **⚠ WARNING**

Improper operation of this equipment. Can cause serious injury or death. Read Operator's Manual supplied with this 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.



Rotating fan blade.

Can cause serious injury.



Do not operate without guard in place.



# **△ WARNING**

Door under pressure.

Can cause serious injury.

Use both hands to open door when machine is running.





DO NOT WELD.

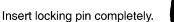
ELECTRONIC DAMAGE WILL OCCUR.

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



# **⚠ WARNING**

Collapsing jackstand. Can cause serious injury.



Excessive towing speed. Can cause serious injury or death.

Do NOT exceed 65 mph (105 km/hr.)







# **NWARNING**

Falling off machine.

Can cause serious injury or death.



Access lifting bail from inside machine.



## **↑ WARNING**

Disconnected air hoses whip.

Can cause serious injury or death.



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



## **⚠ WARNING**

Combustible gas.

Can cause serious burns, blindness or death.



Keep sparks and open flames away from batteries.

7/120 9/110 10/110 14/85 7/170 10/125 14/115



DO NOT USE ETHER.

**ENGINE DAMAGE WILL OCCUR.** 

This engine is equipped with an electric heater starting aid.



# ⚠ WARNING

High pressure air. Can cause serious injury or death.

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







COOLANT FILL INSTRUCTIONS

Adding:

Do NOT remove radiator cap. Top off at overflow reservoir. Use same anti-freeze mixture as in radiator.

Replacing:

With system cool, remove radiator cap. Drain coolant and close drain. At radiator, refill system. Replace radiator cap. At reservior, fill to "Hot" level. Run for 30 minutes. Stop and allow to cool. At reservoir, add coolant as necessary to reach "Cold" level.

# **FREE SAFETY DECALS!**

To promote communication of Safety Warnings on products manufactured by the Portable Compressor Division in Mocksville, N.C., Safety Decals are available **free** of charge. Safety decals are identified by the decal heading: **DANGER, WARNING or CAUTION.** 

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

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



#### TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED

Federal law prohibits the following acts or the causing thereof:

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

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

- 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
- 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.

Ingersoll–Rand Company 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.:	DEALER OR DISTRIBUTOR FROM WHOM PURCHASED:
PURCHASER OR OWNER: ADDRESS:	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 & LUBRICANTS	SEE OPERATOR'S MANUAL

#### A. COMPRESSED AIR LEAKS

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

#### **B. SAFETY AND CONTROL SYSTEMS**

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

#### C. ACOUSTIC MATERIALS

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

#### **D. FASTENERS**

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

#### **E. ENCLOSURE PANELS**

Enclosure panels should also be inspected at 100 hour operational intervals. All panels that are warped, punctured, torn, or otherwise deformed, such that their noise containment function is reduced, should be repaired or replaced before the next operation interval. Doors, access panels, and hatch closures especially, should be checked and adjusted at this time to insure continuous 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 Ingersoll–Rand Company and Engine Manufacturer's Operator and Maintenance Manuals.

ITEM NO.	DESCRIPTION OF WORK OR COMMENTS	HOURMETER READING	MAINT/INSPECT DATE	LOCATION CITY/STATE	WORK DONI BY (NAME)

#### SAFETY

#### 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.

#### **General Information**

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

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

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

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

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

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

A weekly visual check must be made on all fasteners/fixing screws securing mechanical parts. In particular, safety-related parts such as coupling hitch, drawbar components, road-wheels, 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 machine may contain carbon monoxide or other contaminants which will cause serious injury or death. Do not breathe this air.

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

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

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

Ether is an extremely volatile, highly inflammable gas. When it is specified as a starting aid, use sparingly. DO NOT USE ETHER IF THE MACHINE HAS GLOW PLUGS OR INLET HEATER STARTING AIDS OR ENGINE DAMAGE WILL RESULT.

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

#### Compressed air

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

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

All air pressure equipment installed in or connected to the machine must have safe working pressure ratings of at least the machine rated pressure.

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 accidently be pressurised / over pressurised by another.

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

High Pressure Air can cause serious injury or death. Relieve pressure before removing filler plugs/caps, fittings or covers.

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

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

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

When using compressed air always use appropriate personal protective equipment.

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

Avoid bodily contact with compressed air.

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

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

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 unit to sit stopped with pressure in the receiver-separator system.

#### **Materials**

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

- . brake lining dust
- . engine exhaust fumes

#### **AVOID INHALATION**

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 machine and *may* be hazardous to health if used incorrectly:

- . anti-freeze
- . compressor lubricant
- . engine lubricant
- . preservative grease
- rust preventative
- . diesel fuel
- . battery electrolyte

## AVOID INGESTION, SKIN CONTACT AND INHALATION OF FUMES

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

Should compressor lubricant come into contact with the skin, then wash off immediately.

Consult a physician if large amounts of compressor lubricant are ingested.

Consult a physician if compressor lubricant is inhaled.

Never give fluids or induce vomiting if the patient is unconscious or having convulsions.

Safety data sheets for compressor and engine lubricants should be obtained from the lubricant supplier.

Never operate the engine of this machine inside a building without adequate ventilation. Avoid breathing exhaust fumes when working on or near the machine.

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

#### **Battery**

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

# DO NOT ATTEMPT TO SLAVE START A FROZEN BATTERY SINCE THIS MAY CAUSE IT TO EXPLODE.

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

#### Radiator

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

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

#### Transport

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

When loading or transporting machines 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 machine model if lower than the legal maximum.

Ensure that the maximum trailer weight does not exceed the maximum gross weight of the machine (by limiting the equipment load), limited by the capacity of the running gear.

#### Note:

Gross mass (on data plate) is for the basic machine and fuel only, excluding any fitted options, tools, equipment and foreign materials.

Before towing the machine, ensure that:-

- . the tyres and towing hitch are in a serviceable condition.
- . the canopy is secure.
- . all ancillary equipment is stored in a safe and secure manner.
- . the brakes and lights are functioning correctly and meet necessary

road traffic requirements.

. break-away cables/safety chains are connected to the towing

vehicle.

The machine 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.

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

#### Safety chains / connections and their adjustment

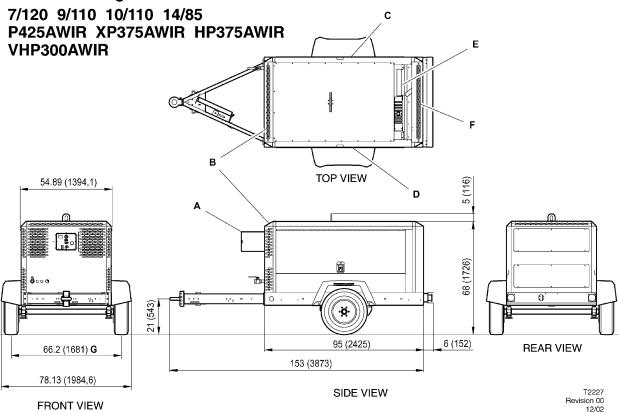
Where brakes and safety chains are fitted:

- a) Loop the chains onto the towing vehicle using the towing vehicle hitch as an anchorage point, or any other point of similar strength.
- b) Ensure that the effective chain length is as short as possible whilst still allowing normal articulation of the trailer and effective operation of the breakaway cable.

Where safety chains only are fitted:

- a) Loop the chains onto the towing vehicle using the towing vehicle hitch as an anchorage point, or any other point of similar strength.
- b) When adjusting the safety chains there should be sufficient free length in the chains to allow normal articulation, whilst also being short enough to prevent the towbar from touching the ground in the event of an accidental separation of the towing vehicle from the trailer.

## **General Arrangement**



## MANUFACTURED IN NORTH AMERICA

All dimensions in inches(mm)

A Instrument panel access door

B Package air inlet

C Access items: Separator element & fill Compressor oil filter Fuel filters Dipstick Engine oil fill Coolant bottle fill

D Access items: Fuel fill Engine oil filter

Fuel filter

Engine and compressor air filter

E Access items: Radiator fill

F Package air outlet

G Track width

## 7/170 10/125 14/115 P600WIR HP450WIR VHP400WIR С Ε В 61.02 (1550) **TOP VIEW** D 75 (1906.6) (560.5)·Ö· 22 6 (152) 117.13 (2975) 66.2 (1681) **G REAR VIEW** 172.8 (4389) 78.13 (1985) SIDE VIEW T2234 Revision 00 03/03 FRONT VIEW

#### MANUFACTURED IN NORTH AMERICA

All dimensions in inches(mm)

A Instrument panel access door

B Package air inlet

C Access items: Separator element & fill Compressor oil filter Fuel filters Dipstick Engine oil fill Coolant bottle fill

D Access items: Fuel fill

Engine oil filter

Fuel filter

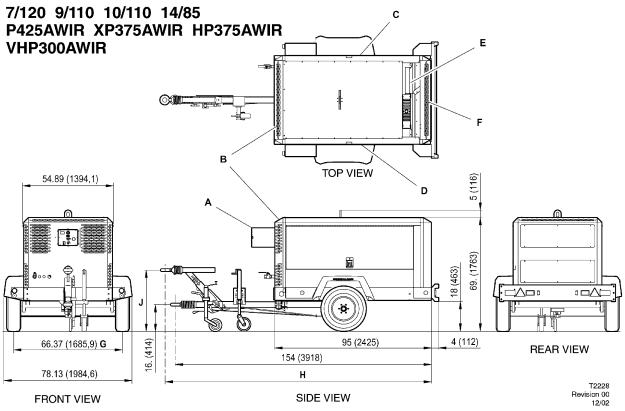
Engine and compressor air filter

E Access items:

Radiator fill

F Package air outlet

G Track width



All dimensions in inches(mm)

- A Instrument panel access door
- B Package air inlet

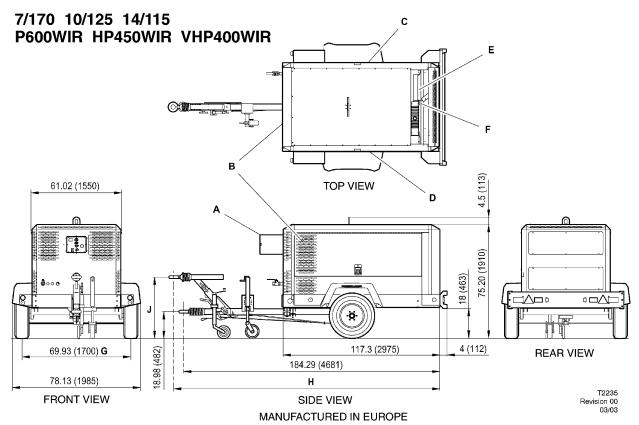
C Access items: Separator element & fill Compressor oil filter Fuel filters Dipstick Engine oil fill Coolant bottle fill

D Access items:
 Fuel fill
 Engine oil filter
 Fuel filter
 Engine and compressor air filter

MANUFACTURED IN EUROPE

E Access items: Radiator fill

- F Package air outlet
- G Track width
- H Variable height drawbar 162 (4114) minimum / 168 (4277) maximum
- J Variable height drawbar 17 (420) minimum / 35 (880) maximum



All dimensions in inches(mm)

- A Instrument panel access door
- **B** Package air inlet

C Access items: Separator element & fill Compressor oil filter Fuel filters Dipstick Engine oil fill Coolant bottle fill

D Access items:
 Fuel fill
 Engine oil filter
 Fuel filter
 Engine and compressor air filter

E Access items: Radiator fill

- F Package air outlet
- G Track width
- H Variable height drawbar 184.29 (4681) minimum / 189.21 (4806) maximum
- J Variable height drawbar 18.98 (482) minimum / 37.17 (944) maximum

COMPRESSOR
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COMPRESSOR		
Actual free air delivery. (7/120) (P425AWIR)	12,0 m	<sup>3</sup> min <sup>-1</sup> (425 CFM)
Actual free air delivery. (9/110) (XP375AWIR)	10,5 r	m <sup>3</sup> min <sup>-1</sup> (375 CFM)
Actual free air delivery. (10/110) (HP375AWIR)	10,5 r	m <sup>3</sup> min <sup>-1</sup> (375 CFM)
Actual free air delivery. (14/85) (VHP300AWIR)	8,5 m	<sup>3</sup> min <sup>-1</sup> (300 CFM)
Actual free air delivery. (7/170) (P600WIR)	17,0 m	<sup>3</sup> min <sup>-1</sup> (600 CFM)
Actual free air delivery. (10/125) (HP450WIR)	12,8 m <sup>3</sup> min <sup>-1</sup> (450 CFM)	
Actual free air delivery. (14/115) (VHP400WIR)	11,3 m <sup>3</sup> min <sup>-1</sup> (400 CFM)	
Normal operating discharge pre (7/120) (P425AWIR)	essure.	7 bar (100 PSI)
Normal operating discharge pre (9/110) (XP375AWIR)	essure.	8,6 bar (125 PSI)
Normal operating discharge pre (10/110) (HP375AWIR)	essure.	10,3 bar (150 PSI)
Normal operating discharge pre (14/85) (VHP300AWIR)	essure.	14 bar (200 PSI)
Normal operating discharge pre (7/170) (P600WIR)	essure.	7 bar (100 PSI)
Normal operating discharge pre (10/125) (HP450WIR)	essure.	10,3 bar (150 PSI)
Normal operating discharge pre (14/115) (VHP400WIR)	essure.	14 bar (200 PSI)
Maximum allowable pressure. (7/120) (P425AWIR)		8,6 bar (125 PSI)
Maximum allowable pressure. (9/110) (XP375AWIR)		10.3 bar (150 PSI)
Maximum allowable pressure. (10/110) (HP375AWIR)		12.1 bar (175 PSI)
Maximum allowable pressure. (14/85) (VHP300AWIR)		15.5 bar (225 PSI)
Maximum allowable pressure. (7/170) (P600WIR)		8,6 bar (125 PSI)
Maximum allowable pressure. (10/125) (HP450WIR)		12.1 bar (175 PSI)
Maximum allowable pressure. (14/115) (VHP400WIR)		15.5 bar (225 PSI)

Safety valve setting. (7/120) (P425AWIR)	10 bar (150 PSI)
Safety valve setting. (9/110) (XP375AWIR)	10 bar (200 PSI)
Safety valve setting. (10/110) (HP375AWIR)	14 bar (200 PSI)
Safety valve setting. (14/85) (VHP300AWIR)	17 bar ( 250 PSI)
Safety valve setting. (7/170) (P600WIR)	10 bar (150 PSI)
Safety valve setting. (10/125) (HP450WIR)	14 bar (200 PSI)
Safety valve setting. (14/115) (VHP400WIR)	17 bar ( 250 PSI)
Maximum pressure ratio (absolute). (7/120) (P425AWIR)	7 ,9 : 1
Maximum pressure ratio (absolute). (9/110) (XP375AWIR)	9, 6 : 1
Maximum pressure ratio (absolute). (10/110) (HP375AWIR)	11, 3:1
Maximum pressure ratio (absolute). (14/85) (VHP300AWIR)	14, 8 : 1
Maximum pressure ratio (absolute). (7/170) (P600WIR)	7 ,9 : 1
	11 0 . 1
Maximum pressure ratio (absolute). (10/125) (HP450WIR)	11, 3 : 1
	14, 8 : 1
(10/125) (HP450WIR)  Maximum pressure ratio (absolute).	,

Operating ambient temperature.

Whisperized -12°C TO +49°C (10°F TO 120°F)

Cooling system.

Oil injection

Oil capacity.

36 litres ( 9.5 GAL)

Maximum oil system temperature.

120°C (248°F)

Maximum oil system pressure. (7/120) (P425AWIR)

8,6 bar (125 PSI)

Maximum oil system pressure. (9/110) (XP375AWIR)

10.3 bar (150 PSI)

Maximum oil system pressure.

12.1 bar (175 PSI)

(10/110) (HP375AWIR)

Maximum oil system pressure.

.\_.. .... (....

(14/85) (VHP300AWIR)

15.5 bar (225 PSI)

Maximum oil system pressure. (7/170) (P600WIR)

8,6 bar (125 PSI)

Maximum oil system pressure. (10/125) (HP450WIR)

12.1 bar (175 PSI)

Maximum oil system pressure. (14/115) (VHP400WIR)

15.5 bar (225 PSI)

**LUBRICATING OIL SPECIFICATION** (for the specified ambient temperatures).

ABOVE -23°C(-9°F)

Recommended: Pro–Tec™

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

BELOW -23°C(-9°F)

Mandatory: IR Performance 500

Ingersoll–Rand Pro– $Tec^{TM}$  compressor fluid is factory–fitted, for use at all ambient temperatures above  $-23^{\circ}C(-9^{\circ}F)$ .

**NOTE:** Warranty may be extended only by continuous use of Pro–Tec<sup>™</sup> and Ingersoll–Rand oil filters and separators.

#### No other oil/fluids are compatible with Pro–Tec<sup>™</sup>

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

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

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

- a) for ambient temperatures above  $-23^{\circ}$  C( $-9^{\circ}$ F), SAE 10W, API CF-4/CG-4
- b) for ambient temperatures below -23°C(-9°F), I-R Performance 500 only.

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

For temperatures outside the specified ambient range, consult Ingersoll-Rand.

#### **ENGINE**

# P425WIR (7/120) XP375AWIR ( 9/110), HP375AWIR (10/110), VHP300AWIR (14/85)

Type/model. Number of cylinders.	Ingersoll–Rand 4
Oil capacity.	13.2 litres ( 3.5 GAL)
Speed at full load. min <sup>-1</sup> (RPM)	2400 revs
Speed at idle. (RPM)	1400 revs min <sup>-1</sup>
Electrical system.	24V negative earth
Power available at 2400 revs min <sup>-1</sup>	93 kW (125 HP)
Fuel tank capacity GAL)	219.5 litres ( 58
Oil specification	Refer engine section
Coolant capacity	17 litres(4.5 GAL)

#### **ENGINE**

#### P600WIR (7/170), HP450WIR (10/125), VHP400WIR (14/115)

Type/model. Number of cylinders.	Ingersoll–Rand 6
Oil capacity.	22.1 litres (5.75 GAL)
Speed at full load.	2400 revs min <sup>-1</sup> (RPM)
Speed at idle.	1400 revs min <sup>-1</sup> (RPM)
Electrical system.	24V negative earth
Power available at 2400 revs min-1	126.8 kW (170 HP)
Fuel tank capacity	276 litres (73 GAL)
Oil specification	Refer engine section
Coolant capacity	28.4 litres(7.5 GAL)

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

EPA Noise 76 dB(A)

# WHEELS AND TIRES - P425AWIR, XP375AWIR, HP375AWIR, VHP300AWIR

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

#### WHEELS AND TIRES - P600WIR, HP450WIR, VHP600WIR

2 x 6.75
8.75 - 16.5LTE
= 75 psi (5.2 bar)

Further information may be obtained by request through Ingersoll–Rand customer services department.

#### COMMISSIONING

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

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

Ensure that the position of the *emergency stop* device is known and 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 tyre pressures are correct (refer to the *GENERAL INFORMATION* section of this manual). Before towing the unit during the hours of darkness, ensure that the lights are functioning correctly (where fitted).

Ensure that all transport and packing materials are discarded.

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

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

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

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

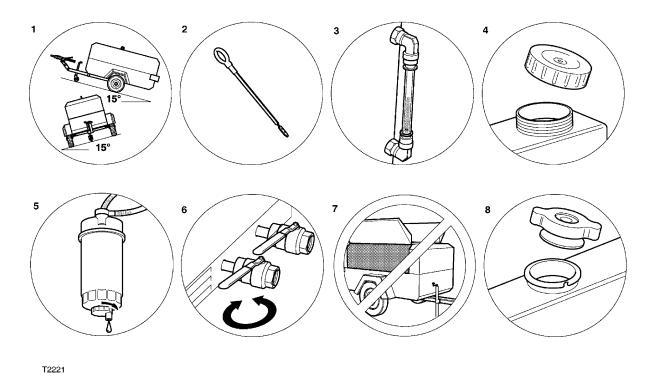
Attach the battery cables to the battery(s) ensuring that they are tightened securely. Attach the negative cable before attaching the positive cable.

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

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

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

#### **OPERATING INSTRUCTIONS**



#### PRIOR TO STARTING

Revision 00 12/00

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

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

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

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

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

#### CAUTION: When refuelling:-

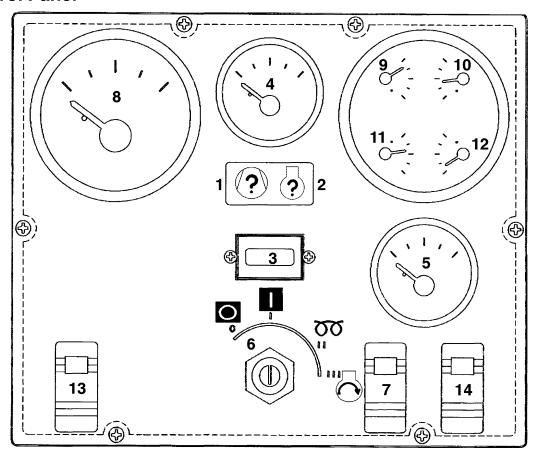
- . switch off the engine.
- . do not smoke.
- . extinguish all naked lights.
- . do not allow the fuel to come into contact with hot surfaces.
- wear personal protective equipment.

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

Check the air restriction indicator(s). Refer to the *MAINTENANCE* section of this manual.

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

## **Control Panel**



#### **DIAGNOSTIC/AUTO SHUTDOWN (STANDARD)**

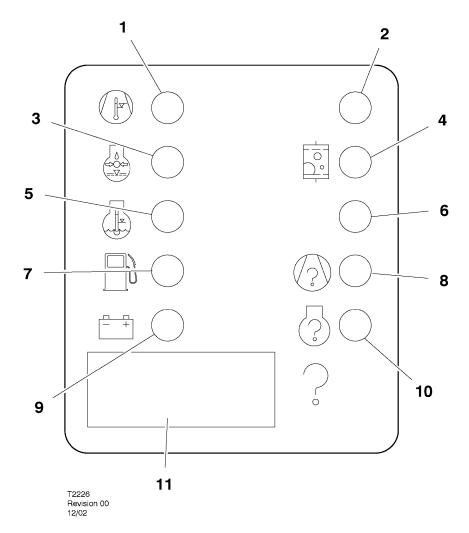
- **1. Compressor fault –** Needs attention. See Wedge diagnostic panel for more detail.
- 2. Engine Fault Needs attention. See Wedge diagnostic panel for more detail.
- 3. Hourmeter Records running time for maintenance.
- **4. Compressor Discharge Pressure Gauge** Indicates pressure in receiver tank,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

#### **CONTROLS (STANDARD)**

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

#### **OPTIONAL CONTROLS**

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



#### WEDGE DIAGNOSTIC DISPLAY PANEL.

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

- 1. **High Compressor Temp**: Fault indicator lamp. Indicates shutdown due to high compressor temperature.
- 2. Spare
- 3. **Low Engine Oil Pressure**: Fault indicator lamp. Indicates shutdown due to low engine oil pressure.
- Restricted Air Filter: Alarm indicator lamp. Indicates engine/compressor air inlet filters need service.
- 5. **High Engine Coolant Temp:** Fault indicator lamp. Indicates shutdown due to high engine water temperature.

- 6. Spare
- 7. **Low Fuel Level:** Fault indicator lamp. Indicates shutdown due to low fuel level. Lamp blinks at low fuel warning.
- 8. Compressor Malfunction: Fault indicator lamp. Indicates shutdown due to compressor system fault. Refer to Fault Code List.
- Low Battery Voltage: Alarm indicator lamp. Indicates battery or charging system requires service.
- 10. **Engine Malfunction:** Engine Fault code. Refer to service card or engine manual for codes and service requirements.
- Malfunction Code (4 Digit):
   Compressor or engine fault. Refer to manual for list of codes and service requirements.

# **Wedge Diagnostic Display Codes**



 $oldsymbol{\mathsf{I}}$  fault indicator lamp is illuminated, refer to the



Alert/Shutdown list below.



fault indicator lamp is illuminated, refer to the



Engine diagnostic list below.



## **ALERT/SHUTDOWN CONDITIONS Version: 1.40**

Condition	Alert		Shutdown		
	Code	Light (Blinks)	Code	Light (Steady)	Delay (sec.)
Engine Speed <900 RPM			1	CPRSR Malf.	30
Engine Speed >2500 RPM			2	CPRSR Malf.	30
Engine Crank Time Exceeded			3	CPRSR Malf.	0
Intake Manifold Temperature > 180 deg. F	6	CPRSR Malf.			
Engine Not Responding To Throttle Command	10	CPRSR Malf.			
Engine Shut Itself Down: reason unknown	29	CPRSR Malf.			
Disch. Temp (RT2) Sensor Fault			32	CPRSR Malf.	10
Sep. Tank Pressure (PT1) Sensor Fault	33	CPRSR Malf.			
Separator Tank Temp.> 247 deg.F)			50	CPRSR Malf.	3
Machine ID Not Valid			51	CPRSR Malf.	0
Sep. Tank Temp. (RT1) Sensor Fault			53	CPRSR Malf.	10
Reg. System Pressure (PT2) Sensor Fault	54	CPRSR Malf.			
Serial Comm. Problem	70	CPRSR Malf.			
CAN Bus Problem	71	CPRSR Malf.			
Dedicated Lights:					
Low Fuel Level		Fuel Level		Fuel Level	3
Air Filter Restriction (Option)		Soiled Filter			
Low Battery Voltage		Battery Charging Condition			
Engine Oil Pressure < 18 PSI		Low Engine Oil Pressure			
Engine Coolant Temperature >= 215 deg. F		High Engine Temp.			
Engine Coolant Temperature >= 220 deg. F				High Comp. Temp.	10
High Discharge Temp. (RT2 > 247 deg. F)				High Comp. Temp.	3

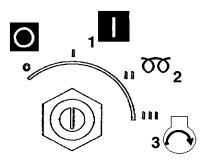


### **ENGINE DIAGNOSTIC CODES**

	Listing of Diag	gnostic Trouble Codes (DTCs)
Displayed Code	FMI*	Definition
28	3	Analog Throttle (B) Input Voltage High
	4	Analog Throttle (B) Input Voltage Low
29	3	Analog Throttle (A) Input Voltage High
	4	Analog Throttle (A) Input Voltage Low
91	3	Multi-state Throttle Input Voltage High
	4	Multi-state Throttle Input Voltage Low
100	1	Engine Oil Pressure Extremely Low
	3	Engine Oil Pressure Input Voltage High
	4	Engine Oil Pressure Input Voltage Low
	18	Engine Oil Pressure Moderately Low
105	3	Manifold Air Temperature Input Voltage High
	4	Manifold Air Temperature Input Voltage Low
	16	Manifold Air Temperature Moderately High
110	0	Engine Coolant Temperature High Most Severe
	3	Engine Coolant Temperature Input Voltage High
	4	Engine Coolant Temperature Input Voltage Low
	15	Engine Coolant Temperature High Least Severe
	16	Engine Coolant Temperature High Moderately Severe
158	17	ECU Power Down Error
174	3	Fuel Temperature Input Voltage High
	4	Fuel Temperature Input Voltage Low
	16	Fuel Temperature Moderately High
190	0	Engine Overspeed Extreme
	16	Engine Overspeed Moderate
620	3	Sensor Supply Voltage High
	4	Sensor Supply Voltage Low
637	2	Crankshaft Position Input Noise
	10	Crankshaft Position Input Pattern Error
970	31	Auxiliary Engine Shutdown Switch Active
971	31	External Engine Derate Switch Active
1076	0	Pump Control Valve Closure Too Long
	1	Pump Control Valve Closure Too Short
	5	Pump Solenoid Circuit Open
	6	Pump Soleniod Circuit Severely Shorted
	7	Pump Control Valve Closure Not Detected
	10	Pump Solenoid Circuit Moderately Shorted
1109	31	Engine Shutdown Warning
1110	31	Engine Shutdown
1569	31	Fuel Derate
2000	6	Internal ECU Failure

<sup>\*</sup> FMI (Failure Mode Indicator) - Requires engine diagnostic tool to display.

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



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

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

### Wait To Start Lamp.

- . Turn the key switch to position 1 until the Wait To Start Lamp. (14) extinguishes.
- . Turn the key switch to crank position (3) (engine start position)
- . NOTE: Position (2) not used on AWIR models.
- . Release to position (1) when engine starts. The engine will now be running at a reduced speed.

At temperatures below  $0\,^{\circ}\text{C}$  or if there is difficulty starting first time:

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

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

#### **PUSH AFTER WARM UP**

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

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

### **DUAL PRESSURE WHEN FITTED**

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

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

The pressure gauge indicates which setting has been selected.

#### STOPPING THE MACHINE

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

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

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

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

### **EMERGENCY STOPPING**

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

### **RE-STARTING AFTER AN EMERGENCY**

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

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

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

### MONITORING DURING OPERATION

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

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

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

#### **DECOMMISSIONING**

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

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

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

\*Disregard if not appropriate for this particular machine.

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

(2) or as defined by local or national legislation

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

**CBT** =check before towing.

CR = Check and report

**D** = Drain

 $\mathbf{G}$  = Grease

R=Replace

T = Test

W I =or when indicated if earlier.

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

	Initial 500 miles /850 km	Daily	Weekly	Monthly	3 Monthly. 250 hrs.	6 Monthly. 500 hrs	12 Monthly. 1000 hrs	18 Monthly. 1500 hrs
*Fuel/Water Separator Element						R		
Compressor Oil Filter Element						R		
Compressor Oil						R		
Engine Oil Change						R		
Engine Oil Filter						R		
*Water Pump Grease.							R	
*Wheels (Bearings, Seals, etc.)						С		
*Engine Coolant						С	R	
Fuel Filter Element						R		
*Injection Nozzle Check								С
Shutdown Switch Settings							Т	
Scavenger Orifice & Related Parts							С	
Oil Separator Element							R	
*Feed Pump Strainer Cleaning.							С	
Coolant Replacement							R	
*Valve Clearance Check							С	
Lights (running, brake, & turn)		CBT						
Pintle Eye Bolts		CBT						
*Brakes	С				С			
*Brake linkage	С							
Emergency stop		Т						
Fasteners		С						
Running gear linkage				G				
Safety valve					С			
Running gear bolts(1)					С			

\*Disregard if not appropriate for this particular machine.

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

(2) or as defined by local or national legislation

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

**CBT** =check before towing.

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**D** = Drain

**G** = Grease

R=Replace

T = Test

**W** I =or when indicated if earlier.

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

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

	2 Yrs	4 Yrs	6 Yrs		
Safety valve	С				
Hoses		R			
Separator tank (2) interior			С		

\*Disregard if not appropriate for this particular machine.

- (1) or 3000 miles/5000km whichever is the sooner
- (2) or as defined by local or national legislation

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

**CBT** =check before towing.

CR = Check and report

D = Drain

G = Grease

R=Replace

T = Test

W I =or when indicated if earlier.

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

### **ROUTINE MAINTENANCE**

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

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

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

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

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

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

## Prior to attempting any maintenance work, ensure that:-

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

### MINIMUM PRESSURE VALVE - WHEN FITTED

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

This pressure must be relieved by carefully:

- (a) Disconnecting any downstream equipment.
- (b) Opening the discharge valve to atmosphere.
- (Use hearing protection if necessary).
- . the machine cannot be started accidently 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 accidently 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.

### Low engine fuel level switch.

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

. Start the machine.

Note: Do not press the load button.

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

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

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

#### **SCAVENGE LINE**

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

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

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

#### **COMPRESSOR OIL FILTER**

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

#### Removal

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

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

### Inspection

Examine the filter element.

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

### Reassembly

Clean the filter gasket contact area and install the new element by screwing in a clockwise direction until the gasket makes contact with the filter housing. Tighten a further  $^{1}/_{2}$  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**

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

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

### Removal

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

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

### Inspection

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

### Reassembly

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

### WARNING

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

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

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

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

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

### **COMPRESSOR OIL COOLER AND ENGINE RADIATOR**

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

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

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

#### Removal

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

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

### Inspection

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

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

### Reassembly

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

Reset the restriction indicator by depressing the rubber diaphragm.

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

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

### VENTILATION

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

CAUTION: NEVER clean by blowing air inwards.

### **COOLING FAN DRIVE**

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

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

### **FUEL SYSTEM**

The fuel tank should be filled daily or every eight hours. To 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 WATER SEPARATOR**

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

### **CHARGE AIR COOLER PIPEWORK**

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

Engine damage will occur if the charge cooling system leaks.

#### **HOSES**

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

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

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

#### **ELECTRICAL SYSTEM**

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

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

Check the mechanical action of the components.

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

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

### **BATTERY**

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

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

### PRESSURE SYSTEM

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

### TYRES/TYRE/TIRE PRESSURE

See the GENERAL INFORMATION section of this manual.

#### **RUNNING GEAR/WHEELS**

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

Lifting jacks should only be used under the axle.

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

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

### LUBRICATION

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

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

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

### **ENGINE LUBRICATING OIL**

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

### **ENGINE LUBRICATING OIL SPECIFICATION**

Refer to the Engine section of this manual.

### **ENGINE OIL FILTER ELEMENT**

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

### **COMPRESSOR LUBRICATING OIL**

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

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

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

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

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

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

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

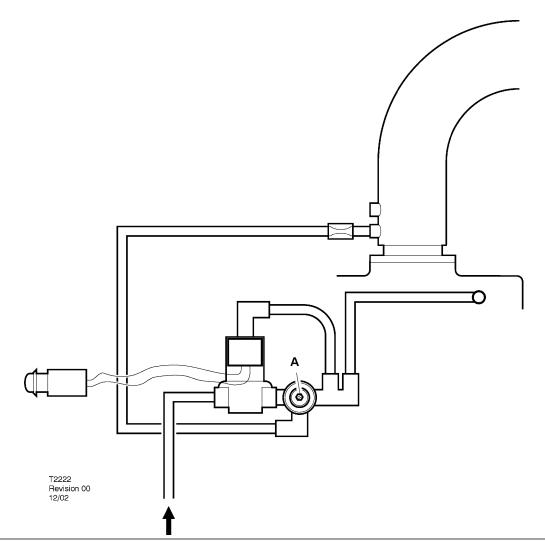
**NOTE**: Always specify INGERSOLL—RAND Pro—Tec<sup>TM</sup> oil for use at all ambient temperatures above –23°C.

#### COMPRESSOR OIL FILTER ELEMENT

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

#### **RUNNING GEAR WHEEL BEARINGS**

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



### SPEED AND PRESSURE REGULATION ADJUSTMENT

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

Refer to the diagram above.

A: Adjusting screw

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

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

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

TABLE 1		INC	H FASTEN	IERS	
	NOMINAL DESIGN TORQUE				9 5 1 4 8 10 6 2 3 7
	GRA	GRADE 5		J249 DE 8 ARKING)	TYPICAL RECTANGULAR TORQUE PATTERN
CAPSCREW OR NUT THREAD SIZE AND PITCH					1 4 3 2 TYPICAL SQUARE TORQUE PATTERN
	(Nm.)	(FT–LBF)	(Nm.)	(FT-LBF)	
1/4 – 20	11	8	16	12	
5/16 – 18	24	17	33	25	6 7
3/8 – 16	42	31	59	44	
7/16 – 14	67	49	95	70	(4) (3)
1/2 – 13	102	75	144	106	
9/16 – 12	148	109	208	154	8 (5)
5/8 – 11	203	150	287	212	TYPICAL CIRCULAR TORQUE
3/4 – 10	361	266	509	376	PATTERN

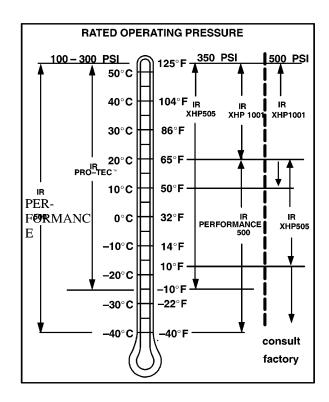
TABLE 2		ME	TRIC FA	9	5	1)	4)	8			
		NC	MINAL DES	SIGN TORQ	UE		10	6	2	3	7
	GRAI	PROPERTY GRADE 8.8 HEAD MARKING)		PERTY E 10.9 ARKING)	GRAD	PERTY DE 12.9 JARKING)	TYPI		CTANGUI PATTERI		RQUE
CAPSCREW OR NUT THREAD SIZE AND PITCH	×	8 8 8 8	10.9 x x 10.9 10.9		12.9 (x x x x 12.9) (12.9)		TY		$\times$		
	(Nm.)	(FT–LBF)	(Nm.)	(FT–LBF)	(Nm.)	(FT-LBF)					
M6 X 1.0	11	8	15	11	18	13	/	6	1	7)	
M8 X 1.25	26	19	36	27	43	31		•		0	
M10 X 1.5	52	38	72	53	84	62	(4	)		(	3)
M12 X 1.75	91	67	126	93	147	109		8		(5)	
M14 X 2	145	107	200	148	234	173	Ì		2	)	
M16 X 2	226	166	313	231	365	270	TYI		IRCULAF PATTERN	RTORQU	IE
M20 X 2.5	441	325	610	450	713	526					

### **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.

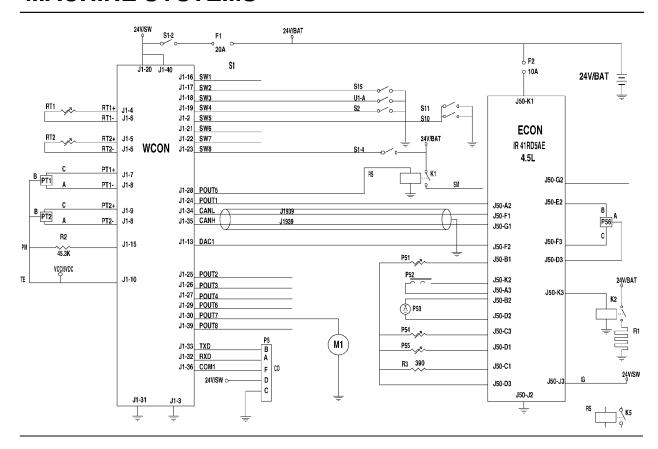
Design Operating	Ambient	Specification
Pressure	Temperature	
100 psi to 300 psi	-10°F to 125°F (-23°C to 52°C)	IR Pro–Tec™ Mil –PRF 2104G
	( 20 0 10 32 0)	SAE 10W
100 psi to 300 psi	–40°F to 125°F	IR Performance
	(-40°C to 52°C)	500
		Mil-L-46167
350 psi	–10°F to 125°F	IR XHP 505
	(–23°C to 52°C)	
	65°F to 125°F	IR XHP1001
	(18°C to 52°C)	
	–40°F to 65°F	IR Performance
	(–40°C to 18°C)	500
		Mil-L-46167
500 psi	50°F to 125°F	IR XHP1001
	(10°C to 52°C)	
	10°F to 65°F	IR XHP 505
	(–12°C to 18°C)	
	below 10°F	Consult Factory
	(–12°C)	



Recommended Ingersoll–Rand Fluids – Use of these fluids with original IR filters can extend airend warranty. Refer to operator's manual warranty section for details or contact your IR representative.

Compressor Recommended Fluid	1 Gal.	5 Gal.	55 Gal.	275 Gal. Tote	Eur 20 Litre	ope 208 Litre
Pro–Tec™	36899698	36899706	36899714	36899722	89292973	89292981
XHP 505	NA	54418835	54418843	54418827	_	
Performance 500	35382928	35382936	35382944	NA	_	_
XHP1001	NA	35612738	35300516	NA	_	_
Engine Oil	54480918	36875938	36866903	NA	89311716	89311724

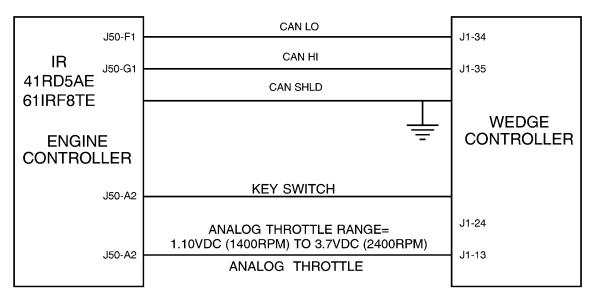
## **MACHINE SYSTEMS**



1/	
N	⊏ Y

BAT	Battery		PT1	Pressure transducer, separator tank 0-500 PSIG
СО	RS232C comms		PT2	Pressure transducer, regulation system 0–100 PSIG
ECON	Engine controller		PM	Plug, machine ID
IG	Isochronous governor		R3	Idle sel
J50-G2	Wait to start lamp		RS	Relay-spst
J50-K3	Inlet heater		RT1	Thermistor, seperator tank temperature –30 – 255 $^{\circ}\text{F}$
P51	Coolant temp		RT2	Thermistor, Thermistor, airend discharge
P52	Inject		•	ture –30 – 255°F
P53	Crank sensor		SI	Switch inputs
P54	Fuel temp		SM	Starter motor
P55	Manifold air temp		SW1	Spare
P56	Oil pressure		SW2	Display scroll
POUT1	Engine key switch		SW3	Low fuel shutdown
POUT2	Solenoid, start/run		SW4	Switch, service air
POUT3	Comp fault lamp		SW5	Air filter rest (option)
POUT4	Engine fault lamp		SW6	Spare
POUT5	Start relay		SW7	Spare
POUT6	Spare		SW8	Switch, start
POUT7	Hour meter		TE	Transducer exitation
POUT8	Spare		WCON	Wedge controller
7/120 9/110	10/110 14/85 7/170 10/125 14/115	48		

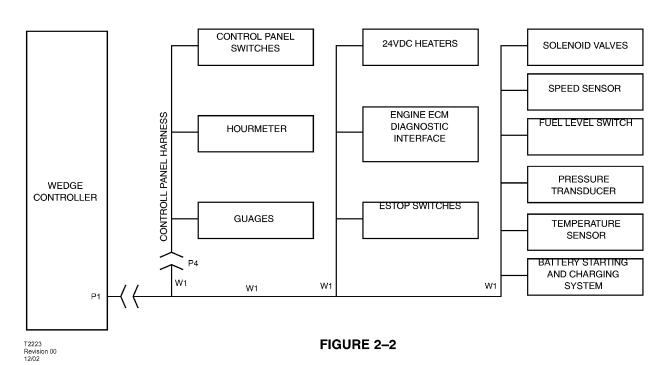
### WEDGE TO ENGINE INTERFACE - IR ENGINE



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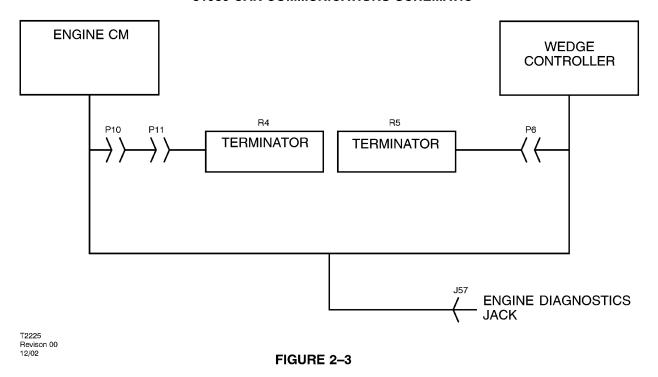
FIGURE 2-1

### **HARNESS SYSTEM SCHEMATIC**



49

### J1939 CAN COMMUNICATIONS SCHEMATIC



# **SERVICE TOOLS**

### **Electronic Systems**

The following special tools are recommended to perform service procedures in this manual.

The tools can be purchased from Ingersoll–Rand or equivalent substitutes can be used.

Tool	Tool Description
Fluke 87	Digital Multimeter Used to Measure electrical circuits: volts, ohms amps
54729660	Weather–Pack Terminal Removal Tool Used to repair Packard Electric Weather–Pack Connectors
54729678	Deutsch Terminal Removal Tool (Blue) Used to repair Deutsch connectors
54729686	Deutsch Terminal Removal Tool (Red) Used to repair Deutsch connectors
54729694	Deutsch Terminal Removal Tool (Yellow) Used to repair Deutsch connectors
HDT-48-00	Deutsch Terminal Crimp Tool Used to crimp Deutsch connector terminals
DD	Deutsch Terminal Crimping Tool Used to crimp Deutsch connector terminals
54729710	Electrical Contact Cleaner Used to clean electrical contacts and connectors
54729728	PDA Service Tool Palm Pilot based service tool used to connect to Intellisys (SGP) Controller to load software and extract service information
22073886	Packard Crimp Tool Used to crimp Packard connector terminals
22073878	Thermistor Simulator Plug Used to test thermister circuits
54699616	Deutsch Terminal Removal Tool Used to repair Deutsch connectors
54699657	Deutsch Terminal Removal Tool Used to repair Deutsch connectors
54749643	Packard Metri–Pack Terminal Removal Tool Used to repair Metri–Pack connectors
54749635	Connector Repair Kit Used to make connector repairs

### SERVICE TOOLS

Tool No.	Tool Description	Tool Illustration
Fluke 87	Digital Multimeter Available from electrical and electronic parts distributors.	
54729660	Weather-Pack Terminal Removal Tool	
54699632	Deutsch Terminal Removal Tool (Blue)	
54699640	Deutsch Terminal Removal Tool (Red)	
54699624	Deutsch Terminal Removal Tool (Yellow)	
DT-RT1	Crimp Tool for Deutsch Pins Crimp Available from: Ladd Industries (800–223–1236)	
54729710	Electrical Contact Cleaner	

54729728	PDA Service Tool	√ <sub>max</sub>
54699616	Deutsch Terminal Removal Tool	
22073886	Packard Crimp Tool	
22073878	Thermistor Simulator	
54749635	Connector Repair Kit	
54699657	Deutsch Terminal Removal Tool	
54749643	Packard Metri-Pack Removal Tool	

### **ELECTRICAL PARTS**

PARTS NUMBERS	DESCRIPTION	QTY PER MACHINE	PARTS NUMBERS	DESCRIPTION	QTY PER MACHINE
36920825	0-100 psi PRESSURE TRANSDUCER	1	35578194	ENGINE GROUND STRAP	1
54765946	0–500 psi PRESSURE	1	54731427	FUEL LEVEL SENDER	1
	TRANSDUCER		22173579	WEDGE CONTROLLER	1
36898922	THERMISTOR PROBE	2	22199061	W1 CHASSIS HARNESS	1
36840841	SOLENOID VALVE	1*	22179659	W1 CHASSIS HARNESS	N/A
36853521	STARTER AND INLET	2	22170000	DIAGRAM	
	HEATER RELAY		36792083	FUSE 20 AMP BLADE	1
35610856	NEGATIVE BATTERY CABLE	1 1	22071591	FUSE 10 AMP BLADE	1
35583582	POSITIVE BATTERY	1	54475777	DIAGNOSTIC SWITCH	1
33303362	CABLE	'	**	MACHINE ID PLUG	1

<sup>\*</sup> Quantity two (2) per machine on P600WIR (7/170) model only.

<sup>\*\*</sup> Part number 22201354 on models P425AWIR (7/120), XP375AWIR (9/110), HP375AWIR (10/100), and VHP300AWIR (14/85). Part number 22201362 on models P600WIR (7/170), HP450WIR (10/125), and VHP400WIR (14/115).

## **FAULT FINDING**

FAULT	CAUSE	REMEDY	
No reaction from	Batteries not connected.	Connect batteries.	
instrument panel when key turned to (I) position.	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	Electrical fault	Test the electrical circuits.	
the switch returns to	Low engine oil pressure.	Check the oil level and the oil filter(s).	
position <i>I</i> .	Faulty relay	Check the relays.	
	Faulty key-switch	Check the key–switch.	
Engine starts but will not run	Electrical fault.	Test the electrical circuits.	
or engine shuts down prematurely.	Low engine oil pressure.	Check the oil level and oil filter(s).	
Engine starts but	Safety shut-down system in operation.	Check the safety shut-down switches.	
will not run or engine shuts down prematurely.	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 relays 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 high.	Incorrect throttle arm setting.	Check the engine speed setting.
Engine speed too low.	Incorrect throttle arm setting.	Check the throttle setting.
low.	Blocked fuel filter.	Check and replace if necessary.
	Blocked air filter.	Check and replace the element if necessary.
	Incorrectly set regulation system.	Reset the regulation system. Refer to SPEED AND PRESSURE REGULATION ADJUSTMENT in the MAINTENANCE section of this manual.
	Premature unloading.	Check the regulation system.
Excessive vibration.	Engine speed too low.	See "Engine speed too low"
Leaking oil seal.	Improperly fitted oil seal.	Replace the oil seal.
	o to the <i>Engine Manufa</i>	T
Air discharge capacity too	Engine speed too   low.	See "Engine speed too low"
low.	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.

## **FAULT FINDING**

		IAULI
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 Ingersoll-Rand recommended oil.
	Defective by-pass 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	Blocked scavenge line.	Check the scavenge line, drop tube and orifice. Clean and replace.
air.	Perforated separator element.	Replace the separator element.
	Pressure in the system is too low.	Check the minimum pressure valve.
Safety valve operates.	Operating pressure too high.	Refer to SPEED AND PRESSURE RE-GULATION ADJUSTMENT in the MAINTENANCE section of this manual.
	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.	Faulty load valve.	Replace the valve.
Machine fails to load when	Faulty load valve.	Replace the valve.
the load	Faulty switch.	Test switch
switch is pressed.	Loose pipe/hose connections.	Check all pipe/hose connections.

### **OPTIONS**

### **OPTIONS – Lubricator**

(For units manufactured in North America)

#### **SAFETY**

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

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

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

### **GENERAL INFORMATION**

Oil capacity:

1 QT Option -0.95 Litre (1qt)

2 QT Option -1.9 Litre (2qts)

Oil specification:

Refer to the Tool Manufacturer's Manual.

### **OPERATING INSTRUCTIONS**

### COMMISSIONING

Check the lubricator oil level and fill as necessary.

### **PRIOR TO STARTING**

Check the lubricator oil level and replenish as necessary.

### **MAINTENANCE**

Check the lubricator oil level and replenish as necessary.

### **FAULT FINDING**

FAULT	CAUSE	REMEDY
No oil flow.	Incorrect connection.	Reverse the nylon tube connections to the lubricator.

### **OPTIONS**

### **OPTIONS - Dual pressure**

#### SAFETY

WARNING: Any pneumatic equipment that is, or may be connected to the machine must be suitable for use with at least the higher, rated pressure.

### **OPERATING INSTRUCTIONS**

### **COMMISIONING**

Check that switch and solenoid are functioning correctly.

Switch handle up: Lower pressure selected

Switch handle right: Higher pressure selected

#### STARTING AND USE

Select higher pressure setting with valve handle (handle to right) and start machine normally.

If lower pressure is required then turn handle to up position.

Toggle between high and low pressure as required.

### **OPTIONS - IQ SYSTEM**

#### 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 C 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.

**CAUTION:** Do not remove u-bolts from both filters at the same time. Removing both u-bolts will place excessive stress on the aftercooler.

#### NOTICE

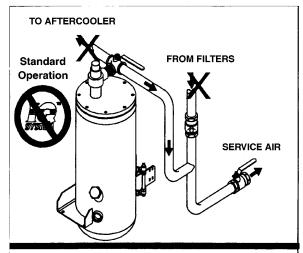
Do not operate at temperatures less that  $2^{\circ}$ C ( $35^{\circ}$ F) unless equipped with low ambient IQ option.

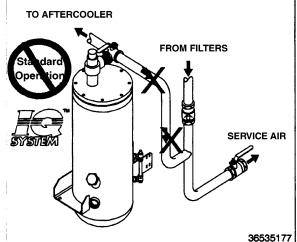
### **OPERATING INSTRUCTIONS**

Starting and use:

Select desired air type using diverter valve and start machine normally.

Using diverter valve, toggle between standard air and IQ air as required.





### **OPTIONS**

#### **MAINTENANCE**

#### Daily maintenance:

Verify, during full-load (maximum compressed air delivery) that the IQ system filter restriction indicators do not show excessive restriction.

Restriction indicators for primary and secondary filters are located on the filter heads. If so equipped, an automatic restriction indicator is located behind the filter mounting bracket and will shut down the compressor if restriction exceeds recommended values.

### Weekly Maintenance:

• Verify that the piping from the water separator and filters 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.

Restriction indicators for the filters are mounted on the filter heads. If so equipped, an automatic restriction indicator located behind the filters will shut down the compressor if restriction exceeds recommended values.

### Filter replacement.

- 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. Remove and replace the filter element, being careful not to damage outer wrap.
- Put a small amount of petroleum jelly or other non-synthetic grease on the element o-ring to aid installation into the filter head.
- · Replace housing making sure not to overtighten.
- Repeat the above procedure on the remaining filter element.
- Rec onnect all wires and hoses to drains on bottom of each filter housing.

## PARTS ORDERING

### **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 Ingersoll—Rand Company parts for your compressor.

### NOTICE

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

Ingersoll-Rand Company service facilities and parts are available worldwide. There are Ingersoll-Rand Company Construction Equipment Group Sales Offices and authorized distributors located in the principal cities of the United States. In Canada our customers are serviced by the Canadian Ingersoll-Rand Limited. There Company, are also Ingersoll-Rand International autonomous companies and authorized distributors located in the principal cities throughout the free world.

Special order parts may not be included in this manual. Contact the Mocksville 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.

Afterwards, service sets of exterior decals and current production safety warning decals are available. Contact the Product Support Group at Mocksville for your particular needs and availability.

### **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 authorized 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:

- 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.)
- 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 authorized 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 Ingersoll–Rand 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 honored 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

Ingersoll-Rand offers an airend exchange program to benefit portable compressor users.

On the airend exchange program the exchange price is determined by the age and condition of the airend.

Your nearest sales office, autonomous company or authorized distributor must first contact the Parts Service Department at the factory at which your portable air compressor was manufactured for an airend exchange number. The airend must be tagged with this preassigned number and returned to the factory prepaid. The airend must be intact, with no excluded parts, otherwise the exchange agreement may be cancelled. The warranty on an exchange or factory rebuilt airend is 365 days.

Airends being returned to the factory in connection with a WARRANTY CLAIM must be processed through the Customer Service Department. If returned without a Warranty MRR (Material Return Request) Number, no warranty claim will be considered.

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

Facility: Ingersoll–Rand Company 501 Sanford Avenue P.O. Box 868

Mocksville, N.C. 27028

Telephone: 800-633-5206 (US & Canada) 305-222-0835 (Latin America) 65-860-6863 (Asia Pacific) Fax: 336-751-1579 (US & Canada) 336-751-4325 (Latin America) 336-751-4325 (Asia Pacific)

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

Frame & Running Gear Airend Complete for P600

Drawbar Complete Airend Assembly for P600

Running Gear Complete Unloader Complete for P600

Electric Brake Wiring Unloader Assembly for P600

Electric Brake Shoes Airend Complete for HP450 & VHP 400

Tire & Wheel Airend Assembly for HP450 & VHP400

Engine Complete Oil Temperture Bypass valve

Engine Minimum Pressure Valve

Gasket Set OBTV / Oil Filter Mounting

Rocker Arm Cover Service Air Complete

Cylinder Head Seperator Tank Complete

Cylinder Block Air Piping for P600

Oil Pan Air Piping for HP450 & VHP 400

Timing Gear Cover Oil Piping for P600

Balance Shaft Oil Piping for HP450 & VHP 400

Air Intake w/ Heater Fuel Tank Complete

Exhaust Manifold Fuel / Water Separator

Water Pump Air Intake Complete for P600

Thermostat Housing Air Intake Complete for HP450 & VHP400

Water Piping Air Cleaner Assembly

Fan Mount Air End Air Cleaner Assembly for P600

Fuel Pump Wedge Controller

Injection Pump Battery Assembly

Fuel Filter Inst/Control Panel

Oil Filter Wiring Diagram

Oil Filler Panel Schematic

Oil Pump Tail Light Wiring Diagram

Oil Piping Enclosure Complete

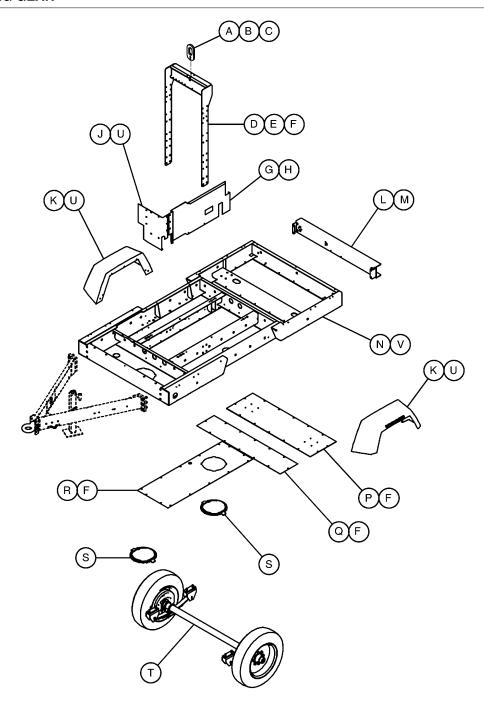
Electrical Components Foam Insulation Complete

Liquid Cooling Complete Decal Location

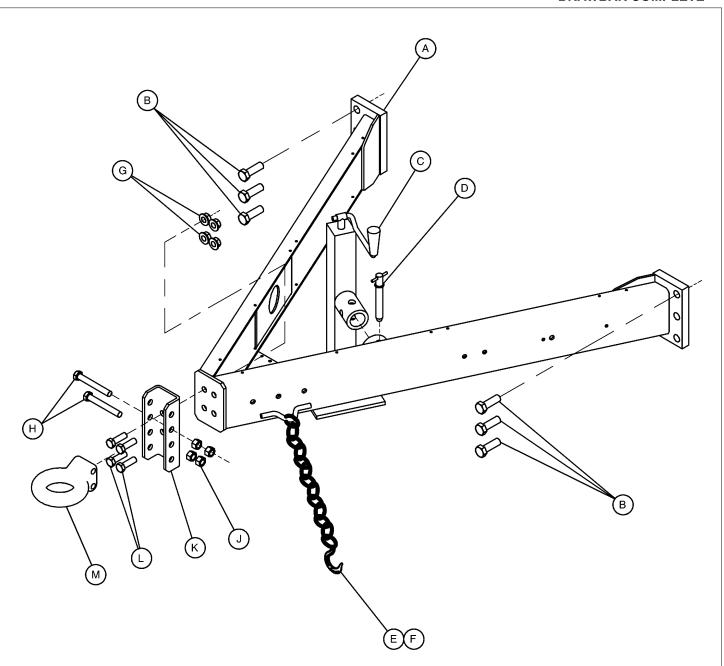
Equit County Complete

**Exhaust Complete** 

### FRAME AND RUNNING GEAR



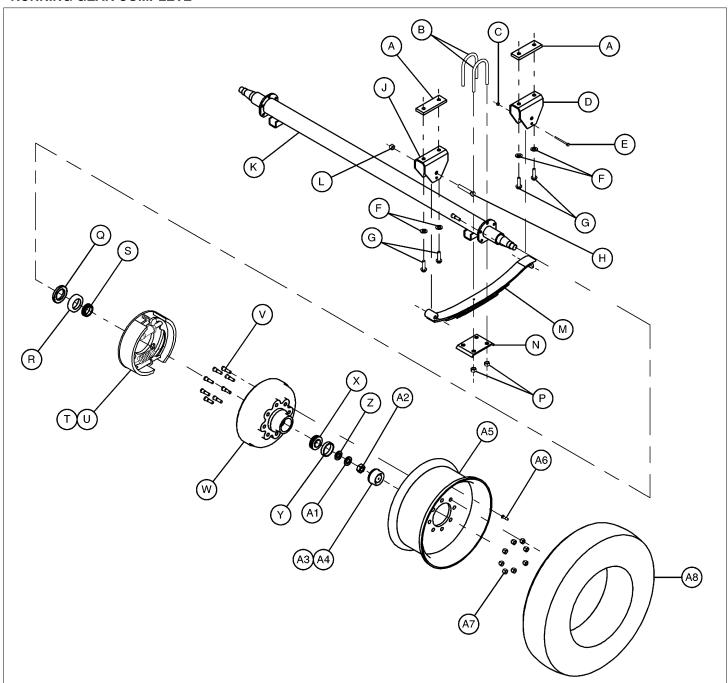
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	54759113	1	EYE, LIFTING	L	54667902	1	BUMPER
В	36765121	2	SCREW, HEX M16-2.0 X 55	M	36888055	4	SCREW, HEX FLANGE M12-1.75 X 30
С	96704630	2	NUT, NYLOC M16-2.0	Ν	54762466	1	FRAME ASM.
D	54774203	1	BAIL, LIFT	Р	54774120	1	BELLY PAN, REAR
E	36879492	8	SCREW, HEX FLANGE M12-1.75 X 25	Q	54774138	1	BELLY PAN, CENTER
F	35279025	44	SCREW, TAPPING M08-1.25 X 20	R	54774153	1	BELLY PAN, FRONT
G	22058333	1	GUARD, TOOL BOX	S	36880623	2	COVER, FLEXABLE ACCESS
Н	92368687	8	SCREW, TAPPING M06-1.0 X 14	Т	54738943	1	RUNNING GEAR
J	22109011	1	PANEL, TOOL BOX SMALL	U	36797652	15	SCREW, TAPPING M06-1.0 X 12
K	36877579	2	FENDER	٧	54772041	10	PLUG, SNAP-IN HOLE
MANUAL NO ILLUST. 22199590-0		Α					



Item	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	54767280	1	DRAWBAR	G	36879211	4	NUT, HEX FLANGE M16-2.0
В	36763670	6	SCREW, HEAD M20-2.50 X 60	Н	35376094	2	SCREW, HEX M16-2.0 X 120
С	54443577	1	JACK, SCREW	J	96701750	4	NUT, HEX M16-2.0
D	35609544	1	PIN, QUICK RELEASE	K	36757284	1	CHANNEL, PINTEL MOUNTING
Ε	35610377	1	LINK, COUPLING	L	39179072	4	SCREW, HEX M16-2.0 X 50
F	35372432	1	CHAIN/HOOK	М	35605187	1	EYE, PINTEL
							MANUAL NO ILLUST. NO. DATE/REV:

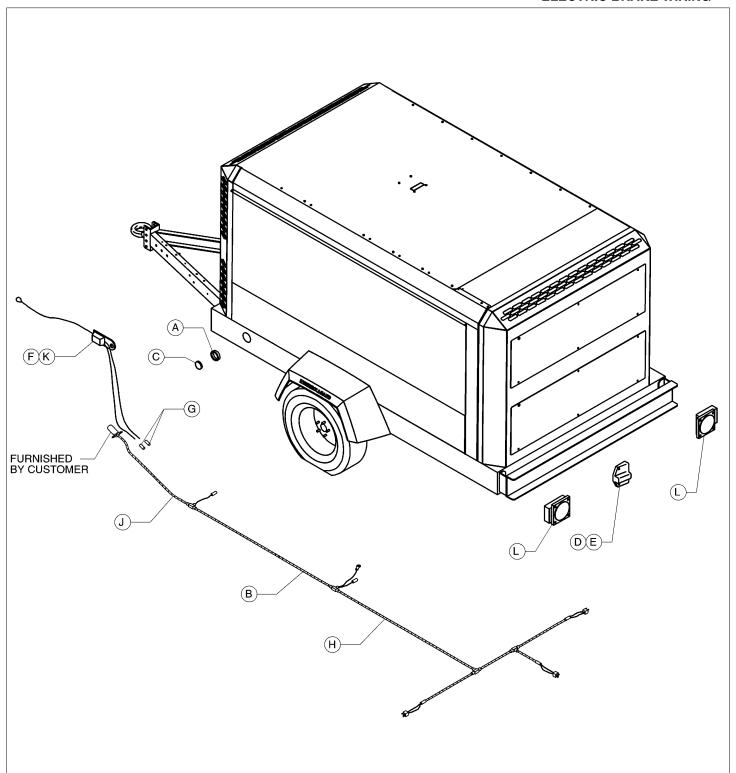
MANUAL NO. - ILLUST. NO. DATE/REV: 22199590-003 10/02 A

### **RUNNING GEAR COMPLETE**



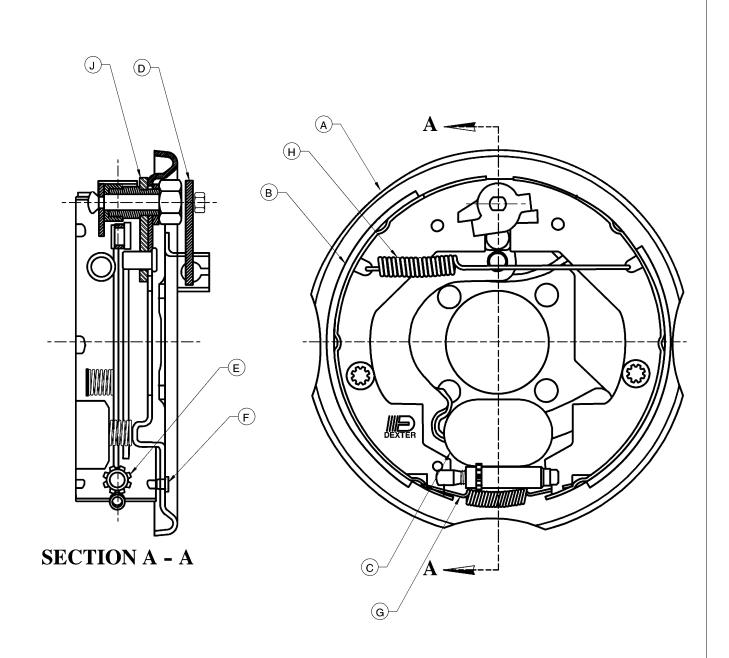
Item	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	36880599	4	SPACER, RUNNING GEAR	S	35316876	2	CONE, INNER BEARING
В	35316959	4	U-BOLT, 1/2-20	Т	36855377	1	BRAKE ASM., LH
С	35315373	2	NUT, KEEPER 5/16-18	U	36855385	1	BRAKE ASM., RH
D	35326966	2	HANGER, REAR	٧	35361898	16	STUD, WHEEL 1/2-20 X 1.84
Е	35315365	2	BOLT, KEEPER 5/16-18 -3.25	W	35388669	2	HUB, DRUM WITH STUDS
F	95935003	8	WASHER, FLAT 1/2	Χ	35316918	2	CONE, OUTER BEARING
G	95730395	8	SCREW, HEX M12-1.75 X 50	Υ	35316900	2	CUP, OUTER BEARING
Н	35315340	2	BOLT, SHACKLE 9/16-18 X 3.50	Z	35315209	2	WASHER, SPINDEL
J	35326958	2	HANGER, FRONT	A1	35390012	2	WASHER, TANG
K	22053995	1	BEAM, AXLE	A2	35315217	2	NUT, SPINDEL 1-14UN
L	35315357	2	NUT, LOCK 9/16-18	A3	35393792	2	CAP, GREASE
М	35315126	2	SPRING, SLIPPER	A4	35391135	2	PLUN, RUBBER EZ-LUBE
N	35316967	2	PLATE, TIE	A5	35145234	2	WHEEL
Р	35315258	8	NUT, U-BOLT 1/2-20	A6	35148204	2	STEM, VALVE
Q	36865962	2	SEAL, GREASE	Α7	35315274	16	NUT, WHEEL 1/2-20
R	35316884	2	CUP, INNER BEARING	A8	35148071	2	TIRE, 875-16.5LT/E
MANUAL NO ILLUST. 22199590-0		Α					

### **ELECTRIC BRAKE WIRING**

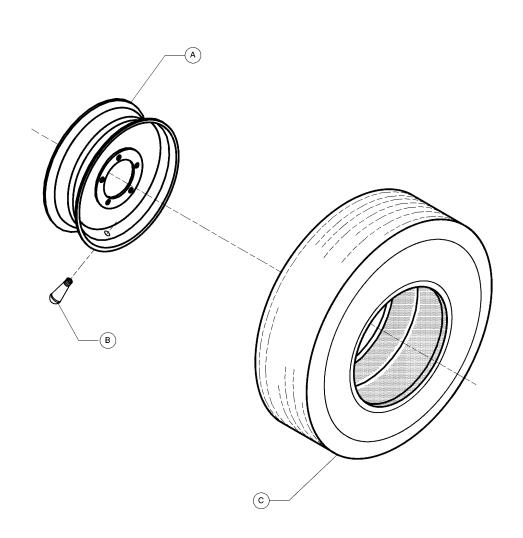


ltem	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	36893634	2	GROMMET, SIDE LIGHT	G	37140365	2	SPLICE, INSULATED
В	54761101	1	HARNESS, LIGHTING	Н	35253038	3	CLAMP, 3/8
С	35367051	2	LIGHT, YELLOW CLEARANCE	J	35225077	4	CLAMP, SUPPORT
D	36895860	1	LIGHT, LICENSE	K	36797652	1	SCREW, TAPPING M06-1.0 X 12
E	36782837	2	SCREW, HEX SHEETMETAL #10 X 1.0	L	54671557	2	LIGHT, STOP/TAIL/TURN
F	35315944	1	SWITCH, BREAKAWAY				

MANUAL NO. - ILLUST. NO. DATE/REV: 22199590-005 1/03 A

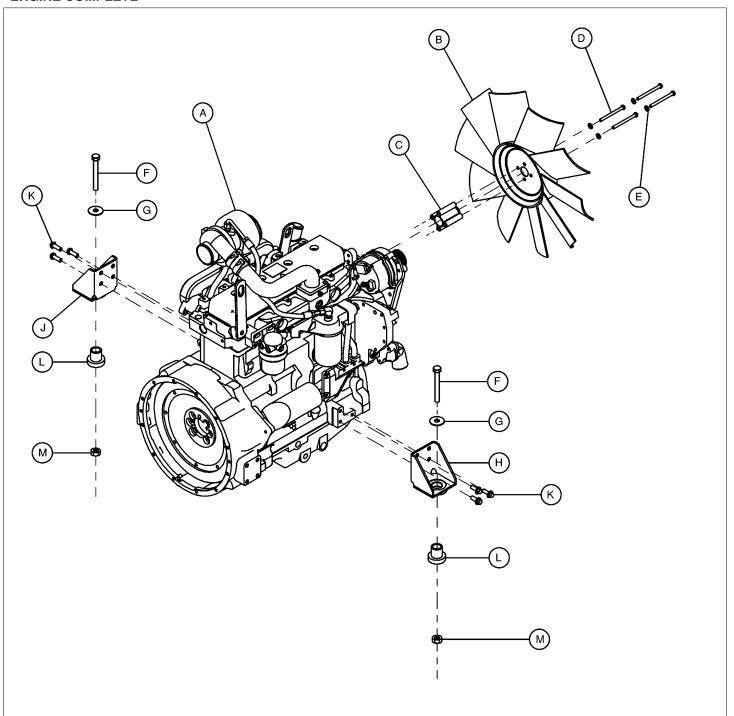


Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	35390830	1	PLATE ASM., LH BACKING	F	35391069	2	PLUG, ADJUSTING SLOT
	35390848	1	PLATE ASM., RH BACKING	G	35393727	2	SPRING KIT, ADJ. SCREW &
В	36895803	1	SHOE KIT, BRAKE	Н	35391002	2	SPRING, RETRACTOR
С	36895811	2	MAGNET KIT	J	36895829	1	LEVER KIT, LH ACTUATING
D	35390913	2	LEVER, PARKING BRAKE		36895837	1	LEVER KIT, RH ACTUATING
Е	35393727	2	SCREW ASM., ADJUSTING				
MANUAL NO ILLUST. 22199590-0		A					

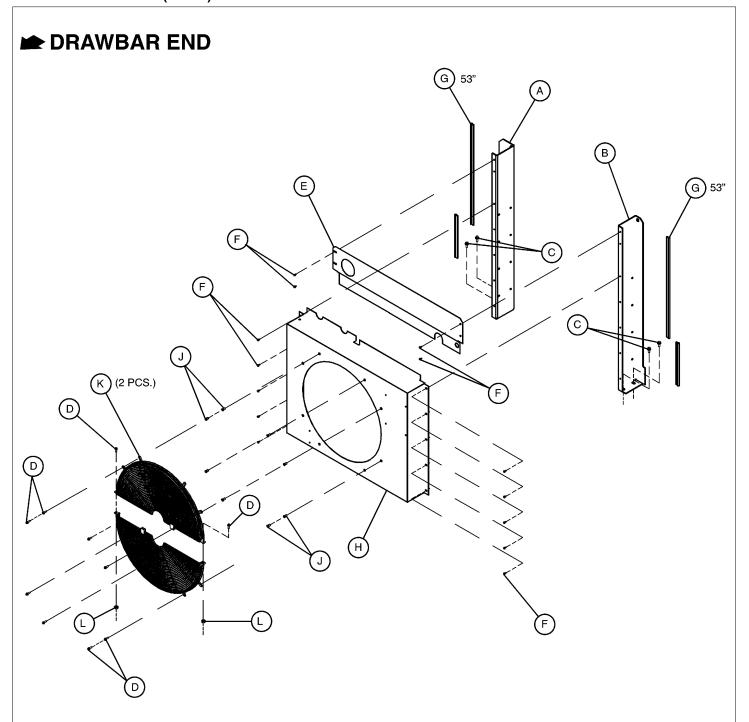


ltem	CPN	Qty	Description	Item	CPN	Qty	Description	
Α	35145234	1	WHEEL,16.5 X 6.75					
В	35148204	1	VALVE STEM					
С	35148071	1	TIRE, 875-16.5LT/E					

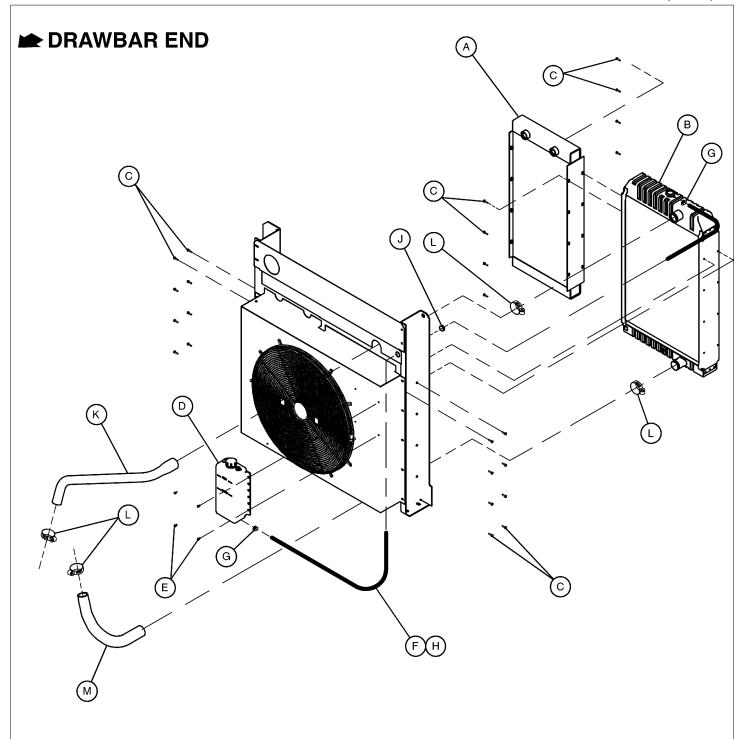
### **ENGINE COMPLETE**



ltem	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	22158521	1	ENGINE	G	35327212	2	WASHER, SNUBBER
В	54763032	1	FAN	Н	54756739	1	MOUNT, STSD ENGINE
С	54749056	1	SAPCER, FAN	J	54756507	1	MOUNT, CRBSD ENGINE
D	96726435	4	SCREW, HEX M08-1.25 X 100	K	36879492	6	SCREW, HEX FLANGE M12-1.75 X 25
Е	96701396	4	WASHER, FLAT M08	L	54756697	2	ISOLATOR, CENTER BOND
F	96701503	2	SCREW, HEX M16-2.0 X 90	M	96704630	2	NUT, NYLOC M16-2.0
L NO ILLUST. 99590-0		A					



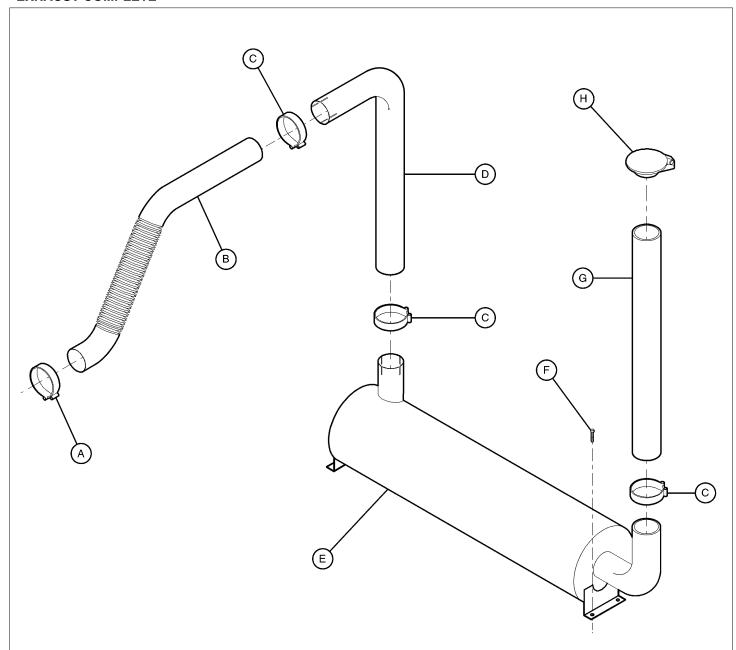
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	22140826	1	SUPPORT, OIL COOLER	G	54627617	*	GUARD, DOOR EDGE
В	22141386	1	SUPPORT, RADIATOR	Н	22151070	1	SHROUD, FAN
С	36879492	4	SCREW, HEX FLANGE M12-1.75 X 25	J	36895746	8	NUTSERT, M08
D	36889068	26	SCREW, HEX FLANGE M08-1.25 X 25	K	22124093	1	GUARD, FAN
Е	22140834	1	BAFFLE, TOP RADIATOR	L	36881886	2	NUT, HEX FLANGE M08-1.25
F	36797652	12	SCREW, TAPPING M06-1.0 X 12				
22199590-0		Α					



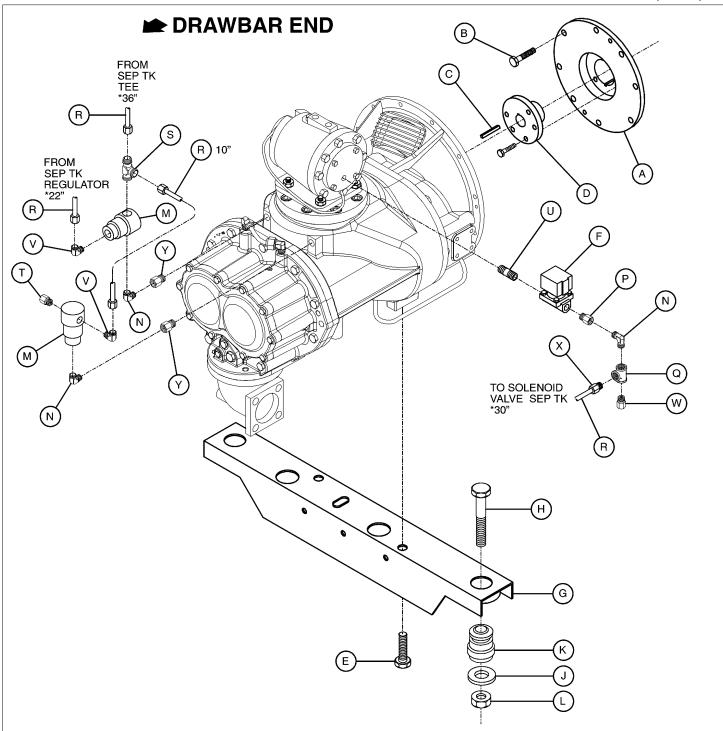
	CPN	Qty	Description	Item	CPN	Qty	Description
Α 5	54738901	1	OIL COOLER	G	35296342	2	CLAMP, WORM GEAR
В 5	54738927	1	RADIATOR	Н	35253038	2	CLAMP, SUPPORT 3/8"
C 3	36889068	24	SCREW, HEX FLANGE M08-1.25 X 25	J	35285162	1	GROMMET
D 3	36845600	1	BOTTLE, COOLANT RECOVERY	K	22184311	1	HOSE, TOP RADIATOR
E 3	36797652	4	SCREW, TAPPING M06-1.0 X 12	L	35221639	4	CLAMP, HOSE
F 3	35360775	48"	TUBING, 5/16"	М	22184329	1	HOSE, BOTTOM RADIATOR

MANUAL NO. - ILLUST. NO. DATE/REV: 22199590-031 1/03 A

### **EXHAUST COMPLETE**



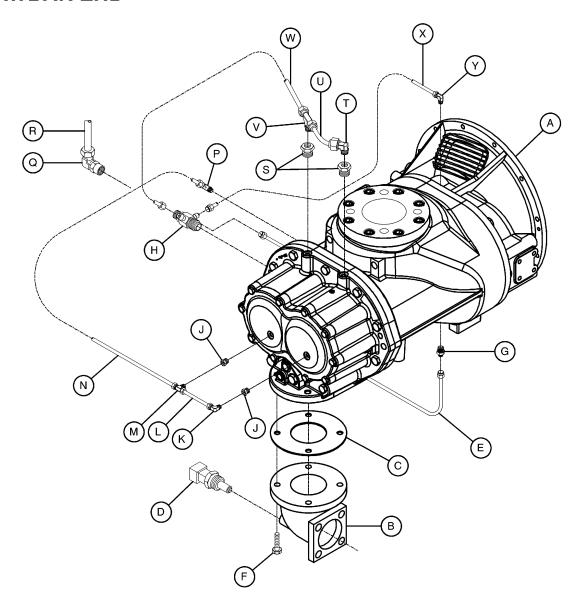
Item	CPN	Qty	Description
A	36881175	1	CLAMP, EXHAUST
В	22153530	1	TUBE, ENGINE EXHAUST
С	35313303	3	CLAMP, 4" SEAL
D	22184774	1	TUBE, EXHAUST
E	22152250	1	MUFFLER
F	35279025	1	SCREW, TAPPING M08-1.25 X 20
G	54775229	4	PIPE, EXHAUST
Н	35504364	1	CAP, RAIN
MANUAL NO ILLUST.	.NO. DATE/REV:		
22199590-0			



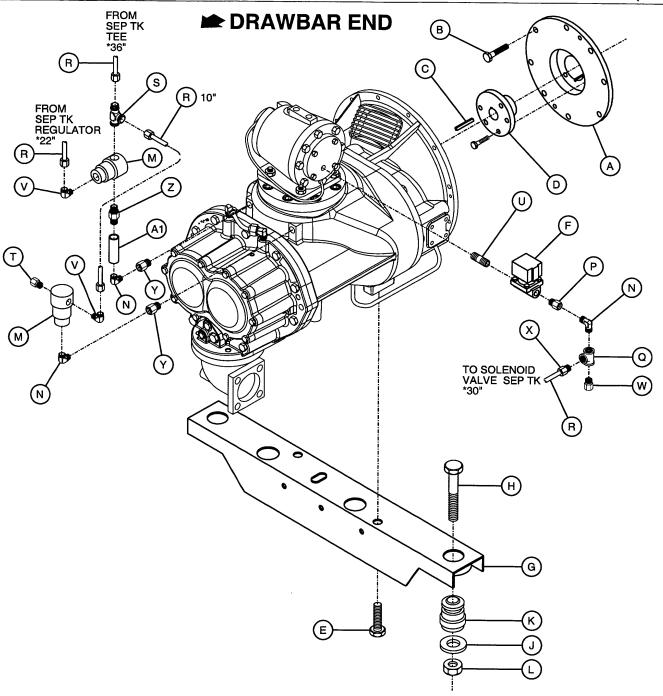
ltem	CPN	Qty	Description	Item	CPN	Qty	Description
Α	35834787	1	COUPLING, CLUTCH	N	95364469	3	ELBOW, 1/4
В	95220604	8	SCREW, SOCKET HEAD 3/8-16 X .75	Р	35369503	1	TEE, 1/4NPT X 3/8 TUBE
С	35364975	1	KEY, 1/2 SQ X 2.75	Q	35114545	1	TEE, STREET 1/4NPT
D	35103852	1	BUSHING, CLUTCH	R	35356484	*	TUBING, 3/8 SYNFLEX
Ε	35375591	2	SCREW, HEX M16-2.0 30	S	35373976	1	TEE, 1/4 NPT X 3/8 TUBE
F	95935052	4	WASHER, FLAT	Т	36766756	1	ORIFACE, MUFFLER .140
G	43208511	1	SUPPORT, AIREND	U	95092318	1	NIPPLE, 3/8NPT X 1.0"
Н	35290113	2	SCREW, HEX M16-2.0 X 75	V	35369354	2	ELBOW, MALE 1/4 X 3/8 TUBE
J	35327212	2	WASHER, SNUBBER	W	35248319	1	ORIFICE, .094
K	35318229	2	ISOLATOR, CENTER BOND MOUNT	Х	35369347	1	CONNECTOR, 1/4NPT X 3/8 TUBE
L	96704630	2	NUT, NYLOC M16-2.0	Υ	35302314	2	ADAPTER, 9/16-18 TO 1/4NPT
М	35322379	2	VALVE, BLOWDOWN				
							MANUAL NO ILLUST. NO. DATE/REV:

22199590-033

# **▶** DRAWBAR END

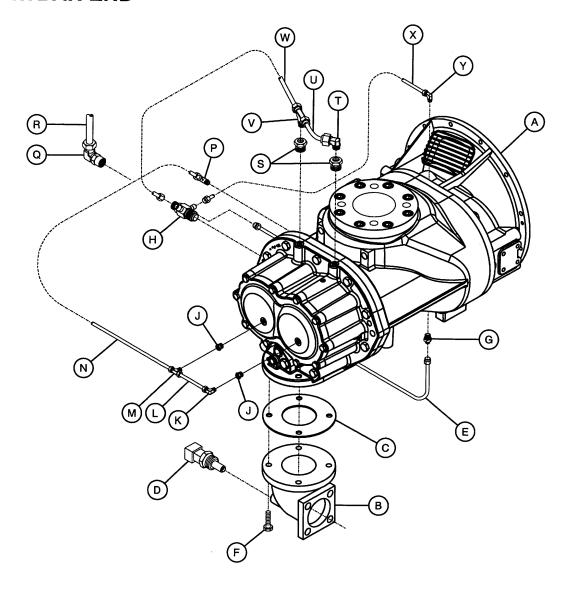


Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	35093665	1	AIREND ASM., P600	М	36846129	1	TEE, 7/8-14 X -10JIC
В	35842160	1	ELBOW, DISCHARGE	Ν	36846103	1	TUBE, BEARING OIL SCAVENGE
С	35575570	1	GASKET, AIREND DISCHARGE	Р	35305622	1	ELBOW, 3/4-16 X -10JIC
D	54764964	1	SWITCH, ALARM	Q	35292051	1	ELBOW, SWIVEL NUT
Е	22189609	1	TUBE, A/E OIL	R	35231455	1	HOSE ASM.
F	35375385	4	SCREW, HEX M16-2.0 X 40	S	35287945	2	EXPANDER, 7/16-20 X 9/16-18
G	95402806	1	ADAPTER, 7/16-20 X -6JIC	Т	35279827	1	ELBOW, 9/16-18 X -6JIC
Н	36845154	1	MANIFOLD, OIL	U	35795482	1	TUBE, ASM.
J	36846095	2	CONNECTOR, 3/4 O-RING	V	35279843	1	TEE, 9/16-18 X -6JIC
K	35286491	1	ELBOW, 7/8-14 X -10JIC	W	36846078	1	TUBE, BEARING OIL SUPPLY
L	36846111	1	TUBE, REAR SCAVENGE	Х	22189591	1	TUBE, A/E OIL
				Υ	35279876	1	ELBOW, 7/16-20 X -4JIC
MANUAL NO ILLUST. 22199590-0		Α					

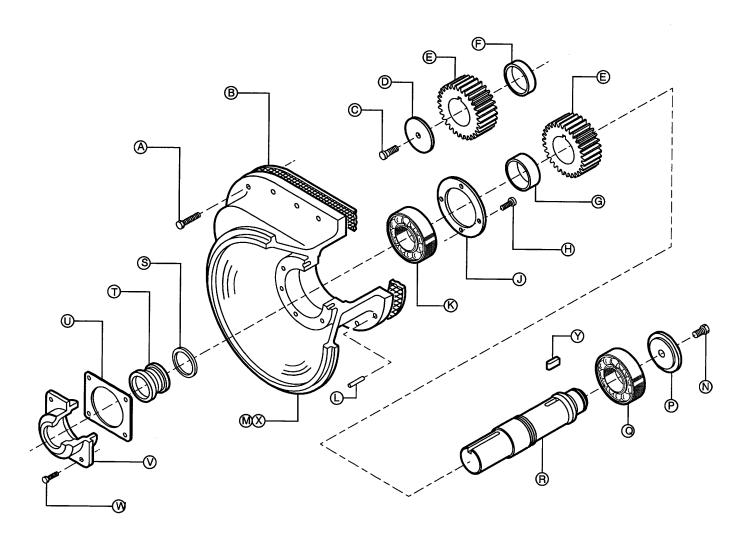


Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	35834787	1	COUPLING, CLUTCH	Р	35369503	1	TEE, 1/4NPT X 3/8 TUBE
В	95220604	8	SCREW, SOCKET HEAD 3/8-16 X .75	Q	35114545	1	TEE, STREET 1/4NPT
С	35364975	1	KEY, 1/2 SQ X 2.75	R	35356484	*	TUBING, 3/8 SYNFLEX
D	35103852	1	BUSHING, CLUTCH	s	35373976	1	TEE, 1/4 NPT X 3/8 TUBE
E	35375591	2	SCREW, HEX M16-2.0 30	Т	36766756	1	ORIFICE, MUFFLER .140
F	95935052	4	WASHER, FLAT	U	95092318	1	NIPPLE, 3/8NPT X 1.0"
G	43208511	1	SUPPORT, AIREND	٧	35369354	2	ELBOW, MALE 1/4 X 3/8 TUBE
Н	35290113	2	SCREW, HEX M16-2.0 X 75	W	35248319	1	ORIFICE, .094
J	35327212	2	WASHER, SNUBBER	Х	35369347	1	CONNECTOR, 1/4NPT X 3/8 TUBE
K	35318229	2	ISOLATOR, CENTER BOND MOUNT	Υ	35302314	2	ADAPTER, 9/16–18 TO 1/4NPT
L	96704630	2	NUT, NYLOC M16-2.0	Z	35248145	1	VALVE, CHECK
М	35322379	2	VALVE, BLOWDOWN	A1	95935607	1	COUPLING, 1/4 NPT
Ν	95364469	3	ELBOW, 1/4				,

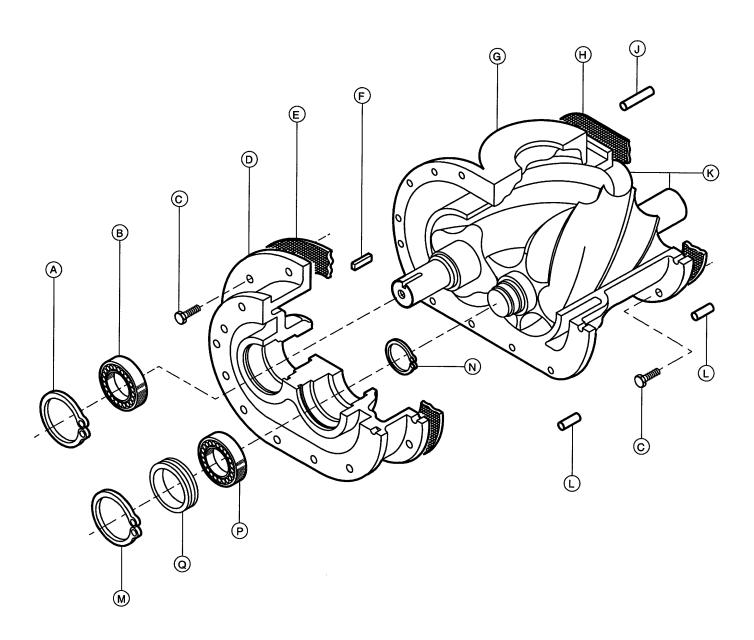
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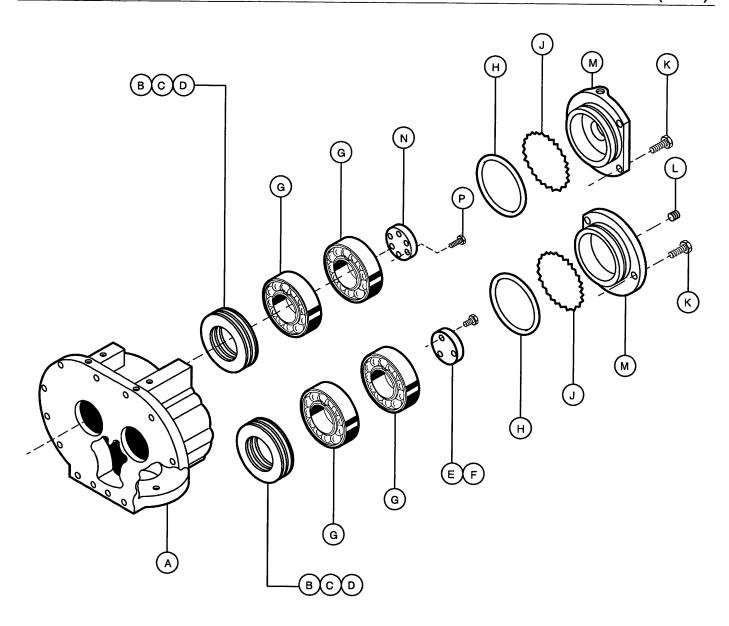
ltem	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	35093665	1	AIREND ASM., P600	M	36846129	1	TEE, 7/8-14 X -10JIC
В	22247340	1	ELBOW, DISCHARGE	N	36846103	1	TUBE, BEARING OIL SCAVENGE
С	35575570	1	GASKET, AIREND DISCHARGE	Р	35305622	1	ELBOW, 3/4-16 X -10JIC
D	54764964	1	SWITCH, ALARM	Q	35292051	1	ELBOW, SWIVEL NUT
E	22189609	1	TUBE, A/E OIL	R	35231455	1	HOSE ASM.
F	35375385	4	SCREW, HEX M16-2.0 X 40	S	35287945	2	EXPANDER, 7/16-20 X 9/16-18
G	95402806	1	ADAPTER, 7/16-20 X -6JIC	Т	35279827	1	ELBOW, 9/16-18 X -6JIC
Н	36845154	1	MANIFOLD, OIL	U	35795482	1	TUBE, ASM.
J	36846095	2	CONNECTOR, 3/4 O-RING	٧	35279843	1	TEE, 9/16–18 X –6JIC
K	35286491	1	ELBOW, 7/8-14 X -10JIC	W	36846078	1	TUBE, BEARING OIL SUPPLY
L	36846111	1	TUBE, REAR SCAVENGE	X	22189591	1	TUBE, A/E OIL
				Υ	35279876	1	ELBOW, 7/16-20 X -4JIC



item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	96716162	12	SCREW, HEX SOC M16-2.0 X 40	N	35336304	1	SCREW, HEX SOC CAP M10-1.5 X 25
В	39437637	1	GASKET	Р	36764785	1	CAP, GUIDE
С	35108372	1	SCREW, HEX HD 1/2-13 X 1.25	Q	35313568	1	BEARING, CYLINDERICAL
D	35255827	1	PLATE, CLAMP	R	36780906	1	SHAFT,GEAR
Е	92512516	1	GEAR SET (P-600)	s	35104082	1	NUT, LOCK
F	35262716	1	SPACER	Т	35593508	1	SEAL, OIL
G	35269224	1	SPACER, BEARING	U	35210087	1	GASKET
Н	95264149	4	SCREW, HEX SOC CAP 3/8-16 X 2.0	V	35592757	1	COVER, OIL SEAL
J	35573070	1	PLATE, RETAINING	W	96712187	6	SCREW, HEX SOC M12-1.75 X 30
K	35601517	1	BEARING, BALL	Х	36798205	2	GUARD
L	95239919	2	PIN, DOWEL 1/2 X 1.25	Υ	35361328	1	KEY
М	35996164	1	CASE, GEAR			•	1121

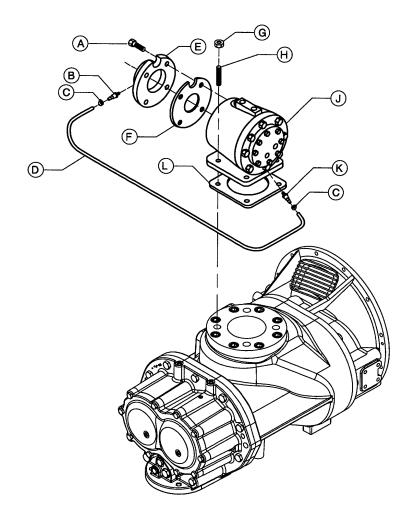


ltem	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	95223194	1	RING, SNAP		95239927	2	PIN, DOWEL 1/2 X 1.5
В	35313535	1	BEARING, CYLINDERICAL ROLLER	K	36008241	1	ROTOR SET
С	96716162	13	SCREW, HEX M16-2.0 X 40	L	35332915	2	PIN, LOCATOR
D	39703921	1	HOUSING, FRT BEARING	М	95223178	1	RING, SNAP
Ε	35518497	1	GASKET, FRONT BEARING HSG.	N	95223806	1	RING, SNAP
F	95381109	1	KEY, 3/8" SQ.	Р	35609361	1	BEARING, CYLINDERICAL ROLLER
G	39748942	1	HOUSING, ROTOR	Q	35270131	1	SPACER, BEARING
Н	39437629	1	GASKET, REAR BEARING HSG.				,

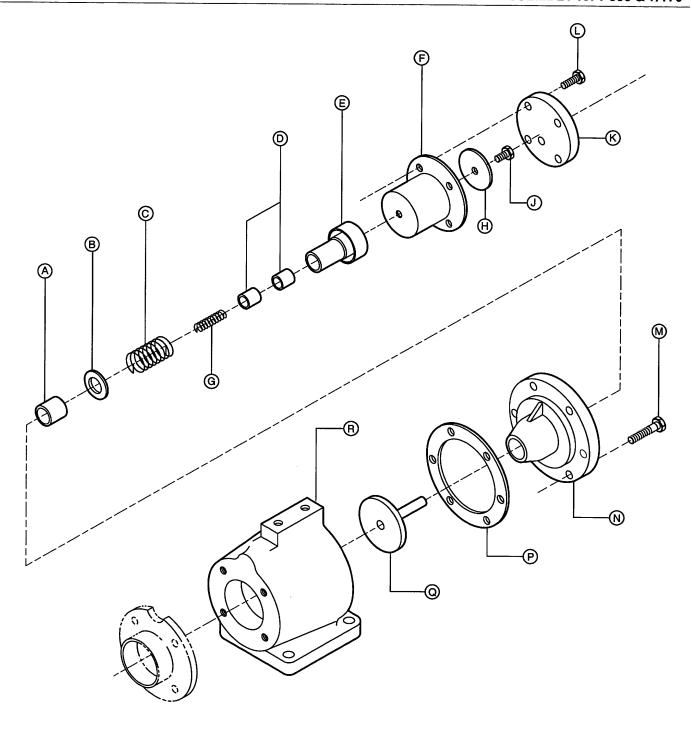


Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	36769404	1	HOUSING, REAR BEARING	Н	95358131	2	O-RING
В	35313600	4	SHIM, .002	J	35354448	2	SHIM SET
С	35313618	4	SHIM, .003	K	96712187	6	SCREW, HEX M12-1.75 X 30
D	35364769	2	SHIM, .010	L	35287556	1	PLUG
E	35262690	1	PLATE, CLAMP	М	35600832	2	COVER, REAR BEARING
F	35104108	3	SCREW, HEX 3/8-16 1.25	N	39435441	1	PLATE, CLAMP
G	39437595	4	BEARING, TAPERED ROLLER	Р	95494167	8	SCREW, SOC HD CAP 5/16-18 X 1.25

# **▶** DRAWBAR END

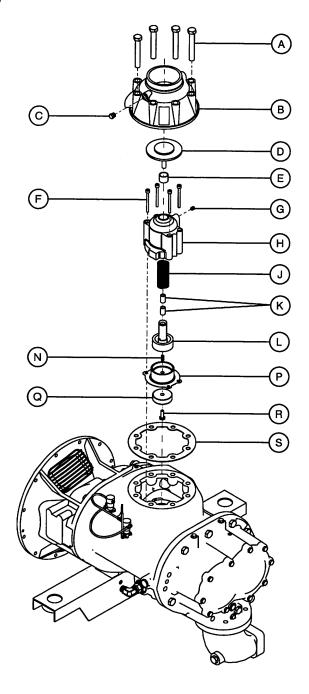


Item	CPN	Qty	Description
Α	96702048	4	SCREW, HEX M08-1.25 X 16
В	35316587	1	ADAPTER, BARBED 1/8 X 1/8 NPT
С	35377621	2	CLAMP, SPRING
D	35282292	14"	TUBING, TYGON
Ε	35843168	1	FLANGE, UNLOADER INLET
F	35588318	1	GASKET, UNLOADER INLET
G	96701750	4	NUT, HEX M16-2.0
Н	35323450	4	STUD, M16-2.0 X 55
J	36011567	1	VALVE, UNLOADER
Κ	35323542	1	ADAPTER, UNLOADER
L	35589589	1	GASKET, UNLOADER / A-E



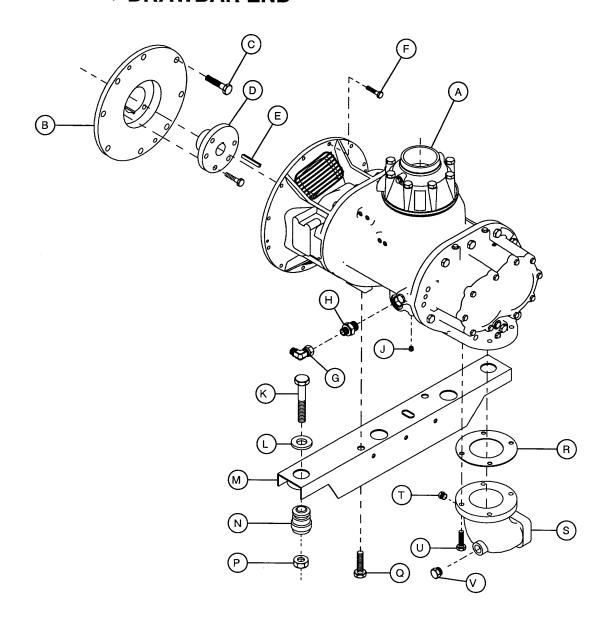
ltem	CPN	Qty	Description	Item	CPN	Qty	Description
Α	35318013	1	BUSHING, HOUSING	J	35321595	1	SCREW, BTN SOC HD CAP M10-1.5 X 16
В	35317205	1	WASHER	К	36849461	1	COVER, PISTON
С	35322767	1	SPRING, PISTON	L	35271162	4	SCREW, HEX M08-1.25 X 30
D	35318005	2	BUSHING, PISTON	М	96702287	6	SCREW, HEX M10-1.75 X 25
E	35588193	1	PISTON, UNLOADER	N	35833227	1	HOUSING, PISTON
F	35317197	1	DIAPHRAGM	P	35588300	1	GASKET, PISTON
G	35321603	1	SPRING	Q	35591122	1	VALVE, UNLOADER
Н	35317239	1	WASHER, PISTON	R	36849453	1	BODY, UNLOADER

### **DRAWBAR END**



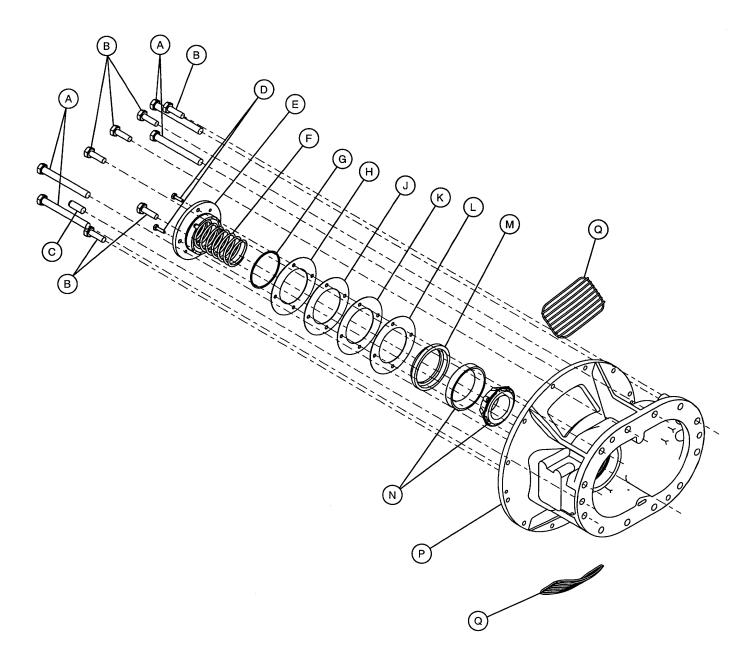
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	96705504	8	SCREW, HEX M16-2.0 X 110	К	35318005	2	BUSHING, UNLOADER PISTON
В	54719604	1	HOUSING, VALVE INLET	L	35588193	1	PISTON, UNLOADER
С	95250932	1	PLUG, 1/4 NPT	М	35321603	1	SPRING, COMPRESSION
D	35591122	1	VALVE, UNLOADER	N	54745443	1	DIAPHRAGM, INLET
Ε	35318013	1	BUSHING, PISTON HOUSING	P	22095319	1	SPACER, PISTON STOP
F	96700349	4	SCREW, HEX SOC CAP M08-1.25 X 80	Q	96701917	1	SCREW, HEX M10-1.5 X 30
G	95049359	1	PLUG, 1/8 NPT	R	54753934	1	GASKET, INLET VALVE
Н	54719638	1	HOUSING, PISTON INLET	• •		•	STORET, HELL VALVE
J	35322767	1	SPRING, PISTON				

# **►** DRAWBAR END



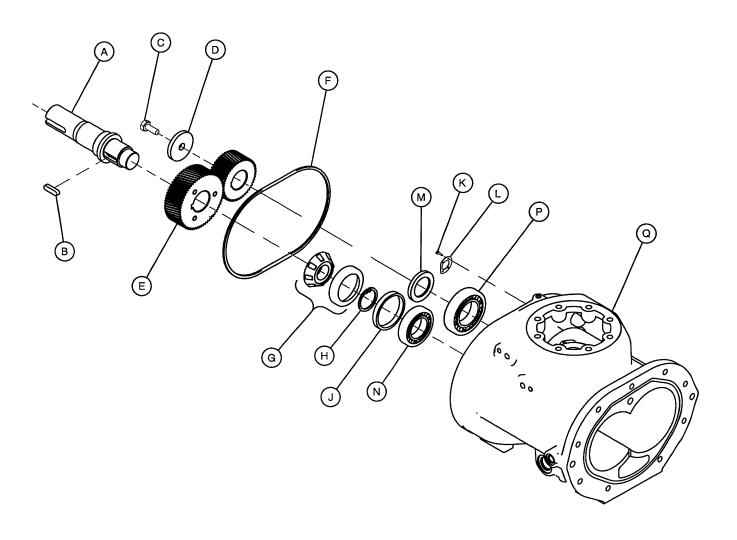
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	36071157	1	AIREND ASM., HP450, 10/125 WIR	L	35327212	2	WASHER, SNUBBER
	36071165	1	AIREND ASM., VHP400, 14/115 WIR	M	43208511	1	SUPPORT, AIREND
В	35834787	1	COUPLING, CLUTCH	N	35318229	2	ISOLATOR, CENTER BOND MOUNT
С	95220604	8	SCREW, SOCKET HEAD 3/8-16 X .75	P	96704630	2	NUT, NYLOC M16-2.0
D	35103852	1	BUSHING, CLUTCH	Q	35375591	2	SCREW, HEX M16-2.0 X 30
Ε	95264560	1	KEY, 1/2 SQ X 3.50	R	35575570	1	GASKET
F	36880995	12	SCREW, HEX FLANGE M10-1.5 X 30	S	22247340	1	ELBOW, DISCHARGE
G	35356484	*	TUBING, 3/8 SYNFLEX	Т	95949491	1	PLUG, HEX 3/4-16 w/ O-RING
Н	35292051	1	ELB 90 SWIV NUT -16	Ü	35375385	4	SCREW, HEX M16-2.0 X 40
J	95955993	1	CONN,1-5/16SAE X -16JIC	٧	36898922	1	SWITCH, ALARM
Κ	35290113	2	SCREW, HEX M16-2.0 X 75				

# TO DRAWBAR END



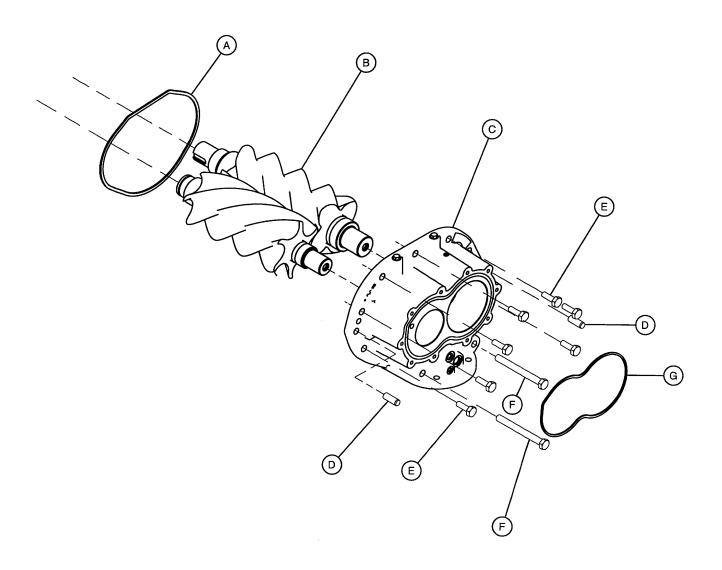
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	96707377	4	SCREW, HEX M16-2.0 X 150	J	54690037	1	SHIM, .254mm THICK
В	96706262	8	SCREW, HEX M16-2.0 X 45	K	54690011	1	SHIM, .508mm THICK
С	35295336	2	PIN, DOWEL M16 X 40	L	54690003	1	SHIM, 1.016mm THICK
D	96702253	4	SCREW, HEX M08-1.25 X 25	М	36846129	1	RETAINER, BEARING
E	22050496	1	HOUSING, SEAL	N	36846103	1	BEARING, TAPER ROLLER
F	35595308	1	SEAL, SHAFT	Р	35305622	1	GEARCASE
G	95022356	1	O-RING	Q	35292051	2	GUARD, HAND
Н	54690045	6	SHIM, .0508mm THICK				

# **►** DRAWBAR END



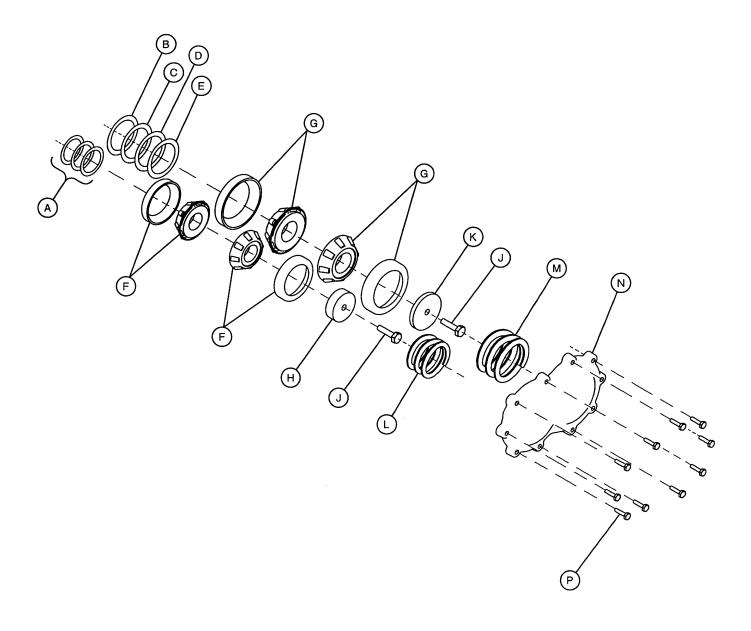
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	22052419	1	SHAFT, DRIVE	Н	95223806	1	RING, RETAINING
В	95688289	1	KEY, 1/2 SQ. X 1.75	J	54643432	1	SPACER
С	96706254	1	SCREW, HEX M16-2.0 X 35	K	96716105	1	SCREW, HEX M06-1.0 X 12
D	35255819	1	CLAMP, PLATE	L	54654819	1	RETAINER, BEARING
E	22135974	1	SET, GEAR (10/125)	M	54686936	1	SPACER, GEAR
	54670070	1	SET, GEAR (14/115)	N	35069361	1	BEARING, CYLINDERICAL ROLLER
F	54680939	1	O-RING	Р	35313550	1	BEARING, CYLINDERICAL ROLLER
G	54774617	1	BEARING, TAPER ROLLER	Q	22102446	1	HOUSING, ROTOR

# **DRAWBAR END**

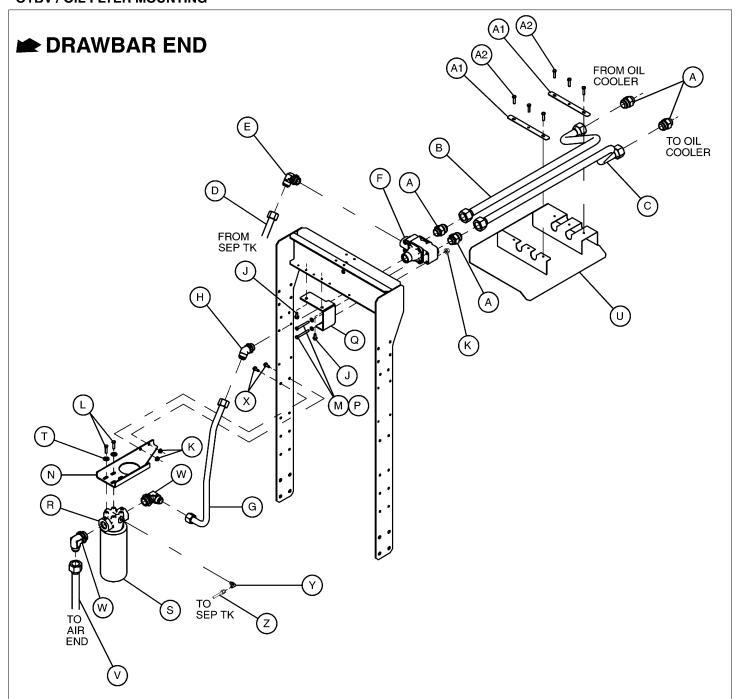


Item	CPN	Qty	Description
Α	54680921	1	O-RING
В	42495101	1	SET, ROTOR
С	54509203	1	HOUSING, REAR BEARING
D	35295336	2	PIN, DOWEL M16
Ε	96716162	7	SCREW, HEX M16-2.0 X 40
F	96707377	2	SCREW, HEX M16-2.0 X 150
G	95643383	1	O-RING

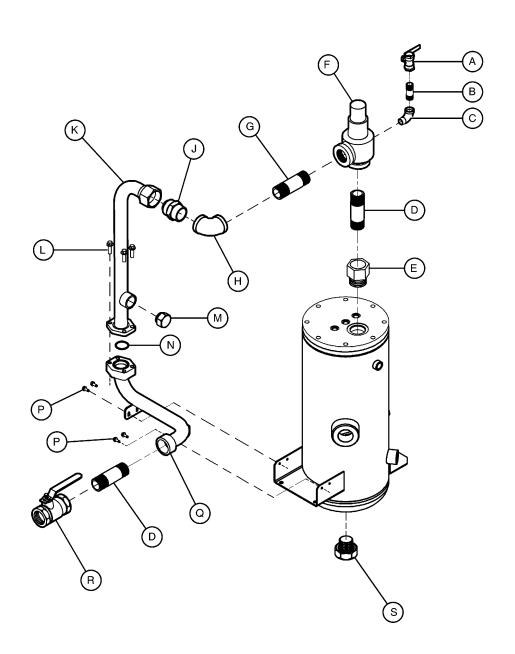
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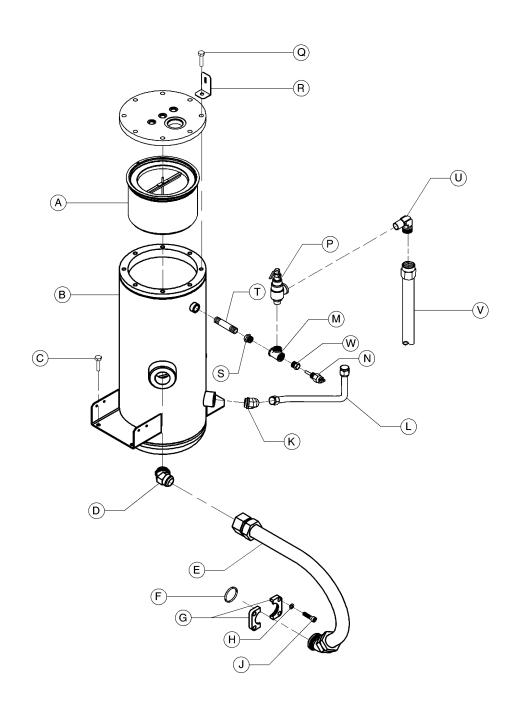
ltem	CPN	Qty	Description	Item	CPN	Qty	Description
Α	35355874	1	SHIM SET, DISCHG END CLEARENCE	Н	54635651	1	RETAINER, BEARING
В	39312079	1	SHIM, ROTOR END CLEAR .050mm	J	96710553	2	SCREW, HEX M16-2.0 X 50
С	39312293	1	SHIM, ROTOR END CLEAR .075mm	K	54635644	1	RETAINER, BEARING
D	39312301	1	SHIM, ROTOR END CLEAR .100mm	L	54643903	1	SPRING, WAVE
Ε	39312319	1	SHIM, ROTOR END CLEAR .250mm	М	54643895	1	SPRING, WAVE
F	35600113	2	BEARING, TAPER ROLLER	N	54523980	1	COVER, REAR BEARING
G	39309117	2	BEARING, TAPER ROLLER	Р	96705983	10	SCREW, HEX M10-1.5 X 35



Item	CPN	Qty	Description	ltem	CPN	Qty	Description
A	95315289	4	CONNECTOR, 1.31-12 X 1.62-12	Р	95934998	2	WASHER, FLAT
В	22185789	1	TUBE, OIL COOLER	Q	22165047	1	BRACKET, OTBV
С	22185797	1	TUBE, OIL COOLER	R	36897437	1	HEAD, SINGLE FILTER
D	35132877	1	TUBE, OTBV TO SEPTK	s	36897346	1	ELEMENT, OIL FILTER
Е	95938171	1	ELBOW, 90 1.31 SAE	Т	95935037	2	WASHER, FLAT
F	54414420	1	OTBV, 1.31 SAE	U	22228423	1	GUARD, BY-PASS VALVE
G	22165369	1	TUBE, OTBV	V	35231455	1	HOSE, -16JIC
Н	95992632	1	ELBOW, 45 1.31 SAE	W	95376133	2	ELBOW, 1.63-12
J	92368687	2	SCREW, TAPPING M06-1.0 X 12	Х	36889608	2	SCREW, HEX FLANGE M08-1.25 X 25
K	36881886	4	NUT, HEX FLANGE M08-1.25	Υ	35279876	1	ELBOW, 7/16-20 X -4JIC
L	35252493	2	SCREW, LOCKING 3/8-16 X 3/4	Z	35282920	1	HOSE, -4JIC
М	36786382	2	SCREW, M08-1.25 X 70	A1	22228720	2	STRAP, GUARD
N	22165039	1	BRACKET, OIL FILTER	A2	36797652	6	SCREW, TAPPING M06-1.0 X 12
manual no Illust. 22199590-0		Α					

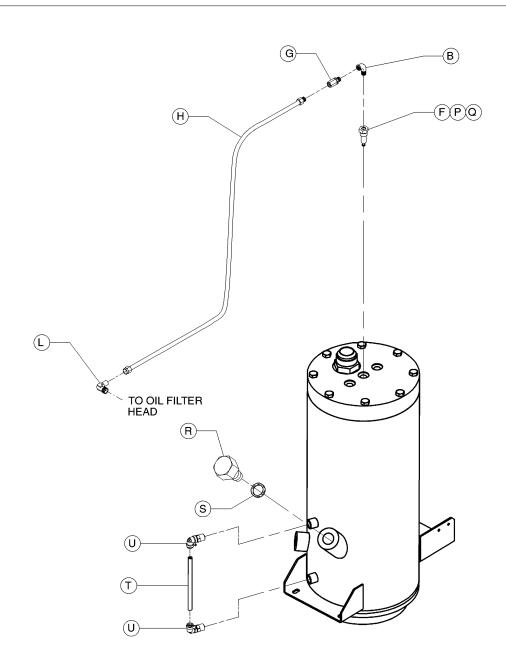


ltem	CPN	Qty	Description	Item	CPN	Qty	Description
Α				K	22055719	1	TUBE, SERVICE
В				L	36877793	4	SCREW, HEX FLANGE M12-1.75 X 40
С				М	95941639	1	PLUG, SQ HD 1.5 NPT
D	95097291	2	NIPPLE, PIPE 2.0 X 2.5	N	95357976	1	O-RING
Ε	95944641	1	ADAPTER, 2.5-12 X 2.0NPTF	Р	35279025	4	SCREW, TAPPING M08-1.25 X 20
F	22217848	1	VALVE, MIN PRESS	Q	22055727	1	TUBE, BOTTOM SERVICE
G	95285615	1	NIPPLE, PIPE 2.0 X 5.5	R	35602473	1	VALVE, 2" BALL
Н	95916281	1	ELBOW, 2.0 NPT	S	95280541	1	PLUG, HEX SOC 1.06-12
J	35335124	1	CONNECTOR, MALE -32 X 2.0 NPT				



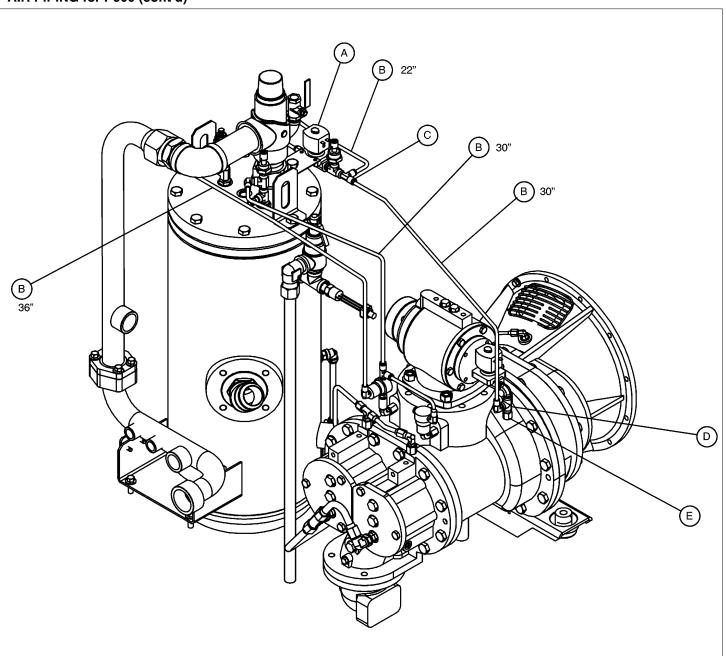
ltem	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	22111975	1	ELEMENT, SEPARATOR	N	36898922	1	SWITCH, ALARM
В	54620604	1	TANK, SEPARATOR	Р	22216360	1	VALVE, SAFETY 150PSI (P600)
С	36888055	4	SCREW, HEX FLANGE M12-1.75 X 30		54731443	1	VALVE, SAFETY 200PSI (HP450)
D	95982632	1	ELBOW, 45 1.31 SAE		54731450	1	VALVE, SAFETY 250PSI (VHP400)
Е	54688015	1	HOSE, DISCHARGE	Q	96727557	8	SCREW, HEX FLANGE M16 X 60
F	95357976	1	O-RING	R	36785012	2	BRACKET, SEPERATOR TANK LIFT
G	35292143	2	FLANGE, HALF	S	95944671	1	BUSHING, RED 1.0 X .75 NPT (P600)
Н	95934683	4	WASHER, LOCK	Т	95928040	1	NIPPLE, 3/4 NPT CLOSED
J	96719810	4	SCREW, HEX M14-2.0 X 40	U	95286548	1	ELBOW, 1.25 NPT X -16 JIC (P600)
K	95992632	1	ELBOW, 45 1.31SAE		95219853	1	ELBOW, 1.0 NPT X -16 JIC (450,400)
L	35132877	1	TUBE, OTBV TO SEPTK	V	22226906	1	TUBE, SAFETY VALVE
М	95954228	1	TEE, 1.0 NPT (P600)	W	95932802	1	BUSHING, RED 1.0 X .38 NPT (P600)
	95954210	1	TEE, .75 NPT (HP450, VHP400)		95953956	1	BUSHING, RED .75 X .38 NPT (450, 400)
NUAL NO ILLUST. 2199590-0		Α					

### **SEPARATOR TANK COMPLETE (cont'd)**

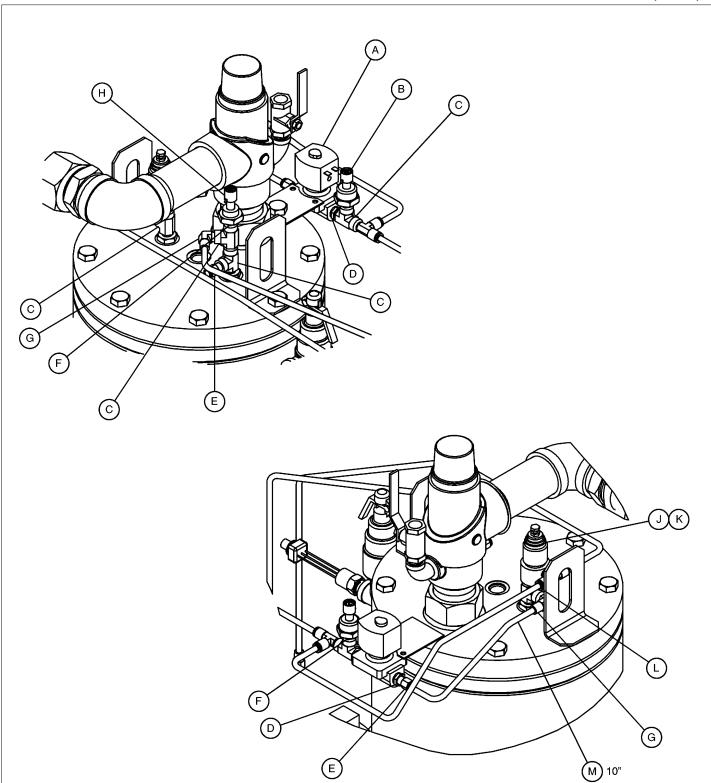


Item	CPN	Qty	Description	ltem	CPN	Qty	Description
A	95773032	2	ADAPTER, .88 SAE	L	35279876	1	ELBOW, 7/16-20 X -4 JIC
В	95944666	1	ELBOW, 1/4 NPT	М	36896892	1	VLV, PRESS REG 200PSI (HP365, VHP300)
С	35373976	1	TEE, 1/4 NPT		36854149	1	VLV, PRESS REG 100PSI (P425, XP375)
				Ν	35369347	1	CONN, MALE 1/4 NPT X 3/8 TUBE
D	95944575	1	NIPPLE, CLOSED 1/4 NPT	Ρ	92877620	1	O-RING
Е	35356484	*	TUBING, 3/8" SYNFLEX	Q	95973228	1	O-RING
F	54721337	1	ADAPTER, OIL SCVANGE TUBE	R	35579630	1	PLUG, 1.62"
G	36840411	1	VALVE, CHECK	S	35279942	1	O-RING
Н	35282920	1	HOSE, -4 JIC X 30"	Т	54629464	1	TUBE, SIGHT
J	35369347	1	CONNECTOR, MALE 1/4 NPT X 3/8 TUBE	U	54627799	2	ELBOW, SIGHT TUBE
K	35369354	1	ELBOW MALE 1/4 NPT X 3/8 TUBE				
							MANUAL NO ILLUST, NO. DATERREY: 22199590-051 1/03 A

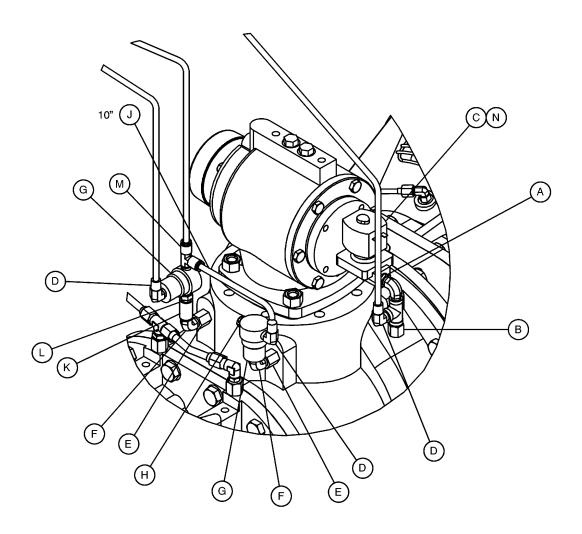
### AIR PIPING for P600 (cont'd)



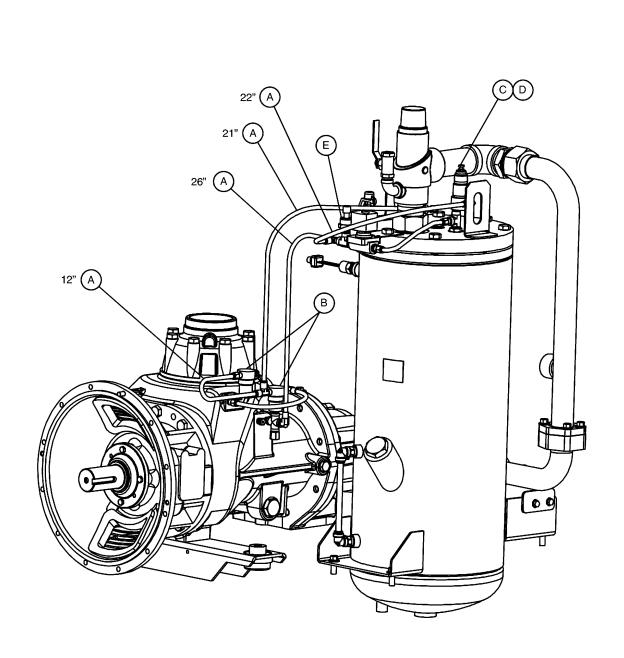
Item	CPN	Qty	Description
A	36840841	1	VALVE, SOLENOID 24V
В	35356484	*	TUBING, 3/8" SYNFLEX
С	35369503	1	TEE, STREET 1/4 NPT X 3/8 TUBE
D	95364469	1	ELBOW, 1/4NPT
Е	95298485	1	TEE, 1/4 FEMALE NPT
MANUAL NO ILLUST	.NO. DATE/REV:		
22199590-0		Α	



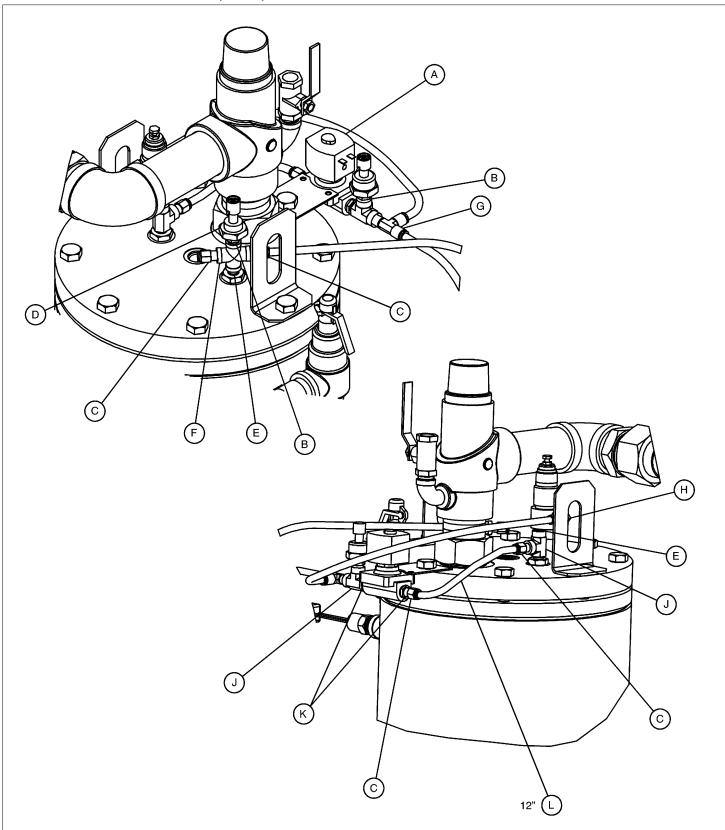
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	36840841	1	VALVE, SOLENOID 24V	G	35369354	2	ELBOW, 1/4NPT
В	36920825	1	TRANSDUCER, 0-100 PSI	Н	54765946	1	TRANSDUCER, 0-500 PSI
С	35114545	4	TEE, STREET 1/4 NPT	J	36854149	1	REGULATOR, PRESSURE
D	95940748	2	BUSHING, REDUCER 3/8 NPT X 1/4 NPT	K	95323911	1	NIPPLE, 3/8NPT X 1"
Ε	35369347	2	CONNECTOR, 1/4NPT X 3/8 TUBE	L	35373976	1	TEE, MALE RUN 1/4NPT X 3/8 TUBE
F	95930301	2	BUSHING, REDUCER 1/4NPT X 1/8NPT	М	35356484	*	TUBING, 3/8" SYNFLEX



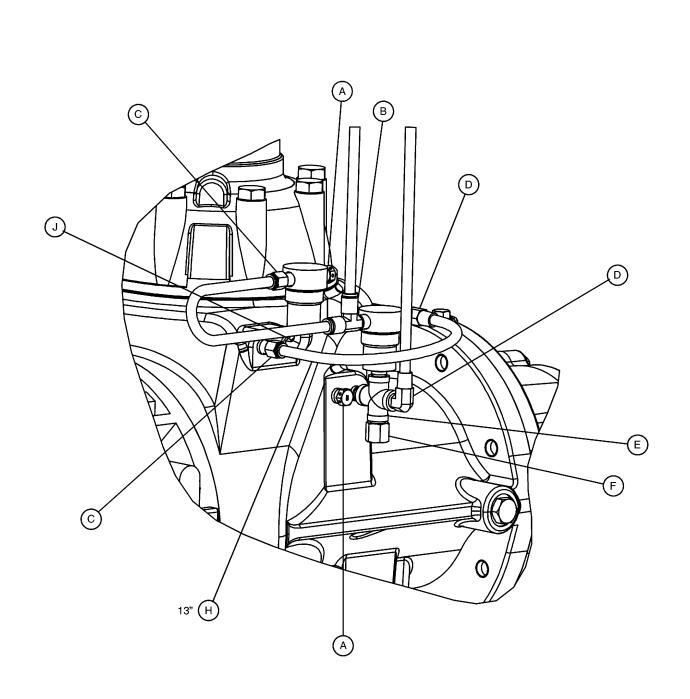
ltem	CPN	Qty	Description	Item	CPN	Qty	Description
Α	95940748	1	BUSHING, REDUCER 3/8 NPT X 1/4 NPT	Н	36766756	1	MUFFLER, ORIFICE .140
В	35322346	1	ORIFICE, .156	J	35356484	*	TUBING, 3/8" SYNFLEX
С	95772562	1	NIPPLE, 3/8 NPT X 1"	K	95935607	1	COUPLING, 1/4NPT X 1.12"
D	35369354	3	ELBOW, 1/4NPT	L	35248145	1	CONNECTOR, BALL CHECK
Ε	35302314	2	ADAPTER, 9/16-18 X 1/4NPT	М	35369503	1	TEE, STREET 1/4 NPT X 3/8 TUBE
F	95364469	2	ELBOW, 1/4NPT	Ν	36840841	1	VALVE, SOLENOID 24V
G	35322379	2	VALVE, BLOWDOWN				
NO ILLUST.							



Item	CPN	Qty	Description	
Α	35356484	*	TUBING, 3/8" SYNFLEX	
В	353222379	2	VALVE, BLOWDOWN	
С	36854149	1	REGULATOR, PRESSURE 100 PSI (HP450)	
	36896892	1	REGULATOR, PRESSURE 200 PSI (VHP400)	
D	95944575	1	NIPPLE, 1/4NPT X 7/8"	
Е	36920825	1	TRANSDUCER, PRESSURE 0-100 PSI	

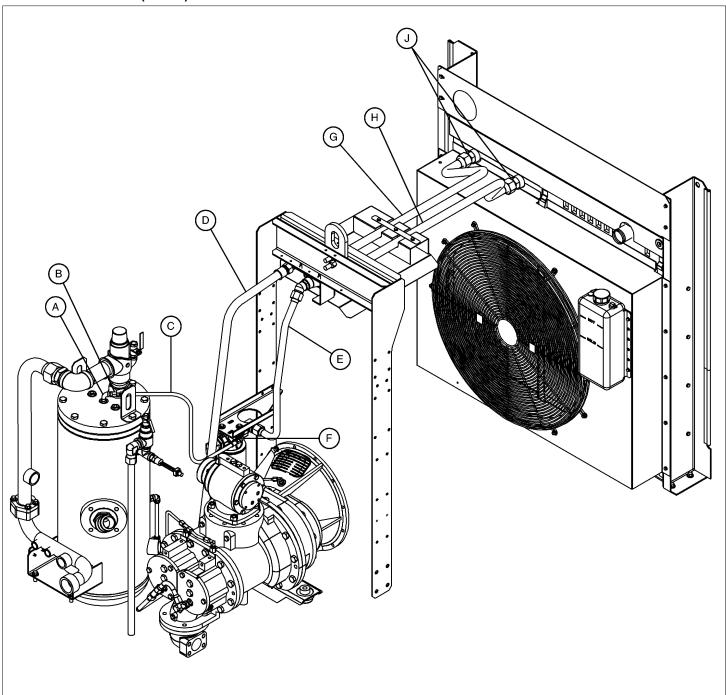


Item	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	36840841	1	VALVE, SOLENOID 24V	G	35369503	1	TEE, STREET 1/4NPT X 3/8 TUBE
В	95930301	2	BUSHING, REDUCER 1/4NPT X 1/8 NPT	Н	35369354	2	ELBOW, 1/4NPT X 3/8 TUBE
С	35369347	4	CONNECTOR, 1/4NPT X 3/8 TUBE	J	35114545	1	TEE, STREET 1/4NPT X 3/8 TUBE
D	54765946	1	TRANSDUCER, PRESSURE 0-500 PSI	K	95940748	2	BUSHING, REDUCER 3/8NPT X 1/4 NPT
Е	95944575	2	NIPPLE, 1/4NPT X 7/8"	L	35356484	*	TUBING, 3/8" SYNFLEX
F	95954293	1	CROSS, 1/4NPT FEMALE				
al no Illust. 99590-0		A					

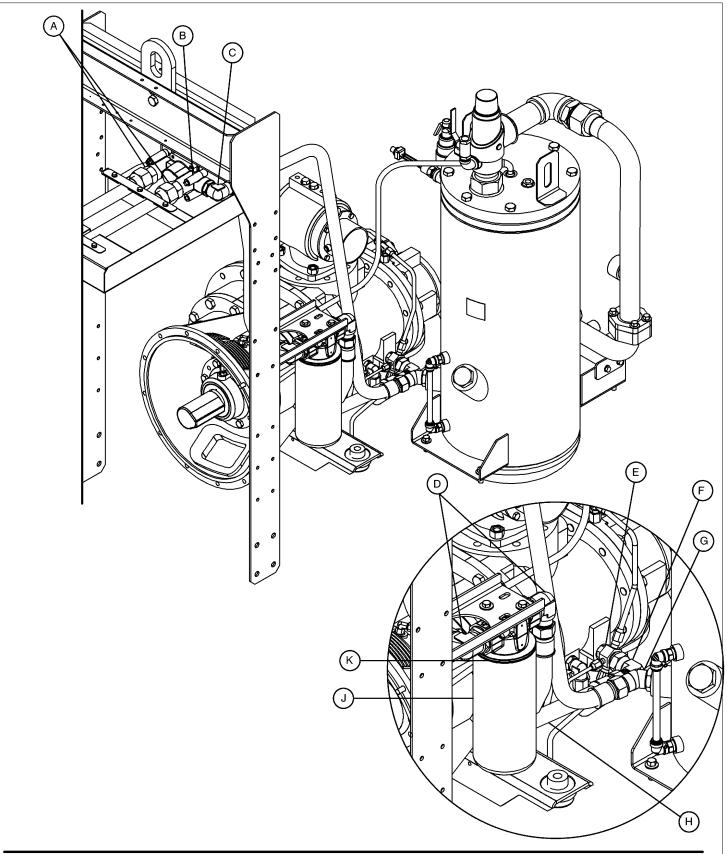


Item	CPN	Qty	Description	
Α	36766756	2	MUFFLER, .140 ORIFICE	
В	35369503	1	TEE, STREET 1/4NPT X 3/8 TUBE	
С	35369347	2	CONNECTOR, 1/4NPT X 3/8 TUBE	
D	35369354	2	ELBOW, 1/4NPT X 3/8 TUBE	
Ε	95954293	1	CROSS, 1/4NPT FEMALE	
F	35322346	1	ORIFICE, .156 DIA X 1/4NPT	
G	95944575	2	NIPPLE, 1/4NPT X 7/8"	
Н	35356484	*	TUBING, 3/8" SYNFLEX	
J	9536449	1	ELBOW, 1/4NPT	
				MANUAL NO ILLUST. NO. DATE/REV:

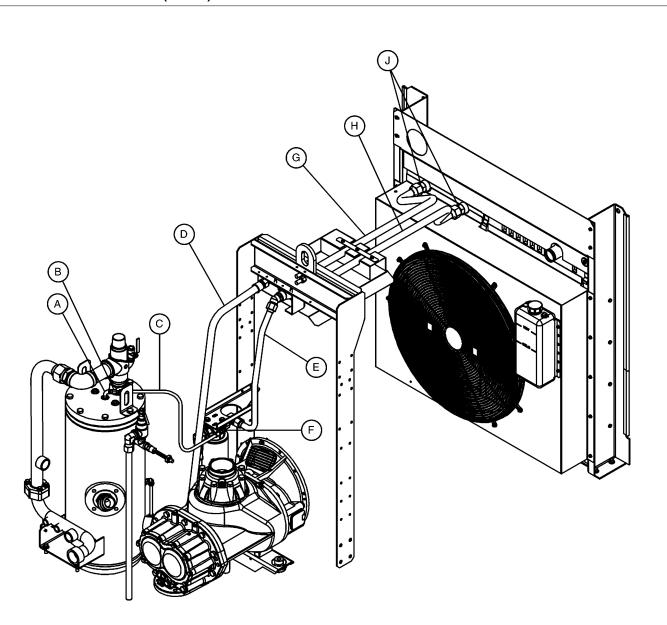
### OIL PIPING for P600 (cont'd)



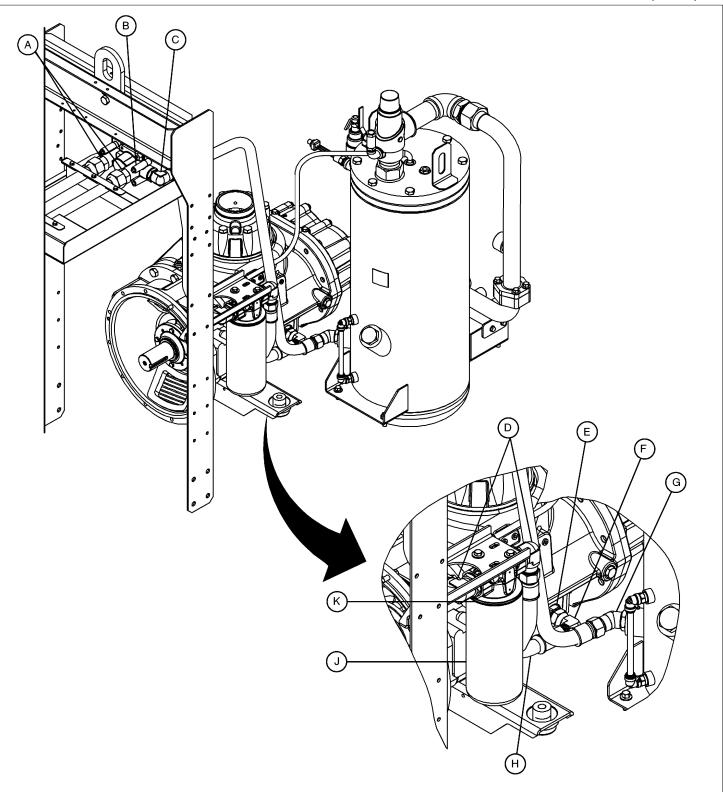
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	95944666	1	ELBOW, STREET 1/4 NPT X 90	F	95991303	1	CROSS, 1/4NPT FEMALE
В	36840411	1	VALVE, CHECK .250 SPCR	G	22185797	1	TUBE, OIL COOLER
С	35279876	1	CONNECTOR, 1/4NPT X 3/8 TUBE	Н	22185789	1	TUBE, OIL COOLER
D	35132877	1	HOSE -16 X 69.00 LG	J	95315289	2	CONNECTOR, 1.31 SAE X 1.25 TUBE
Ε	22165369	1	TUBE, BY-PASS VALVE				
_		•					
. NO ILLUST. I	NO. DATE/REV:						
99590-0	58 3/03	Α					



Item	CPN	Qty	Description	Item	CPN	Qty	Description		
Α	95315289	2	CONNECTOR, 1.31 SAE X 1.25 TUBE	F	35292051	1	ELBOW, 90 SWIVEL NUT -16JIC		
В	54414420	1	VALVE, OIL TEMP BY-PASS	G	95992632	1	ELBOW, 45 1.31 SAE		
С	95928171	1	ELBOW, 90 X 1.31 SAE	Н	35231455	1	HOSE, -16JIC		
D	95376133	2	ELBOW, 1.63-12	J	36897346	1	ELEMENT, OIL FILTER		
Е	36845154	1	MANIFOLD, OIL	K	36897437	1	HEAD, OIL FILTER		
							MANUAL NO ILLUST NO. 22199509-059	3/03	



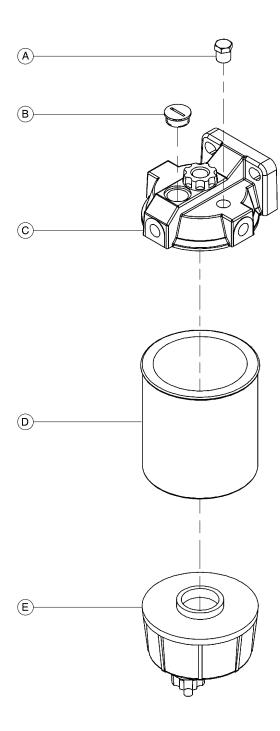
Item	CPN	Qty	Description	Item	CPN	Qty	Description
A	95944666	1	ELBOW, STREET 1/4 NPT X 90	F	95991303	1	CROSS, 1/4NPT FEMALE
В	36840411	1	VALVE, CHECK .250 SPCR	G	22185797	1	TUBE, OIL COOLER
С	35279876	1	CONNECTOR, 1/4NPT X 3/8 TUBE	Н	22185789	1	TUBE, OIL COOLER
D	35132877	1	HOSE -16 X 69.00 LG	J	95315289	2	CONNECTOR, 1.31 SAE X 1.25 TUBE
Е	22165369	1	TUBE, BY-PASS VALVE				
MANUAL NO ILLUST. 22199590-0							



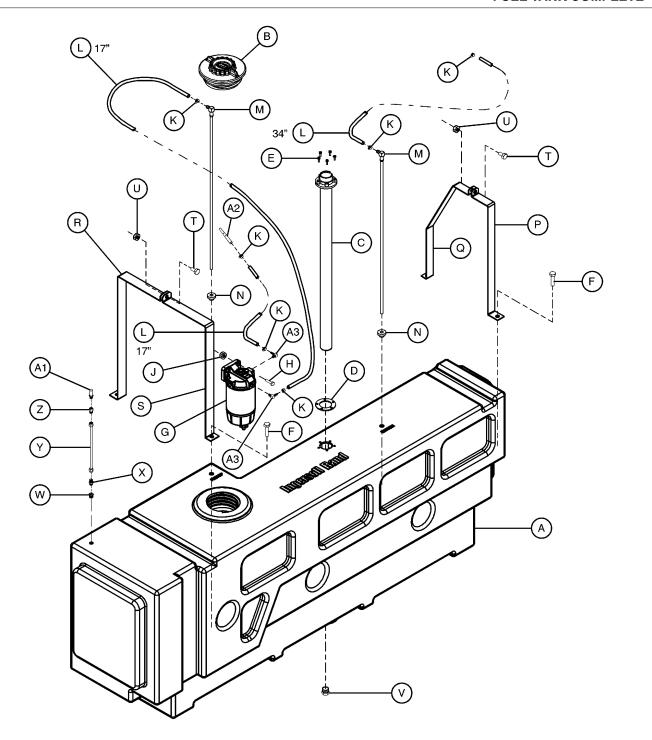
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	95315289	2	CONNECTOR, 1.31 SAE X 1.25 TUBE	F	35292051	1	ELBOW, 90 SWIVEL NUT -16JIC
В	54414420	1	VALVE, OIL TEMP BY-PASS	G	95992632	1	ELBOW, 45 1.31 SAE
С	95928171	1	ELBOW, 90 X 1.31 SAE	Н	35231455	1	HOSE, -16JIC
D	95376133	2	ELBOW, 1.63-12	J	36897346	1	ELEMENT, OIL FILTER
Ε	95955993	1	CONNECTOR, 1-5/16 SAE X -16JIC	K	36897437	1	HEAD, OIL FILTER

MANUAL NO. - ILLUST. NO. DATE/REY: 22199590-061 3/03 A

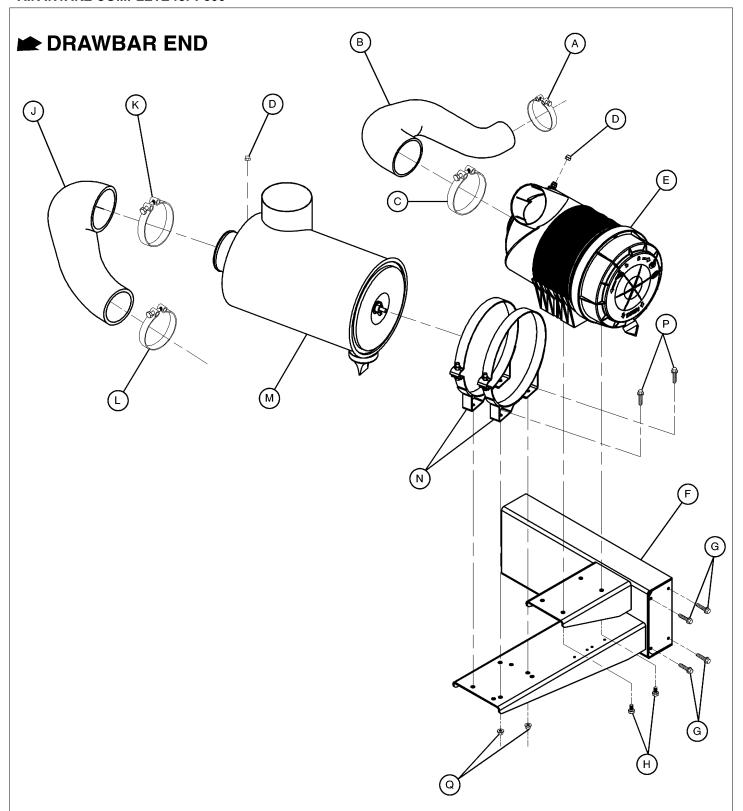
### **FUEL / WATER SEPARATOR**



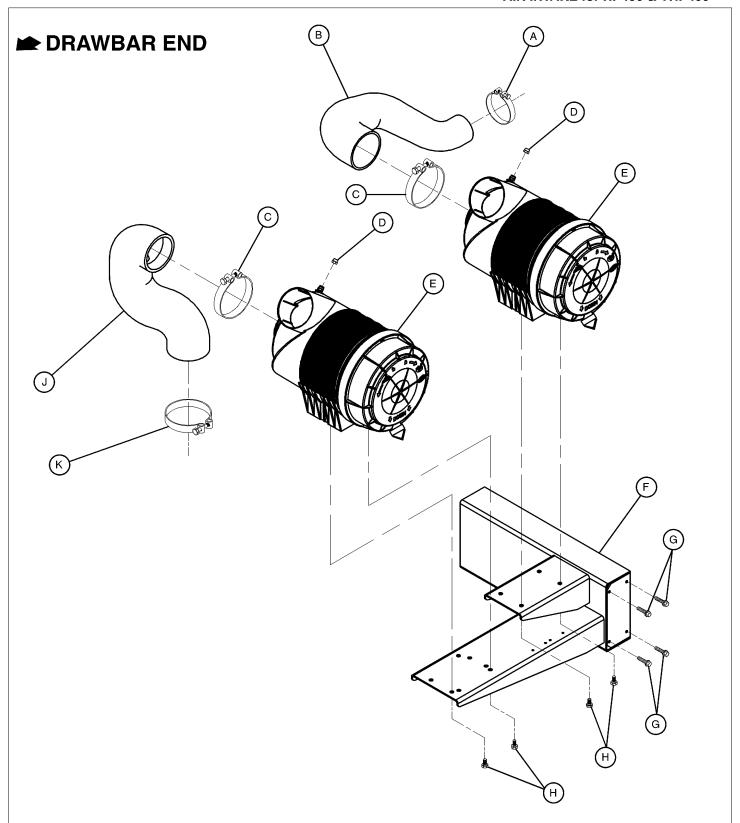
Item	CPN	Qty	Description
Α	54480520	1	PLUG, VENT
В	35358381	1	COVER, CHECK BALL
С	54480512	1	HEAD
D	54468178	1	ELEMENT ASM.
E	54480504	1	BOWL, POLYCARBONATE
MANUAL NO ILLUST.	. NO. DATE/REV		
22199590-0			



Item	CPN	Qty	Description	ltem	CPN	Qty	Description
A	54774260	1	TANK, FUEL	Q	22221030	1	STRAP, FUEL TANK
В	54660089	1	CAP, FUEL	R	22220657	1	STRAP, FUEL TANK
С	54731427	1	SENDER, FUEL LEVEL	S	22220669	1	STRAP, FUEL TANK
D	35132877	1	GASKET, FUEL SENDER	Т	96701917	2	SCREW, HEX M10-1.5 X 30
Е	95916532	5	SCREW, FILLISTER HD #10-32 X .50	U	35273366	2	NUT, HEX NYLOC M10-1.5
F	35279025	4	SCREW, TAPPING M08-1.25 X 20	V	95280541	1	PLUG, HEX 1.06-16 SAE
G	54468160	1	SEPARATOR, FUEL/WATER	W	35369347	1	CONN, MALE 1/4 NPT X 3/8 TUBE
Н	36889608	2	SCREW, HEX FLANGE M08-1.25 X 25	Х	95940748	1	BUSHING, REDUCING 3/8 NPT X 1/4
J	36881886	2	NUT, HEX FLANGE M08-1.25	Υ	35356484	8.5	TUBING, 3/8 SYNFLEX
K	35296342	6	CLAMP, WORM GEAR	Z	35369339	1	CONN, FEMALE 1/4 NPT X 3/8 TUBE
L	35363498	*	HOSE, 5/16 FUEL	A1	35322395	1	SILENCER, PNEUMATIC 1/4 NPT
М	54675863	2	STANDPIPE ASM.	A2	36895977	1	REDUCER, FUEL LINE 5/16 X 1/4
N	35384577	2	BUSHING, NITRILE	АЗ	35378538	2	ELBOW, BARBED 1/4 NPT
Р	22221033	1	STRAP, FUEL TANK				
							MANUAL NO ILLUST. NO. DATE/REV: 22199509-063 2/03 A

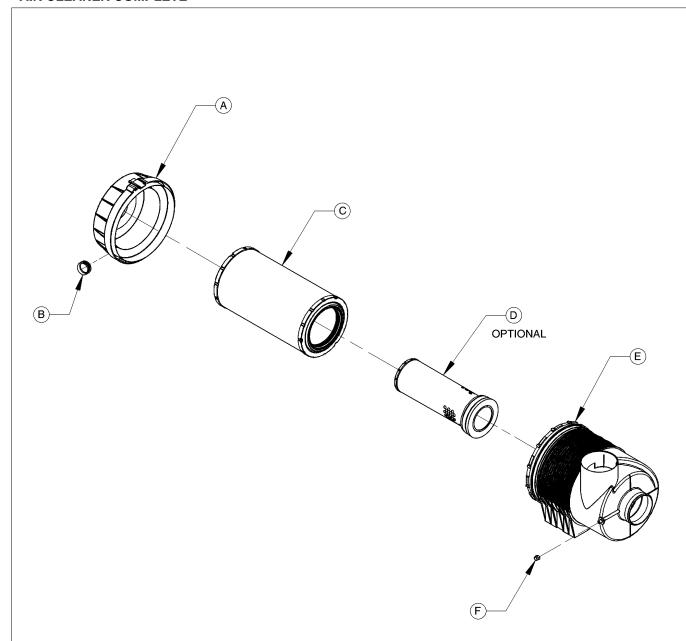


Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	35374073	1	CLAMP, T-BOLT	J	22184485	1	HOSE, A/E AIR INTAKE
В	22151161	1	HOSE, ENGINE AIR INTAKE	K	35116615	1	CLAMP, T-BOLT
С	36897668	1	CLAMP, T-BOLT	L	35365477	1	CLAMP, T-BOLT
D	35314939	2	INDICATOR, RESTRICTION	M	22119192	1	AIR CLEANER ASM.
Е	54661889	1	AIR CLEANER ASM.	Ν	35274711	2	BAND, AIR CLEANER
F	22147243	1	SUPPORT, AIR CLEANER	Р	96702279	4	SCREW, HEX M10-1.5 X 20
G	35279025	8	SCREW, TAPPING M08-1.25 X 20	Q	36879195	4	NUT, HEX FLANGE M10-1.5
Н	96702048	4	SCREW, HEX M08-1.25 X 16				
MANUAL NO ILLUST. 22199590-0		Α					



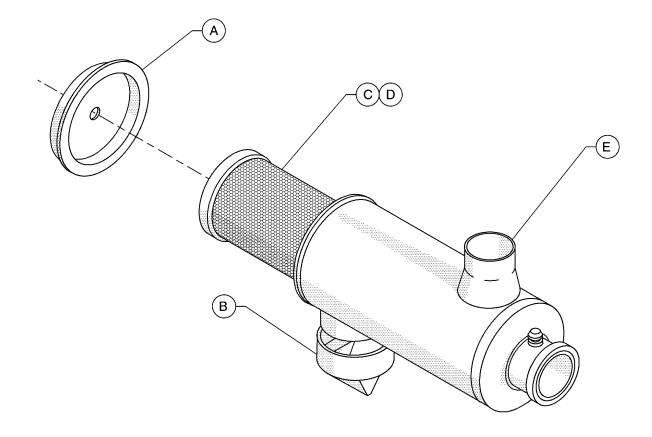
Item	CPN	Qty	Description	ltem	CPN	Qty	Description	
Α	35374073	1	CLAMP, T-BOLT	F	22147243	1	SUPPORT, AIR CLEANER	
В	22151161	1	HOSE, ENGINE AIR INTAKE	G	35279025	8	SCREW, TAPPING M08-1.25 X 20	
С	36897668	1	CLAMP, T-BOLT	Н	96702048	4	SCREW, HEX M08-1.25 X 16	
D	35314939	2	INDICATOR, RESTRICTION	J	22134126	1	HOSE, A/E AIR INTAKE	
Е	54661889	1	AIR CLEANER ASM.	K	35161025	1	CLAMP, T-BOLT	
							MANUAL NO ILLUST. NO.	DATE/REV:
								2/03 A

## AIR CLEANER COMPLETE



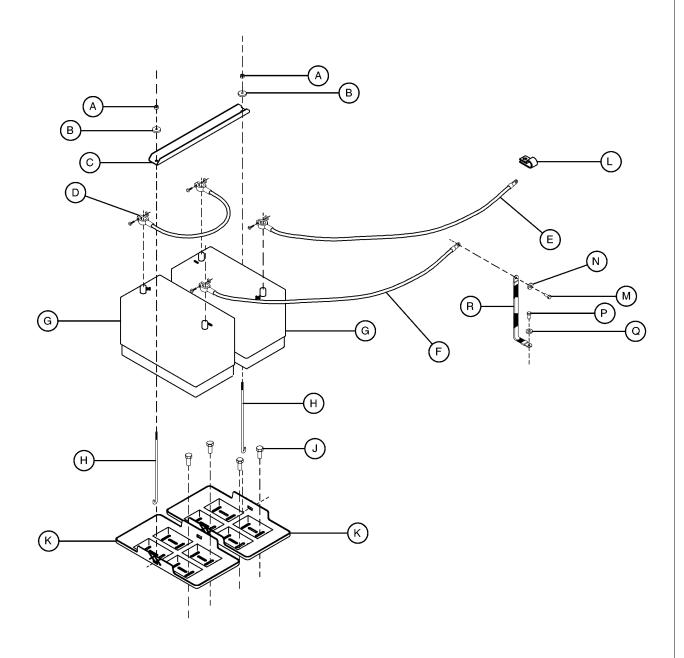
Ite	m	CPN	Qty	Description	Item	CPN	Qty	Description
	Α	54692975	1	COVER, AIR CLEANER	D	54717152	1	ELEMENT, SAFETY (OPTIONAL)
	3	35393677	1	VALVE, DUST EJECTOR	Ε	54692967	1	BODY, AIR CLEANER
(	0	54717145	1	ELEMENT, PRIMARY	F	35393719	1	CAP, PLUG
MANUAL N	0 ILLU	IST. NO. DATE	REV:					

MANUAL NO. - ILLUST, NO. DATE/REV: 22199509-066 2/03 A

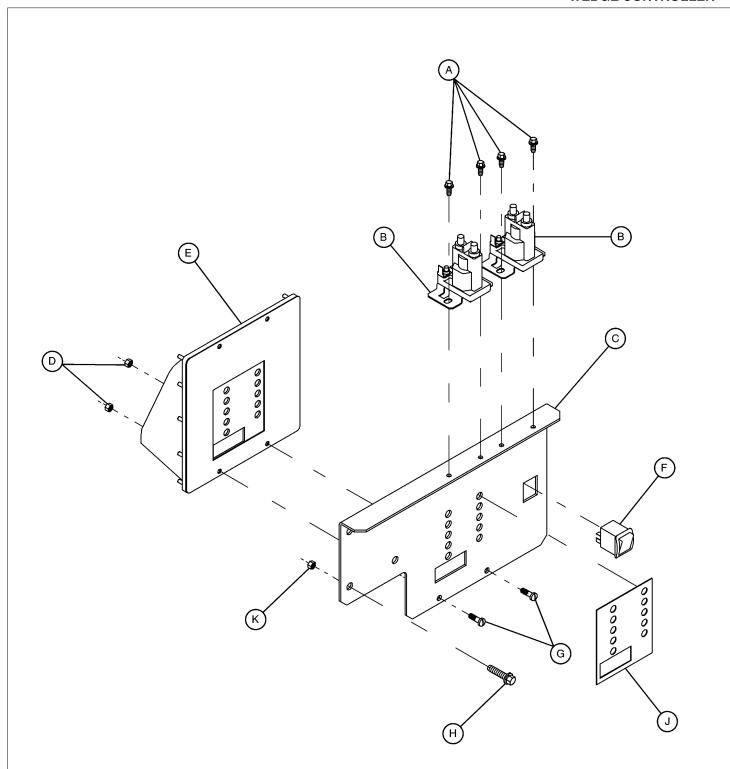


ltem	CPN	Qty	Description
Α	22119184	1	COVER, AIR CLEANER
В	36867778	1	VALVE, DUST EJECTOR
С	22119168	1	ELEMENT, PRIMARY
D	22119176	1	ELEMENT, SAFETY
Ε	22119150	1	BODY, AIR CLEANER

# **▶** DRAWBAR END



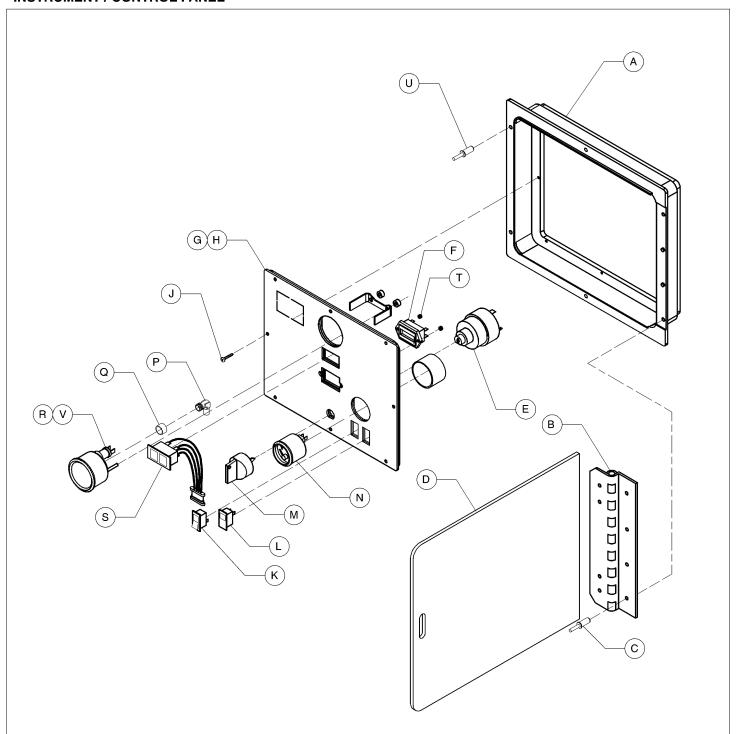
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	95923298	2	NUT, HEX LOCK 1/4-20	J	92368687	8	SCREW, HEX M06-1.0 X 12
В	36853265	2	WASHER, PLASTIC 1/4	Κ	36878064	2	TRAY, BATTERY
С	22128490	1	HOLD DOWN, BATTERY	L	35225093	3	CLAMP, 1/2 SUPPORT
D	35258789	1	CABLE, JUMPER	М	96701495	1	SCREW, HEX M12-1.75 X 25
Е	35583582	1	CABLE, POSITIVE BATTERY	N	95935003	1	WASHER, FLAT
F	35610856	1	CABLE, NEGATIVE BATERY	Ρ	95934998	1	SCREW, TAPPING 3/8-16 X 1
G	36844264	2	BATTERY, 12V	Q	36844264	1	WASHER, FLAT
Н	36860005	2	J-BOLT, 1/4-20	R	35578194	1	STRAP, GROUND
MANUAL NO ILLUST. 22199590-0		A					



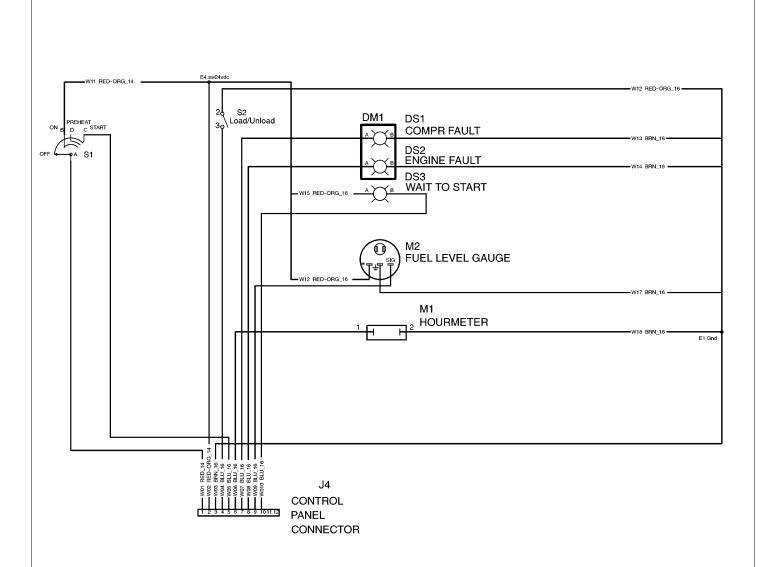
ltem	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	36797652	4	SCREW, TAPPING M06-1.0 X 12	F	54475777	1	SWITCH, ROCKER
В	36853521	2	RELAY, 100 AMP	G	36842102	4	SCREW, HEX #10-32 X 1.0
С	22197776	1	BRACKET, WEDGE MOUNTING	Н	35279025	4	SCREW, HEX FLANGE M08-1.25 X 25
D	95928800	4	NUT, HEX LOCK #10-32	J	22215354	1	DECAL, WEDGE
Ε	22173579	1	WEDGE MODULE	K	36881886	4	NUT, HEX FLANGE M08-1.25

MANUAL NO. - ILLUST. NO. DATE/REV: 22199590-069 2/03 A

## **INSTRUMENT / CONTROL PANEL**

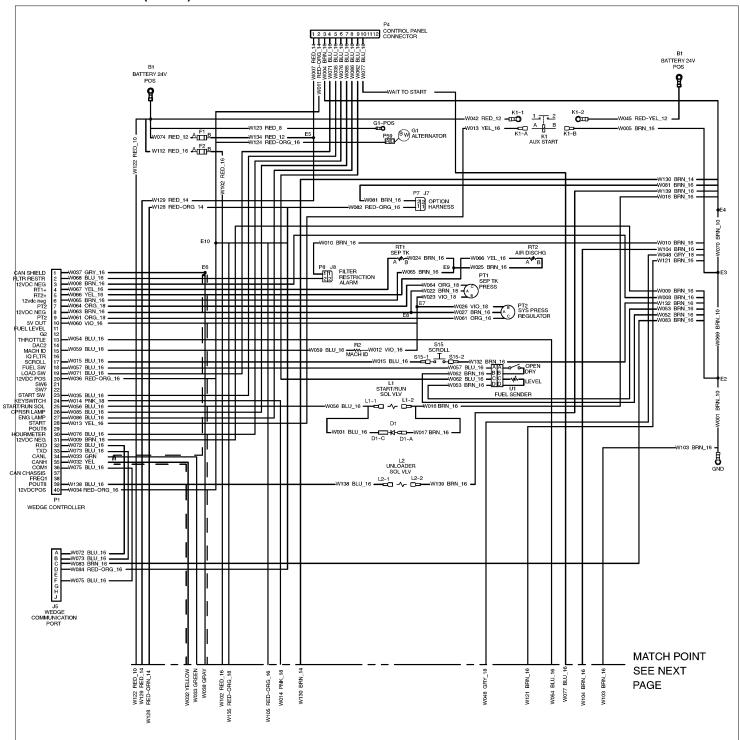


Item	CPN	Qty	Description	Item	CPN	Qty	Description
A	54749601	1	FRAME, WW INST PANEL	L	22050553	1	LIGHT, WARNING
В	22107478	1	HINGE, SPRING CONT PNL	М	22134118	1	KNOB, NON-REMOVABLE KEY
С	36877587	4	RIVET, .19 DIA	N	22050991	1	GAUGE, FUEL LEVEL
D	54743265	1	DOOR, CONTROL PANEL	Р	35370386	1	ELBOW, MALE 1/8 NPT X 3/8 TUBE
Е	22117385	1	SWITCH, KEY	Q	95935599	1	COUPLING, 18 NPT X 3/4
F	22054175	1	HOURMETER	R	36891216	1	GAUGE, PRESSURE 250 PSI
G	22171680	1	PANEL, INSTRUMENT	S	22172423	1	MODULE, 2-LIGHT WARNING
Н	22171698	1	DECAL, WW INST PANEL	Т	22054159	2	NUT, 4-40 PLASTIC
J	22070494	8	SCREW, PLASTIC TAPPING	U	36920486	4	RIVET, SS .19 DIA
K	22054076	1	SWITCH, ROCKER	V	22137426	1	LAMP, 28V
MANUAL NO ILLUST. 22199590-0		A					



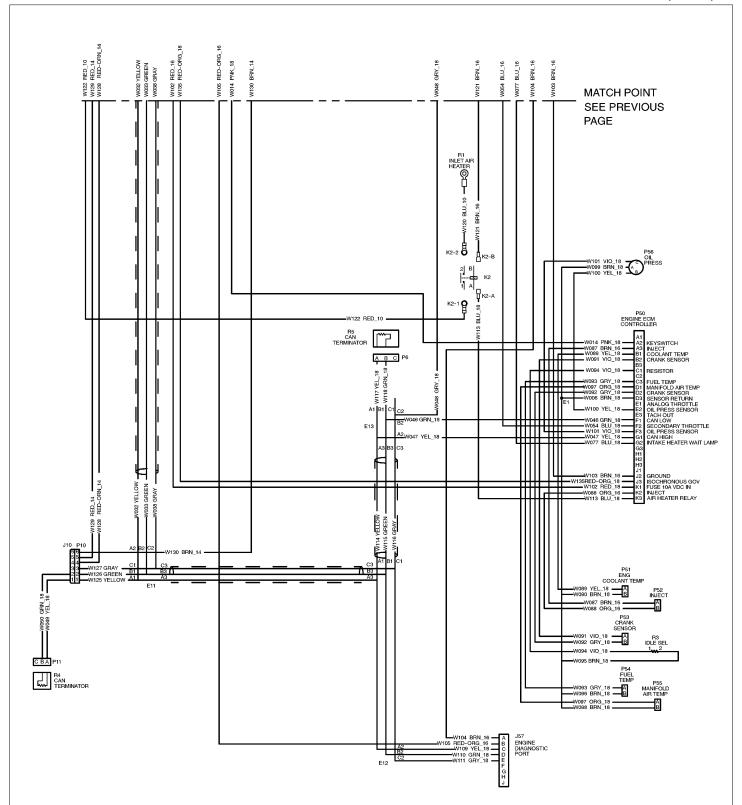
Item	CPN	Description	_
DM1	22172423	MODULE, 2-LIGHT WARNING	- I
DS3	22050553	LIGHT, WARNING (WAIT TO START)	
M1	22054175	HOURMETER	
M2	22137426	GAUGE, FUEL LEVEL	
S1	22127385	SWITCH, START	
S2	22054076	SWITCH, ROCKER (LOAD/UNLOAD)	
W1	22205223	HARNESS, PANEL WIRING	
		MANUAL NO ILLUST NO. DATERFEY: 22199590-071 2/03	Α

#### WIRING DIAGRAM (cont'd)



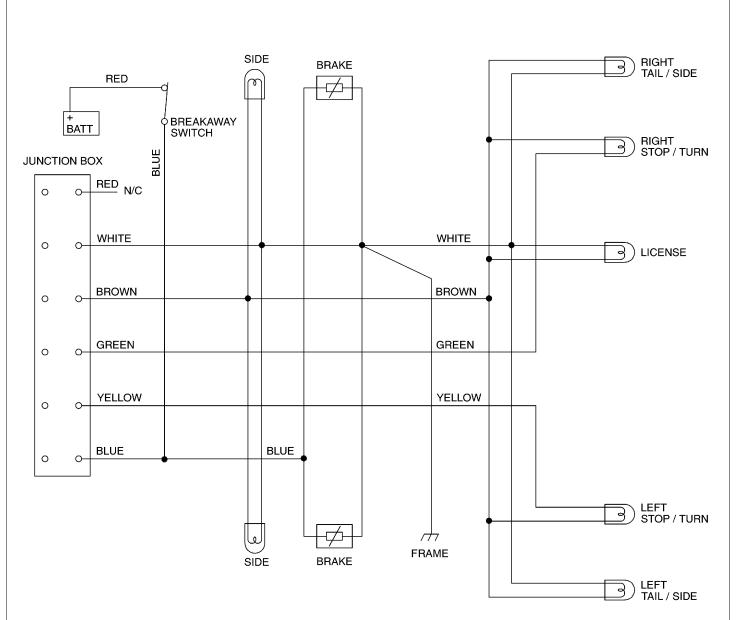
Item	CPN	Description	ltem	CPN	Description
B1	36844975	BATTERY, 12VDC	PT1	54765946	TRANSDUCER, 0-500 PSIG (SEP TK)
D1	35376169	DIODE	PT2	36920825	TRANSDUCER, 100 PSIG
F1	36792083	FUSE, 20A	R2	22201354	RESISTOR, MACHINE ID (45.3K OHM)
F2	36782456	FUSE, 10A	RT1	54764956	SWITCH, THERMAL (SEP TK)
G1	22206221	ALTERNATOR	RT2	54764964	SWITCH, THERMAL (DISCHARGE AIR)
K1	36853521	RELAY	S15	54475777	SWITCH, MOMENTARY ROCKER (SCROLL)
L1	36840841	VALVE, START/RUN SOLENOID	U1	54731427	SENDER, FUEL LEVEL
L2	36840841	VLV, UNLOADER SOL (P600, HP450, VHP400)	W2	22199061	HARNESS, ENGINE

22199590-072 1/03 A

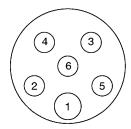


Item	CPN	Description			_
K2	36853521	RELAY			
P51	22222590	SENSOR, COOLANT TEMP			
P53	22222582	SENSOR, CRANK			
P55	22222608	SENSOR, MANIFOLD AIR TEMP			
P56	22222574	SENSOR, OIL PRESS			
R1	22234678	HEATER, INLET AIR			
			MANUAL NO ILLUST. NO. 22199590-073	1/03 A	4

#### **TAIL LIGHT WIRING DIAGRAM**

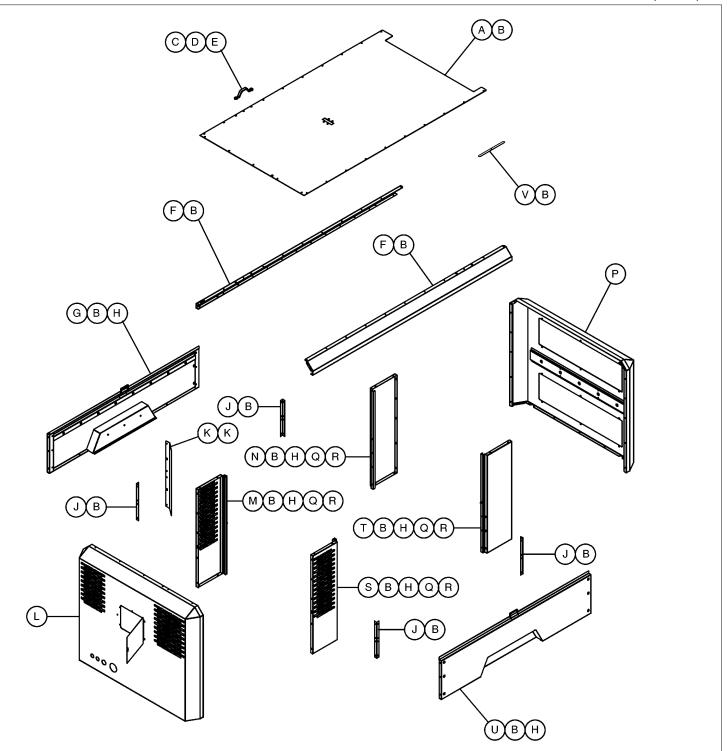


### PLUG / SOCKET WIRING CONNECTIONS

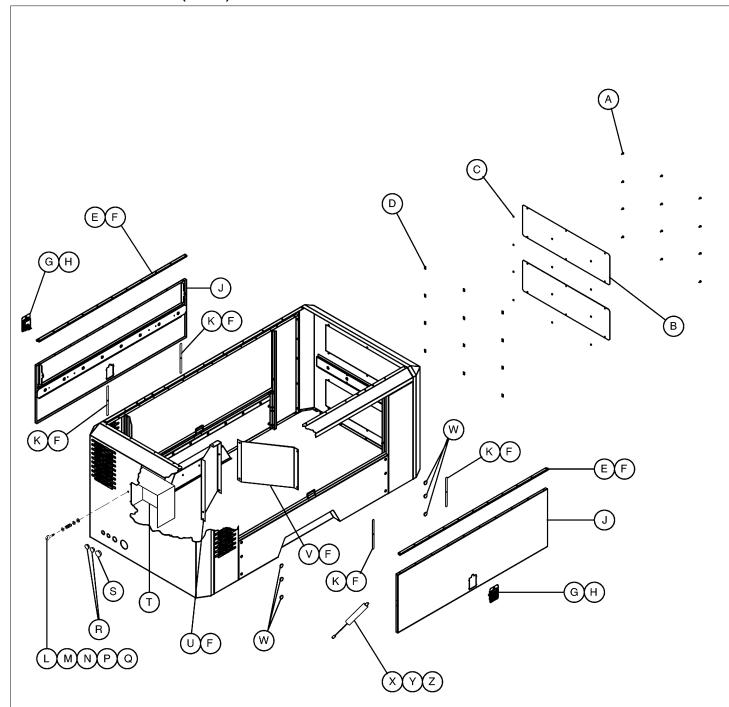


- 1 WHITE GROUND
- 2 YELLOW LEFT STOP/TURN SIGNAL
- 4 GREEN RIGHT STOP/TURN SIGNAL
- 5 BROWN TAIL / CLEARANCE LIGHTS
- 6 BLUE ELECTRIC BRAKES

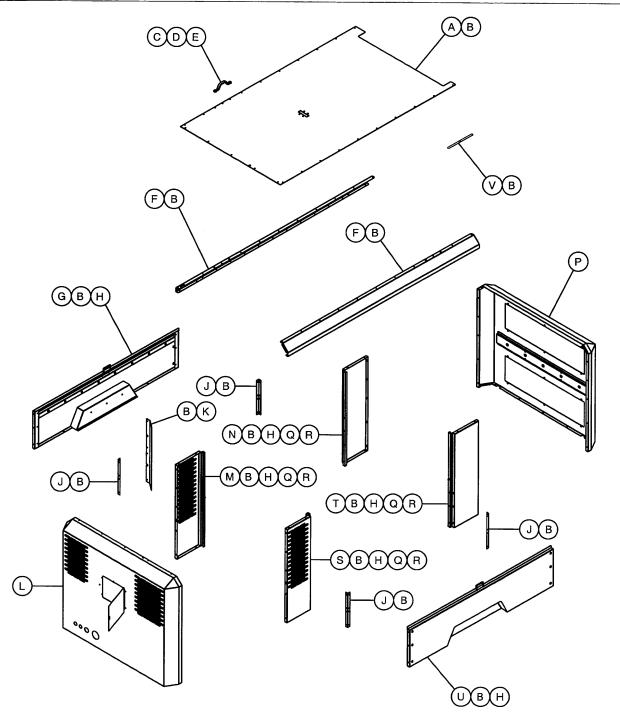
Item		CPN	Qty
BATT		36844264	1
BRAKEAWAY S	W.	35315944	1
LICENSE		36895860	1
SIDE		35367051	2
TAIL / STOP		54671557	2
HARNESS, LIG	HT	54761101	1
	e/rev:		



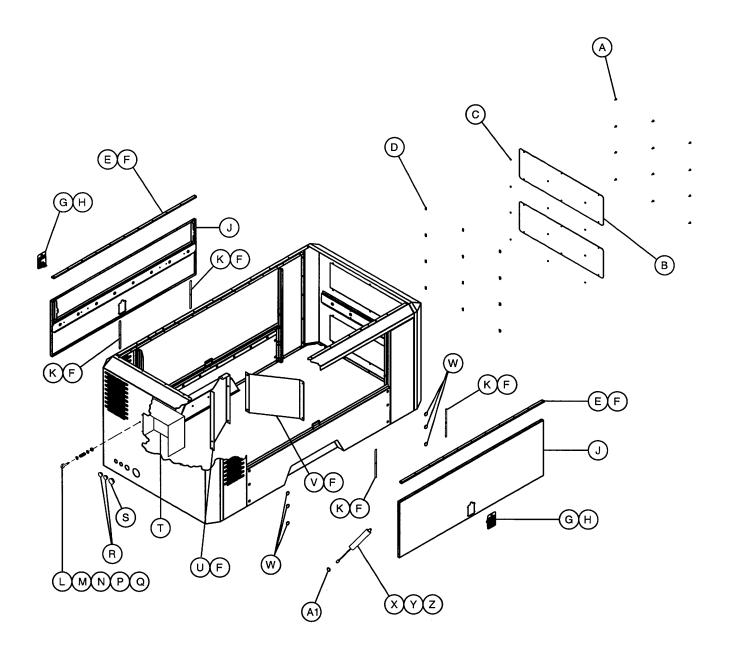
ltem	CPN	Qty	Description	Item	CPN	Qty	Description	
Α	54739818	1	PANEL, ROOF	L	54739784	1	PANEL, FRONT END	
В	36797652	96	SCREW, TAPPING M06-1.0 X 12	М	54739826	1	PANEL, FRONT CRBSD	
С	35130707	1	HOLD, HAND	N	54739859	1	PANEL, REAR CRBSD	
D	96702659	2	SCREW, HEX M08-1.25 X 25	Р	54739792	1	PANEL, REAR END	
Ε	36895746	2	NUTSERT, HEX M08-1.25	Q	35337328	4	STUD, BALL	
F	54739800	2	RAIL, TOP SIDE	R	36881886	4	NUT, HEX FLANGE M08-1.25	
G	22058333	1	PANEL, LOWER CRBSD	S	54739842	1	PANEL, FRONT STSD	
Н	35279025	16	SCREW, TAPPING M08-1.25 X 20	Т	54738934	1	PANEL, REAR STSD	
J	22192132	4	BRACKET, SIDE PANEL	U	541739867	1	PANEL, LOWER STSD	
K	22112478	1	BAFFEL, INTAKE	V	54718184	8	STRAP, FOAM RETAINING	
								DATE/REV: 2/03 A



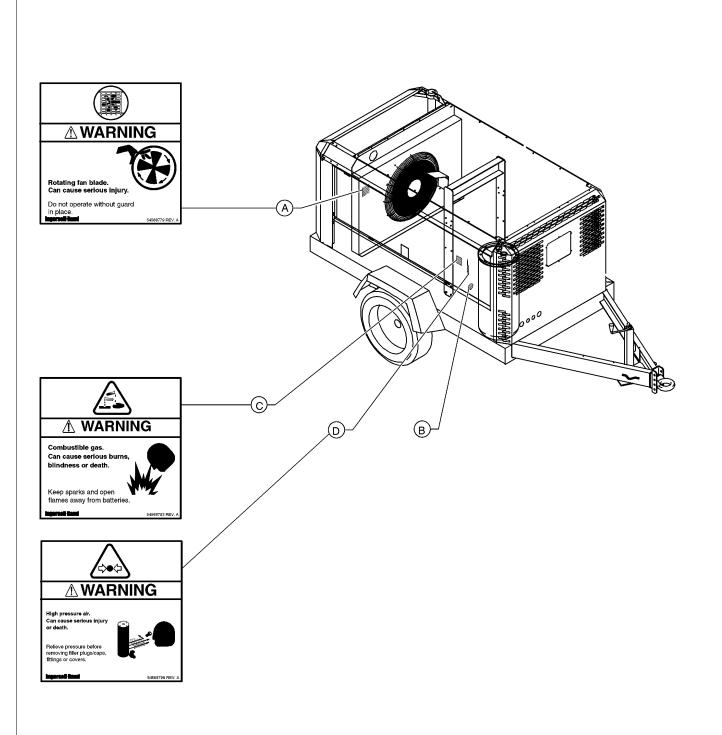
ltem	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	35256429	12	STUD, SHOT	N	35607837	1	SPRING
В	54694831	2	PANEL, REAR ACCESS	Р	95935029	1	WASHER, FLAT
С	35256445	12	RETAINER	Q	95923298	1	NUT, HEX LOCK 1/4-20
D	35256452	12	RECEPTACLE, CLIP-ON	R	35285543	2	PLUG, HOLE 1.50 DIA
Е	54639174	2	HINGE, SIDE DOOR	S	35316022	1	PLUG, HOLE 2.0 DIA
F	36797652	53	SCREW, TAPPING MO6-1.0 X 12	Т	22058325	1	COVER, REAR INST PNL
G	36793602	2	LATCH, SLAM	U	22058101	1	BRACKET, FRONT INTAKE
Н	36794816	8	RIVET	V	22058119	1	BAFFLE, FRONT INTAKE
J	54629993	2	DOOR ASM., SIDE	W	54772041	12	PLUG, HOLE
K	54718184	4	STRAP, FOAM RETAINING	Χ	35600261	4	SPRING, GAS DOOR
L	35607829	1	EYEBOLT, 1/4-20 X 2.50	Υ	35337328	4	STUD, BALL
M	36772028	1	WASHER, NYLON	Z	36881886	4	NUT, HEX FLANGE, M08-1.25
MANUAL NO ILLI 22199509		REV:					



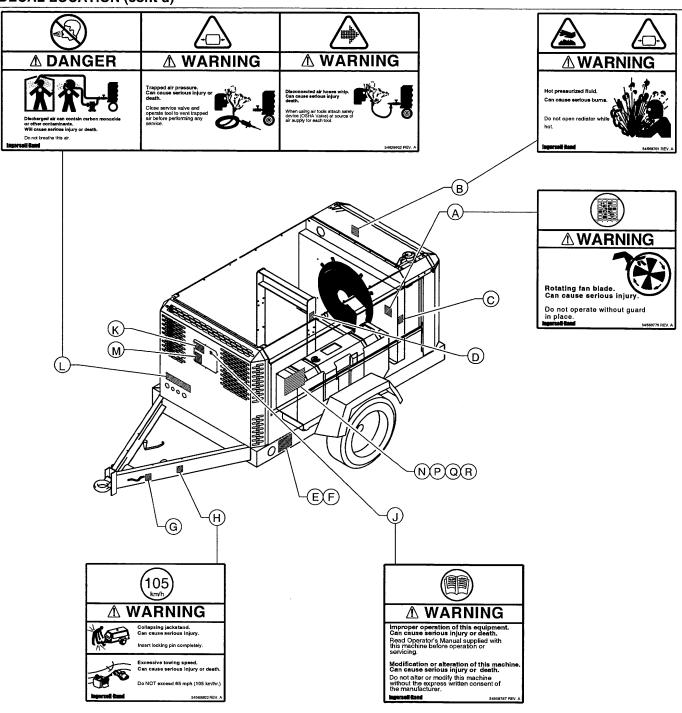
Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	54739818	1	PANEL, ROOF	L	54739784	1	PANEL, FRONT END
В	36797652	96	SCREW, TAPPING M06-1.0 X 12	М	54739826	1	PANEL, FRONT CRBSD
С	35130707	1	HOLD, HAND	N	54739859	1	PANEL, REAR CRBSD
D	96702659	2	SCREW, HEX M08-1.25 X 25	Р	54739792	1	PANEL, REAR END
Ε	36895746	2	NUTSERT, HEX M08-1.25	Q	35337328	4	STUD, BALL
F	54739800	2	RAIL, TOP SIDE	R	36881886	4	NUT, HEX FLANGE M08-1.25
G	22058333	1	PANEL, LOWER CRBSD	s	54739842	1	PANEL, FRONT STSD
Н	35279025	16	SCREW, TAPPING M08-1.25 X 20	Т	54738934	1	PANEL, REAR STSD
J	22192132	4	BRACKET, SIDE PANEL	U	541739867	1	PANEL, LOWER STSD
K	22112478	1	BAFFEL, INTAKE	٧	54718184	8	STRAP, FOAM RETAINING



Item	CPN	Qty	Description	Item	CPN	Qty	Description
Α	35256429	12	STUD, SHOT	Р	95935029	9 1	WASHER, FLAT
В	54694831	2	PANEL, REAR ACCESS	Q	95923298	3 1	NUT, HEX LOCK 1/4-20
С	35256445	12	RETAINER	R	35285543	3 2	PLUG, HOLE 1.50 DIA
D	35256452	12	RECEPTACLE, CLIP-ON	S	35316022	2 1	PLUG, HOLE 2.0 DIA
Ε	54639174	2	HINGE, SIDE DOOR	Т	22058329	5 1	COVER, REAR INST PNL
F	36797652	53	SCREW, TAPPING MO6-1.0 X 12	U	2205810	1 1	BRACKET, FRONT INTAKE
G	36793602	2	LATCH, SLAM	٧	22058119	9 1	BAFFLE, FRONT INTAKE
Н	36794816	8	RIVET	W	5477204	1 12	PLUG, HOLE
J	54629993	2	DOOR ASM., SIDE	Х	3560026	1 4	SPRING, GAS DOOR
K	54718184	4	STRAP, FOAM RETAINING	Υ	35337328	3 4	STUD, BALL
L	35607829	1	EYEBOLT, 1/4-20 X 2.50	Z	36881886	6 4	NUT, HEX FLANGE, M08-1.25
M	36772028	1	WASHER, NYLON	A1	95934998	3 2	WASHER (STUDS ON FRT PNLS ONLY)
N	35607837	1	SPRING				,



	CPN	Qty	Description	
	54568779	1	WARNING, ROTATING FAN	
	54604970	1	DECAL, OIL FILL	
;	54568753	1	WARNING, BATTERY	
)	54568795	1	WARNING, HIGH PRESSURE	
				MANUAL NO ILLUST. NO. 22199590-079



Item	CPN	Qty	Description	ltem	CPN	Qty	Description
Α	54568779	2	WARNING, ROTATING FAN	J	54568787	1	WARNING, IMPROPER OPERATION
В	54568761	1	WARNING, HOT FLUIDS	K	54749163	1	DECAL, OPERATING INSTRUCTIONS
С	54604962	1	NOTICE, RADIATOR FILL	L	54629902	1	DANGER/WARNING, 3-PART COMBO
D	54625207	1	DECAL, DIESEL FUEL	М	22299051	1	DECAL, SYMBOL INTERPERTATION
Е	36531176	1	DECAL, V.I.N.	N	22233597	1	DIAGRAM, P425AWJD STD WIRING
F	36533081	1	OVERLAY, V.I.N.	Р	22068282	2	SCREW
G	54604921	1	NOTICE, TOW CHAINS	Q	54767900	1	LAMINATE, TRAILER WIRING
Н	54568803	1	WARNING, TOWING	R	36788982	1	BINDER, 3-RING