OPERATING, MAINTENANCE AND PARTS MANUAL

COMPRESSOR MODEL

P250WJDU

Code: A

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.

Portable Power

Portable Power Division
P.O. Box 868 - 501 Sanford Ave
Mocksville, N.C. 27028

Book 22320717 (8/03) **Revised (10-12)**

QUALITY POLICY

We will supply products and services that consistently meet the requirements of our customers and each other.

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.

Foreword

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 authorized Ingersoll-Rand service department.

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

- of good quality, procured from a reputable manufacturer and, wherever possible, be of a type approved by 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 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 above ground operation to be used for compression of normal ambient air containing no additional gases, vapors or particles within the ambient temperature range specified in the general data section of this manual.

This machine should not be used:

A. For direct or indirect human consumption of the compressed air.

B. Outside the ambient temperature range specified in the general data section of this manual.

C. When an actual or foreseeable risk of hazardous levels of flammable gases or vapors exists.

D. With other than Ingersoll-Rand approved components.

E. With guards, or controls or switches missing or disabled.

F. For storage or transportation of materials inside or on the enclosure.

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

TABLE OF CONTENTS
P250WJDU

TABLE OF CONTENTS
P250WJDU

TABLE OF CONTENTS
P250WJDU

TABLE OF CONTENTS
P250WJDU

TITLE **PAGE**

Section 1 - Safety

Safety

Safety Precautions

General Information

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Avoid bodily contact with compressed air.

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

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

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

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

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

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

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

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

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

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

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

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

Do not use petroleum products (solvents or fuels) under high pressure as this can penetrate the skin and result in serious illness.

Wear eye protection while cleaning unit with compressed air to prevent debris from injuring eye(s).

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

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

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

Ether is an extremely volatile, highly flammable gas. USE SPARINGLY! Do NOT use ETHER if unit has GLOW Plug starting aid. Engine damage will result.

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

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

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

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.

Hazardous Substance Precaution

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

The following substances may be produced during the operation of this machine and may be hazardous to health: Avoid build-up of Engine Exhaust Fumes in confined spaces.

Avoid breathing Exhaust Fumes.

Avoid breathing Brake Lining Dust during maintenance.

SAFETY LABELS

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

⚠ DANGER
(Red Background)

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

⚠ WARNING
(Orange Background)

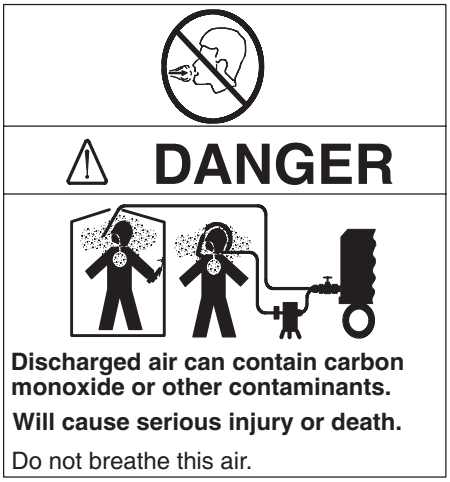
Indicates the presence of a hazard which CAN cause serious injury, death or property damage, if ignored.

⚠ CAUTION
(Yellow Background)

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

NOTICE
(Blue Background)

Indicates important set-up, operating or maintenance information.



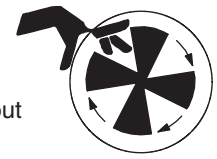
⚠ WARNING

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.

⚠ WARNING

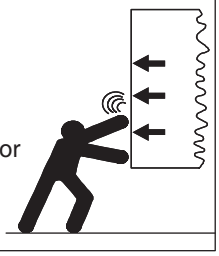
Rotating fan blade.
Can cause serious injury.



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.

CAUTION

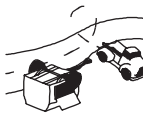
105 km/h

⚠ WARNING

Collapsing jackstand.
Can cause serious injury.

Insert locking pin completely.

Excessive towing speed.
Can cause serious injury or death.



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

⚠ WARNING

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

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.

Section 2 - Warranty

Warranty

Ingersoll-Rand, through its distributors, warrants to the initial user that each portable air compressor manufactured by it, will be free of defects in material and workmanship for a period of the earlier of twelve (12) months from shipment to or the accumulation of 2,000 hours of service by the initial user.

Portable compressor airends will be free of defects in material and workmanship for a period of the earlier of twenty four months from shipment to or the accumulation of 4,000 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.

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:

1. The original air end is returned assembled and unopened.
2. Continued use of genuine Ingersoll-Rand parts, fluids, oil and filters.
3. Maintenance is performed at prescribed intervals.

Oil-Free airends are fee-based and may require a maintenance agreement. Formal enrollment is required.

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, 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 FOR A PARTICULAR PURPOSE.

General Warranty Information

GENERAL WARRANTY			Extended Coverage
Portable Compressor	Package	1 year/2000 hours	
	Airend	2 years/4000 hours	5 years/10,000 hours Limited warranty, major components (refer to operator's manual).

Portable Genset 8KW, 11KW, 20KVA thru 575KVA	Package	1 year/2000 hours	None
	Generator	2 years/4000 hours	None

Portable Genset 3.5KW thru 7.0KW and 10KW	Package	1 year/2000 hours PARTS ONLY	None
	Generator	1 year/2000 hours PARTS ONLY	None

Light Tower	Package	1 year/2000 hours	
	Generator	1 years/4000 hours	2 years/4000 hours, for Lightsource introduced 8/16/99.

ENGINES			
Caterpillar	**Months**	**Hours**	**Extended Coverage**
	12	No Limit	Available at dealer
Cummins	24	2000	Major components 3 yrs/10,000 hours - available at dealer
John Deere (IN COMPRESSORS) (IN GENERATORS AS OF 1/1/01)	24 24	2000 2000	5 yrs/5000 hours using OEM fluids & filters with $250 deductible. 2 yrs/4000 hours using IR fluids & filters
Deutz	24	2000	Available at dealer
Ingersoll-Rand	24	4000	5 years/10,000 hours when using genuine Ingersoll-Rand fluids and parts. Refer to operator's manual.
Kubota (North America Only) (Western Europe & Oceania) (Central & South America, Asia, Middle East & Africa)	24 24 12	2000 2000 1000	Major components 36 months/3000 hrs - parts only None None
Mitsubishi	24	2000	2 years/4000 hours using IR fluids and filters
Volvo	24	2000	2 years/4000 hours using IR fluids and filters
Honda	12	unlimited	None
Vanguard	24	unlimited	None

PARTS			
Ingersoll-Rand	Months	Hours	Coverage
	6	No Limit	Parts Only
AIREND EXCHANGE			
Airend	Months	Hours	Extended Coverage
	12	2000 hours	2 years/4000 hours - available from IR.

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

WARRANTY REGISTRATION

Complete Machine Registration

Machines shipped to locations within the United States 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

Portable Compressor Division

P.O. Box 868

Mocksville, North Carolina 27028

Attn: Warranty Department

NOTE: Completion of this form validates the warranty.

Selling Distributor	Servicing Distributor	WARRANTY REGISTRATION
Name _____	Name _____	Owner/User Name _____
Address _____	Address _____	Address _____
City _____	City _____	City_____
County _____	County _____	County _____
State _____	State _____	State _____
Zip Code _____	Zip Code _____	Zip Code_____
Telephone _____	Telephone _____	Telephone _____

Complete the Applicable Blocks Owner / User Type of Business (check one only)

☐ Construction-Heavy (highway, excavation, etc.)	☐ Asphalt Contractor	☐ Coal Mining	☐ Other Mining
☐ Construction-Light (carpentry, plumbing, pools, mason, etc.)	☐ Government (municipal, state, county, etc.)	☐ Quarry	☐ Shallow Oil & Gas
☐ Rental (rental center, rental fleet, etc.)	☐ Building Contractor	☐ Waterwell	☐ Utility Company
☐ Industrial (plant use)	☐ Other specify	☐ Exploration	☐ Utility Contractor

Model	Unit S/N	Engine S/N	Date Delivered
Model	**Unit S/N**	**Engine S/N**	**Date Delivered**

SERVICING DISTRIBUTOR/USER ACKNOWLEDGEMENT

1. The Purchaser has been instructed and/or has read the manual and understands proper preventative maintenance, general operation and safety precautions.
2. The warranty and limitation of liability has been reviewed and understood by the owner/user.
3. In the event that this unit is to be used within a nuclear facility, the owner/user shall notify Ingersoll-Rand of such use so that Ingersoll-Rand may arrange for appropriate nuclear liability protection from the owner-licensee of the facility.
4. Ingersoll-Rand reserves the right to make design changes or modifications of Ingersoll-Rand products at anytime without incurring any obligation to make similar changes or modifications on previously sold units.

fold

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

Attention: Warranty Department

Section 3 - Noise Emission

Noise Emission

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

⚠ WARNING

Tampering with Noise Control System Prohibited

Federal law prohibits the following acts or the causing thereof:

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

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

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

Compressor Noise Emission Control Information

A. The removal or rendering inoperative, other than for the purpose of maintenance, repair, or replacement of any noise control device or element of design incorporated into this compressor in compliance with noise control act;

B. The use of this compressor after such device or element of design has been removed or rendered inoperative.

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

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	**DEALER OR DISTRIBUTOR FROM WHOM PURCHASED:**
Engine Make & Model: _____	_____
Serial No.: _____	_____
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 new compressor for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or (2) the use of the compressor after such device or element of design has been removed or rendered inoperative by any person.

Noise Emission Warranty

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

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

Introduction

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

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

Maintenance Schedule

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

A. Compressed Air Leaks

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

B. Safety and Control Systems

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

C. Acoustic Materials

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

D. Fasteners

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

E. Enclosure Panels

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

F. Air Intake and Engine Exhaust

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

G. Cooling Systems

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

H. Isolation Mounts

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

I. Engine Operation

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

J. Fuels and Lubricants

Use only the types and grades of fuels and lubricants recommended in the Ingersoll-Rand Company and Engine Manufacturer's Operator and Maintenance Manuals.

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

Section 4 - General Data

General Data

Model:

P250WJDU

Rated Delivery:

CFM - (litres/sec/)	250(118)

Engine:

Full - RPM *Constant	2300
Idle - RPM	1700
Engine Model	4045D

COMPRESSOR

Rated Operating Pressure .....100 psi (7.03 kgf per cm2) (700kPa)
Safety Valve Setting.....150 psi (10.5 kgf per cm2) (1030 kPa)

ENGINE (DIESEL)

Manufacturer.....John Deere
Electrical System .....12 Volt

FLUID CAPACITIES

Compressor Lubricant.....12 quarts (11.4 litres)
Engine Crankcase Lubricant (including filters).....9 quarts (8.5 litres)
Engine Coolant Capacity .....14.4 quarts (13.6 litres)
Fuel Tank (Diesel).....28 U.S gal. (106 litres)

UNITS MEASUREMENTS WEIGHTS . . . . . .

Overall Length.....85.3 (2165)
Overall Height 52.3 (1327)
Overall Width 33.3 (845)

Net Weight (less fuel) 2265 (1027)
Gross Weight (all fluids) 2460 (1116)

EXPENDABLE SERVICE PARTS

Compressor Oil FIlter Element.....Part No. 36897353
Compressor Oil Separator Element.....Part No. 39831888
Air Filter Element .....Part No. 36876423 & 54415377
Engine Oil Filter Element .....Part No. 36881696
Engine Fuel Filter Element .....Part No. 36534659

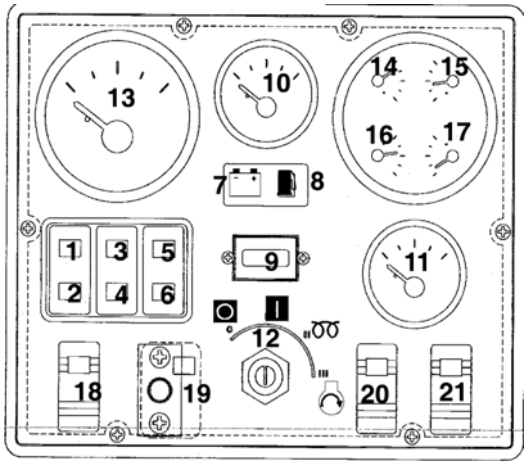
⚠ WARNING

Modification or alteration of this machine. Can result in severe injury or death. Do not modify or alter without the express written consent of Ingersoll-Rand Co.

Section 5 - Operation

Operation

Control Panel



Diagnostics/auto Shutdown (Optional)

1. **High Engine Temperature** - Coolant above 220°F (104°C) or more.
2. **Low Engine Oil Pressure** - 12 psi or less
3. **High Compressor Temperature**- 248°F (120°C).
4. **Air Filters Restricted** - Needs Servicing.
5. **Spare**
6. **Spare**

Diagnostics/auto Shutdown (Standard)

7. **Alternator Not Charging** - Needs attention
8. **Low Fuel Level** - Must add fuel to operate.
9. **Hourmeter** - Records running time for maintenance.
10. **Compressor Discharge Pressure Gauge** - Indicates pressure in receiver tank, psi (kPa).
11. **Fuel Level Gauge** - Indicates amount of fuel in tank.

Controls (Standard)

12. **Power Switch** - Flip “ON” to activate systems prior to Starting. Flip “OFF” to stop engine.

Controls (Optional)

13. **Tachometer** - Indicates engine speed.
14. **Discharge Air Temp. Gauge** - Indicates in °F and °C. Normal operating range: 185°F/85°C to 248°F/120°C.
15. **Engine Oil Pressure Gauge** - Indicates engine oil pressure.
16. **Engine Water Temp. Gauge** - Indicates coolant temperature, with normal operating range from 180°F (82°C) to 210°F (99°C).
17. **Voltmeter** - Indicates battery condition.
18. **Ether Inject Button** - Injects a measured shot. **USE SPARINGLY.**
19. **Service Air Button** - After warm-up, PUSH. Provides full air pressure at the service outlet. Indicates engine speed.
20. **Spare**
21. **Spare**

Utility Package Set-up (no running gear)

Installation

The unit must be secured while operating or transporting. See Figure X for mounting holes provided in base. The compressor should be isolated by use of a flexible mounting system.

The air going into the inlet grilles must be relatively free of oil, dirt, soot and other debris. It must be no more than 10 degrees F. (5 degrees C) over the ambient temperature.

The inlet and outlet grilles must not be restricted. See Figure Y for recommended clearance around the compressor. The cross-sectional area of any ductwork must be larger by a minimum of 10 percent.

The addition of any power-absorbing components (hydraulic pumps, paint mixers, etc.) must be approved by Ingersoll-Rand to maintain the warranty. Units with the optional engine-mounted auxiliary drive are approved for hydraulic pumps up to 15 HP.

⚠ CAUTION

Units with the optional engine mounted auxiliary drive and/or 4.5 kw generator can potentially overload the engine if the combination of air, hydraulic power and electrical power exceeds the Horsepower capability of the engine. This can lead to damage to the engine. Refer to Figure Z for the maximum HP available for the auxiliary drive.

High loading/continuous operation requires engine oil changes at 1/2 normal interval.

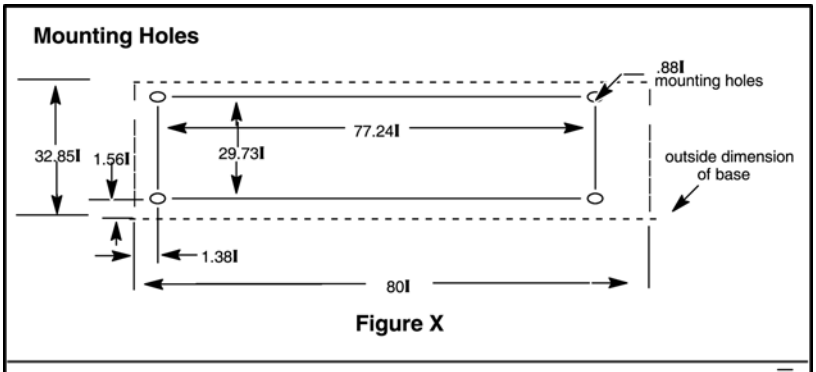


Figure X

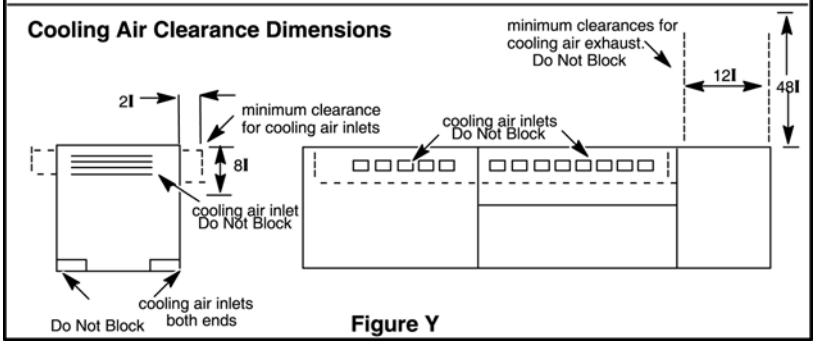
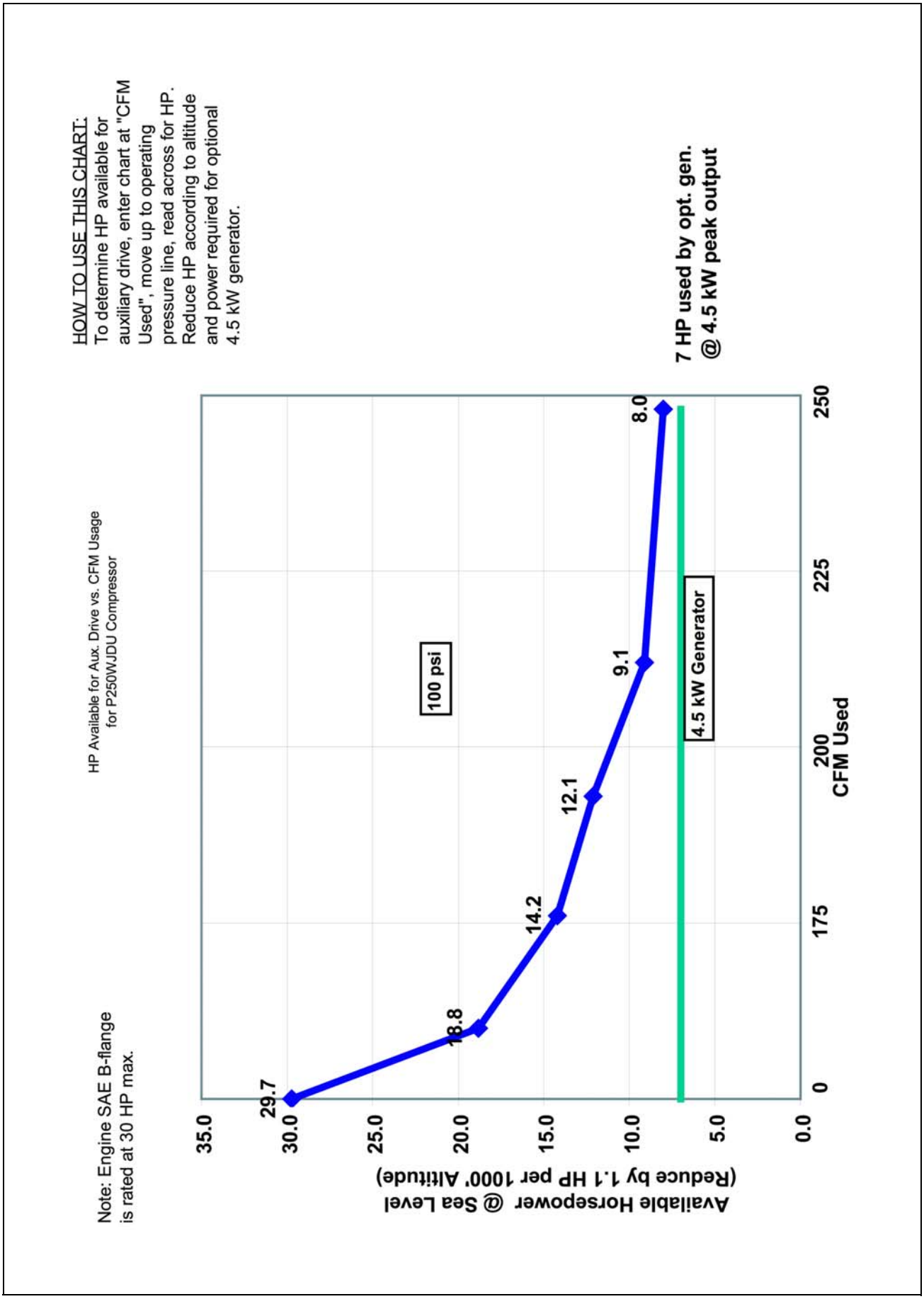


Figure Y


HOW TO USE THIS CHART:
To determine HP available for auxiliary drive, enter chart at "CFM Used", move up to operating pressure line, read across for HP. Reduce HP according to altitude and power required for optional 4.5 kW generator.
7 HP used by opt. gen. @ 4.5 kW peak output
HP Available for Aux. Drive vs. CFM Usage for P250WJDU Compressor
Note: Engine SAE B-flange is rated at 30 HP max.
Available Horsepower @ Sea Level (Reduce by 1.1 HP per 1000' Altitude)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0
175
200
225
250
CFM Used
100 psi
4.5 kW Generator
29.7
18.8
14.2
12.1
9.1
8.0

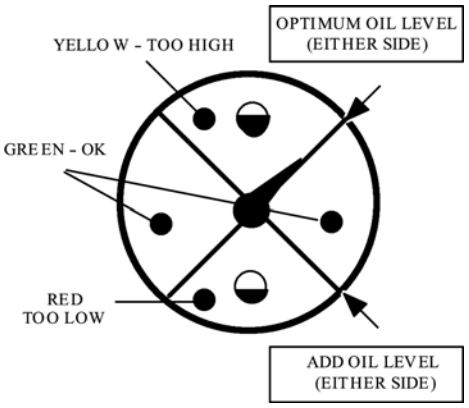
Setting - Up (All Units)

- Position as level as possible. The design of these units permits a 15 degree sidewise limit on out-of-level operation.
- When the unit is to be operated out-of-level, it is important:
  1. To keep the engine crankcase oil level near the high level mark (with the unit level).
  2. To have the compressor oil level gauge show no more than mid-scale. Do not overfill either the engine crankcase or the compressor lubricating oil system.
  3. The side doors must be closed to maintain a cooling air path and to avoid recirculation hot air.

Compressor Oil Level

The oil level should be checked before the unit is started. Always check the oil level while the unit is level, the engine off, and there is zero pressure in the separator tank. The optimum oil level is with the pointer at the top of the green section on the level gage. Add oil if the pointer reaches the bottom of the green section.

NOTE: The oil level gage will not read properly while the engine is running.



⚠ WARNING

NO SMOKING, SPARKS or OPEN FLAME near fuel.

⚠ CAUTION

Do not connect the air discharge on this unit into a common header with any other unit of any description, or any other source of compressed air, without first making sure a check valve is used between the header and the unit. If this unit is connected with another unit, a safety hazard could occur.

⚠ WARNING

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

Before Starting:

- All checks should be made while the unit is level.
- Open service valve(s) to ensure pressure is relieved in receiver-separator system. Close valve(s) in order to build up full air pressure and ensure proper oil circulation.
- Check battery for proper connections and condition.

- Check the engine oil level. Maintain per marks on dipstick.
- Check the fuel level. Add only CLEAN DIESEL fuel for maximum service from the engine.
- Check the compressor lubricating oil level. The optimum oil level is with the pointer at the top of the green section on the level gages. Add oil if the pointer reaches the bottom of the green section. Do not overfill.

Check the coolant level in the radiator and overflow bottle.

The coolant must cover the tubes in the top tank (approximately 1 inch high on a clean measuring rod stuck down filler neck). The coolant in the overflow bottle should be above the “COLD” mark for cold engine (<120°F).

A fuel level gauge reading can be obtained without starting the unit, by turning the power switch to “ON”. Afterwards, turn the switch to “OFF”.

Check the fuel level. Use Clean DIESEL fuel for maximum service from the engine.

⚠ WARNING

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

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

Starting

Turn the POWER switch to “ON”.

If so equipped, place the “Start-Run” Valve Switch, located in the bottom right hand corner of the instrument panel, to the “Start/ Warm-Up” position.

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

NOTICE

Do not operate the starter motor for more than 10 seconds without allowing at least 30 seconds cooling time between start attempts.

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

Allow engine to warm up 5 to 10 minutes.

If so equipped, place the “Start-Run” Valve Switch in the “AIR” position.

Cold Weather Starting:

Open manual blowdown valve, if so equipped, and press ether inject button. Use Ether sparingly. Close manual blowdown valve after engine is running.

If equipped with the optional cold starting aid (ETHER), operate the valve once or twice ONLY while the engine is cranking.

⚠ CAUTION

Ether is an extremely volatile, highly flammable gas. Use sparingly! If too much is injected, the uncontrolled explosion may result in costly damage to the engine.

⚠ CAUTION

Exercise extreme caution when using a booster battery to start. To jump start: Connect the ends of one booster cable to the positive (+) terminals of each battery. Then connect one end of the other cable to the negative (-) terminal of the booster battery and the other end to the engine block. NOT TO THE NEGATIVE (-) TERMINAL OF THE WEAK BATTERY.

After Starting:

a. Reduce engine speed to IDLE.

b. Disconnect the negative (-) cable from the engine block first, then from the booster battery.

c. Disconnect positive (+) cable from both batteries.

⚠ CAUTION

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

Operation Of Optional Generator

This unit will operate in three modes, depending on the position of the generator control switch (located on the front of the generator control panel).

- In “Generator” position, the engine will maintain idle speed, and the generator will give a constant voltage and frequency output, for use with sensitive equipment like computers, fusion welders, etc. No compressed air is available at the service air valves in this mode.

- In “Gen/Air” position, voltage and frequency will vary as engine speed changes to meet air demands, and should only be used for lights and hand tools.

- In “Air” position, the generator provides no electrical power.

1. Start compressor with the Start-Run Switch located in the bottom right corner of the instrument panel) in the “Start/ Warm-up” position.
2. Close all service air valves.
3. Place the start-run switch in the “Run” position.
4. Place the generator control switch in either “Generator” or “Gen/Air” position. The red light on the front of the generator control panel should glow, and the voltage meter should read 120 Volts AC.
5. Plug electric tools or lights into the receptacles on the front of the generator control panel.

Units With Diagnostic Lamps:

In a shutdown situation, the function of the panel lamps is to indicate what specific failure caused the unit to shut down.These lamps will remain illuminated until the Power Switch is turned “OFF”.

Units With Optional Diagnostics Lamps

NOTICE

None of the panel lamps should be glowing when machine is operating. If they are, shut unit down and refer to Trouble Shooting Section.

Stopping

Close air service valve.

Allow the unit to run at idle for 3 to 5 minutes to reduce the engine temperatures.

Turn Power Switch to “OFF” position.

When the engine stops, automatic blowdown valve should relieve system air pressure. If automatic blow-down valve malfunction is suspected, open manual blowdown valve.

Never allow unit to sit under pressure when engine is not running.

⚠ WARNING

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

Automatic Shutdown

This unit is protected with sensors (switches) for high discharge air temperature, high engine coolant temperature and low engine oil pressure.

Should any of three situations occur, the unit will stop. Before restarting the unit, check these three areas for excessive heat and fluid level. Other possible causes are listed on the Trouble Shooting Chart.

All units in this family of machines are protected by sensors or switches at the following locations:

1. Low engine oil pressure, in the engine.
2. High engine coolant temperature, in the engine.

High Discharge AIR Temperature

3. At the airend outlet.
4. In separator tank.

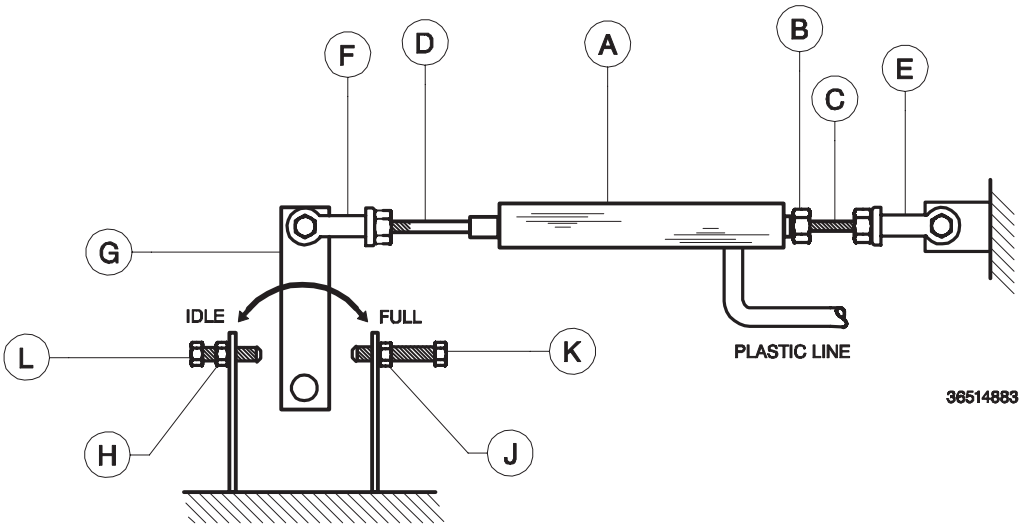
NOTICE

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

⚠ DANGER

Even after pressure is relieved from the receiver-separator system, any air supply line from the compressor to a tool or a machine could remain under pressure and cause very serious personal injury or death. After the compressor stops, carefully open a valve at any tool or machine to exhaust the pressure in any line prior to removal or servicing.

P250 Speed and Pressure Regulator Adjusting Instructions



The engine idle and full speed settings are set and sealed at the factory, and should not be adjusted. Serious injury may result if the full speed is increased. Removal of the seals without authorization could affect the warranty. If speed settings are lost due to engine fuel pump service or other repairs, the speed settings can be reset as follows:

Before Starting

1. At the Pressure Regulator (on service pipe near receiver tank), remove the cover to expose the adjusting screw. Loosen the jam nut and turn screw counterclockwise until tension is no longer felt at the screw. Then, turn screw clockwise one full turn.
2. Close service valve(s).
3. At air cylinder (A), loosen jam nut (B) on adjusting rod (C). Turn rod (C) until it just touches the piston inside of the cylinder. This is determined by the movement of the air cylinder piston rod (D). Rod (D) should be fully retracted and just begin to extend when the adjusting rod (C) is properly set.
4. Lock jam nut (B).

After Starting Unit

5. Allow unit to warm up at an engine speed greater than IDLE speed (*) for at least five minutes. Do this by loosening jam nut (H) on the IDLE screw (L). Turn the IDLE screw until the speed is properly set (*).
6. If equipped, place the Start-Run Valve Switch to the “AIR” position. The unit should speed up and then unload (and drop back to IDLE). With the unit unloaded, turn the adjusting screw on the pressure regulator clockwise until the discharge pressure gauge indicates 125-130 psi. Tighten the pressure regulator jam nut. Replace cover.
7. Open the service valve and adjust the discharge pressure to 100 psi (700 kPa). Now turn adjusting rod (C) until the proper engine FULL speed setting (*) is reached.
8. If necessary, loosen jam nut (J) on FULL speed screw (K) and turn screw until it hits a stop. Recheck the FULL speed setting and reset if required. Tighten jam nuts (J) and (H).
9. Close the service valve and recheck IDLE speed (*). If necessary, adjust

speed using screw (L). Tighten jam nut (H).

10. To obtain maximum cfm at any pressure between 80 psi (550 kPa) and maximum pressure rating (*), make adjustment at the pressure regulator to obtain desired discharge pressure at FULL engine speed. Lock adjusting screw and replace cover.

* See General Data Specifications.

Section 6 - Maintenance

Maintenance

⚠ CAUTION

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

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

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

Never operate this machine with any guards removed.

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

NOTICE

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

General

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

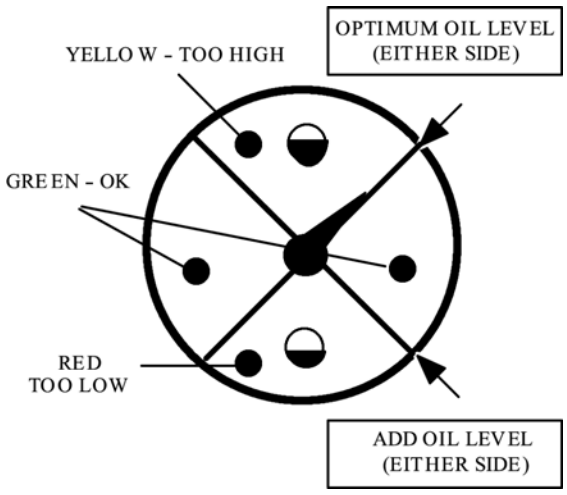
Scheduled Maintenance

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

Compressor Oil Level

The oil level should be checked before the unit is started. Always check the oil level while the unit is level, the engine off, and there is zero pressure in the separator tank. The optimum oil level is with the pointer at the top of the green section on the level gage. Add oil if the pointer reaches the bottom of green section.

NOTE: The oil level gage will not read properly while the engine is running.



Air Cleaner

If this unit is equipped with the Optional Diagnostic Panel, it has an AIR FILTERS RESTRICTED lamp on the instrument panel, covering both the engine and the compressor.

This should be checked daily during operation. If the lamp glows (red) with the unit operating at full speed, servicing of the cleaner element is necessary.

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

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

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

1. Loosen outer wing nut and remove with cover. Remove Element.
2. Inspect air cleaner housing for any condition that might cause a leak and correct as necessary.
3. Wipe inside of air cleaner housing with a clean, damp cloth to remove any dirt accumulation, especially in the area where the element seals against the housing.
4. Inspect element by placing a bright light inside and rotating slowly. If any holes or tears are found in the paper, discard this element. If no ruptures are found, the element can be cleaned.
5. If a new air filter element is to be used check it closely for shipping damage.
6. Install cleaned or new elements in the reverse order to the above. Tighten wing nut firmly.
7. Inspect to ensure that end cap seals tightly 360° around air cleaner body.

In the event that the filter element must be reused immediately, compressed air cleaning (as follows) is recommended since the element must be thoroughly dry. Direct compressed air through the element in the direction opposite to the normal air flow through the element.

Move the nozzle up and down while rotating the element. Be sure to keep the nozzle at least one inch (25.4 mm) from the pleated paper.

> **NOTE: To prevent damage to the element, never exceed a maximum air pressure of 100 psi (700 kPa).**

In the event the element is contaminated with dry dirt, oil or greasy dirt deposits, and a new element is not available, cleaning can be accomplished by washing, using the air cleaner element manufacturer’s recommendations.

> **NOTE: It is recommended that replacement elements be installed in the unit. The elements just removed for cleaning can be washed and stored as future replacement elements.**

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

Make sure that all clamps and flange joints are tight.

Gauges

The instruments or gauges are essential for safety, maximum productivity and long service life of the machine. Inspect the gauges and test any diagnostic lamps prior to

start-up. During operation observe the gauges and any lamps for proper functioning. Refer to Operating Controls, for the normal readings.

Fuel Tank

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

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

Battery

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

Fasteners

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

Radiator

NOTICE

The use of water alone in this engine can result in major engine failure.

Hoses

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

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

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

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

NOTICE

Piping systems operating at less than 150 psi (1050 kPa) may use a special nylon tubing. The associated fittings are also of a special "push-in" design. If so, features are as follows:

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

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

NOTICE

The oil filter must be replaced every 500 hours of operation or three (3) months, whichever comes first. On new or overhauled units, replace the element after the first 50 and 150 hours of operation; thereafter, service the oil filter every 500 hours.

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

⚠ WARNING

High pressure air can cause severe injury or death from hot oil and flying parts. Always relieve pressure before removing caps, plugs, covers or other parts from pressurized air system.

1. Open the service air valve(s) to ensure that system is relieved of all pressure. Close the valve(s).
2. Turn the spin-on filter element counterclockwise to remove it from the filter housing. Inspect the filter.

NOTICE

Piping systems operating at less than 150 psi (1050 kPa) may use a special nylon tubing. The associated fittings are also of a special "push-in" design. If so, features are as follows:

3. Inspect the oil filter head to be sure the gasket was removed with the oil filter element. Clean the gasket seal area on the oil filter head.

NOTICE

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

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

Compressor Oil Cooler

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

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

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

Compressor Oil

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

Receiver-separator Systems

⚠ WARNING

High pressure air can cause severe injury or death from hot oil and flying parts. Always relieve pressure before removing caps, plugs, covers or other parts from pressurized air system.

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

When draining oil, remove plug from the separator tank drain fitting.

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

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

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

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

The life of the oil separator element is dependent upon the operating environment (soot, dust, etc.) and should be replaced every twelve months or 2000 hours. To replace the element proceed as follows:

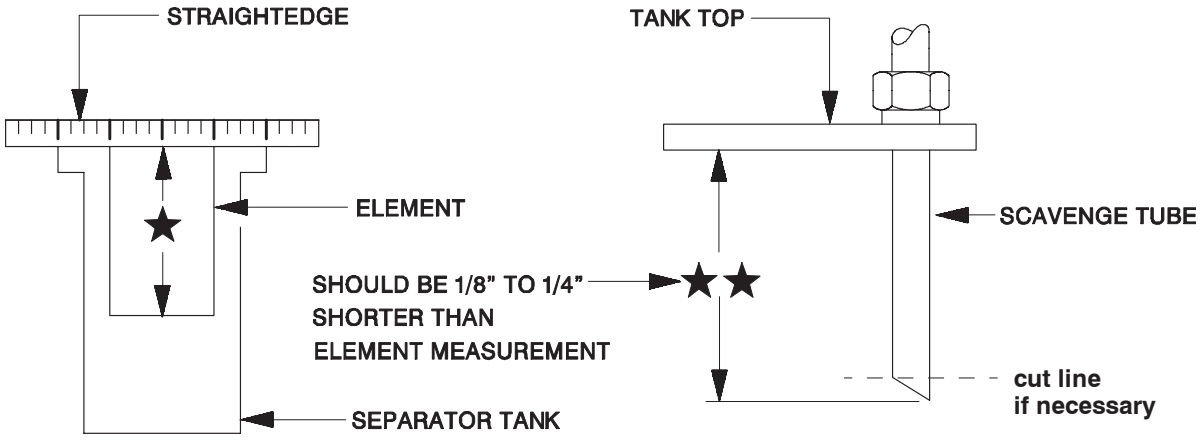
- Ensure the tank pressure is zero.
- Disconnect the hose from scavenge tube.
- Remove scavenge tube from tank cover.
- Disconnect service line from cover.
- Remove cover mounting screws.
- Remove cover and element.
- Remove any gasket material left on cover or tank.
- Install new element.

NOTICE

Do not remove staples from the element/gasket connection.

- Place a straightedge across top of element and measure from bottom of straightedge to bottom of element (See Fig. 4.1).
- Replace scavenge tube in cover (cover is still off of tank).
- Measure from bottom of cover to end of scavenge tube. Measurement should be from 1/8” to 1/4” less than the element measurement. If not, cut to size.
- Remove scavenge tube.
- Reposition cover (use care not to damage gaskets).
- Replace cover mounting screws: tighten in a crisscross pattern.
- Reconnect service line. Replace scavenge tube. Reconnect hose.
- Close service valve. Start unit and look for leaks.

When replacing the element, the scavenge lines, orifice, filter, and check valve should be thoroughly cleaned and the oil changed.



Scavenge Line

⚠ WARNING

High pressure air can cause severe injury or death from hot oil and flying parts. Always relieve pressure before removing caps, plugs, covers or other parts from pressurized air system.

The scavenge line originates at the receiver-separator tank cover and terminates at the compressor air-end near the oil filter element. An orifice check valve is located on the scavenge tube.

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

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

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

Exterior Finish Care

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

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

Field Repair of Texture Paint

1. The sheet metal should be washed and clean of foreign material and then thoroughly dried.

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

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

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

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

MAINTENANCE SCHEDULE

These time periods should be reduced if operating in extreme conditions (very hot, cold, dusty or wet).

		Daily	Weekly	Monthly	3 MOS.	6 MOS.	6 MOS.
					250 hours	550 hours	1000 hours
**Hydraulic Oil Level			C				
Compressor Oil Level		C					
Engine Oil Level		C					
Radiator Coolant Level		C					
Gauges/Lamps		C					
Air Cleaner Service Indicators		C					
Fuel Tank (fill at end of day)		C				DRAIN	
**Fuel/Water Separator	DRAIN	C					
Air Cleaner Precleaner Dumps			C				
Fan/Alternator Belts			C				
Battery Connections/Electrolyte			C				
Hoses (oil, air, intake, etc.)				C			
Automatic Shutdown System	Test			C			
Air Cleaner System	Visual			C			
Compressor Oil Cooler	Exterior			C	CLEAN		
Engine Radiator	Exterior			C	CLEAN		
Fasteners, Guards					C		
Air Cleaner Elements					WI		
** Fuel/Water Separator Element						R	
Compressor Oil Filter Element						R	
Compressor Oil						R	
Engine Coolant	Test					C	R
Shutdown Switch Settings	Test						C
Scavenge Orifice & related parts							CLEAN
Oil Separator Element							R

**Disregard if not appropriate for this particular machine.

R=replace, C=check (adjust if necessary), WI=OR when indicated, CBT = check before towing.

Section 7 - Lubrication

Lubrication

General Information

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

The Preventive Maintenance Schedule shows those items requiring regular service and the interval in which they should be performed. A regular service program should be developed to include all items and fluids. These intervals are based on average operating conditions. In the event of extremely severe (hot, cold, dusty or wet) operating conditions, more frequent lubrication than specified may be necessary. Details concerning lubrication of the running gear are in Maintenance Section. All filters and filter elements for air and compressor lubricant must be obtained through Ingersoll-Rand to assure the proper size and filtration for the compressor.

Compressor Oil Change

These units are normally furnished with an initial supply of oil sufficient to allow operation of the unit for approximately 6 months or 1000 hours, whichever comes first. If a unit has been completely drained of all oil, it must be refilled with new oil before it is placed in operation. Refer to specifications in Lubrication Table.

NOTICE

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

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

⚠ WARNING

High pressure air can cause severe injury or death from hot oil and flying parts. Always relieve pressure before removing caps, plugs, covers or other parts from pressurized air system. Ensure following conditions are met:

— Discharge air pressure gauge reads zero (0).

— No air discharging from an “open” manual blowdown valve.

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

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

After the unit has been completely drained of all old oil, close the drain valve. Add oil in the specified quantity at the filler plug. Tighten the filler plug and run the machine to circulate the oil. Stop the machine and after approximately 5 minutes, check the oil level. Make corrections as required. DO NOT OVERFILL.

NOTICE

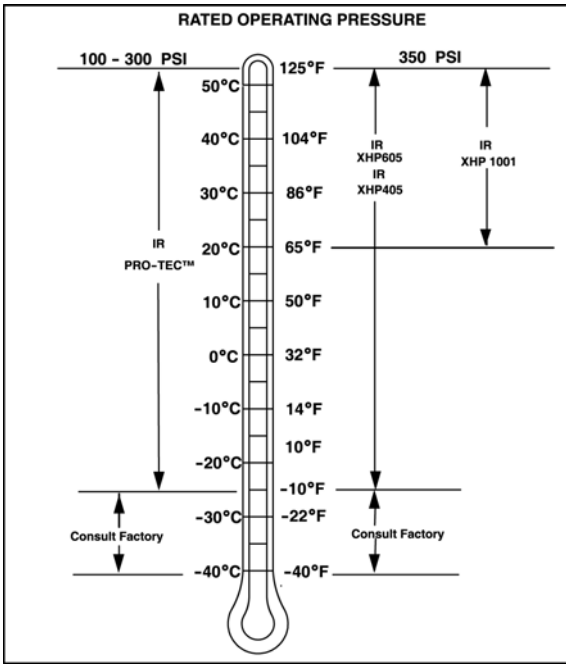
Ingersoll-Rand provides compressor oil specifically formulated for Portable Compressors and requires the use of these fluids in order to obtain extended limited airend warranty.

Portable Compressor Fluid Chart

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

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

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



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

Design Operating Pressure	Ambient Temperature	Specification
100 psi to 300 psi	-10^{0}F to 125^{0}F (-23^{0}C to 52^{0}C)	Preferred: **IR Pro•Tec™** Alternate: ISO Viscosity Grade 46 with rust and oxidation inhibitors, designed for air compressor service.
350 psi	(-23^{0}C to 52^{0}C) -10^{0}F to 125^{0}F	Preferred: **IR XHP 605** Alternate: IR XHP405 ISO Viscosity Grade 68 Group 3 or 5 with rust and oxidation inhibitors designed for air compressor service.
	65^{0}F to 125^{0}F (-18°C to 52°C)	Preferred: **XHP605** **IR XHP1001**

Ingersoll-Rand Preferred Fluids	1 gal. (3.8 Litre)	5 gal. (19.0 Litre)	55 gal. (208.2 Litre)	220 gal. (836 Litre)
Preferred:				
IR Pro-Tec™	36899698	36899706	36899714	36899722
IR XHP605	-	22252076	22252050	22252068
IR XHP1001	-	35612738	35300516	-
XHP405	-	22252126	22252100	22252118
Engine Oil	**54480918**	**36875938**	**36866903**	

Section 8 - Trouble Shooting

Trouble Shooting

Introduction

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

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

A. Find the “complaint” depicted as a bold heading.

B. Follow down that column to find the potential cause or causes. The causes are listed in order (1,2,3 etc.) to suggest an order to follow in trouble shooting.

Action Plan

A. Think Before Acting

Study the problem thoroughly and ask yourself these questions:

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

B. Do The Simplest Things First

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

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

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

C. Double Check Before Disassembly

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

D. Find And Correct Basic Cause

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

Trouble Shooting Chart

Bold Headings depict the COMPLAINT - Subheadings suggest the CAUSE

NOTE: Subheadings suggest sequence to follow troubleshooting.

Table 1: Unit Shutdown

Complaint	Corrective Action
Out of Fuel	Add CLEAN diesel Fuel
Compressor Oil Temp. Too High	See Complaint 10
Engine Water Temp. Too High	Check coolant level. If necessary, Add.
Engine Oil Pressure Too Low	See Complaint 3 and Complaint 4.
Broken Engine Fan Belt	Replace fan belt.
Loose Wire Connection	Wiggle wires at switches & connector blocks. Make repairs.
Low Fuel Level Shutdown Switch	Replace switch.
Defective Discharge Air Temp. Switch	Replace switch.
Defective Engine Oil Pressure Switch	Replace switch.
Defective Shutdown Solenoid	Replace solenoid.
Malfunctioning Relay	Replace relay.
* < 16 Volts at Shutdown Solenoid	Check battery and alternator. Make repairs.
Blown Fuse	Replace fuse.
Engine Malfunctioning	See Trouble Shooting in Engine Manual.
Airend Malfunctioning	See Complaint 10.

Table 2: Won't Start/Run:

Complaint	Corrective Action
Low Battery Voltage	Check electrolyte level. Check connections.
* <16 Volts at Shutdown Solenoid	Charge battery and alternator. Make repairs.
Blown Fuse	Replace fuse.
Malfunctioning Start Switch	Replace switch.
Defective Safety Bypass Switch	Replace switch.
Clogged Fuel Filters	Service filters. See Engine Operator's Manual.
Out of Fuel	Add CLEAN fuel.
Compressor Oil Temp. Too High	See Complaint 10.
Engine Water Temp. Too High	Check fluid level. If necessary, Add.
Engine Oil Pressure Too Low	See Complaint 3 and Complaint 4.
Loose Wire Connection	Repair or replace connection.
Defective Discharge Air Temp. Switch	Replace switch.
Defective Engine Oil Pressure Switch	Replace switch.
Defective Shutdown Solenoid	Replace solenoid.
Malfunctioning Relay	Replace relay.
Engine Malfunctioning	See Trouble Shooting in Engine Manual.
Airend Malfunctioning	See Complaint 10.

Table 3: Engine Temperature Lamps Stays On:

Complaint	Corrective Action
Broken Engine Fan Belt	Replace fan belt set.
Malfunctioning Circuit Board	Replace circuit board.
* Ambient Temp. >125×F (52×C)	Above spec limit.
Dirty Operating Conditions	Move unit to cleaner environment.
Dirty Cooler	Clean exterior of cooler.
* Out of Level >15 degrees	Relocate or reposition unit.
Operating Pressure Too High	Reduce pressure to spec.
Recirculation of Cooling Air	Close side doors.
Loose Wire Connection	Repair or replace.
Malfunctioning circuit board.	Replace circuit board.

Table 4: Engine Oil Pressure Lamp Stays On:

Complaint	Corrective Action
Low Oil Level	Add oil.
Out of Level >15 degrees	Relocate or reposition.
Wrong Lube Oil	See Engine Oil Spec. Change oil.
Clogged Oil Filter Element(s)	Replace element(s).
Engine Malfunctioning	See Trouble Shooting in Engine Manual.
Loose Wire Connection.	Repair or replace.
Malfunctioning circuit board	Replace circuit.

Table 5: Engine Temperature Lamps Stays Off:

Complaint	Corrective Action
Bulb Burned Out	Replace circuit board.
Malfunctioning circuit board	Replace circuit board.

Table 6: Engine Oil Pressure Lamp Stays Off:

Complaint	Corrective Action
Bulb Burned Out	Replace circuit board.
Malfunctioning circuit board	Replace circuit board.

Table 7: Alternator Lamp Stays On:

Complaint	Corrective Action
Loose or Broken Belts	Tighten or replace belt set.
Loose Wire Connection	Repair or replace connection.
Low Battery Voltage	Check electrolyte level. Add if necessary.
	Check connectors. Clean & tighten.
	Recharge battery.
Malfunctioning Alternator	Repair or replace alternator.

Table 8: Alternator Lamp Stays Off:

Complaint	Corrective Action
Bulb Burned Out	Replace circuit board.
Loose Wire Connection	Repair or replace connector.
Malfunctioning circuit board	Replace circuit board.

Table 9: Unit Fails To Shutdown:

Complaint	Corrective Action
Defective Low Fuel Shutdown Switch	Pull wire off shutdown solenoid. Replace switch.
Defective Discharge Air Temperature Switch	Pull wire off. Replace switch.
Defective Engine Oil Pressure Switch	Pull wire off. Replace switch.
Defective Shutdown Solenoid	Carefully block air inlet to stop engine.
Malfunctioning Relay	Replace solenoid.
Defective Safety Bypass Switch	Pull wire off shutdown solenoid. Replace relay.
	Pull wire off shutdown solenoid. Replace defective item.

Table 10: Excessive Compressor Oil Temperature:

Complaint	Corrective Action
Ambient Temp. > 125×F (52×C)	Above spec limit.
Out of Level > 15 degrees	Relocate or reposition unit.
Low Oil Level	Add oil. Look for any leaks.
Wrong Lube Oil	Check spec in this manual.
Dirty Cooler	Clean exterior surfaces.
Dirty Operating Conditions	Move unit to cleaner environment.
Clogged Oil Filter Elements	Replace elements. Change oil.
Loose or Broken Belts	Tighten or replace belt set.
Operating Pressure Too High	Reduce pressure to spec.
Recirculation Of Cooling Air	Close side doors. Replace belly pan.
Malfunctioning Thermostat	Replace thermostat in bypass valve.
Malfunctioning Fan	Check fan belt tension. Tighten or replace belt set.
Defective Oil Cooler Relief Valve	Replace valve.
Defective Minimum Pressure Valve	Repair or replace valve.
Blocked or Restricted Oil Lines	Clean by flushing or replace.
Airend Malfunctioning	See Complaint 11, 12, 13, 15, 16 or 18.

Table 11: Engine RPM Down

Complaint	Corrective Action
Clogged Fuel Filter	Clean primary filter. Replace final filter. Drain tanks.
	Add CLEAN fuel.
Operating Pressure Too High	Reduce pressure to spec limit.
Incorrect Pressure Regulator Adjustment	See Section 6 in this manual.
Malfunctioning Pressure Regulator	Replace regulator.
Incorrect Linkage Adjustment	See Section 6 in this manual.
Dirty Air Filter	Clean or replace elements.

Malfunctioning Air Cylinder	Replace air cylinder and adjust per Section 6.
Wrong Air Filter Element	Install correct element.
Defective Separator Element	Install new element per page 45.
Engine Malfunctioning	See Trouble Shooting in Engine Manual.
Airend Malfunctioning	Refer to Airend Rebuild Manual.

Table 12: Excessive Vibration

Complaint	Corrective Action
Rubber Mounts, Loose or Damaged	Tighten or replace.
Defective Fan	Replace fan.
Drive Coupling Defective	Replace coupling.
Engine Malfunctioning	See Trouble Shooting in Engine Manual.
Airend Malfunctioning	See Complaint 15 and 17.
Anti-rumble valve not working.	Repair or Replace.
Engine idle speed too low.	Raise “No Load” speed per Section 6.

Table 13: Low CFM

Complaint	Corrective Action
Dirty Air Filter	Clean or replace elements.
Incorrect Linkage Adjustment	See Section 6 in this manual.
Incorrect Pressure Regulator Adjustment	See Section 6 in this manual.
Malfunctioning Pressure Regulator	Replace regulator.
Malfunctioning Inlet Unloader/Butterfly Valve	Inspect valve. Make adjustment per Section 6.
Malfunctioning Air Cylinder	Replace air cylinder.
Defective Minimum Pressure Valve	Repair or replace valve.
Defective Separator Element	Install new element per page 45.
Wrong Air Filter Element	Install correct element.

Table 14: Short Air Cleaner Life

Complaint	Corrective Action
Dirty Operating Conditions	Move unit to cleaner environment.
Inadequate Element Cleaning	Install new element.
Incorrect Stopping Procedure	Read procedure in this manual.
Wrong Air Filter Element	Install proper element.
Oil Pump Drive Coupling	Inspect coupling. If necessary, replace coupling.

Table 15: Excessive Oil In Air

Complaint	Corrective Action
High Oil Level	Read procedure in this manual.
Out of Level > 15 degrees	Relocate or reposition unit.
Clogged Scavenge Orifice	Remove scavenge orifice. Clean and Replace.
Scavenge Tube Blocked	Remove scavenge tube. Clean and Replace.
Defective Scavenge Check Valve	Remove check valve. Replace with new valve.
Sep. Tank Blow Down Too Quickly	Allow unit to blow down automatically.
Defective Minimum Pressure Valve	Remove valve. Repair valve and replace.

Table 16: Oil Seal Leak

Complaint	Corrective Action
Contaminated Lube Oil	Drain and flush system. Add new CLEAN oil.
Blocked or Restricted Oil Line(s)	Remove, clean and replace line(s).
Malfunctioning Seal	Refer to Airend Rebuild Manual.
Scored Shaft	See instructions in new seal kit.

Table 17: Will Not Unload

Complaint	Corrective Action
Leak in Regulator Piping	Find and repair leak(s).
Incorrect Pressure Regulator Adjustment	Refer to Section 6 in this manual.
Malfunctioning Pressure Regulator	Replace regulator.
Malfunctioning Inlet Butterfly Valve	Inspect valve fit. Readjust per Section 6.
Ice in Regulation Lines/Orifice	Apply heat to line(s) and or orifice.

Table 18: Oil In Air Cleaner

Complaint	Corrective Action
Incorrect Stopping Procedure	Read Procedure in this manual.
Oil Pump Drive Coupling	Inspect coupling. Replace if necessary.
Discharge Check Valve Faulty	Replace.

Table 19: Safety Valve Relieves

Complaint	Corrective Action
Operating Pressure Too High	Reduce pressure to spec limit.
Leak In Regulator Piping	Repair leak(s).
Incorrect Pressure Regulator Adjustment	Refer to Section 6 in this manual.
Malfunctioning Pressure Regulator	Replace regulator.
Malfunctioning Inlet Unloader/Butterfly Valve	Inspect valve fit. Readjust per Section 6.
Defective Safety Valve	Replace safety valve.
Defective Separator Element	Remove element. Install new.
Ice in Regulation Lines/Orifice	Apply heat to lines and/or orifice.

Section 9 - Parts Ordering

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 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 Company, Limited. There 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 and 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:

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

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

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

d. Always specify the quantity of parts required.

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

In the event parts are being returned to your nearest sales office, autonomous company or 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 in no event later than six (6) 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.

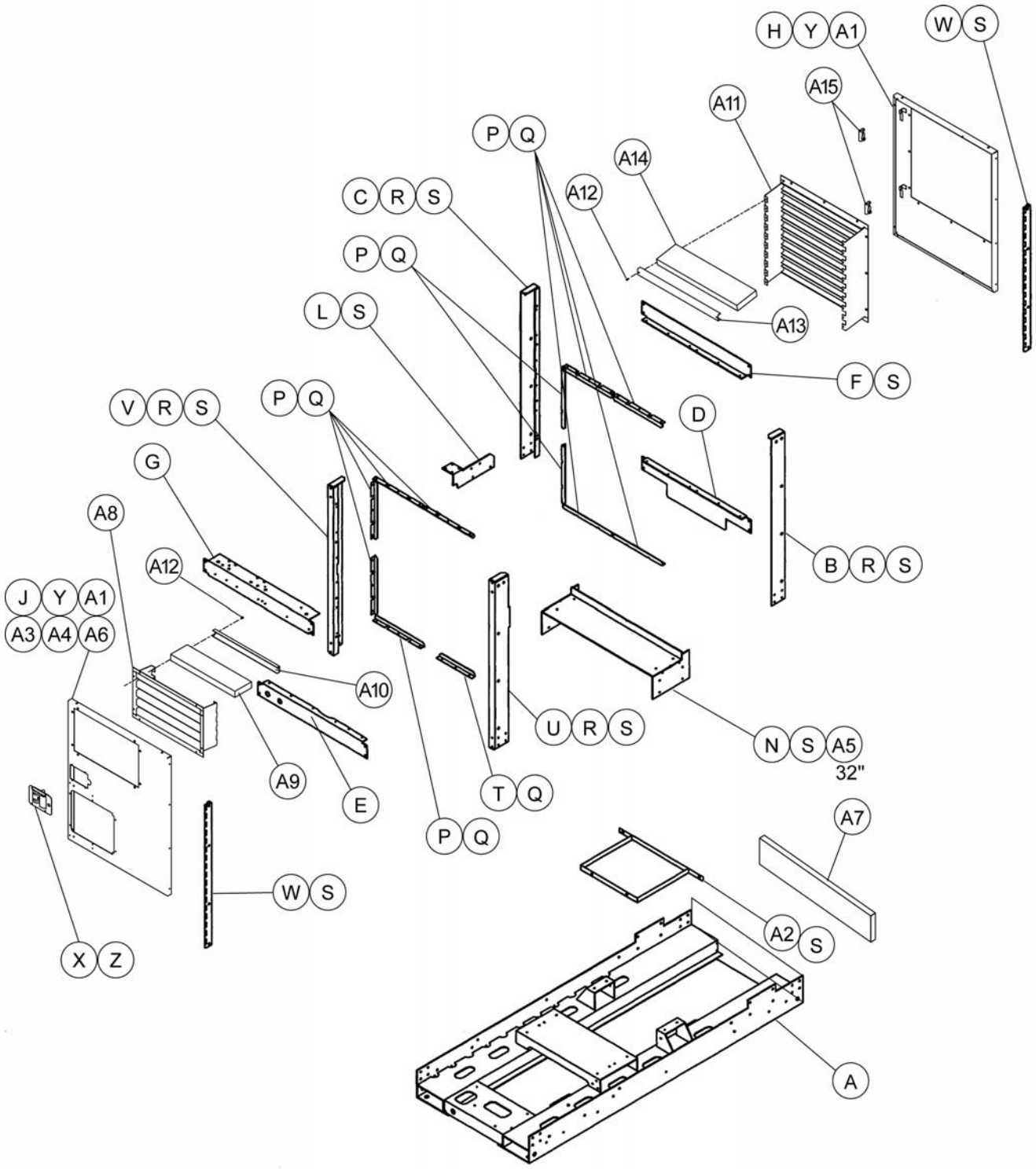
Limitation of Liability:

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.

Section 10 - Parts List

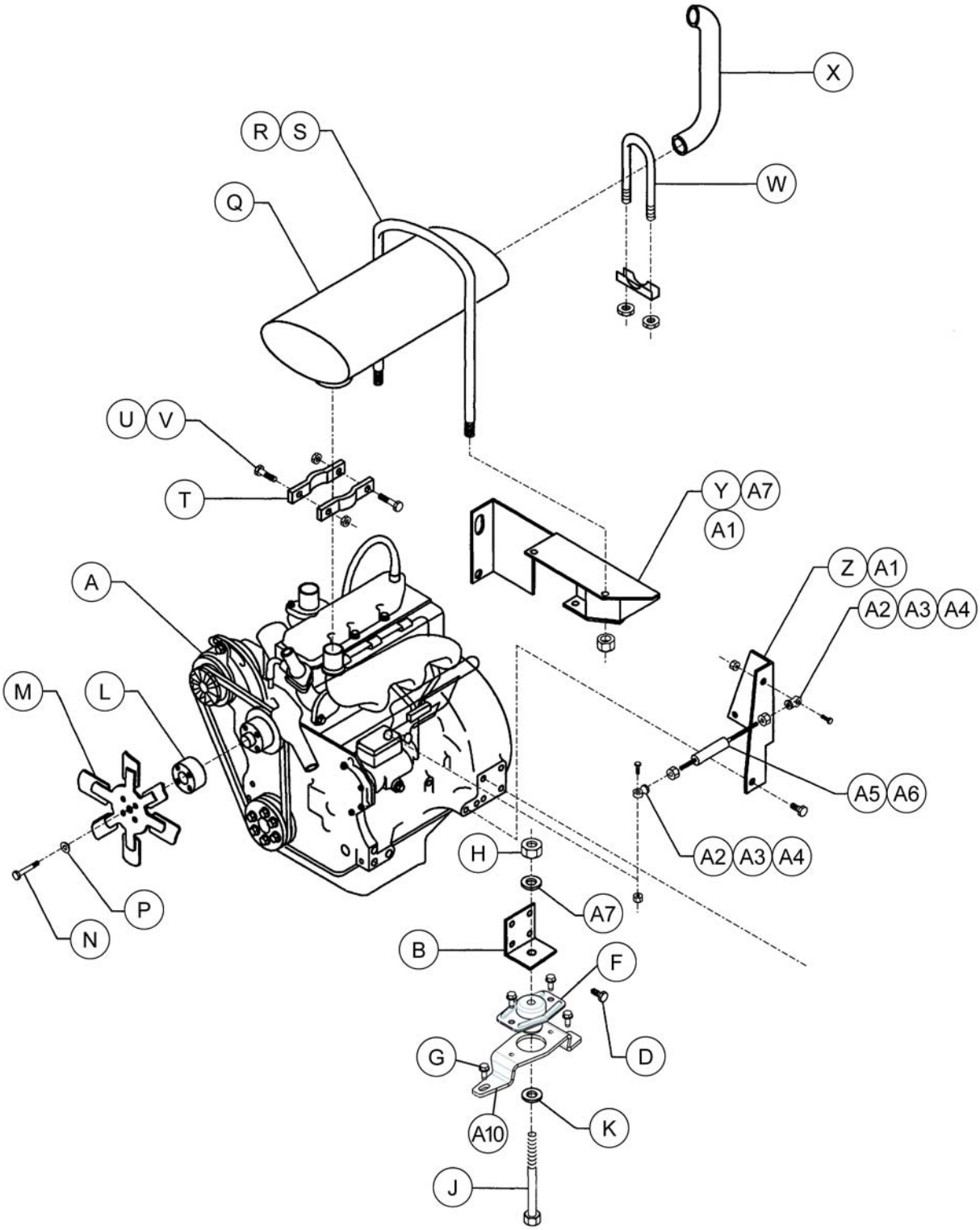
FRAME COMPLETE



FRAME COMPLETE

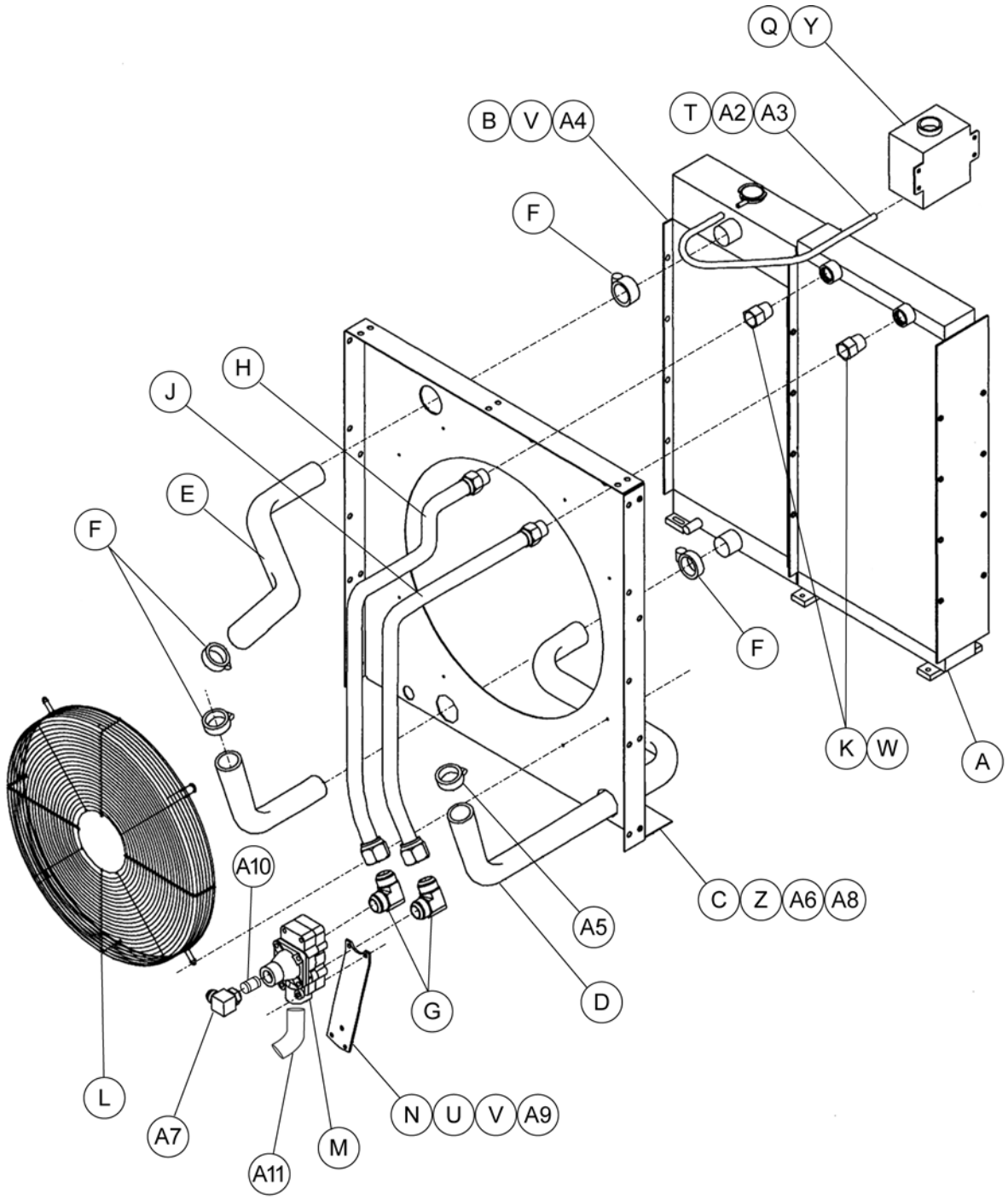
ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	36890457	Frame	1	
B	36890515	Corner, Vert Street Cab	1	
C	36890523	Corner, Vert Street Bed	1	
D	36890564	Frame, Door Lower	1	
E	36890556	Frame, Door Lower	1	
F	36890671	Frame, Door Upper	1	
G	36890663	Frame, Door Upper	1	
H	22329114	Rear Door	1	
J	22329122	Front Door	1	
L	36890622	Bracket, Engine Oil/Fuel	1	
N	36890465	Bridge, Cooler	1	
P	36890572	Seal, Door Long	9	
Q	36877587	Rivets	46	3/16" DIA
R	36895746	Nutsert	8	Hex M8
S	35279025	Screw, Tapping	50	M08-125 x 20
T	36890580	Seal, Door Short	1	
U	36890499	Corner, Vert Curb Cab	1	
V	36890507	Corner, Vert Curb Bed	1	
W	36891810	Hinge, Door	2	
X	36793602	Latch, Front Door	1	
Y	36797652	Screw, Tapping	8	M06-1.00 x 12
Z	36794816	Rivet	8	187 x 020-125
A1	36865293	Bumper, Rubber	14	
A2	36894210	Pan, Fuel Tank	1	
A3	35114081	Clamp, Rubber Coated	2	1-1/16
A4	36797652	Screw	2	M6-1.0 x 12
A5	35140409	Foam		1/4 x 3/4
A6	36896785	Plug	1	5/16
A7	22333843	Rear Fork Tube Cover	1	
*A8	22329163	Front Louver Assembly	1	
A9	22343529	Front Louver Acoustical Foam	5	
A10	22334874	Front Louver Crossmember	5	
**A11	22331151	Rear Louver Assembly	1	
A12	36877587	Rivet	30	
A13	22334882	Rear Louver Crossmember	9	
A14	22343537	Rear Louver Acoustical Foam	9	
A15	22319867	Latch Rear Door	2	
		* A8 includes items A9, A10 & A12		
		** A11 includes items A12, A13 & A14		

ENGINE COMPLETE



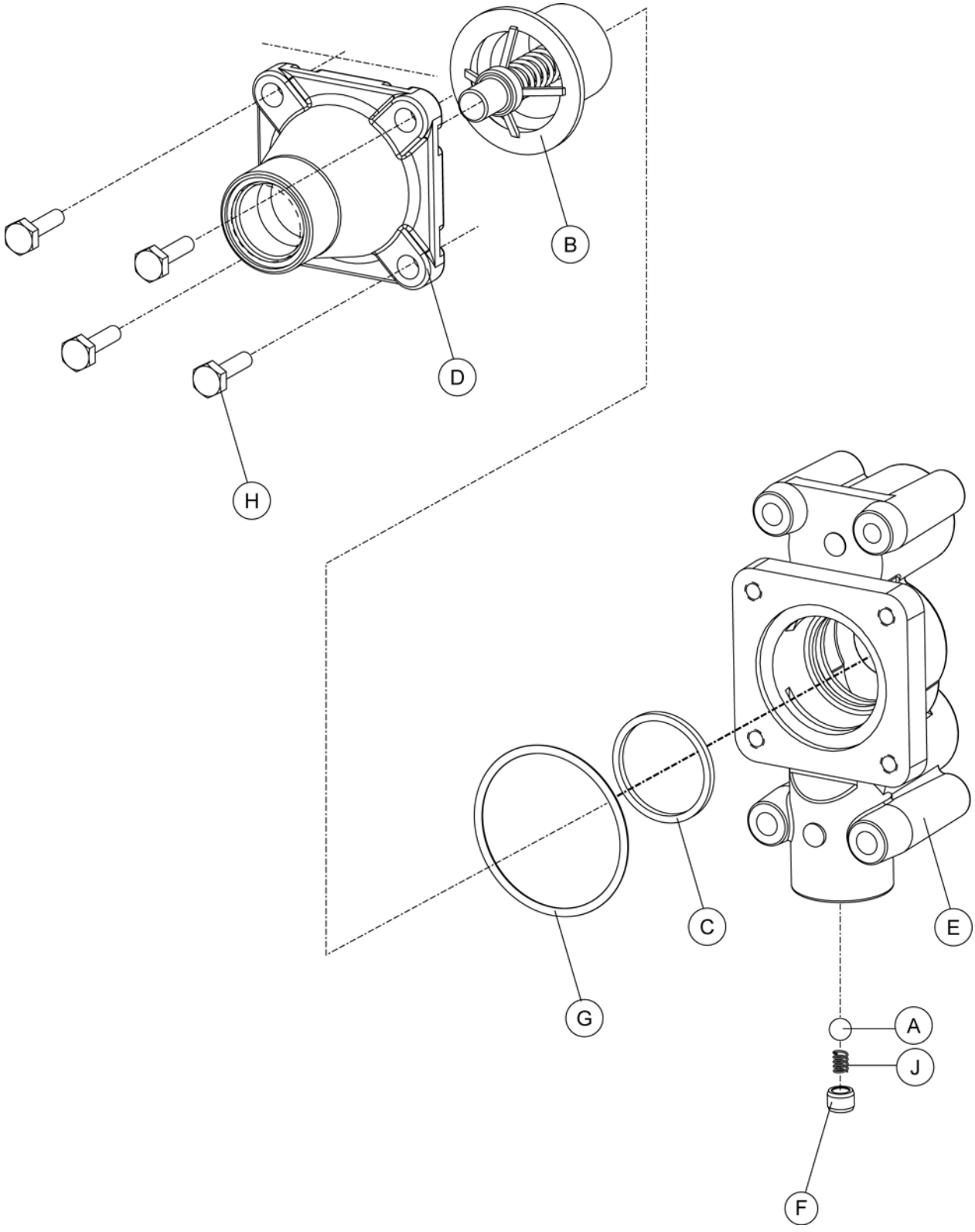
ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
NA	36076784	Engine Complete		
A	22302046	Engine	1	4 Cyl.
B	54471651	Bracket, Front Engine	2	
D	36888055	Screw, Hex Flange HD	6	M12-1.75 x 30
F	36500197	Isolator	2	
G	35279025	Screw, Tapping	8	M08-1.25 x 20
H	35304047	Nut, Hex Nyloc	2	M12-1.75
J	96739958	Screw, Hex	2	M12-1.75 x 70
K	54429295	Washer, Snubber	2	
L	36892461	Spacer, Fan	1	22"
M	36878171	Fan	1	22"
N	96721154	Screw, Hex	4	M08-1.25 x 90
P	95934998	Washer, Flat	4	3/8 x 7/8
Q	36881563	Muffler	1	
R	35851377	U-Bolt	1	3/8-16
S	95923322	Nut, Hex Lock	2	3/8-16
T	36796845	Clamp, Muffler	2	
U	95935227	Screw, Hex	2	5/16-18 x 1 1/4
V	95929782	Nut, Hex	2	5/16 - 18
W	35209048	Clamp, Saddle	1	2 1/2
X	36775690	Pipe, Exhaust Tail	1	
Y	36880839	Bracket, Muffler	1	
Z	36877223	Support, Air Cylinder	1	
A1	96702279	Screw, Hex	3	M10-1.50 x 20
A2	35328467	Bearing, Rod end	2	
A3	96701461	Screw, Hex	2	M06-1.0 x 25
A4	36769032	Nut, Hex Lock	2	M06-1.0
A5	35592435	Cylinder, Pneumatic	1	
A6	95923074	Nut, Hex Jam	2	5/16-24
A7	54429295	Washer Flat	2	
A10	54471669	Bracket, Isolater	2	
		Note :		
		Element, Engine Oil filter 36881696		
		Element, Engine Fuel Filter 36534659		

COOLING COMPLETE



ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
NA	36076768	Cooling Complete		
A	36889780	Cooler, Oil	1	
B	36889772	Radiator	1	
C	36890473	Orifice, Fan	1	
D	36891158	Hose, Radiator Bottom	1	
E	36891141	Hose, Radiator Top	1	
F	35221662	Clamp	4	
G	35291384	Elbow	2	1.31 -12 x -16 JIC
H	22287247	Tube, Oil Cooler	1	-16
J	22287254	Tube, Oil Cooler	1	-16
K	35356468	Connector	2	1.06-12 x -16 JIC
L	54716360	Guard, Fan	1	
M	54414420	Valve, Oil By-Pass	1	See page 76
N	36890481	Bracket, Oil Bypass	1	
Q	36884948	Bottle, Coolant Recovery	1	
T	35360775	Tubing	38	5/16
U	36881886	Screw, Tapping	10	M08-1.25
V	35279025	Nut, Hex Flange	7	M08-1.25 x 20
W	35294768	O-Ring	2	
X	96702055	Screw, Hex	8	M08-1.25 x 20
Y	36797652	Screw, Tapping	6	M08-1.00 x 14
Z	36895746	Nutsert, Hex	19	M08
A2	35296342	Clamp, Wormgear	1	
A3	35221662	Clamp, Rubber Coated	1	1/2"
A4	36769560	Cap, Radiator	1	
A5	35221639	Clamp, Hose	1	
A6	36878221	Grommet, Radiator Hose	2	
A7	35294750	Elbow	1	1-1/16-12 x -12 JIC
A8	35613041	Plug, Hole	2	0.75 DIA
A9	36786382	Screw	2	M8-1.25 x 70
A10	95644019	Reducer	1	
A11	95992632	Elbow, 45°	1	1.31 SAE x 1” Tubing

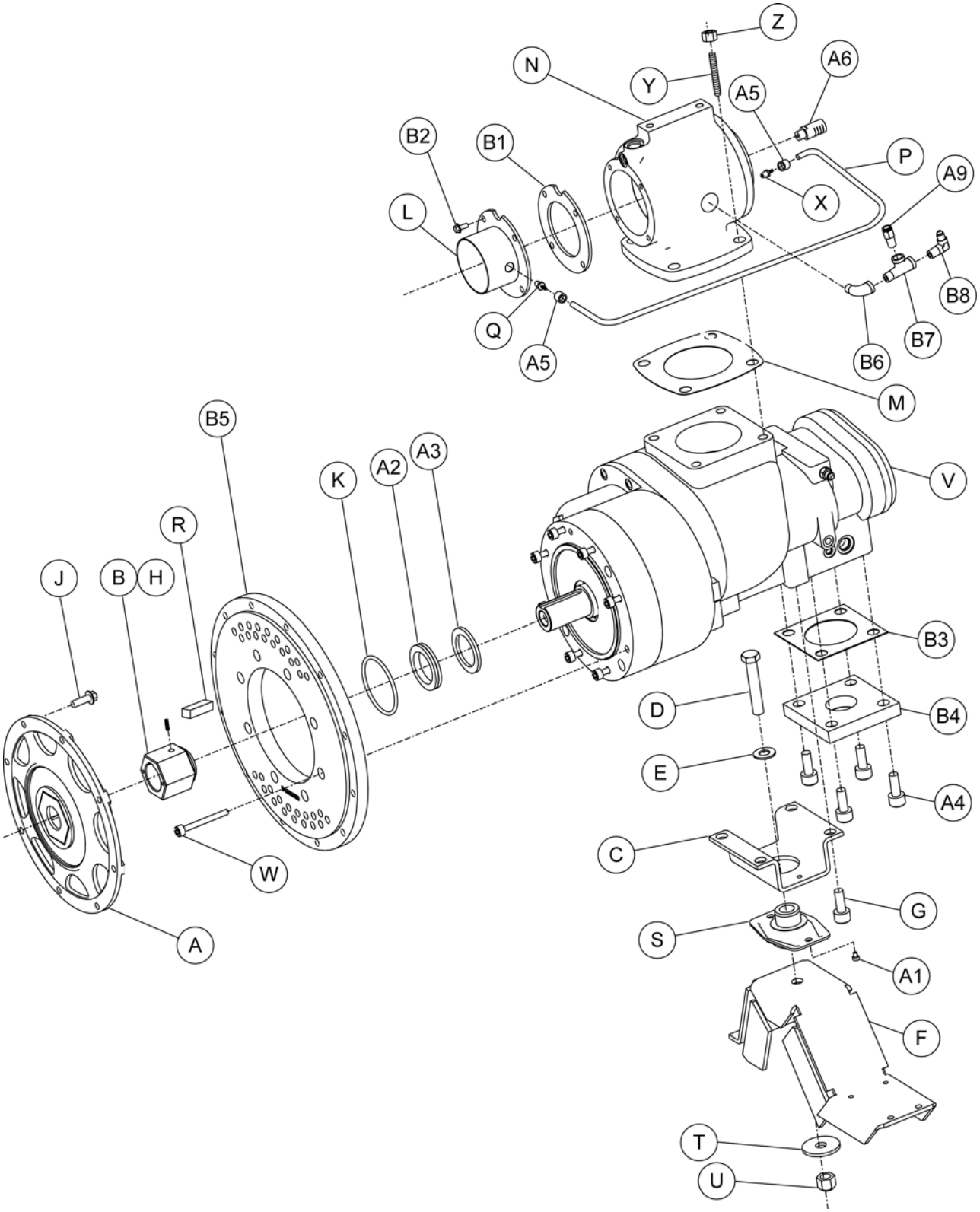
ASSY, OIL TEMP BYPASS VALVE



ASSY, OIL TEMP BYPASS VALVE

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
NA	54414420	Assy, Oil Temp Bypass valve		
A	35288448	Ball	1	
B	36782019	Element, Thermal	1	
C	36788172	Seal, U-Type	1	
D	36876779	Cover, Bypass Valve, Machined	1	
E	54414305	Housing, Oil Temp Bypass Valve	1	
F	54414677	Orifice, Oil	1	
G	95022307	O-ring, Standard	1	
H	96702659	Screw, Hex Head	4	
J	35379940	Spring	1	

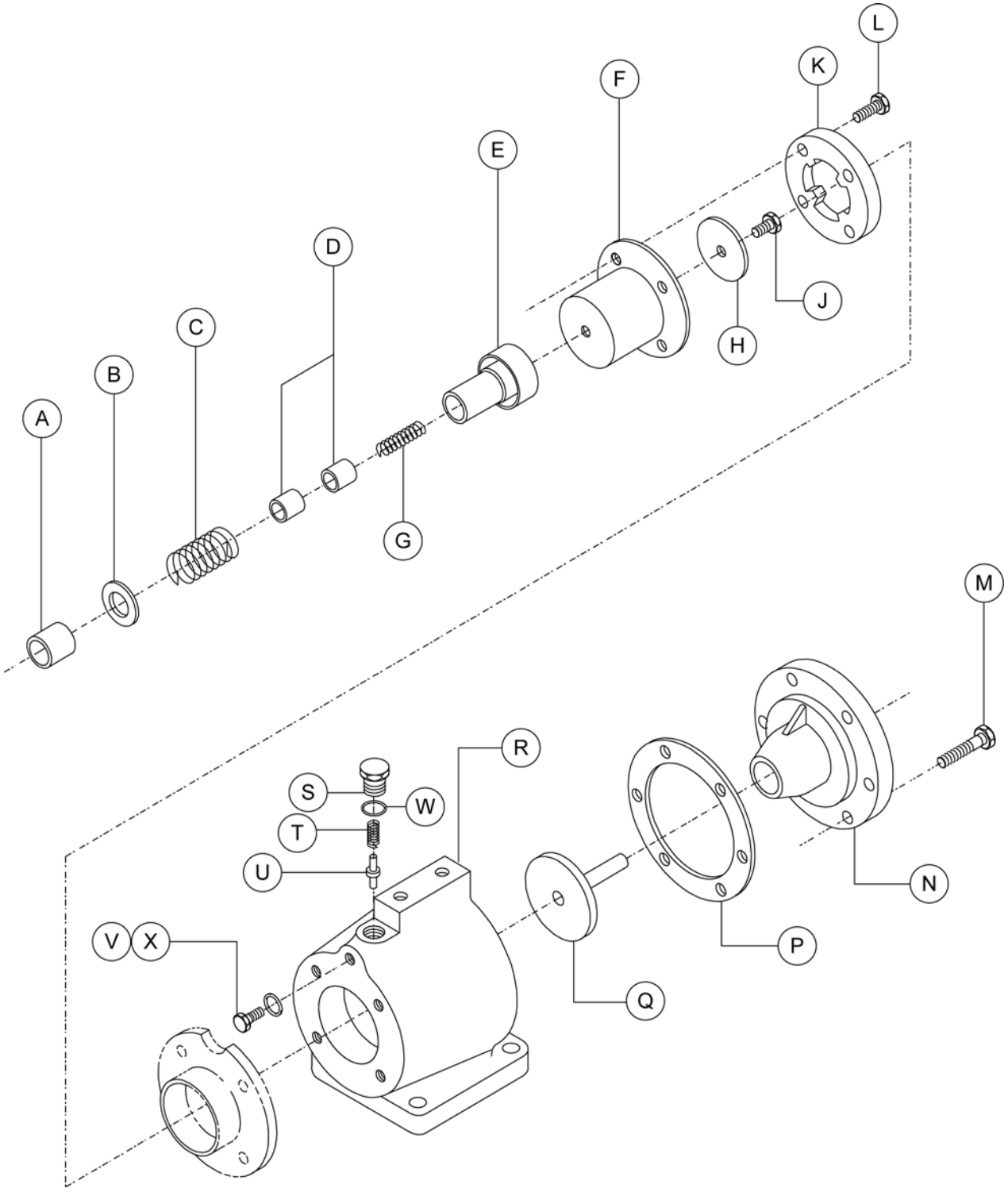
AIREND COMPLETE



AIREND COMPLETE

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	54755087	Coupling	1	
B	54755111	Bushing, Hex	1	
C	54471685	Bracket, A/e Support	1	
D	96701503	Screw, Hex	1	M16-2.0 X 90
E	95935052	Washer, Flat	1	
F	22287155	Bracket, A/E Mounting	1	
G	35358274	Screw, Socket head	4	M16-2.00 X 25
H	95376943	Screw, Socket Set	1	3/8-16 X 1/4
J	36880995	Screw, Hex Flange	8	M10-1.5 X 30
K	90544772	O-ring	1	
L	35588532	Flange, Unloader Inlet	1	
M	36889202	Gasket, Unloader	1	
N	54436845	Unloader Assembly	1	See page 80
P	35282292	Tubing	14”	
Q	35316587	Adapter, Barbed	1	1/8”
R	36769289	Key, Coupling	1	8 x 10 x 60 mm
S	54471057	Isolator, Rubber	1	
T	35327212	Washer, Snubber	1	
U	96704630	Nut, Nyloc	1	M16-2.0
V	54390943	Airend	1	
W	96708201	Screw, Sockethead	8	M10-1.50 X 80
X	35323542	Adapter, Barbed	1	1/8”
Y	35323450	Stud	4	M16-2.0 X 55
Z	96701750	Nut, Hex	4	M16-2.0
A1	35279025	Screw, Tapping	6	M08-1.25 X 20
A2	39317599	Seal, Double Element	1	
A3	39317581	Seal, Single Element	1	
A4	96720545	Screw, Sockethead	4	M16-2.0 X 35
A5	35377621	Clamp, Spring	2	1/4”
A6	36766756	Muffler, Orifice	1	.140
A7	35114545	Tee, Street	1	1/4NPT
A8	35283464	Elbow	1	1/4NPT -4JIC
A9	35369347	Connector, Male	1	1/4NPT X 3/8 TUBE
B1	35588318	Gasket, Unloader Inlet	1	
B2	96702048	Screw, Hex	4	M08-1.25 X 16
B3	93481455	Gasket, A/e Discharge	1	
B4	54413042	Plate, Discharge	1	
B5	54390950	Adapter	1	CF90 A/E
B6	95944666	Elbow	1	1/4 NPT
B7	95944690	Tee	1	1/4 NPT
B8	35283464	Elbow	1	1/4 NPT x -4 JIC

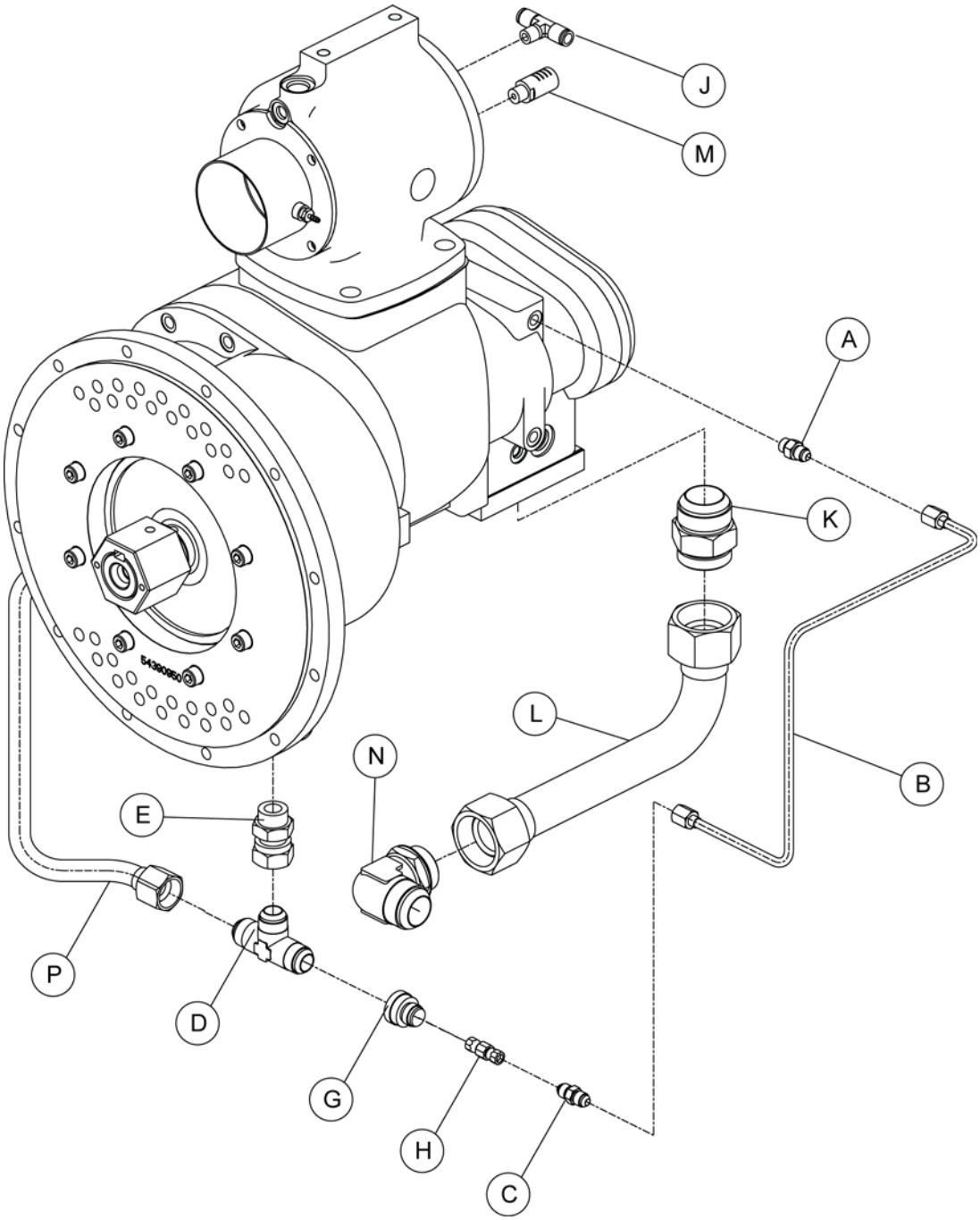
UNLOADER ASSEMBLY



UNLOADER ASSEMBLY

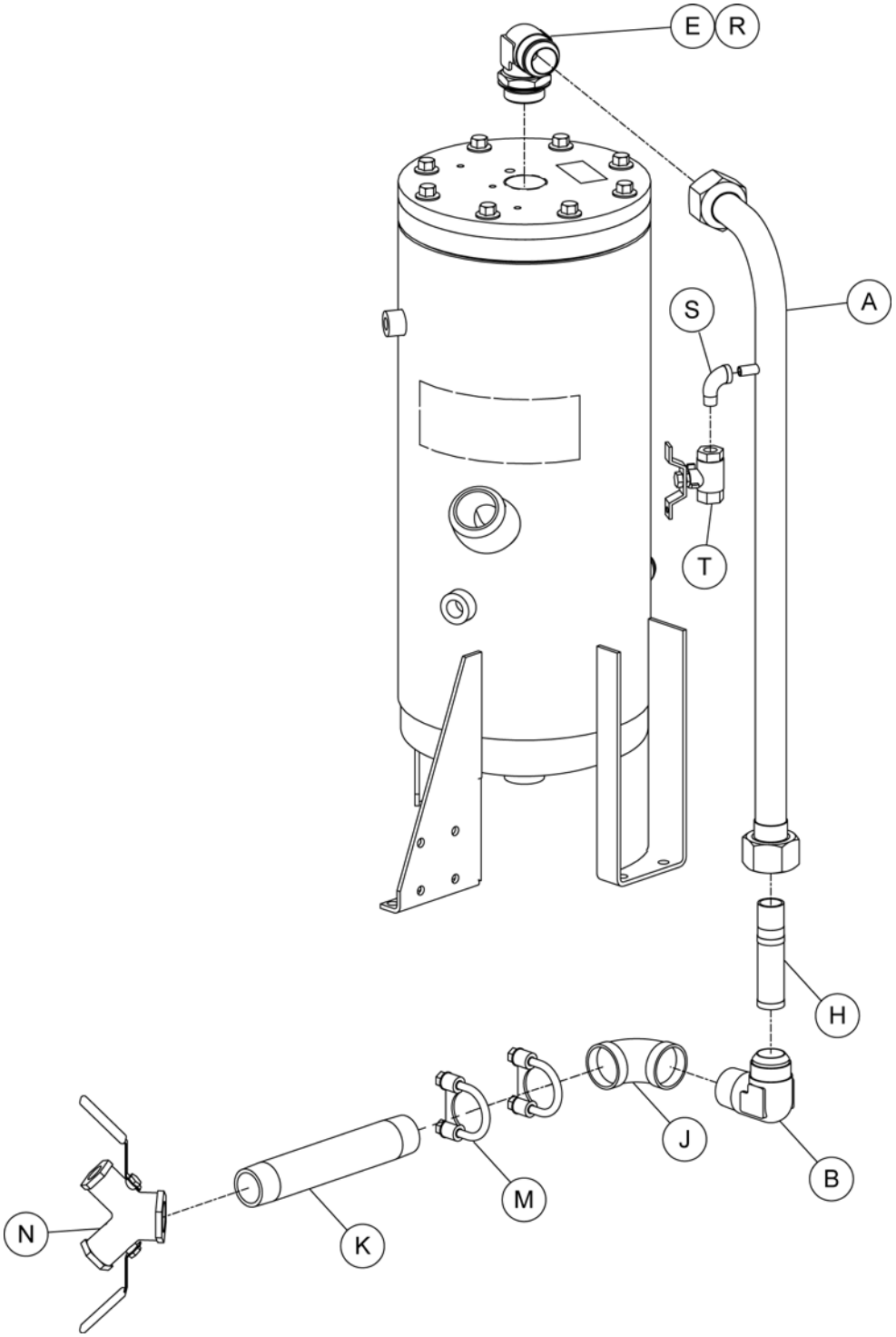
ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
NA	54436845	Unloader Valve Assy.		
A	*35318013	Housing Bushing	1	
B	*35317205	Washer	1	
C	*35322767	Piston Spring	1	
D	*35318005	Piston Bushing	2	
E	35588193	Piston Unloader	1	
F	*35317197	Diaphragm	1	
G	*35321603	Spring	1	
H	*35317239	Piston Washer	1	
J	*35321595	Capscrew	1	
K	35836949	Piston Cover	1	
L	35271162	Screw	4	
M	96702287	Screw	6	
N	35833227	Piston Housing	1	
P	*35588300	Piston Gasket	1	
Q	35591122	Valve Plate	1	
R	54425335	Unloader Body	1	
S	*35278555	Plug	1	
T	*35318914	Pin Spring	1	
U	*35317213	Unloader Pin	1	
V	35289057	Plug	1	
W	35278589	O-ring	1	
X	35279959	O-ring	1	
	35088798	Repair Kit		Includes items marked thus (*)

AIREND ASSEMBLY



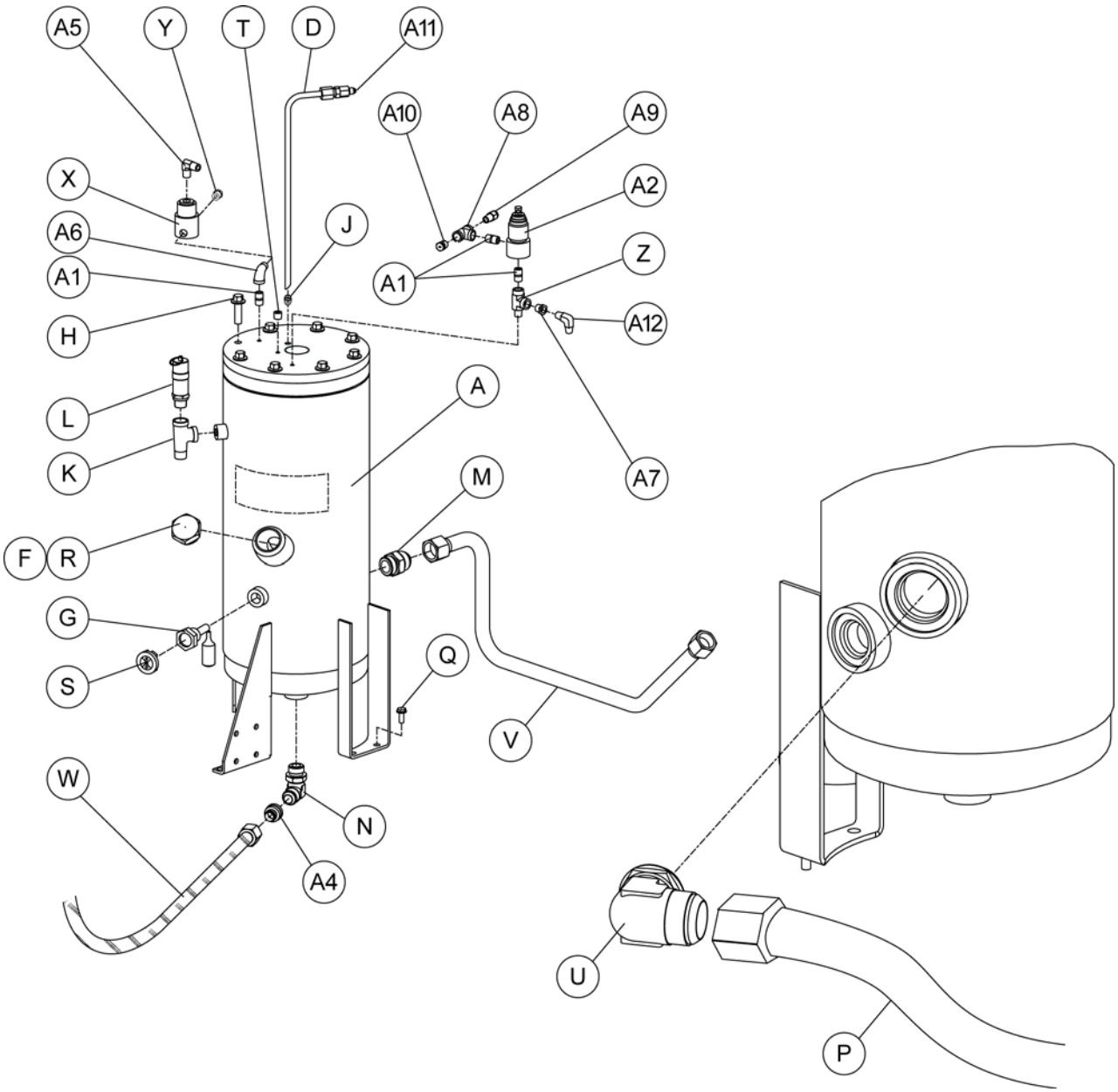
ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	95989695	Adapter	1	1/2NPT x 12mm
B	93481570	Tube Assembly	1	5/16”
C	95052387	Union	1	-4 x -5
D	95951646	Tee	1	-12 JIC
E	96739693	Adapter	1	26mm x -12
G	93186278	Reducer	1	-12 x -4
H	95986014	Connector	1	
J	35373976	Tee	1	1/4 NPT x 3/8 Tubing
K	35296409	Connector	1	1-7/8-12 x -24
L	22287221	Tube, A/E Discharge	1	-24
M	36766756	Orifice	1	0.140
N	95944906	Elbow		-24 x -24
P	22287189	Tube		-12

AIR SERVICE COMPLETE



ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	22287171	Tube, Service	1	
B	95219861	Elbow, Tube	1	
C	35114545	Tee Street	1	1/4 NPT
D	95048914	Nipple	1	1/4 NPT
E	35279777	Elbow	1	90× 1 5/8
H	36923928	Nozzle Sonic	1	0.453
J	95953378	Elbow	1	90× 1.25
K	95916268	Nipple	1	1.25 x 8
M	36785277	Clamp, Saddle	1	1.62
N	36881076	Valve, WYE	1	
R	35279942	O-Ring	3	
S	95944666	Elbow	1	1/4 NPT
T	35324839	Valve	1	1/4

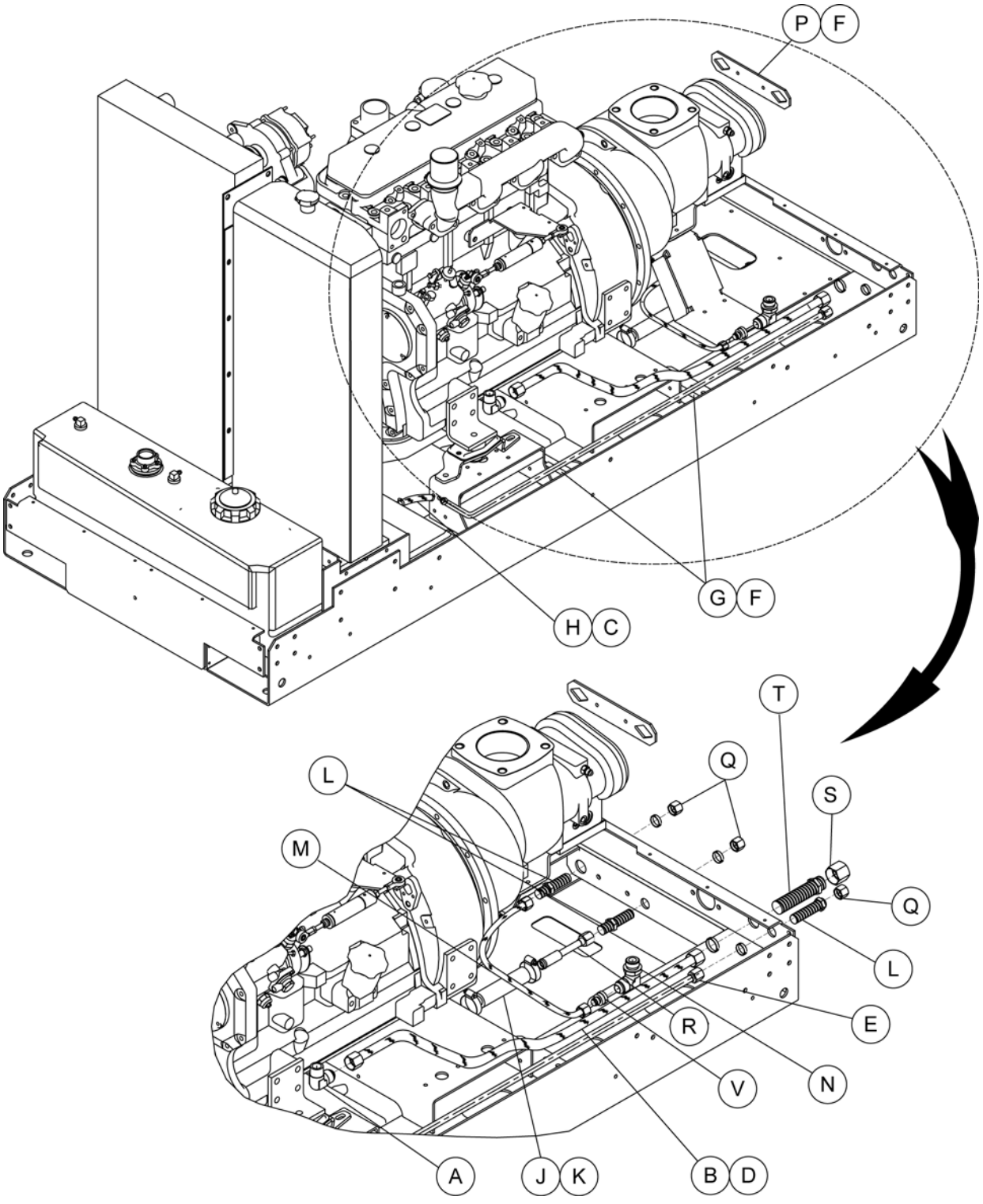
SEPARATOR TANK COMPLETE



SEPARATOR TANK COMPLETE

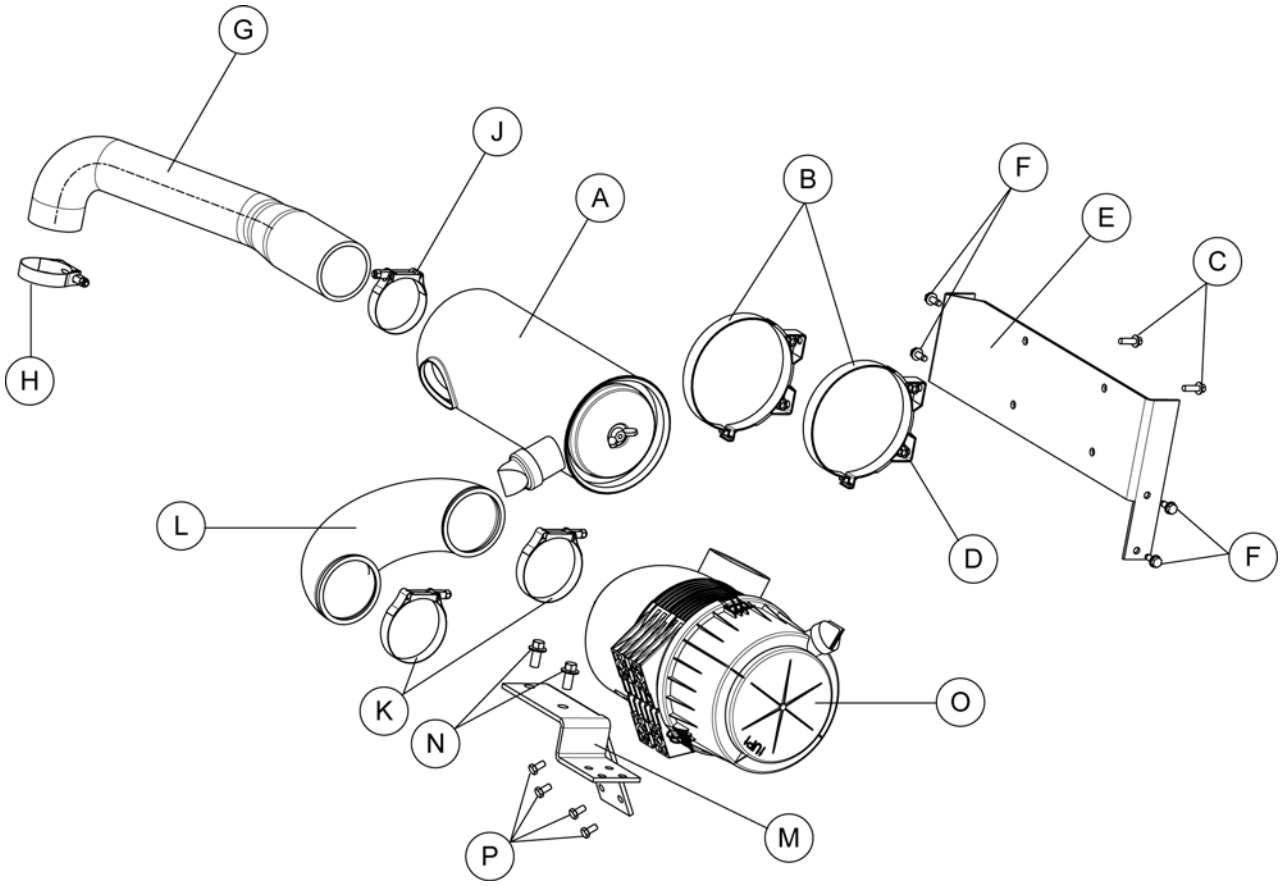
ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	22287163	Tank, Separator	1	
B	39831888	Element, Separator	1	
D	36781227	Tube, Scavenge	1	
F	35579630	Plug, Hex	1	1 5/8
G	36891083	Gage assembly, Oil level	1	
H	36877793	Screw, Hex	8	M12-1.75 x 40
J	36890317	Fitting, Scavenge	1	
K	95944708	Tee, Street NPT	1	1/2
L	35325224	Valve, Safety	1	
M	95955993	Connector	1	1 5/16 - 12
N	35294750	Elbow	1	90× 1.06 x 12 x -12
P	35246438	Hose, Discharge	1	-24 x 21
Q	35279025	Screw, Tapping	4	M08-1.25 x 20
R	35279942	O-Ring	1	
S	36891489	Pointer Assembly, Rotating	3	
T	95928230	Plug	1	1/4 NPT
U	95431292	Elbow	1	90× 1.88-12 x -24
V	22287197	Tube	1	3/4 JIC
W	35283506	Hose	1	JIC -8 x 39
X	35322379	Blowdown Valve	1	
Y	36766772	Orifice	1	0.62
Z	35114545	Tee	1	1/4 NPT
A1	95048914	Nipple	3	1/4 NPT
A2	36854149	Regulator	1	
A4	35365774	Reducer	1	-12 x -8
A5	35369354	Elbow	1	1/4 NPT x 3/8 Tube
A6	95944666	Elbow	1	1/4 NPT
A7	95930301	Reducer	1	1/4 NPT x 1/8 NPT
A8	95954194	Tee	1	1/4 NPT
A9	35369347	Connector	1	1/4 NPT x 3/8 Tube
A10	36766756	Orifice	1	0.140
A11	36840437	Orifice	1	0.62
A12	36891547	Elbow		

CENTRAL DRAINS



ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	35294735	Elbow	1	3/4" NPT
B	35323807	Hose, Engine Oil Drain	1	
C	95220844	Clamp, Hose	3	9/16"
D	35114081	Clamp, Hose	1	1.06
E	36891067	Tube, Radiator Drain	1	
F	35279025	Screw, Tapping	6	M08-1.25 x 20
G	36891588	Bracket, Drain Piping	2	
H	36892479	Hose	15"	.50 ID
J	36892172	Hose, Drain Connector	1	
K	95220851	Clamp, Worm Gear	2	
L	35285451	Union, Bulkhead	3	
M	35283506	Hose	1	JIC -8 x 38
N	35294750	Elbow	1	90° (1.06 -23 x 12)
P	36891208	Wrench, Plate	1	
Q	95257325	Cap	3	3/4" - 16
R	36891042	Tube, Fuel Drain	1	
S	95730172	Cap	1	1.06-12
T	95332599	Connector, Bulkhead	1	1.06-12
V	35365774	Reducer		-12 x -8

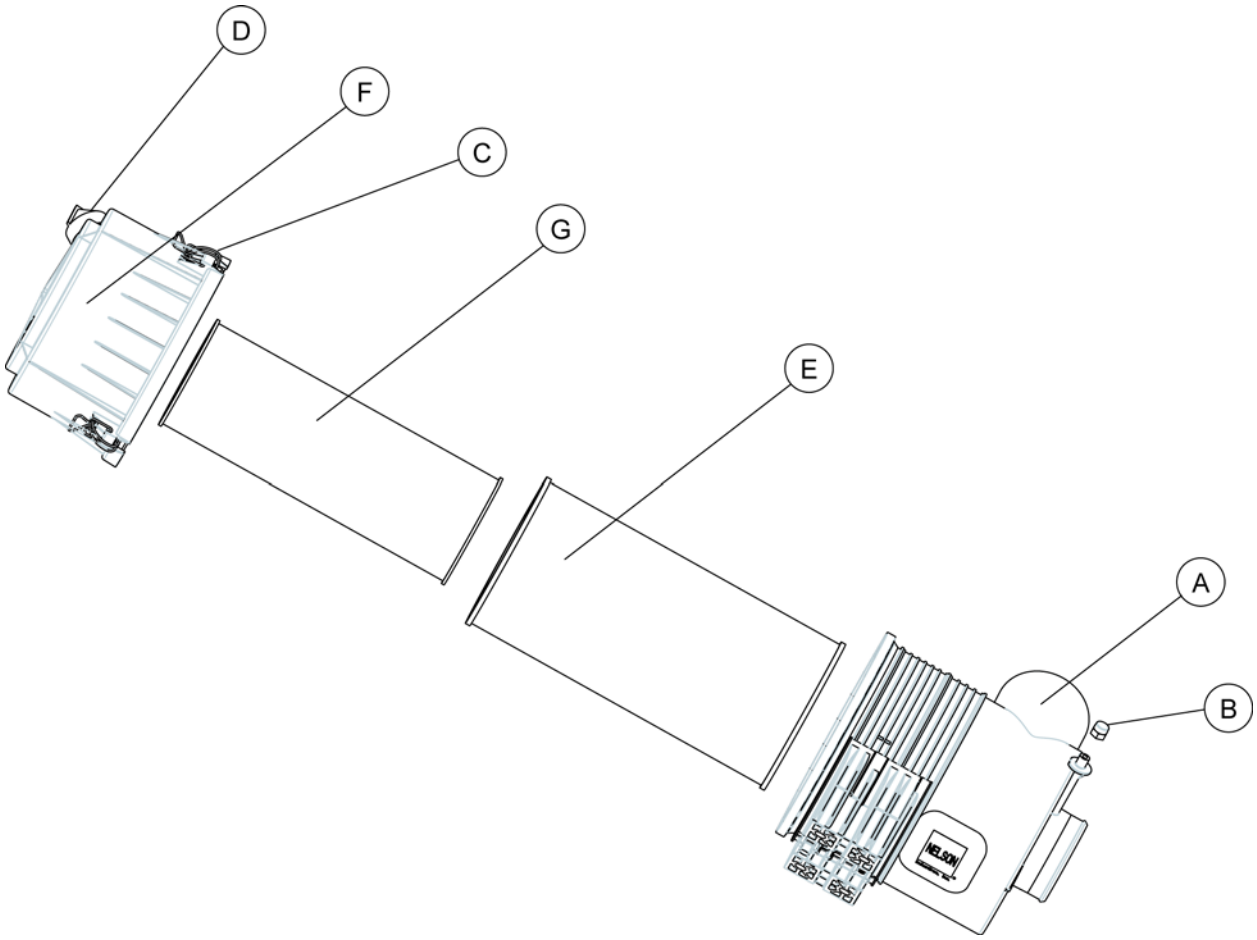
AIR INTAKE COMPLETE



AIR INTAKE COMPLETE

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
NA	36076735	Air Intake Complete	1	
A	36862829	Cleaner Assembly - Air	1	see page 94
B	35585009	Band - Air Cleaner	2	
C	36889608	Screw Hex. Head	4	M8 x 16 Long
D	36881886	Nut Hex. Flange	4	M8
E	22287148	Bracket - Air Filter Mounting	1	
F	35279025	Screw Hex. Head	4	M8 x 20 Long
G	22287205	Hose - Engine Air Intake	1	
H	35314996	Clip	1	
J	35374073	Clip	1	
K	35165802	Clamp	2	
L	22287122	Elbow - Rubber	1	
M	22287130	Bracket - Air Cleaner	1	
N	36879492	Screw Hex	2	Flange M12 x 25 Long
O	54471826	Air Cleaner Assembly 8”	1	See page 92

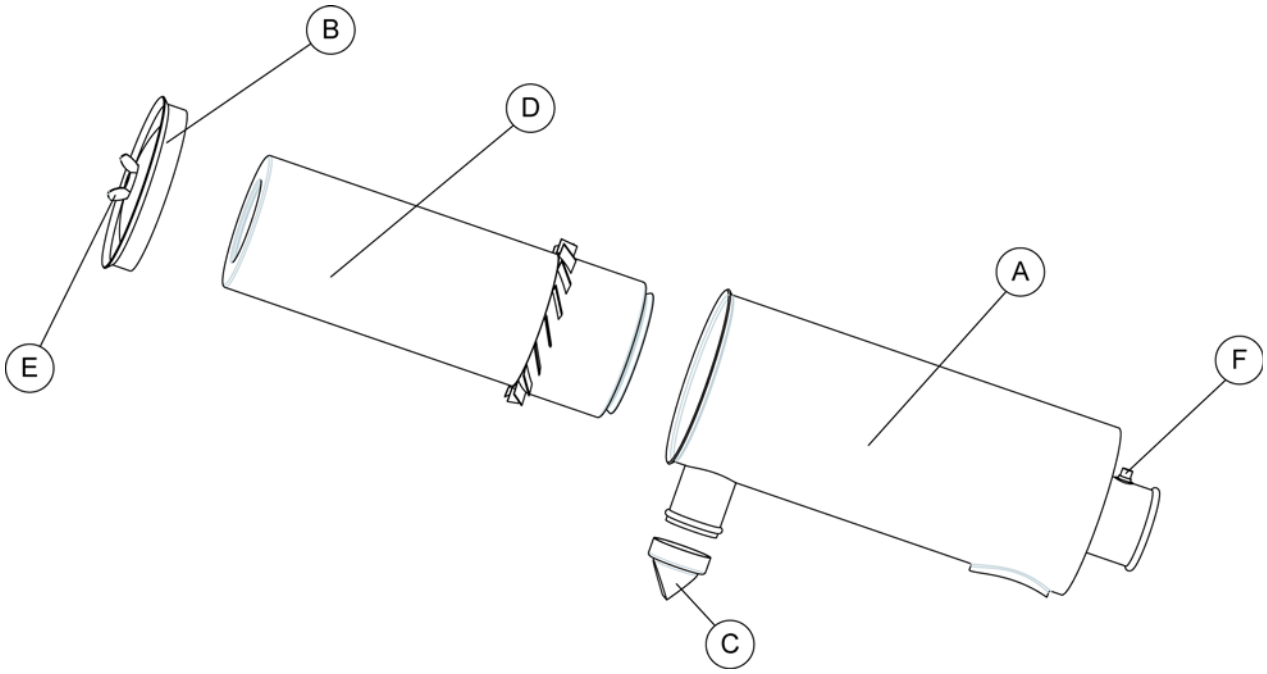
AIR CLEANER ASSEMBLY



AIR CLEANER ASSEMBLY

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
NA	54471826	Air Cleaner Assembly	1	
A	54479811	Body - Air Cleaner	1	
B	35393719	Cap - Plug	1	
C	35393669	Clip - Retaining	3	
D	35393677	Valve - Dust Ejector	1	
E	54471834	Element - Primary Air Cleaner	1	
F	54415393	Cover Assembly - Air Cleaner	1	
G	54471842	Safety Element - Air Cleaner	1	Optional

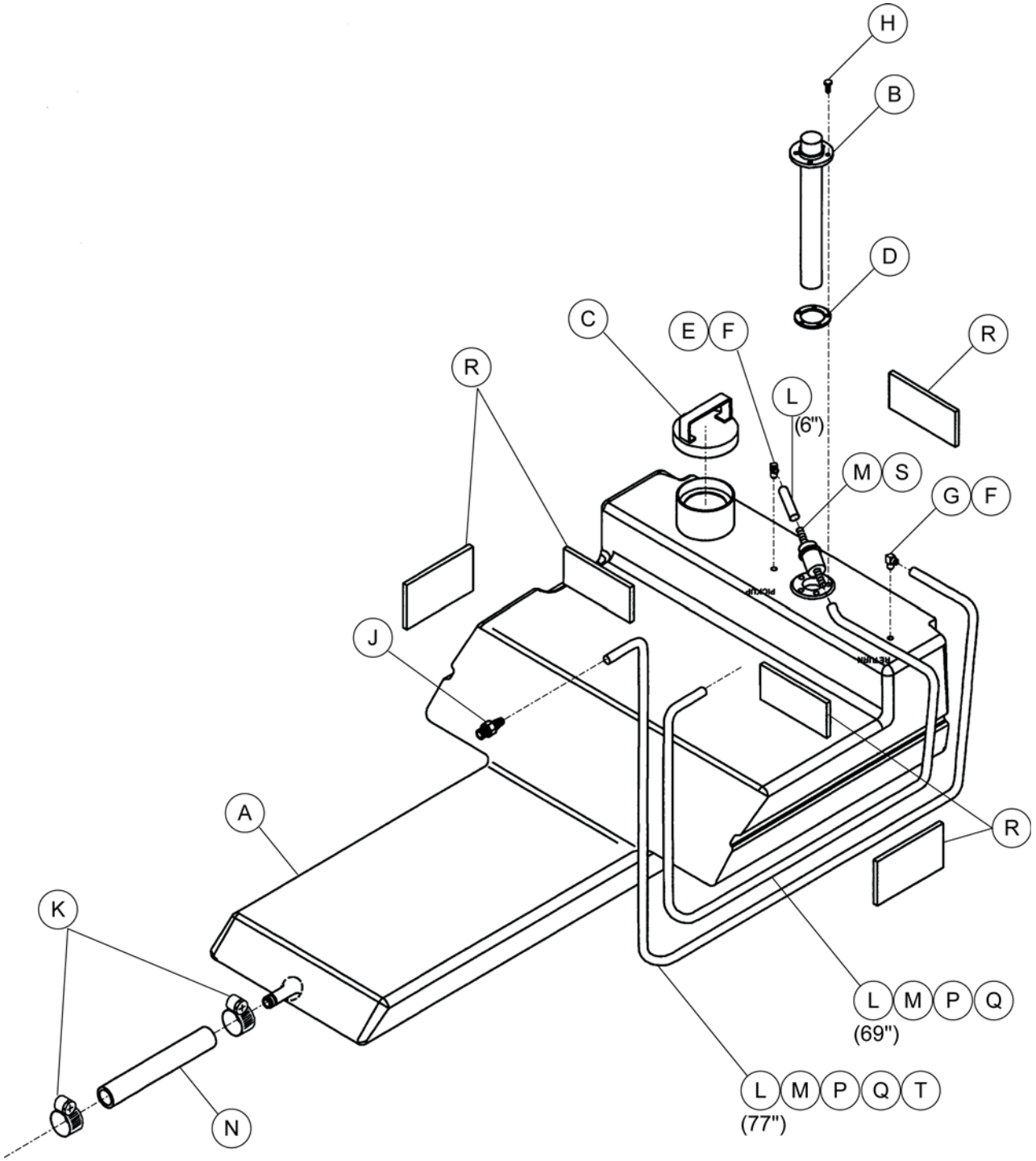
CLEANER ASSEMBLY - AIR



CLEANER ASSEMBLY - AIR

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
NA	36862829	Cleaner Assembly - Air	1	
A	35388883	Body - Air Cleaner	1	
B	35326032	Cover - Air Cleaner	1	
C	35388891	Valve - Vacuator	1	
D	36876423	Element - Air Cleaner	1	
E	35291475	Nut	1	
F	36790277	Capnut	1	

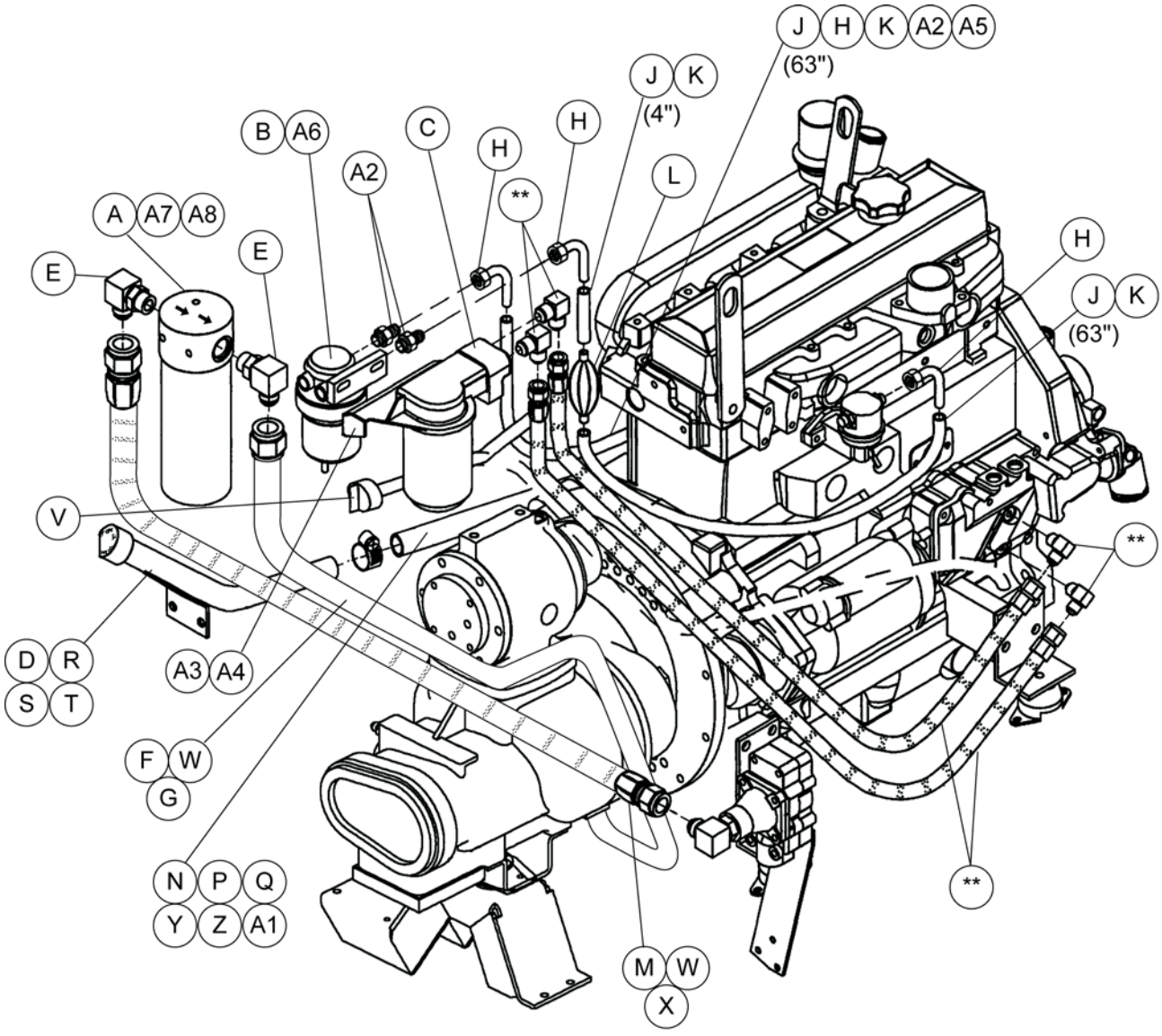
FUEL TANK COMPLETE



FUEL TANK COMPLETE

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	36889939	Tank, Fuel	1	
B	36890200	Sender, Fuel Level	1	
C	36885564	Cap, Fuel	1	
D	35361849	Gasket, Fuel Sender	1	
E	36892156	Standpipe Assembly, Pickup	1	
F	35384577	Bushing, Nitrile	2	
G	36892164	Standpipe Assembly, Return	1	
H	95916532	Screw, Filister SLTD HD	5	10-32X.5
J	35322460	Union, Barbed Tube	1	
K	95220851	Clamp, Hose	2	
L	35363498	Hose, Fuel	*	31" / *See Illstrn. for Lengths
M	35296342	Clamp, Wormgear	6	
N	36892172	Hose, Drain Connector	1	
P	35225093	Clamp	3	1/2" Support
Q	35279025	Screw, Tapping	1	M08-1.25x20
R	36767051	Foam, Closed Cell	5	
S	36845493	Filter, Fuel	1	
T	92368687	Screw	1	M6 - 1.0 x 14

REMOTE FILTERS COMPLETE

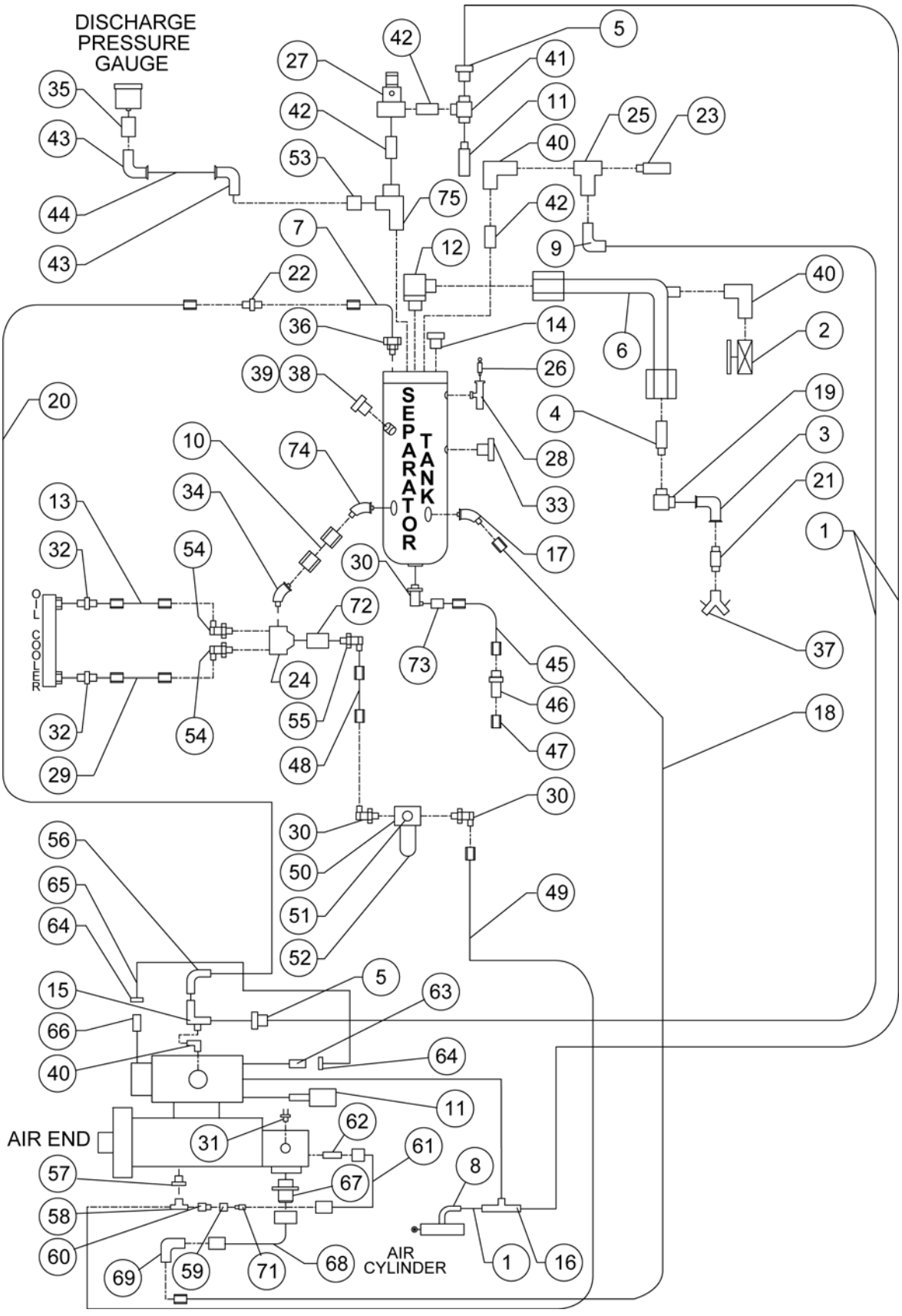


** Furnished by Engine Manufacturer

REMOTE FILTERS COMPLETE

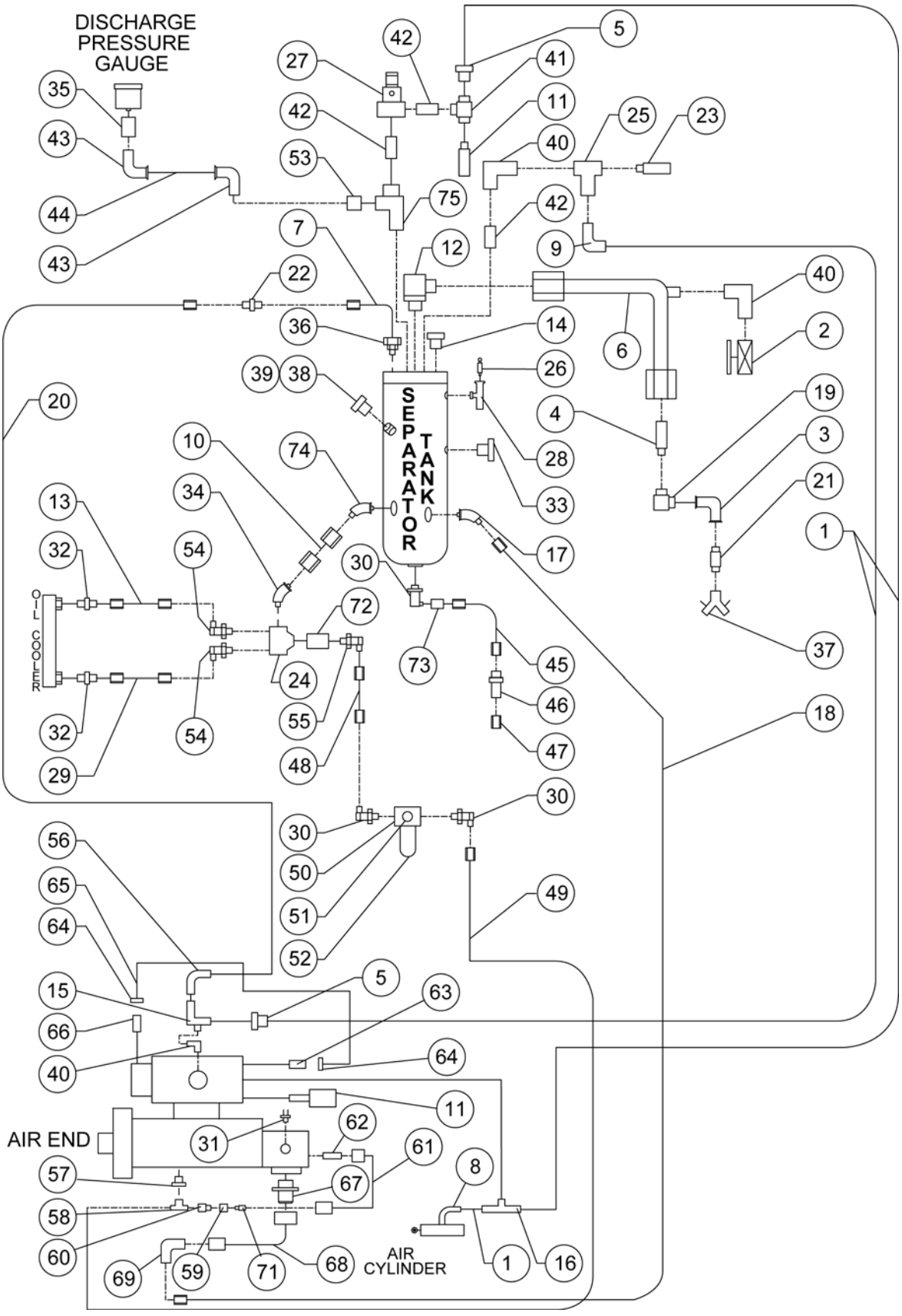
ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	36897387	Oil Filter Assembly	1	
	36897445	Head, Filter		
	36897353	Element, Compressor Oil Filter	1	
B	36534659	Element, Engine Fuel Filter	1	
C	36881696	Element, Engine Oil Filter	1	
D	36891968	Tube, Oil Fill	1	
E	35294750	Elbow	2	90° 1-1/16" -12 JIC
F	22287189	Tube Assembly	1	-12 JIC
G	95951646	Tee	1	90° Long
H	36889350	Line	4	90° Fuel
J	35363498	Hose	*	5/16" Fuel / See Illustration for Length
K	35296342	Clamp, Worm Gear	6	
L	36889947	Bulb, Fuel Primer	1	
M	35323864	Hose Assembly	1	(-12 x 24)
N	36890895	Hose, Oil fill	1	
P	35221662	Clamp, Hose	2	
Q	36891109	Adapter, Engine Oil Fill	1	
R	35114057	Clamp, Support	1	1.25
S	35376953	Screw, Hex	1	M10-1.50 x 20
T	36879195	Nut, Hex Flange	1	M10
V	36890168	Dipstick, Remote Mount	1	
W	35114081	Clamp, Support	2	1.07
X	35300771	Screw, Tapping	1	M06-1.0 x 20
Y	96702055	Screw, Hex	2	M80-1.25 x 20
Z	95934998	Washer, Flat	2	
A1	36894160	Gasket, Engine Oil Fill	1	
A2	36895472	Connector, Fuel Filter	3	
A3	22287262	Bracket, Oil Fill Support	1	
A4	96702279	Screw	1	M10-1.5 x 20
A5	36895977	Reducer, Fuel Line	1	
A6	35279025	Screw	2	M8-1.25 x 20
A7	96701479	Screw	4	M10-1.5 x 16
A8	35287556	Plug, Hex	1	

AIR & OIL PIPING



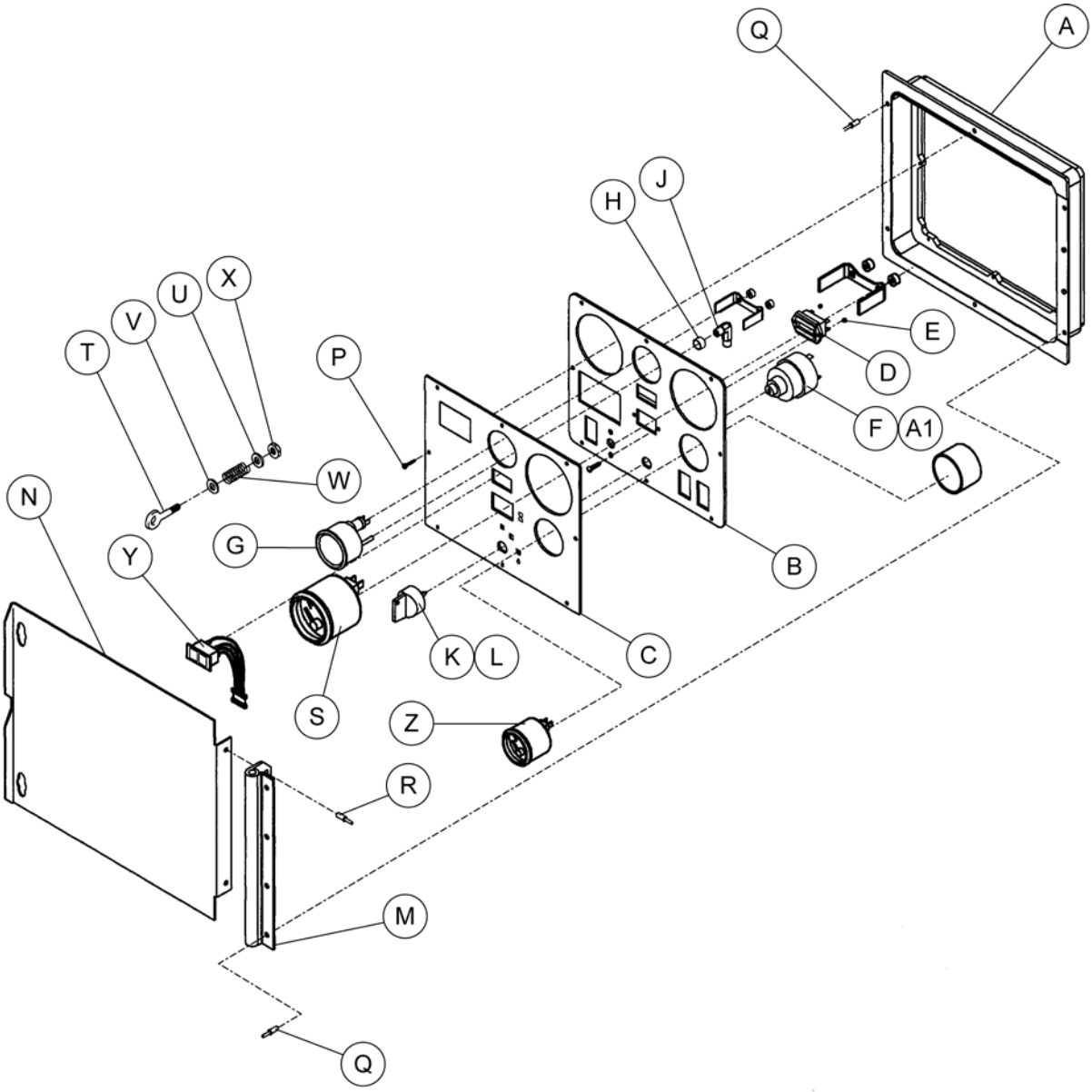
ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
NA	22313274	Air Oil Piping Complete		
1	35356484	Tubing		0.38 OD
2	35324839	Valve, Ball		.25 Npt
3	95953378	Elbow		90° 1.25 NPT
4	36923928	Nozzle, Sonic ORF		
5	35369347	Conn.		.25 NPT x .38 TBG
6	22287171	Tube Assy-Service Air		
7	36781227	Tube Assy-Oil Scavenge		
8	35370386	Elbow		90° .12 NPT x .38 TBG
9	35369354	Elbow		90° .25 NPT x .38 TBG
10	22287197	Tube		- 16 JIC
11	36766756	Orifice		0.140
12	35279777	Elbow		90° .1.62-12 x -20 JIC
13	22287247	Tube Assy		-16 JIC
14	95928230	Plug		.25 NPT
15	95944690	Tee, Street		.25 NPT
16	35373976	Tee Male Branch		.25 NPT x .38 TBG
17	95431292	Elbow		90° 1.88-12 x -24 JIC
18	35246438	Hose Assy		-24 x 21"
19	95219861	Elbow 90°		1.25 NPT x -20 JIC
20	35358662	Hose Assy		-4 JIC
21	95916268	Nipple		1.25 x 8 LG
22	36840437	Inline Orifice/Check Valve		
23	36766772	Orifice		0.062
24	54414420	Valve, Bypass		
25	35322379	Valve Blowdown		
26	35325224	Valve, Safety		150 PSI
27	36854149	Reg. Press		100 PSI
28	95944708	Tee Street		.50 NPT
29	22287254	Tube Assy		-16 JIC
30	35294750	Elbow		90° 1.06-12 x -12 JIC
31	54764964	Switch Shutdown W/O-Ring		
32	35356468	Conn		1.60 -12 x -16 JIC
33	36891083	Oil Level Indicator		
34	95992632	Elbow		45°
35	95935599	Coupling		.12 NPT x 0.75
36	36890317	Sleeve Fitting		
37	36881076	Valve, Service		
38	35579630	Plug, Vented		1.62 -12 SAE
39	35279942	O-Ring		

AIR & OIL PIPING



ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
40	95944666	Elbow 90° Street		0.25 NPT
41	95954194	Tee		
42	95667341	Nipple		.25 NPT x .88 LNG
43	36891547	Elbow		90° .12 NPT x .12 TBG
44	36891562	Tubing		.12 OD
45	35283506	Hose Assy		-8 x 39
46	35285451	Bulkhead Union		-8 JIC
47	95257325	Cap		-8 JIC
48	35323864	Hose Assy		-12 JIC x 34
49	22287189	Tube Assy		-12 JIC
50	36897445	Head, Filter		
51	35287556	Plug		.56 -18 SAE
52	36897353	Element Oil Filter		
53	95930301	Bushing		.125 x .25 NPT
54	35291384	Elbow		90° 1.31 -12 x -16 JIC
55	35294750	Elbow		90° 1.06 -12 x -12 JIC
56	35283464	Elbow		90° 1/4 NPT x -4 JIC
57	96739693	Adapter		26 MM x -12
58	95951646	Tee		-12 x -12 x -12
59	95986014	Union, Swivel Nut		-4
60	93186278	Reducer		-12 x -4 JIC
61	93481570	Tube Assy		5/16"
62	95989695	Adapter		12 MM x -5 JIC
63	35316587	Adapter, Barbed		1/8"
64	35377621	Clamp, Spring		1/4"
65	35282292	Tubing		1/8" x 14"
66	35323542	Adapter, Barbed		1/8"
67	55296409	Connector		1.88 - 12 x -24 JIC
68	22287221	Tube		-24
69	95944906	Elbow, Union		-24
71	95052387	Union		-4 x -5
72	95644019	Reducer		
73	35365774	Reducer		-12 x -8
74	95955993	Connector		
75	35114545	Tee		1/4 NPT

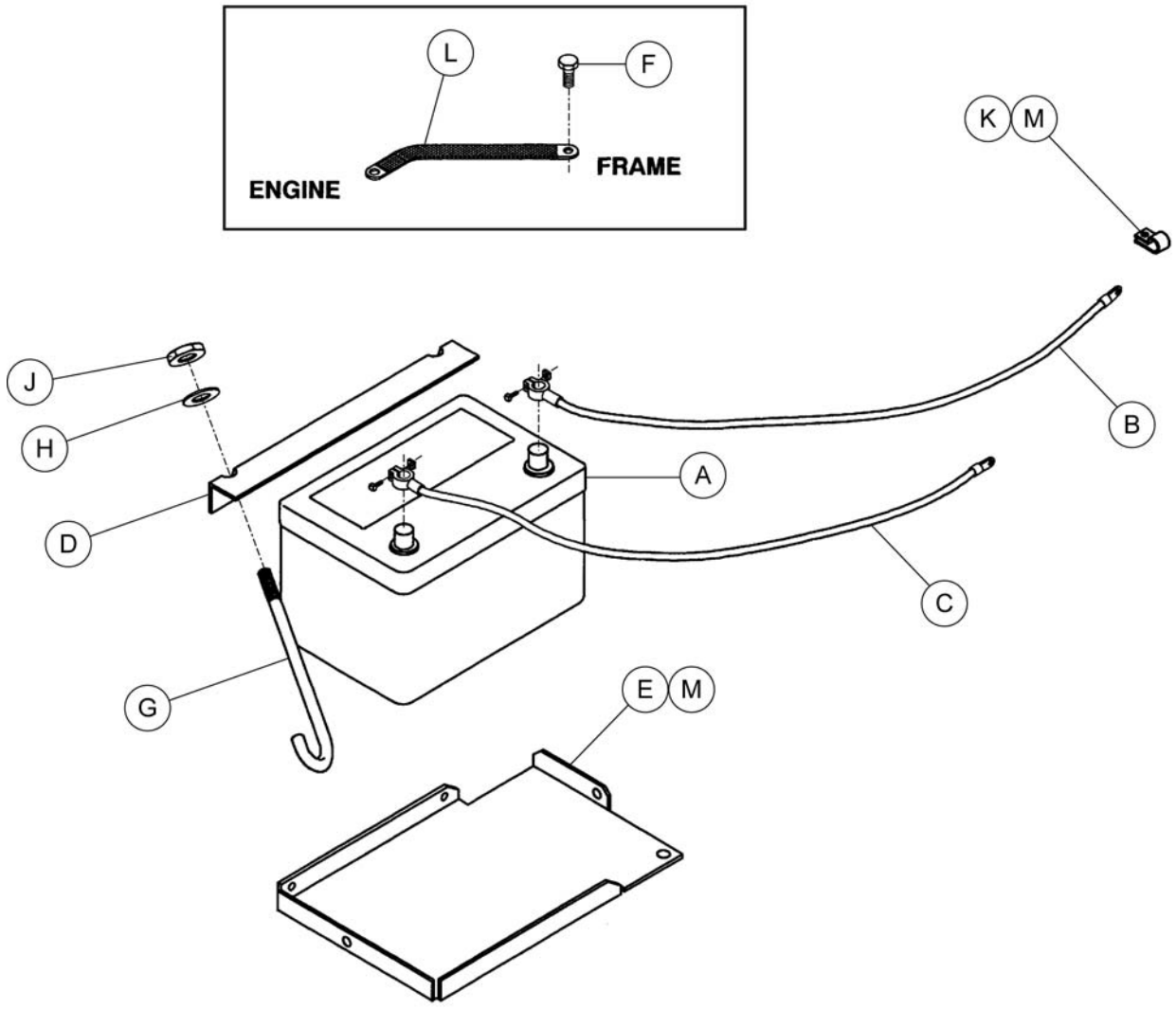
INSTRUMENT/CONTROL PANEL WITHOUT START/RUN VALVE



INSTRUMENT/CONTROL PANEL WITHOUT START/RUN VALVE

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	54749601	Frame, WW Instrument Panel	1	
B	22171680	Panel, Instrument	1	
C	22171698	Decal, WW Instrument Panel	1	
D	54766704	Meter, Electronic Hour	1	
E	22054159	Nut, Plastic	2	4-40
F	22127385	Switch, Ignition	1	
G	35604065	Gauge	1	150 PSI Pressure
H	95935599	Coupling, Std	1	1/8" NPT x .75
J	36891547	Elbow	1	1/8" NPT x 1/8" Tube
K	22054167	Key, Removable Ignition	1	
L	54774104	Key, Non- Removable Ignition	1	
M	22107478	Hinge, Control Panel	1	
N	36897380	Door, Instrument Panel	1	
P	22070494	Screw, Plastic Tapping	8	
Q	36920486	Rivet, Aluminum	6	3/16"
R	36877587	Rivet, Aluminum	4	3/16"
S	22058291	Gauge ASM.	1	4-IN -1
T	35607829	Eyebolt	2	
U	95935029	Washer, Flat	2	
V	36772028	Washer, Plastic	2	
W	35607837	Spring	2	
X	95923298	Nut, Hex	2	1/4" -20
Y	54774112	Module	1	2-Light Warning
Z	54774096	Gauge, Fuel	1	
A1	22199079	Adapter, Switch	1	

BATTERY & MOUNTING

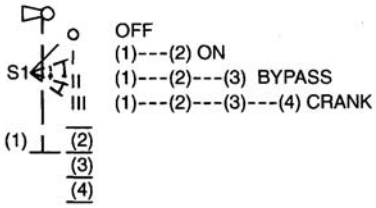


BATTERY & MOUNTING

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	36844264	Battery	1	
B	35516582	Cable, Positive Battery	1	(48")
C	36892685	Cable, Negative Battery	1	(37")
D	36853257	Angle	1	
E	36890648	Tray, Battery	1	
F	35130293	Screw, Tapping	1	3/8" -16 x 3/4"
G	36860005	J-Bolt	2	
H	36853265	Washer, Plastic	2	
J	35144492	Nut, Lock	2	1/4"-20
K	35225093	Clamp, Support	2	1/2"
L	36783488	Strap, Ground	1	
M	35279025	Screw, Tapping	5	M08-1.25 x 20

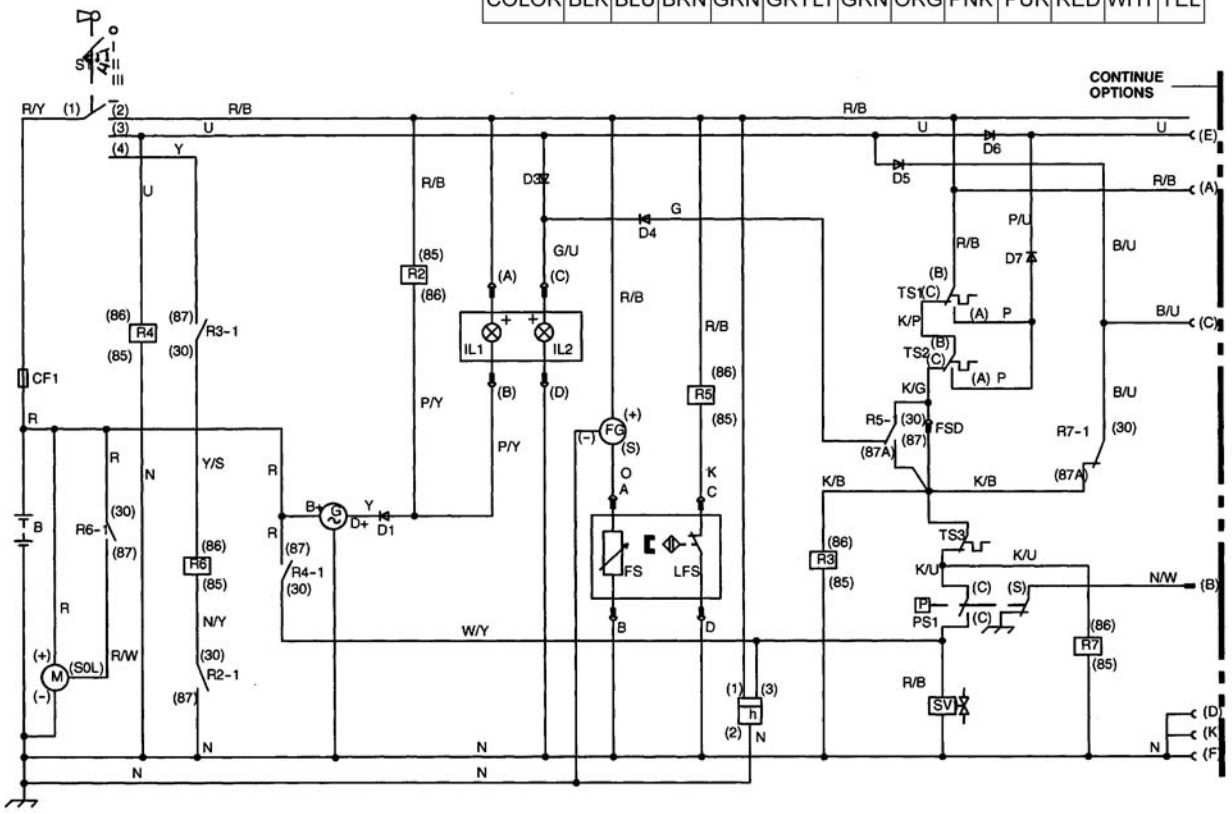
WIRING DIAGRAM

S1 KEYSWITCH OPERATION SEQUENCE



OFF
(1)---(2) ON
(1)---(2)---(3) BYPASS
(1)---(2)---(3)---(4) CRANK

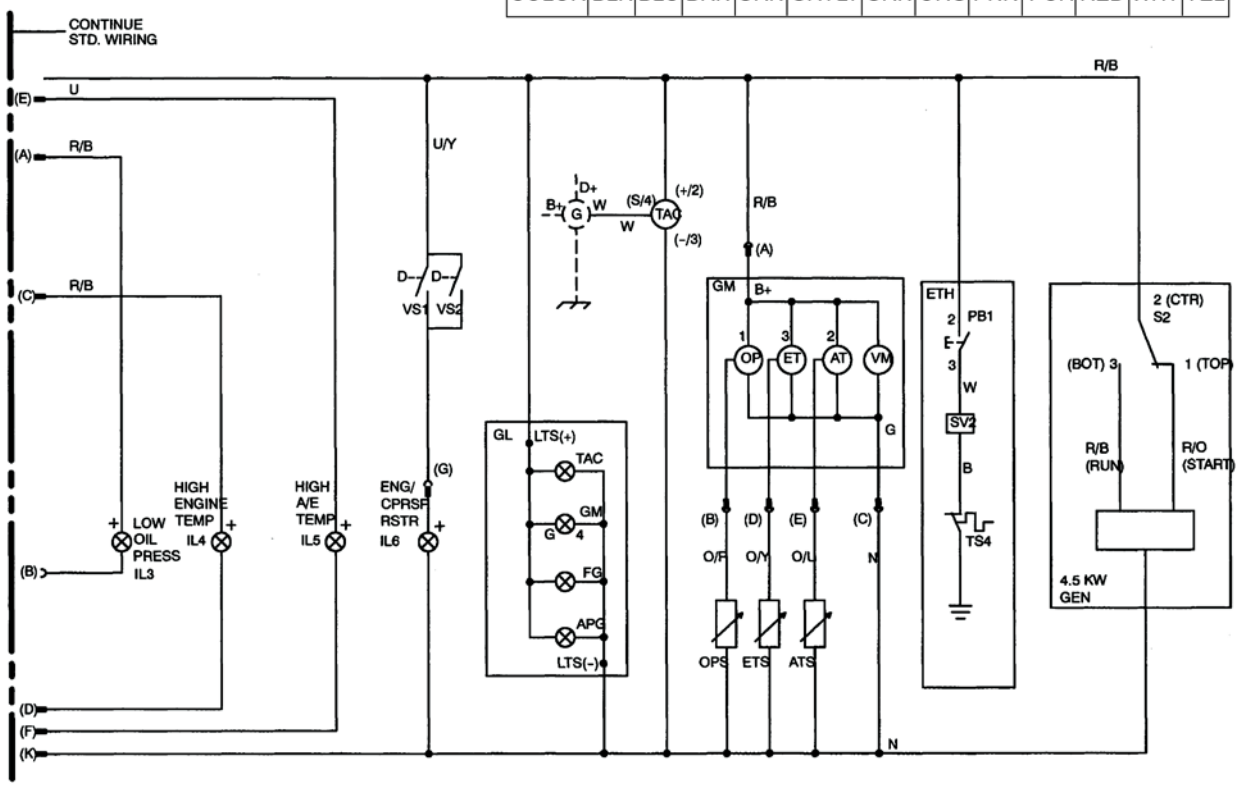
ITEM	B	U	N	G	S	LG	O	K	P	R	W	Y
COLOR	BLK	BLU	BRN	GRN	GRYLT	GRN	ORG	PNK	PUR	RED	WHT	YEL



ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
B	36844264	Battery	1	
CF1	36792083	Fuse	1	20A
D1	35676169	Diode	1	
D3	35676169	Diode	1	
D4	35676169	Diode	1	
D5	35676169	Diode	1	
D6	35676169	Diode	1	
D7	35676169	Diode	1	
G	36124881	Alternator	1	
FG	54774096	Gauge, Fuel	1	
FS	22058531	Sender, Fuel	1	Combined in1 Lamp Module
H	54766704	Hourmeter	1	
IL1	54774112	Low Oil Press Indicator Lamp	1	Combined in 2 Lamp Module
IL2	54774112	Low Oil Press Indicator Lamp	1	Combined in 2 Lamp Module
LFS	22058531	Switch, Low Fuel	1	Combined in1 Lamp Module
M	36120649	Starter	1	
PS1	54747935	Switch, Engine Oil Pressure	1	
R2	54368048	Relay, Start Protect	1	
R3	54368048	Relay, Start Inhibit	1	
R4	54368048	Relay, Fuel Solenoid	1	
R5	54368048	Relay, Fuel Shutdown	1	
R6	54368048	Relay, Crank	1	
R7	54368048	Relay, High Engine Temp	1	
S1	92086719	Switch, Key	1	
SV1	36125409	Solenoid, Fuel	1	
TS1	54764964	Switch, A/E High Air Temp	1	
TS2	54764956	Switch, Discharge High Air Temp	1	
TS3	36893055	Switch, High Engine Temp	1	
W1	22060321	Harness, Engine Control	1	
	22054167	Key, Removable		
	54774104	Key, Non- Removable		

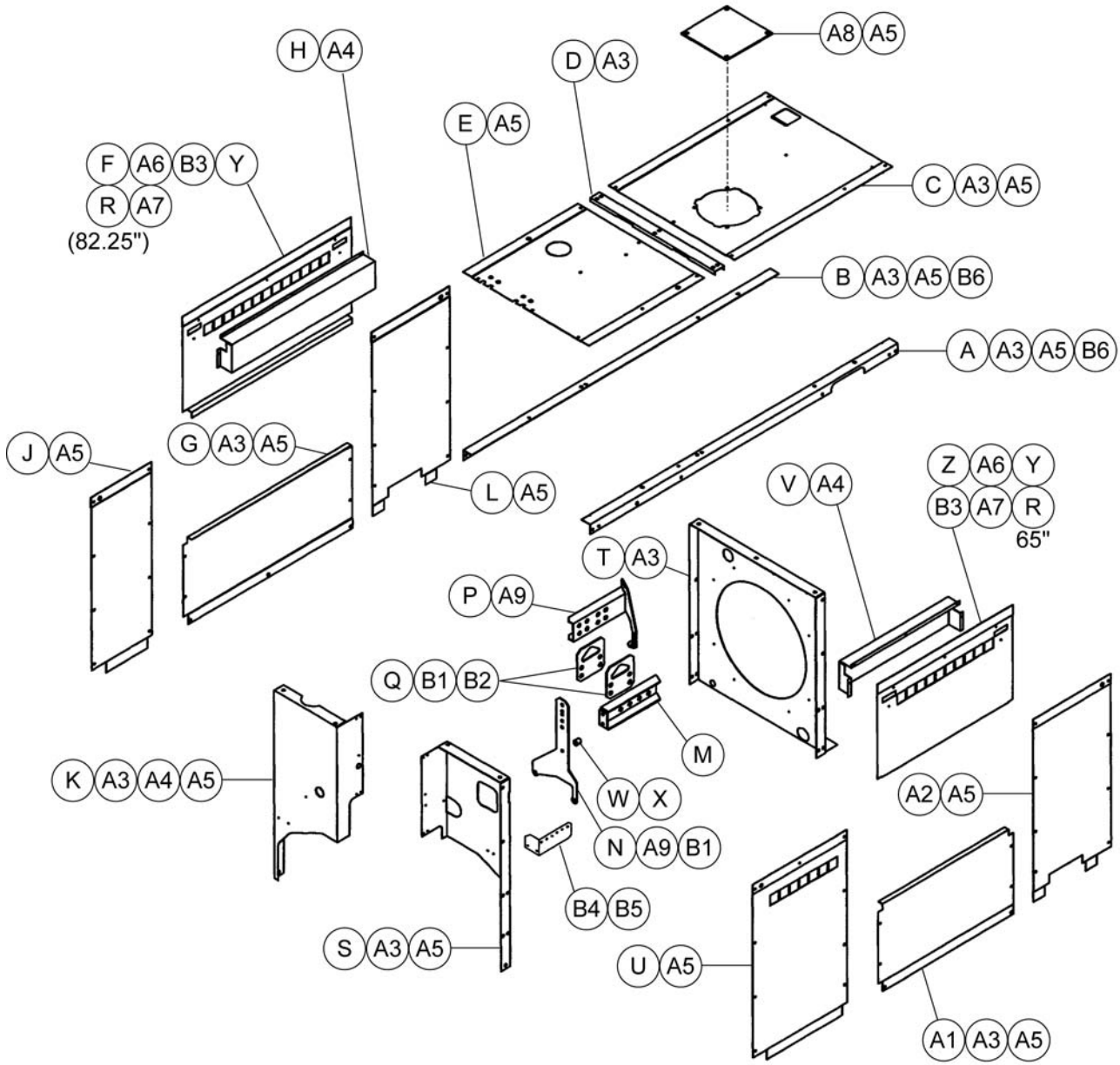
WIRING DIAGRAM

ITEM	B	U	N	G	S	LG	O	K	P	R	W	Y
COLOR	BLK	BLU	BRN	GRN	GRYLT	GRN	ORG	PNK	PUR	RED	WHT	YEL



ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
ATS	35372457	Airend Temp Sender		
ETH	35367739	Manual Ether Start		
	35377266	Automatic Ether Start		
ETS	35604180	Engine Temp Sender		3 Cyl.
	35372457	Engine Temp Sender		4 Cyl.
GEN	36852622	Generator		4.5 KW
GL	36852622	Gauge Lights		
	35333236	Bulb, Incandescent		
IL3	22061493	Low Oil Press Indicator Lamp		Combined in 4 Lamp Module
IL4	22061493	High Engine Temp Indicator Lamp		Combined in 4 Lamp Module
IL5	22061493	High A/E Temp Indicator Lamp		Combined in 4 Lamp Module
IL6	22061493	High A/E Temp Indicator Lamp		Combined in 4 Lamp Module
OPS	36870608	Oil Pressure Sender		
PB1	*	Push Button Switch		Included in Option
SV2	*	Tachometer		Included in Option
TAC	22060198	Solenoid, Ether		
TS4	*	Switch, Block Temp. Ether		Included in Option
VS1	36847838	Switch, Air Filter Restriction		
VS2	36847838	Switch, Air Filter Restriction		
W3	22074843	Harness, Gauge Illumination Option		
W4	36842839	Harness, Air Filter Restr. Option		
W5	36842821	Harness, Manual Cold Start Option		

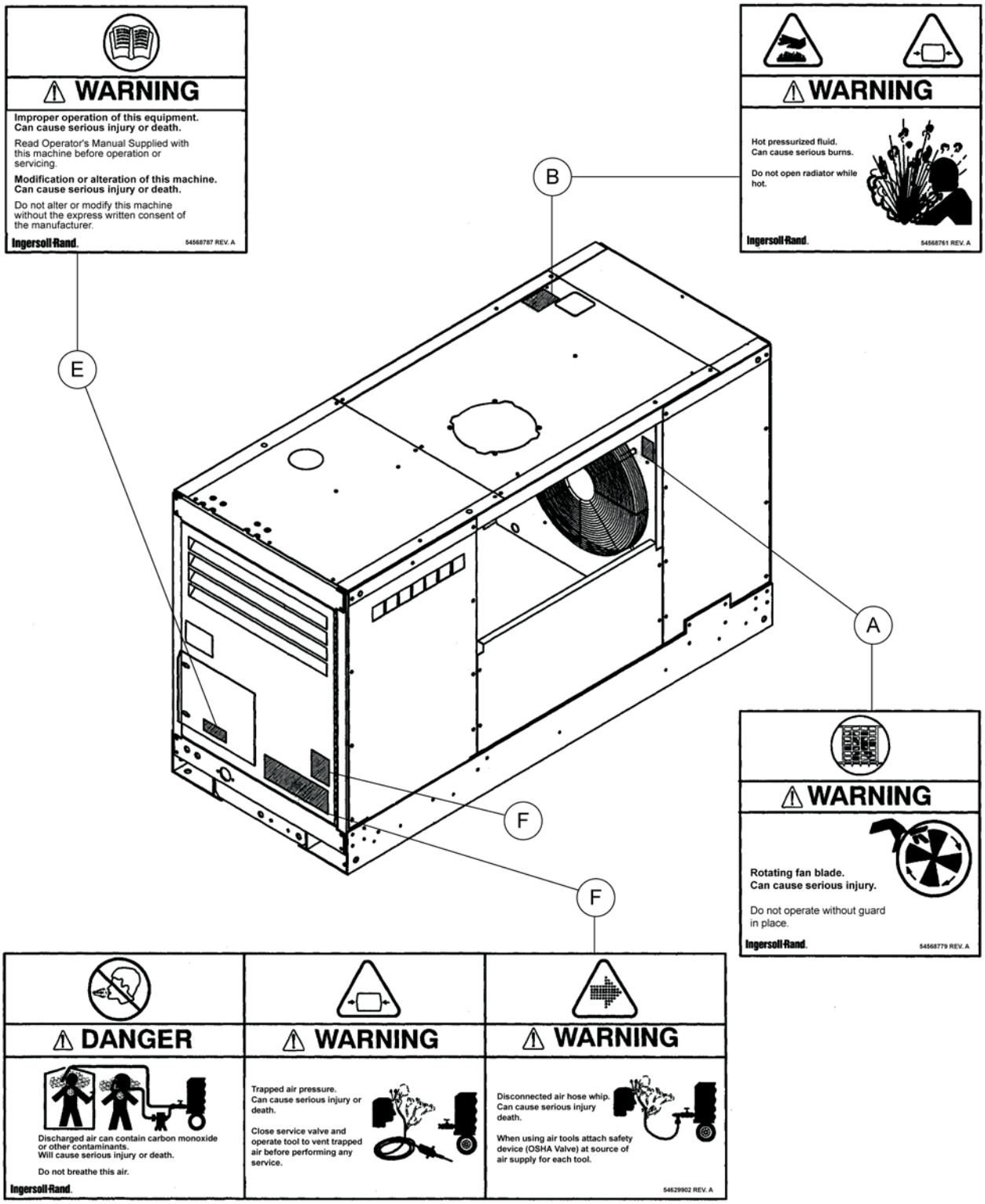
ENCLOSURE COMPLETE



ENCLOSURE COMPLETE

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	36890531	Stringer, Cab Side	1	
B	36890549	Stringer, Bed Side	1	
C	36890762	Panel, Roof CLR End	1	
D	36891414	Channel, Roof Connector	1	
E	36890838	Panel, Roof	1	
F	36890739	Panel, Upper Engine Bed	1	
G	36890721	Panel, Lower Engine Bed	1	
H	36890812	Box, Air Inlet Bed	1	
J	36890747	Panel, Filter End Bed	1	
K	22287213	Bulkhead, Rear Bed	1	
L	36890713	Panel, Cooler End Bed	1	
M	36891745	Stringer, Lift Beam	1	
N	36891729	Member, Lift Beam Rear	1	
P	36891737	Member, Lift Beam Front	1	
Q	36891760	Eye, Lift Beam	2	
R	35368216	Foam	*	See Illustration for Length
S	36890796	Bulkhead, Rear Cab	1	
T	36890473	Orifice, Fan		
U	36890705	Panel, Filter End Cab	1	
V	36890770	Box, Air Inlet Cab	1	
W	36892982	Spacer	1	
X	92304450	Screw, Hex	1	M12-1.75 x 50
Y	36786218	Lanyard	2	1.6 x 355.6
Z	36890697	Panel, Upper Engine Cab	1	
A1	36890689	Panel, Lower Engine Cab	1	
A2	36890655	Panel, Cooler End Cab	1	
A3	36895746	Nutsert, Hex	51	M08
A4	36877587	Rivet	15	3/16ÿ
A5	35279025	Screw Tapping	73	M08 - 125 x 20
A6	36892677	Latch, Trigger	4	
A7	36861383	Hook	4	# 9 S
A8	35279413	Cover, Roof Access	1	
A9	36879492	Screw, Hex Flange	5	M12 x 25
	36881712	Screw, Hex Flange	2	1/2"-13X1.0
B1	36879203	Nut, Hex Flange	7	M12 - 1.75
B2	36877793	Screw, Hex Flange	4	M12-1.75 x 40
B3	36892206	Cap, Vinyl	4	
B4	22095533	Bracket, Relay Mounting	1	
B5	36797652	Screw	2	Tapping M06-1.0 x 12
B6	35271170	Screw	2	M8-1.25 x 40

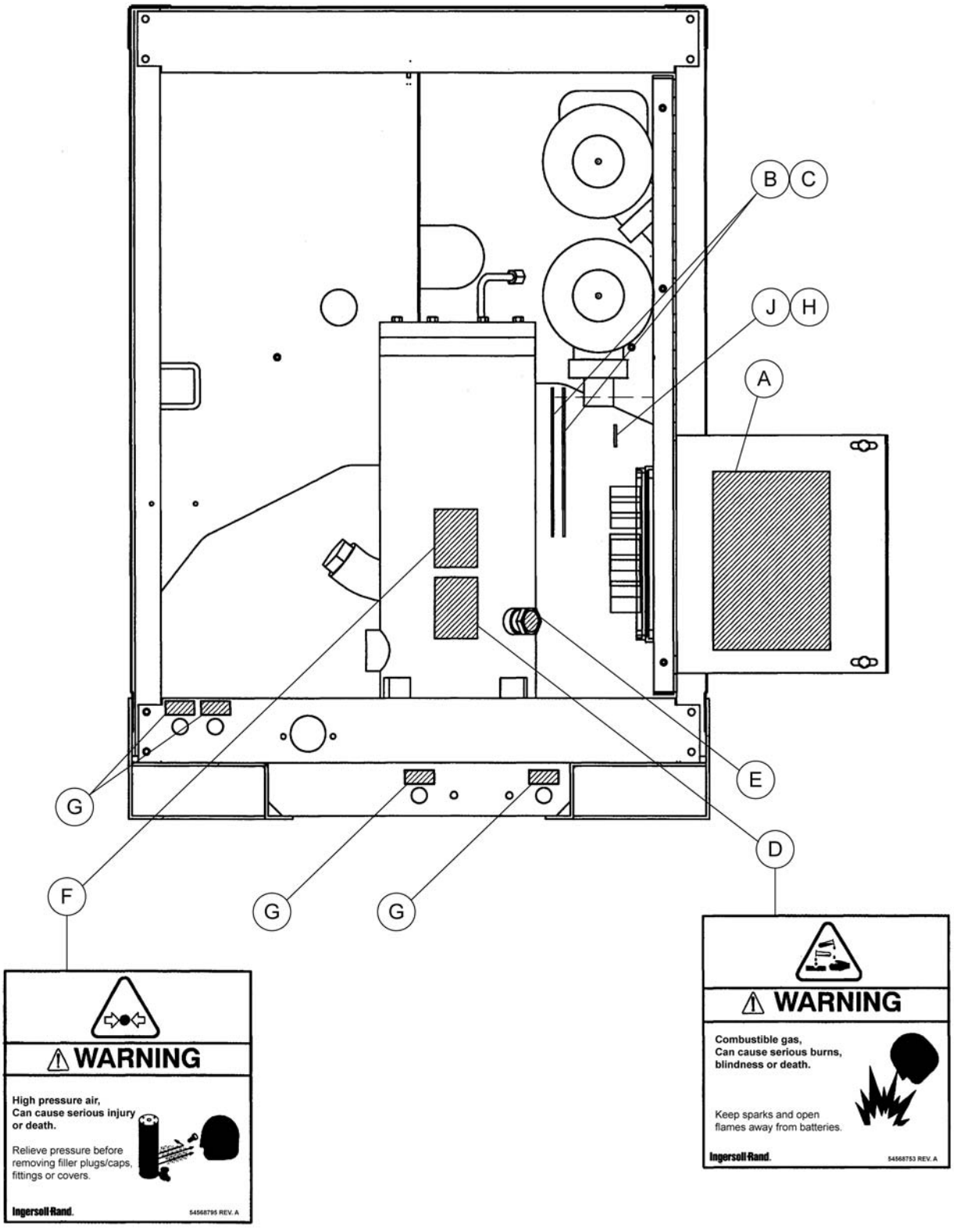
DECAL LOCATION



DECAL LOCATION

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	54568779	Decal, Rotating Fan	2	
B	54568761	Decal, Hot Press Fluid	1	
C	54629902	Decal, Combination 3-part	1	3-part
E	54568787	Decal, Improper Operation	1	
F	36514602	Decal, Noise Emission	1	

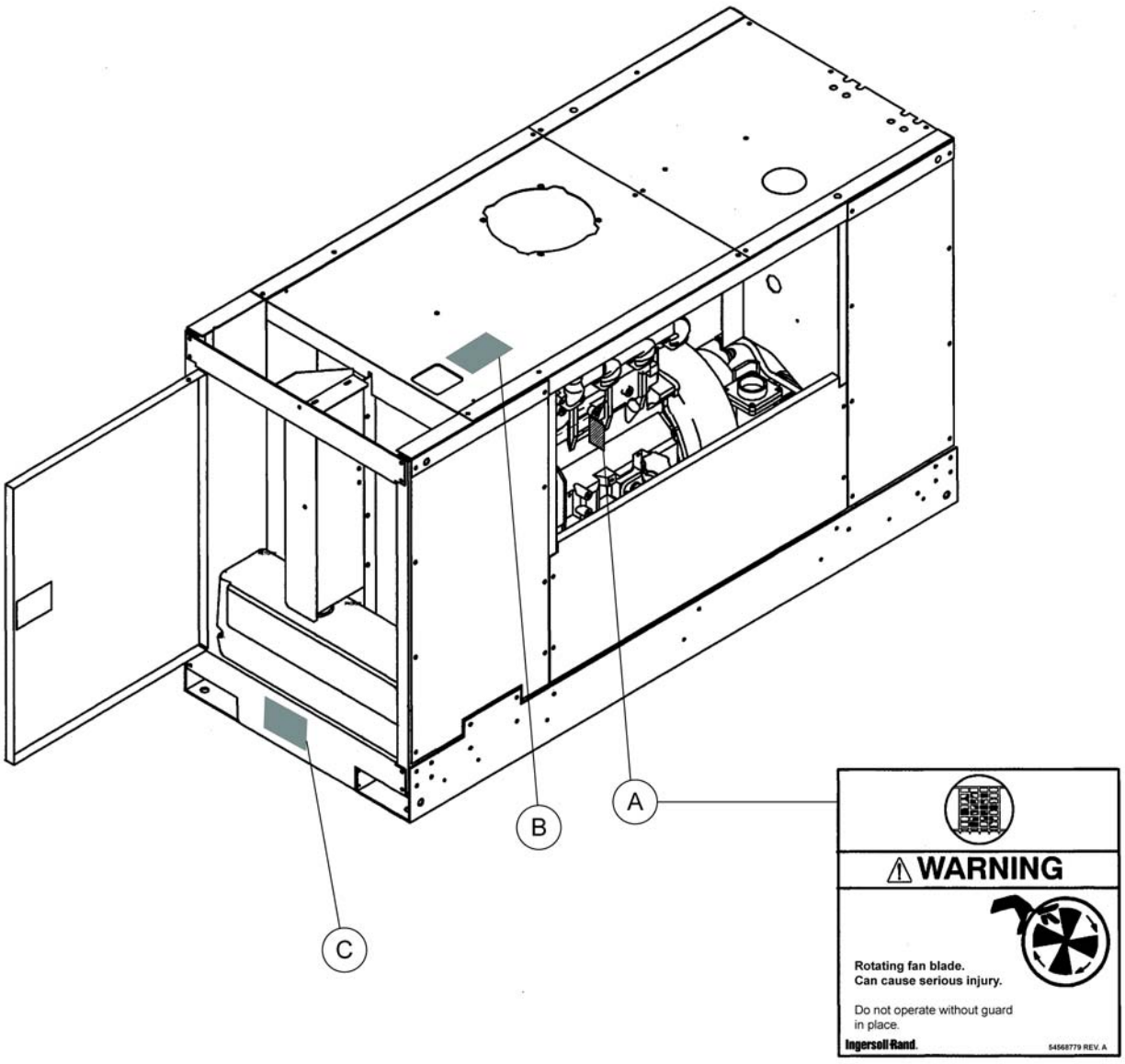
DECAL LOCATION



DECAL LOCATION

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	22099311	Decal, Operating Instructions		
B	22108617	Card, Standard Wiring	1	
C	22108641	Card, Option Wiring	1	
D	54568753	Decal, Battery Gas	1	
E	54604970	Decal, Oil Fill		
F	54568795	Decal, High Pressure Air	1	
G	54629977	Decal, Central Drains	1	
H	36523306	Plate, Serial Number	1	
J	36794816	Rivet	2	

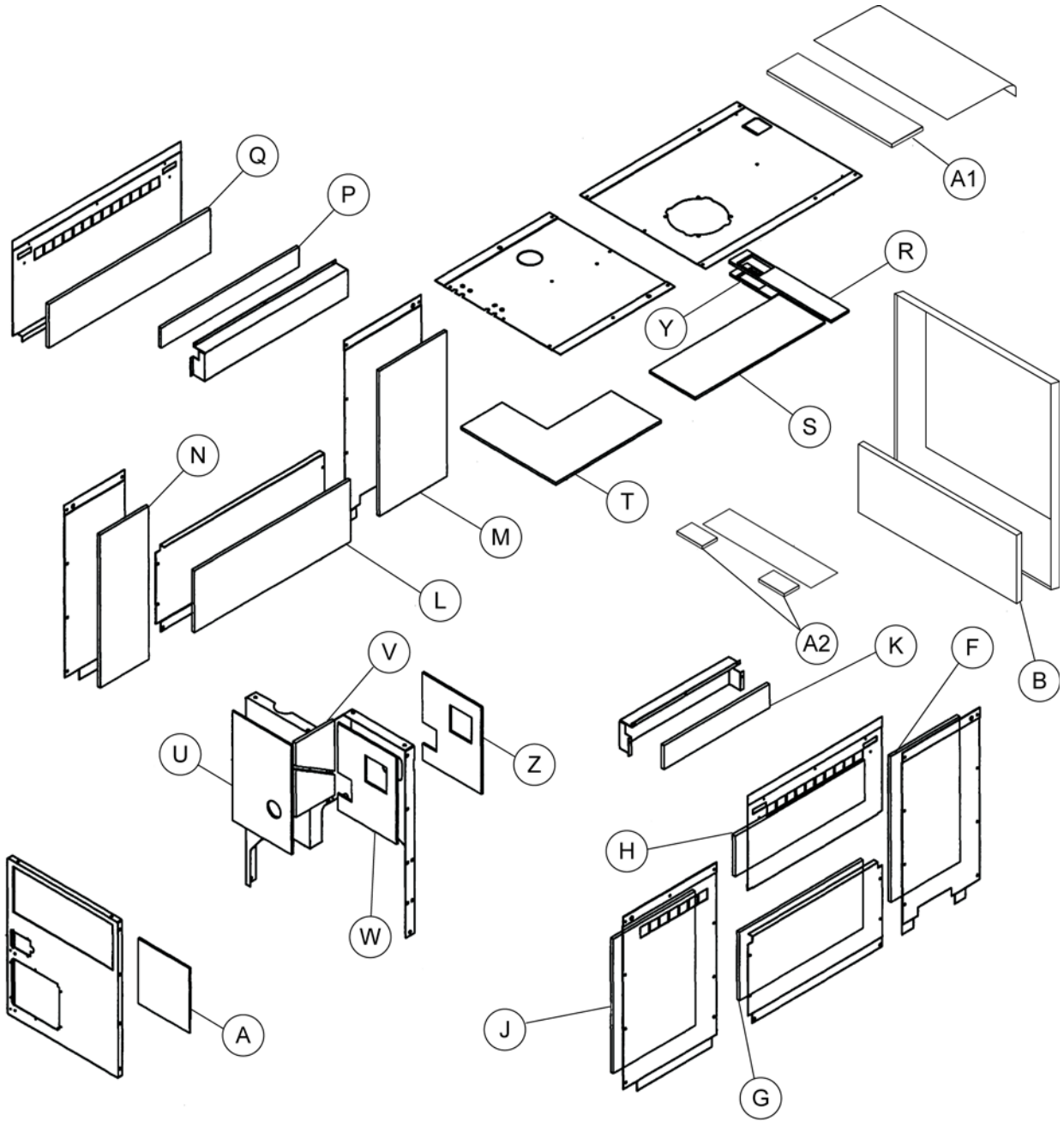
DECAL LOCATION



DECAL LOCATION

ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	54568779	Decal, Rotating Fan		
B	54604962	Decal, Radiator Fill Hot	1	
C	54625207	Decal, Diesel Fuel	1	

ACOUSTIC PANELS



ITEM	COMM. NO.	DESCRIPTION	QTY	DIMENSIONS/NOTES
A	22338529	Panel, Acoustic St. Door	1	
B	22338511	Panel, Acoustic CRB Door	1	
F	22338545	Panel, Acoustic Cab Cooler	1	
G	22338552	Panel, Acoustic Cab Lwr Eng.	1	
H	22338560	Panel, Acoustic Cab Upper Eng.	1	
J	22338578	Panel, Acoustic Cab Fltr End	1	
K	36892776	Panel, Acoustic Cab Air Box	1	
L	22338586	Panel, Acoustic Bed Lwr Eng	1	
M	22338545	Panel, Acoustic Bed Cooler End	1	
N	22338602	Panel, Acoustic Bed Fltr End	1	
P	36892834	Panel, Acoustic Bed Air Box	1	
Q	22338610	Panel, Acoustic Bed Upper Eng	1	
R	36892883	Panel, Acoustic Oil Cooler Top	1	
S	36892909	Panel, Acoustic Center Roof	1	
T	36892917	Panel, Acoustic End Roof	1	
U	22287239	Panel, Acoustic BHD Bed Side	1	
V	36892941	Panel, Acoustic BHD Ctr Upper	1	
W	36892933	Panel, Acoustic BHD Cab Fltr	1	
Y	36892891	Panel, Acoustic	1	
Z	36892925	Panel, Acoustic BHD Cab eng	1	
A1	22338636	Panel, Acoustic Exhaust Plenum	1	
A2	22338628	Panel, Acoustic Fork Truck Plt	2	

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NUMERICAL INDEX

NUMERICAL INDEX

NUMERICAL INDEX

NUMERICAL INDEX

WORD INDEX

N

O

P

R

S

T

U

V

W

Z

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