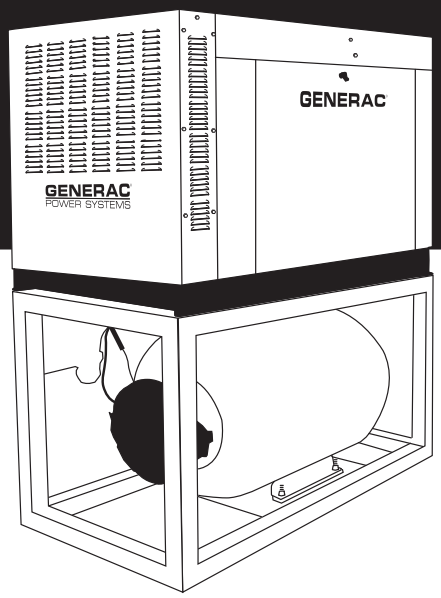
Serial Number

005467-1	SG30
005709-1	GENERATOR EPA CERTIFIED
005376-0	TANK SET
005230-0	NATURAL GAS RISER FRAME
005710-0	OPEN SET RISER FRAME

STATIONARY EMERGENCY GENERATOR

OWNER'S MANUAL



A new standard of reliability

GENERAC®
POWER SYSTEMS, INC.

⚠ Not intended for use in critical life support applications. ⚠

— ⚠ CAUTION ⚠ —

ONLY QUALIFIED ELECTRICIANS OR CONTRACTORS SHOULD ATTEMPT INSTALLATION!

DEADLY EXHAUST FUMES!

This manual should remain with the unit.

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Stationary Emergency Generator
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INTRODUCTION

Thank you for purchasing this model of the Stationary Emergency Generator set product line.

Every effort was expended to make sure that the information and instructions in this manual were both accurate and current at the time the manual was written. However, the manufacturer reserves the right to change, alter or otherwise improve this product(s) at any time without prior notice.

READ THIS MANUAL THOROUGHLY

If any portion of this manual is not understood, contact the nearest Authorized Service Dealer for starting, operating and servicing procedures.

Throughout this publication, and on tags and decals affixed to the generator, DANGER, WARNING, CAUTION and NOTE blocks are used to alert personnel to special instructions about a particular service or operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully. Their definitions are as follows:

⚠ DANGER!

INDICATES A HAZARDOUS SITUATION OR ACTION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

⚠ WARNING!

Indicates a hazardous situation or action which, if not avoided, could result in death or serious injury.

⚠ CAUTION!

Indicates a hazardous situation or action which, if not avoided, could result in minor or moderate injury.

NOTE:

Notes contain additional information important to a procedure and will be found within the regular text body of this manual.

These safety warnings cannot eliminate the hazards that they indicate. Common sense and strict compliance with the special instructions while performing the action or service are essential to preventing accidents.

Four commonly used safety symbols accompany the **DANGER**, **WARNING** and **CAUTION** blocks. The type of information each indicates is as follows:

This symbol points out important safety information that, if not followed, could endanger personal safety and/or property of others.

This symbol points out potential explosion hazard.

This symbol points out potential fire hazard.

This symbol points out potential electrical shock hazard.

The operator is responsible for proper and safe use of the equipment. The manufacturer strongly recommends that the operator read this Owner's Manual and thoroughly understand all instructions before using this equipment. The manufacturer also strongly recommends instructing other users to properly start and operate the unit. This prepares them if they need to operate the equipment in an emergency.

OPERATION AND MAINTENANCE

It is the operator's responsibility to perform all safety checks, to make sure that all maintenance for safe operation is performed promptly, and to have the equipment checked periodically by an Authorized Service Dealer. Normal maintenance service and replacement of parts are the responsibility of the owner/operator and, as such, are not considered defects in materials or workmanship within the terms of the warranty. Individual operating habits and usage contribute to the need for maintenance service.

Proper maintenance and care of the generator ensure a minimum number of problems and keep operating expenses at a minimum. See an Authorized Service Dealer for service aids and accessories.

Operating instructions presented in this manual assume that the generator electric system has been installed by an Authorized Service Dealer or other competent, qualified contractor. Installation of this equipment is not a “do-it-yourself” project.

HOW TO OBTAIN SERVICE

When the generator requires servicing or repairs, simply contact an Authorized Service Dealer for assistance. Service technicians are factory-trained and are capable of handling all service needs.

When contacting a dealer about parts and service, always supply the complete Model Number, Serial Number and Type Code (where applicable) from the DATA LABEL that is affixed to the unit.

AUTHORIZED SERVICE DEALER LOCATION

To locate the nearest AUTHORIZED SERVICE DEALER, please call this number:

1-800-333-1322

or locate us on the web at:

www.generac.com

Safety Rules

Save These Instructions – The manufacturer suggests that these rules for safe operation be copied and posted in potential hazard areas. Safety should be stressed to all operators, potential operators, and service and repair technicians for this equipment.

Study these SAFETY RULES carefully before installing, operating or servicing this equipment. Become familiar with this Owner's Manual and with the unit. The generator can operate safely, efficiently and reliably only if it is properly installed, operated and maintained. Many accidents are caused by failing to follow simple and fundamental rules or precautions.

The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The warnings in this manual, and on tags and decals affixed to the unit are, therefore, not all inclusive. If a procedure, work method or operating technique is used that the manufacturer does not specifically recommend, ensure that it is safe for others. Also make sure the procedure, work method or operating technique utilized does not render the generator unsafe.

⚠ DANGER!

Despite the safe design of this generator, operating this equipment imprudently, neglecting its maintenance or being careless can cause possible injury or death. Permit only responsible and capable persons to install, operate or maintain this equipment.

Potentially lethal voltages are generated by these machines. Ensure all steps are taken to render the machine safe before attempting to work on the generator.

Parts of the generator are rotating and/or hot during operation. Exercise care near running generators.

GENERAL HAZARDS

- For safety reasons, the manufacturer recommends that this equipment be installed, serviced and repaired by an Authorized Service Dealer or other competent, qualified electrician or installation technician who is familiar with applicable codes, standards and regulations. The operator also must comply with all such codes, standards and regulations.
- Installation, operation, servicing and repair of this (and related) equipment must always comply with applicable codes, standards, laws and regulations. Adhere strictly to local, state and national electrical and building codes. Comply with regulations the Occupational Safety and Health Administration (OSHA) has established. Also, ensure that the generator is installed, operated and serviced in accordance with the manufacturer's instructions and recommendations. Following installation, do nothing that might render the unit unsafe or in noncompliance with the aforementioned codes, standards, laws and regulations.
- The engine exhaust fumes contain carbon monoxide gas, which can be DEADLY. This dangerous gas, if breathed in sufficient concentrations, can cause unconsciousness or even death. For that reason, adequate ventilation must be provided. This should be considered prior to installing the generator. The unit should be positioned to direct exhaust gasses safely away from any building where people, animals, etc., will not be harmed. Any exhaust stacks that ship loose with the unit must be installed properly per the manufacturer's instruction, and in strict compliance with applicable codes and standards.
- Keep hands, feet, clothing, etc., away from drive belts, fans, and other moving or hot parts. Never remove any drive belt or fan guard while the unit is operating.
- Adequate, unobstructed flow of cooling and ventilating air is critical in any room or building housing the generator to prevent buildup of explosive gases and to ensure correct generator operation. Do not alter the installation or permit even partial blockage of ventilation provisions, as this can seriously affect safe operation of the generator.
- Keep the area around the generator clean and uncluttered. Remove any materials that could become hazardous.
- When working on this equipment, remain alert at all times. Never work on the equipment when physically or mentally fatigued.
- Inspect the generator regularly, and promptly repair or replace all worn, damaged or defective parts using only factory-approved parts.
- Before performing any maintenance on the generator, disconnect its battery cables to prevent accidental start-up. Disconnect the cable from the battery post indicated by a NEGATIVE, NEG or (–) first. Reconnect that cable last.
- Never use the generator or any of its parts as a step. Stepping on the unit can stress and break parts, and may result in dangerous operating conditions from leaking exhaust gases, fuel leakage, oil leakage, etc.

ELECTRICAL HAZARDS

- All Stationary Emergency Generators covered by this manual produce dangerous electrical voltages and can cause fatal electrical shock. Utility power delivers extremely high and dangerous voltages to the transfer switch as well as the generator. Avoid contact with bare wires, terminals, connections, etc., on the generator as well as the transfer switch, if applicable. Ensure all appropriate covers, guards and barriers are in place before operating the generator. If work must be done around an operating unit, stand on an insulated, dry surface to reduce shock hazard.
- Do not handle any kind of electrical device while standing in water, while barefoot, or while hands or feet are wet. DANGEROUS ELECTRICAL SHOCK MAY RESULT.

- If personnel must stand on metal or concrete while installing, operating, servicing, adjusting or repairing this equipment, place insulative mats over a dry wooden platform. Work on the equipment only while standing on such insulative mats.
- The National Electrical Code (NEC) requires the frame and external electrically conductive parts of the generator to be connected to an approved earth ground. This grounding will help prevent dangerous electrical shock that might be caused by a ground fault condition in the generator or by static electricity. Never disconnect the ground wire.
- Wire gauge sizes of electrical wiring, cables and cord sets must be adequate to handle the maximum electrical current (ampacity) to which they will be subjected.
- Before installing or servicing this (and related) equipment, make sure that all power voltage supplies are positively turned off at their source. Failure to do so will result in hazardous and possibly fatal electrical shock.
- Connecting this unit to an electrical system normally supplied by an electric utility shall be by means of a transfer switch so as to isolate the generator electric system from the electric utility distribution system when the generator is operating. Failure to isolate the two electric system power sources from each other by such means will result in damage to the generator and may also result in injury or death to utility power workers due to backfeed of electrical energy.
- Stationary Emergency Generators installed with an automatic transfer switch will crank and start automatically when normal (utility) source voltage is removed or is below an acceptable preset level. To prevent such automatic start-up and possible injury to personnel, disable the generator's automatic start circuit (battery cables, etc.) before working on or around the unit. Then, place a "Do Not Operate" tag on the generator control panel and on the transfer switch.
- In case of accident caused by electric shock, immediately shut down the source of electrical power. If this is not possible, attempt to free the victim from the live conductor. AVOID DIRECT CONTACT WITH THE VICTIM. Use a nonconducting implement, such as a dry rope or board, to free the victim from the live conductor. If the victim is unconscious, apply first aid and get immediate medical help.
- Never wear jewelry when working on this equipment. Jewelry can conduct electricity resulting in electric shock, or may get caught in moving components causing injury.

FIRE HAZARDS

- Keep a fire extinguisher near the generator at all times. Do NOT use any carbon tetra-chloride type extinguisher. Its fumes are toxic, and the liquid can deteriorate wiring insulation. Keep the extinguisher properly charged and be familiar with its use. If there are any questions pertaining to fire extinguishers, consult the local fire department.

EXPLOSION HAZARDS

- Properly ventilate any room or building housing the generator to prevent build-up of explosive gas.
- Do not smoke around the generator. Wipe up any fuel or oil spills immediately. Ensure that no combustible materials are left in the generator compartment, or on or near the generator, as FIRE or EXPLOSION may result. Keep the area surrounding the generator clean and free from debris.
- These generators may operate using one of several types of fuels. All fuel types are potentially FLAMMABLE and/or EXPLOSIVE and should be handled with care. Comply with all laws regulating the storage and handling of fuels. Inspect the unit's fuel system frequently and correct any leaks immediately. Fuel supply lines must be properly installed, purged and leak tested according to applicable fuel-gas codes before placing this equipment into service.
- Diesel fuels are highly FLAMMABLE. Gaseous fluids such as natural gas and liquid propane (LP) gas are extremely EXPLOSIVE. Natural gas is lighter than air, and LP gas is heavier than air; install leak detectors accordingly.

CALIFORNIA PROPOSITION 65 WARNING
Engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

CALIFORNIA PROPOSITION 65 WARNING
This product contains or emits chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

IDENTIFICATION RECORD

DATA LABEL

Every generator set has a DATA LABEL that contains important information pertinent to the generator. The data label, which can be found attached to the generator's lower connection box, lists the unit's serial number and its rated voltage, amps, wattage capacity, phase, frequency, rpm, power factor, etc.

GENERATOR SET DATA — MADE IN USA

MODEL ____ SERIAL ____

RATED KW ____ RATED KVA ____ PHASE ____

RATED VOLTAGE ____ RATED AMPS ____

POWER FACTOR ____ HERTZ ____ ALT RPM ____

ENGINE RPM ____ PRODUCTION DATE ____

ALTERNATOR SUBTRANSIENT REACTANCE ____

ALTERNATOR TRANSIENT REACTANCE ____

CLASS ☐ ROTOR ☐ STATOR WINDING INSULATION AT 25°C AMBIENT

GENERAC POWER SYSTEMS, INC.
WAUKESHA, WI

NOTE:

For actual information related to this particular model, please refer to the Manual Drawing Listing located at the end of this manual, or to the data label affixed to the unit.

Stationary Emergency Generator Model and Serial Number

This number is the key to numerous engineering and manufacturing details pertaining to your unit. Always supply this number when requesting service, ordering parts or seeking information.

Identification Code

Use this code to obtain important information about the generator. For example, if the code is ...

SD 100-- A 1 6 5.0 D 18 HB Y N C

– identify the generator as follows:

- SD – Stationary Emergency Diesel Generator ("SG" indicates a Stationary Emergency Gaseous Fuel Generator).
- 100 – Rated output is 100,000 watts (100 kW).
- A – Voltage code (see "Voltage Codes" on this page).
- 1 – Indicates single-phase unit (3 – indicates three-phase unit).
- 6 – Indicates unit rated 60 Hertz (Hz) (5 – indicates 50 Hz).
- 5.0 – Engine is 5.0 liter (304 cubic inches).
- D – Unit has diesel fuel system ("N" indicates natural gas; "L" indicates LP Liquid Withdrawal; "V" indicates LP Vapor Withdrawal).
- 18 – Alternator rpm rating (1,800 rpm); "36" indicates 3,600 rpm.
- H – Unit has an option "H" control panel.
- B – Indicates a brushless unit ("D" indicates a direct excited unit with brushes and slip rings; "P" indicates a permanent magnet excitation).
- Y – Unit is equipped with a standard enclosure ("N" indicates no enclosure; "S" indicates unit has an acoustic enclosure).
- N – Unit does not have an exhaust muffler ("Y" indicates a muffler has been mounted; "L" indicates a muffler has been shipped loose with the unit).
- Y – Unit has a main line circuit breaker ("C" indicates unit has a UL-listed circuit breaker; "N" indicates no circuit breaker has been mounted).

Groups and Assembly Numbers

The Data Label lists the groups and corresponding assembly numbers for each unit. The assembly numbers refer to exploded view drawing numbers that are applicable to the specific generator model. These drawings are located in the back half of this manual.

Voltage Codes

The identification code letter following the unit's kilowatt rating is the generator's "voltage code." Any one of the following voltage codes may be listed.

A – 120/240 volts, single-phase, four-lead, 60 Hz
D – 120/240 volts, single- and three-phase, 12-lead, 60 Hz
G – 120/208 volts, three-phase, 12-lead, 60 Hz Broad Range
J – 120/240 volts, three-phase, 12-lead, 60 Hz Broad Range
K – 277/480 volts, three-phase, 12-lead, 60 Hz Broad Range
L – 346/600 volts, three-phase, six-lead, 60 Hz
M – 110/220 volts, single-phase, four-lead, 50 Hz
N – 115/200 volts, three-phase, 12-lead, 50 Hz Broad Range
P – 100/200 volts, three-phase, 12-lead, 50 Hz Broad Range
R – 231/400 volts, three-phase, 12-lead, 50 Hz Broad Range
S – 277/480 volts, three-phase, six-lead, 50 Hz

EQUIPMENT DESCRIPTION

This equipment is a revolving field, alternating cur-rent Stationary Emergency Generator. It is powered by a propane vapor or natural gas fueled engine operating at 1800 rpm for 4-pole direct drive unit. The unit comes complete with a sound attenuated enclosure, internally mounted muffler, control console, mainline circuit breaker, battery charger, fuel tank set and protective alarms as explained in the following section.

All AC connections, including the power leads from the alternator, and control connections to the transfer switch are avail-able in the main connection box.

The Stationary Emergency Generator incorporates the following alternator features:

- Rotor and Stator insulation is Class H rated as defined by NEMA MG1-32.6, NEMA MG1-1.66.
- The generator is self ventilated and drip-proof constructed.
- The voltage waveform deviation, total harmonic content of the AC waveform and telephone influence factor have been evaluated and are acceptable according to NEMA MG1-32.

ENGINE OIL RECOMMENDATIONS

The unit has been filled with 15W-40 engine oil at the factory. Use a high-quality detergent oil classified "For Service SJ or SH." Detergent oils keep the engine cleaner and reduce carbon deposits. Use oil having the following SAE viscosity rating, based on the ambient temperature range anticipated before the next oil change:

Temperature	Oil Grade (Recommended)
Above 80° F (27° C)	SAE 30W or 15W-40
32° to 80° F (0° to 27° C)	SAE 20W-20 or 15W-40
Below 32° F (0° C)	See Note

⚠ CAUTION!

Any attempt to crank or start the engine before it has been properly serviced with the recommended oil may result in an engine failure.

NOTE:

For temperatures below 32° F, it is strongly recommended to use the optional Cold Weather Start Kit (part number listed in the Specification Section). The oil grade for temperatures below 32° F is 5W-30 synthetic oil.

COOLANT RECOMMENDATIONS

Use a mixture of propylene glycol base anti-freeze and deionized water. Cooling system capacity is listed in the "Specifications" section. Use only deionized water and only propylene anti-freeze. If desired, add a high quality rust inhibitor to the recommended coolant mixture. When adding coolant, always add the recommended 50-50 mixture.

⚠ CAUTION!

Do not use any chromate base rust inhibitor with ethylene glycol base anti-freeze or chromium hydroxide (“green slime”) forms and will cause overheating. Engines that have been operated with a chromate base rust inhibitor must be chemically cleaned before adding ethylene glycol base anti-freeze. Using any high silicate anti-freeze boosters or additives will also cause overheating. The manufacturer also recommends that any soluble oil inhibitor is NOT used for this equipment.

⚠ DANGER!

Do not remove the radiator pressure cap while the engine is hot or serious burns from boiling liquid or steam could result.

Ethylene glycol base antifreeze is poisonous. Do not use mouth to siphon coolant from the radiator, recovery bottle or any container. Wash hands thoroughly after handling. Never store used antifreeze in an open container because animals are attracted to the smell and taste of antifreeze even though it is poisonous to them.

ENGINE PROTECTIVE DEVICES

The Stationary Emergency Generator may be required to operate for long periods of time without an operator on hand to monitor such engine conditions as coolant temperature, oil pressure or rpm. For that reason, the engine has several devices designed to protect it against potentially damaging conditions by automatically shutting down the unit when the oil pressure is too low, the coolant temperature is too high, the coolant level is too low, or the engine is running too fast.

NOTE:

Engine protective switches and sensors are mentioned here for the reader's convenience. Also refer to the applicable control panel manual for additional automatic engine shutdown information.

COOLANT TEMPERATURE SENSING

An analog Water Temperature Sender (WTS) is located in the engine's cooling system. This sender is connected to the panel and allows the panel to monitor and display the temperature of the coolant system.

The WTS is a resistive device whose resistance changes based on coolant temperature. The resistance of the sender results in a voltage being developed across the sender. As the Coolant temperature increases, the resistance will decrease, causing the voltage to decrease. This changing voltage is converted to 4-20mA signal by a signal conditioner module. The corresponding 4-20mA signal is read by the control panel and displayed as the coolant temperature.

The control panel will monitor and display the coolant temperature anytime the DC input to the control panel is present.

If the temperature exceeds approximately 140° C (284° F), the engine shutdown will be initiated. The generator will automatically restart and the display will reset once the temperature has returned to an operating level.

LOW COOLANT LEVEL

A Low Coolant Level (LCL) sensor is placed in the generators coolant system. This sensor allows the panel to detect a Low Coolant Level condition.

The LCL is a resistive device whose resistance changes rapidly based on the presence or absence of coolant.

The resistance of the LCL results in a voltage being developed across the LCL. This voltage changes as the resistance changes. This changing voltage is converted to 4-20mA signal by a signal conditioner module. The corresponding 4-20mA signal is read by the control panel and displayed as the low coolant level.

If the level of the engine coolant drops below the level of the low coolant level sensor, the engine shutdown will be initiated.

OIL PRESSURE SENSING

An analog Oil Pressure Sender (OPS) is used for monitoring the engine oil pressure. This sender allows the control panel to measure and display the Engine oil pressure.

The OPS is a resistive device, whose resistance changes based on engine oil pressure. The resistance of the sender results in a voltage being developed across the sender. As the oil pressure increases, the resistance will decrease, causing the voltage to decrease. This changing voltage is converted to 4-20mA signal by a signal conditioner module. The corresponding 4-20mA signal is read by the control panel and displayed as the oil pressure.

The control panel will monitor and display oil pressure anytime the DC input to the control panel is present.

Should the oil pressure drop below the 8 psi range, the engine shutdown is initiated. The unit should not be restarted until oil is added. Turn the AUTO/OFF/ MANUAL switch to the OFF position, then back to AUTO to restart.

OVERCRANK SHUTDOWN

When the control panel receives a start signal, it initiates the programmed starting sequence. The start sequence consists of the number of crank attempts, the length of each crank attempt, and the rest time between each crank attempt. If the engine has not started by the end of the final crank attempt, an Overcrank alarm is generated, the control panel will sound the alarm and display the message "Failed to start".

OVERSPEED SHUTDOWN

A speed circuit controls engine cranking, start-up, operation and shutdown. Engine speed signals are delivered to the circuit board whenever the unit is running. Should the engine over speed above a safe, preset value, the circuit board initiates an automatic engine shutdown. Contact the nearest Authorized Dealer if this failure occurs.

RPM SENSOR LOSS SHUTDOWN

If the speed signal to the control panel is lost, engine shutdown will occur.

DC FUSE

This fuse is located inside of the control panel. It protects the panel wiring and components from damaging overload. Always remove this fuse before commencing work on the generator. The unit will not start or crank if the fuse is blown. Replace the fuse with one of the same size, type, and rating. (See the exploded views and parts lists at the end of this manual for replacement part number.)

FUEL SYSTEM

FUEL REQUIREMENTS

This Stationary Emergency Generator is equipped with one of the following fuel systems:

- Natural gas fuel system
- Propane vapor (PV) fuel system
- PV/NG dual fuel system

Recommended fuels should have a Btu content of at least 1,000 Btus per cubic foot for natural gas; or at least 2,520 Btus per cubic foot for LP gas. Ask the fuel supplier for the Btu content of the fuel.

Required fuel pressure for **natural gas and liquid propane is five inches to 14 inches water column (0.18 to 0.5 psi).**

NOTE:

Any piping used to connect the generator to the fuel supply should be of adequate size to ensure the fuel pressure NEVER drops below five inches water column for natural gas or liquid propane for all load ranges.

NOTE:

It is the responsibility of the installer to make sure that only the correct recommended fuel is supplied to the generator fuel system. Thereafter, the owner/operator must make certain that only the proper fuel is supplied.

NATURAL GAS FUEL SYSTEM

Natural gas is supplied in its vapor state. In most cases, the gas distribution company provides piping from the main gas distribution line to the standby generator site. The following information applies to natural gas fuel systems.

- Gas pressure in a building is usually regulated by national, state and local codes.
- To reduce gas pressure to a safe level before the gas enters a building, a primary regulator is needed. The natural gas supplier may or may not supply such a regulator.
- It is the responsibility of the gas supplier to make sure sufficient gas pressure is available to operate the primary regulator.
- Gas pressure at the inlet to the fuel shutoff solenoid should not exceed approximately 14 inches water column (0.5 psi). Optimum pressure at the fuel shutoff solenoid is 11 inches water column (0.4 psi).

PROPANE VAPOR WITHDRAWAL FUEL SYSTEM

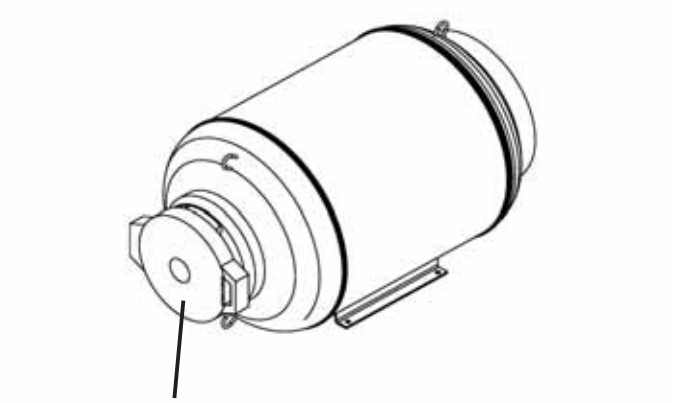
This type of system utilizes the vapors formed above the liquid fuel in the supply tank. Approximately 10 to 20 percent of the tank capacity is needed for fuel expansion from the liquid to the vapor state. The vapor withdrawal system is generally best suited for smaller engines that require less fuel. The installer should be aware of the following:

- The natural gas and LPV gas systems are similar. However, the natural gas system delivers gas at a pressure of approximately five inches water column to the carburetor.
- When ambient temperatures are low and engine fuel consumption is high, the vapor withdrawal system may not function efficiently.
- Ambient temperatures around the supply tank must be high enough to sustain adequate vaporization, or the system will not deliver the needed fuel volume.
- In addition to the cooling effects of ambient air, the vaporization process itself provides an additional cooling effect.

NOTE:

The door on the fuel tank MUST be properly closed for generator to operate (Figure 5.1).

Figure 5.1



Fuel Tank Door Properly Closed

LOW FUEL LEVEL ALARM

This Stationary Emergency Generator is equipped with a low fuel level alarm when propane vapor is used. When the fuel level in the propane tank gets low, an alarm will sound to notify operator.

FLUID SPILL ALARM

This alarm notifies the operator when there is a spill inside the enclosure, i.e. coolant, oil.

SPECIFICATIONS

◆ STATIONARY EMERGENCY GENERATOR

Type ..... Synchronous
Rotor Insulation ..... Class H
Stator Insulation ..... Class H
Total Harmonic Distortion ..... <5%
Telephone Interference Factor (TIF) ..... < 50
Alternator Output Leads 1-phase 4-wire
Bearings ..... Sealed Ball
Coupling ..... Flexible Disc
Load Capacity (Standby Rating) 30kW*

* NOTE: Generator rating and performance in accordance with ISO8528-5, BS5514, SAE J1349, ISO3046 and DIN 6271 Standards. KW rating is based on LPG fuel and may derate with natural gas.

Excitation System ..... Direct

Generator Output Voltage/kW - 60 Hz	kW	Amp	CB Size
120/240V, 1-phase, 1.0 pf	30	125	150

Generator Locked Rotor KVA Available @ Voltage Dip of 35%
Single-phase (30kW) ..... 63/90 KVA

◆ ENGINE

Make ..... Generac
Cylinders and Arrangement ..... 6, V-type
Displacement ..... 4.2 Liter
Bore ..... 96.8 mm (3.81 in.)
Stroke ..... 95 mm (3.74 in.)
Compression Ratio 9.35-to-1
Air Intake System ..... Naturally Aspirated
Valve Seats ..... Precision Ground, Hardened
Lifter Type ..... Roller, Hydraulic

Engine Parameters

Rated Synchronous RPM ..... 60 Hz, 1800
HP at rated kW (30kW) 48

Exhaust System

Exhaust Flow at Rated Output 60 Hz (30kW) ..... 260 cfm
Exhaust Temp. at Rated Output (30kW) ..... 850° F

Combustion Air Requirements (Natural Gas)

Flow at rated power, 60 Hz (30kW) ..... 90 cfm

Governor

Type ..... Electronic
Frequency Regulation ..... Isochronous
Steady State Regulation ..... ± 0.25%

Engine Lubrication System

Type of Oil Pump ..... Gear
Oil Filter ..... Full Flow Spin-on, Cartridge
Crankcase Oil Capacity ..... 4.73 U.S. qts.

◆ COOLING SYSTEM

Type ..... Pressurized Closed Recovery
Water Pump ..... Belt Driven
Fan Speed ..... 1300 rpm
Fan Diameter ..... 22 inches
Fan Mode ..... Puller
Air Flow (inlet air including alternator and combustion air) ..... 2460 ft^3/min.
Coolant Capacity ..... 21.6 L (5.7 U.S. gal.)
Heat Rejection to Coolant (30kW) ..... 107,000 Btu/h
Maximum Operating Air Temp. on Radiator ..... 60° C (150° F)
Maximum Ambient Temperature ..... 50° C (140° F)

◆ FUEL SYSTEM

Type of Fuel ..... Natural Gas, Propane Vapor
Carburetor ..... Down Draft
Secondary Fuel Regulator ..... Standard
Fuel Shut-off Solenoid ..... Standard
Operating Fuel Pressure ..... 5 in. - 14 in. Water Column

Fuel Consumption - ft^3/hr (Natural Gas/LPV)

	Exercise Cycle	*25% Load*	*50% Load*	*75% Load*	*100% Load*
30kW	104/50	122/49	233/93	335/133	417/166

◆ ELECTRICAL SYSTEM

Battery Charge Alternator ..... 12V, 30 Amp
Static Battery Charger ..... 2 Amp
Recommended Battery ..... Group 24F, 525CCA
System Voltage ..... 12 Volts

Voltage Regulator

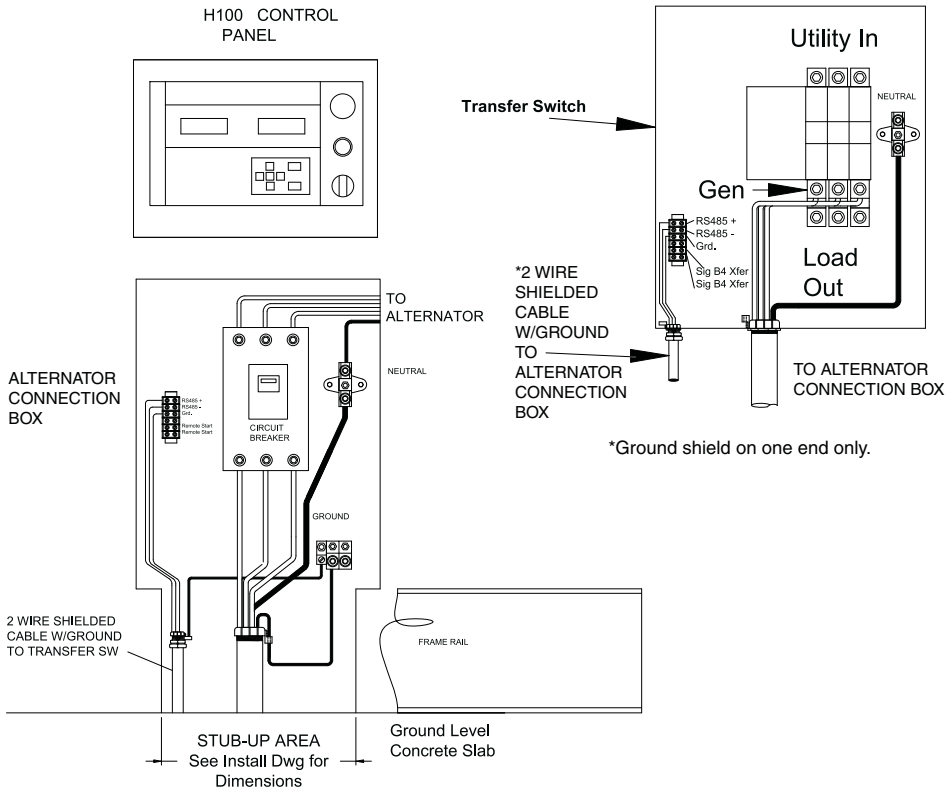
Type ..... Electronic
Sensing ..... Single-phase
Regulation ..... ± 1%
Features ..... V/F Adjustable, Adjustable Voltage and Gain

Power Adjustment for Ambient Conditions

Temperature Deration
3% for every 10° C above °C (30kW) 40
1.65% for every 10° above °F (30kW) 104
Altitude Deration
1% for every 100 m above m (30kW) 1220
3% for every 1000 ft. above ft. (30kW) 4000

Controller ..... H-100 Series

Figure 1 — Interconnections



4.2L IGNITION DESCRIPTION

This single-fire ignition is intended to operate a 6-cylinder, 4.2L, 1800rpm ignition. The 4.2L engine uses a 36-1 crank sensor, a CAM sensor and coil-on-plug coils for each spark plug. Engine Timing for the 4.2L, 1800rpm engine is 15 degrees BTDC for both LP and NG.

⚠ CAUTION ⚠

⚠ The Cam Sensor is factory set to the FULL counter-clockwise position. Tampering with the position of the Cam Sensor could result in engine failure.

◆ IGNITION POWER-UP INPUT ("56 LINE INPUT)

When battery voltage is applied to this input the ignition will power-up. For the ignition to power itself down, the battery voltage must be removed from this input.

◆ DIAGNOSTIC BLINK PATTERNS (RED LED)

During normal ignition operation the RED LED, located on the ignition control board, flashes at a 0.5 second ON and a 0.5 second OFF rate. This is considered one (1) blink.

RED LED Fault Codes with priority as shown:

1. Ignition cannot initialize: LED is ON continuously during cranking.
2. Engine Overspeed: LED blinks four (4) times, is OFF for three (3) seconds and then repeats.
3. No Crank Signal: LED blinks two (2) times, is OFF for three (3) seconds and then repeats.
4. No Cam Signal: LED blinks three (3) times, is OFF for three (3) seconds and then repeats.

Only one LED fault code is displayed at a time.

If multiple fault codes exist then the highest priority fault must be resolved prior to a lower priority fault code being displayed.

The LED fault code blink pattern is displayed for 60 seconds after a fault and then the ignition will power itself down.

The Generator must have been in the OFF mode for 60 seconds prior to cranking for the Crank and CAM LED fault diagnostics to be valid.

The Crank and CAM LED fault codes are not valid during a re-crank.

NOTE:

The ignition cover does not need to be removed to see the RED LED

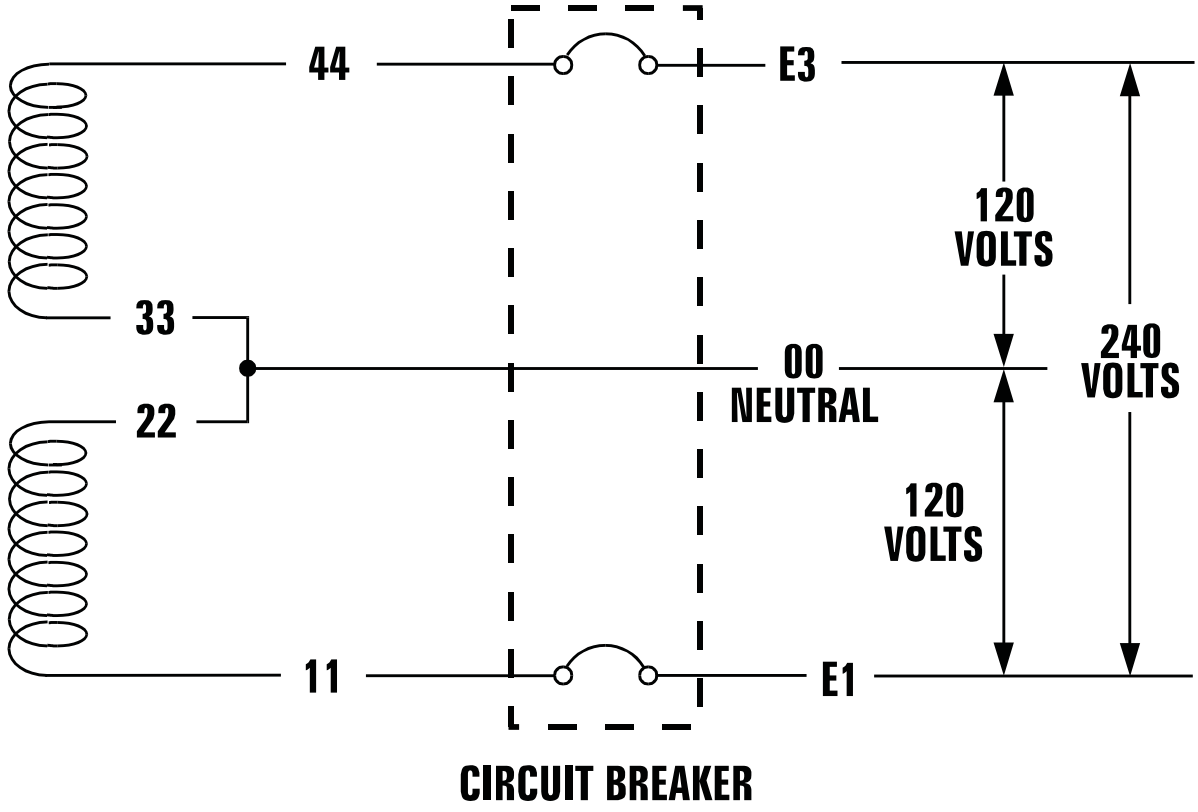
ALTERNATOR AC LEAD CONNECTIONS

◆ *FOUR-LEAD, SINGLE-PHASE STATOR*

Four-lead alternators (see Figure 7.1) are designed to supply electrical loads with voltage code "A" (240V, 1-phase, 60 Hz). Electrical power is produced in the stator power windings. These windings were connected at the factory to the main circuit breaker as shown in Figure 7.1.

The rated voltage between each circuit breaker terminal is 240V. The rated voltage between each circuit breaker terminal and the neutral point 00 is 120V.

Figure 7.1 — Four-lead, Single-phase Stator



INSTALLATION

UNPACKING

Handle shipping cartons and crates with care. Use care to avoid damage from dropping, bumping, collision, etc. Store and unpack cartons with the proper side up, as noted on the shipping carton.

⚠ WARNING!

⚠ Do not lift the fuel storage tank assembly using upper rails of tank frame. Damage to the fluid containment pan and/or wiring may result which will void warranty.

⚠ Fuel Storage tank must be lifted from underneath the bottom frame rails or through the lifting points as shown on the INSTALLATION DRAWING included in the back of this manual.

STATIONARY EMERGENCY GENERATOR LOCATION

Consider these factors:

- Install the generator on high ground where water levels will not rise and endanger it.
- Allow sufficient room on all sides of the generator for maintenance and servicing. This unit must be installed in accordance with current applicable NFPA 37 and NFPA 70 standards, as well as any other federal, state and local codes for minimum distances from other structures.
- Install the generator as close as possible to the transfer switch. This reduces the length of wiring and conduit.
- Install the generator as close as possible to the fuel supply, to reduce the length of piping. HOWEVER, REMEMBER THAT LAWS OR CODES MAY REGULATE THE DISTANCE.

For Enclosed Unit

⚠ DANGER!

⚠ Install the generator set in its protective enclosure outdoors where adequate cooling and ventilating air is always available. Consider these additional factors:

- Install the unit where air inlet and outlet openings will not become obstructed by leaves, grass, snow, etc. If prevailing winds will cause blowing or drifting, consider using a windbreak to protect the unit.
- Where strong prevailing winds blow from one direction, face the generator air inlet openings into the prevailing winds.

For Open Unit

Install the generator set in a protective shelter with adequate cooling and ventilating air. Consider these additional factors:

- Engine exhaust MUST be piped to the outside of the shelter.

STATIONARY EMERGENCY GENERATOR SUPPORT

Guidelines that should be followed are:

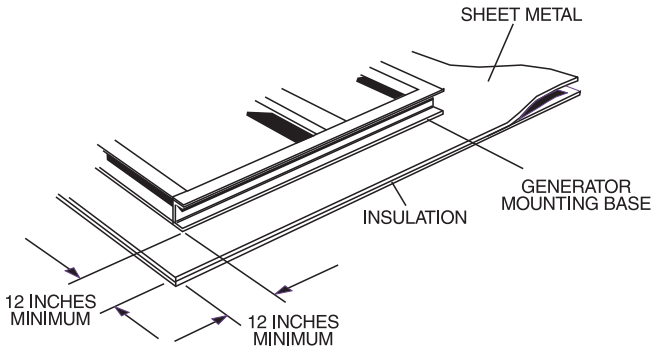
- When designing a concrete base slab, all federal, state and local codes should be followed. Special attention should be given to the concrete base slab which should exceed the length and width of the generator by a minimum of six (6) inches (0.152 meters) on all sides.
- The concrete base should be leveled to +/- .25 inches horizontally.
- Retain the generator set to the concrete slab with masonry bolts.

Combustible Floor and Roof Protection

If the generator must be installed on any combustible floor or roof, comply with the following rules:

- Place a layer of non-combustible insulation, followed by a layer of sheet metal beneath the unit's mounting base rails.
- Both the layer of insulation and the sheet metal must extend beyond the generator base to a distance of at least 12 inches (30.5 cm) on all sides.

Figure 8.1 - Combustible Floor and Roof Protection



NOTE:

Consult the local building codes, which may vary.

INSTALLATION RULES

This equipment is a liquid-cooled, generator set. The generator is designed to supply electrical power that operates critical electrical loads during utility power failure.

⚠ WARNING!

If this generator is used to power electrical load circuits normally powered by a utility power source, it is required by code to install a transfer switch. The transfer switch must effectively isolate the electric system from the utility distribution system when the generator is operating (NEC 701). Failure to isolate an electrical system by such means results in damage to the generator and may also result in injury or even death to utility power workers due to backfeed of electrical energy.

BEFORE INSTALLATION

Before installing this equipment, check the ratings of both the generator and the transfer switch. Read "Emergency Isolation Method" and "Total Circuit Isolation Method" Paragraph.

The generator's rated wattage/amperage capacity must be adequate to handle all electrical loads that the unit will power. The critical (essential) loads may need to be grouped together and wired into a separate "emergency" distribution panel.

⚠ DANGER!

Connecting this Stationary Emergency Generator to an electrical system normally supplied by an electric utility shall be by means of a transfer switch, so as to isolate the electric system from the utility distribution system when the Stationary Emergency Generator is operating. Failure to isolate the electric system by these means will result in damage to the Stationary Emergency Generator and may also result in injury or death to utility workers due to backfeed of electrical energy.

If an open bottom is used, the Stationary Emergency Generator is to be installed over non-combustible materials and should be located such that combustible materials are not capable of accumulating under the Stationary Emergency Generator set.

Only qualified, competent installation contractors or electricians thoroughly familiar with applicable codes, standards and regulations should install this stationary emergency electric power system. The installation must comply strictly with all codes, standards and regulations pertaining to the installation.

⚠ CAUTION!

After the system has been installed, do nothing that might render the installation in non-compliance with such codes, standards and regulations.

NFPA STANDARDS

The following published standards booklets pertaining to standby electric systems are available form the National Fire Protection Association (NFPA). Batterymarch Park, Quincy, MA 02269:

- NFPA No. 37, STATIONARY COMBUSTION ENGINES AND GAS TURBINES.
- NFPA No. 76A, ESSENTIAL ELECTRICAL SYSTEMS FOR HEALTH CARE FACILITIES.
- NFPA No. 220, STANDARD TYPES OF BUILDING CONSTRUCTION
- NFPA No. 68, GUIDE FOR EXPLOSION VENTING
- NFPA No. 70, NATIONAL ELECTRICAL CODE.
- NFPA No. 30, FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE.
- NFPA No. 10, INSTALLATION. MAINTENANCE AND USE OF PORTABLE FIRE EXTINGUISHERS.

NOTE:

It is essential to use the latest version of any standard to ensure correct and current information.

OTHER PUBLISHED STANDARDS

In addition to NFPA standards, the following information pertaining to the installation and use of standby electric systems is available:

- Article X, NATIONAL BUILDING CODE, available from the American Insurance Association. 85 John Street, New York, N.Y. 10038.
- AGRICULTURAL WIRING HANDBOOK, obtainable from the Food and Energy Council, 909 University Avenue, Columbia, MO. 65201.
- ASAE EP-364.2, INSTALLATION AND MAINTENANCE OF FARM STANDBY ELECTRIC POWER, available from the American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph. MI 49085.
- A52.1, AMERICAN NATIONAL STANDARD FOR CHIMNEYS, FIREPLACES AND VENTING SYSTEMS, available from the American National Standard Institute, 1430 Broadway. New York. N.Y. 10018.

NOTE:

It is essential to use the latest version of any standard to ensure correct and current information.

The installer must comply with all applicable state and local codes.

PREPARATION BEFORE START-UP

The instructions in this section assume that the standby generator has been mechanically properly installed, serviced, adjusted and otherwise prepared for use by a competent, qualified installation contractor. Be sure to read the "Safety Rules", as well as all other safety information in this manual, before attempting to operate this (and related) equipment.

Before starting the generator for the first time, the installer must complete the following procedures. For follow up maintenance information and/or service intervals, please refer to the "Maintenance" section and the "Service Schedule".

INITIAL INSPECTION FOR STATIONARY EMERGENCY GENERATOR STARTUP

Inspect for the following.

- Freight Damage.
- Manuals present.
- Fluid Levels (Oil, coolant, battery).
- Correct fuel piping (if other than provided by Generac).
- Adequate air flow, clearances and ventilation per installation drawings and applicable codes.
- Correct AC and DC wire size, connections and grounding.
- Control and communication wiring to/from the transfer switch must be run in a separate conduit from the AC power leads.
- Battery charger connection to 120 VAC.
- Communication wires connected between transfer switch and generator (HTS only).
- Unit secured to pad.

Transfer Switch

If this Stationary Emergency Generator is used to supply power to any electrical system normally powered by an electric utility, the National Electrical Code requires that a transfer switch be installed. The transfer switch prevents electrical backfeed between two different electrical systems. (For additional information, see the applicable transfer switch manual for this unit.) The transfer switch, as well as the generator and other electrical components, must be properly located and mounted in strict compliance with applicable codes, standards and regulations.

Fuel System

Make sure the fuel supply system to the generator (a) delivers the correct fuel at the correct pressure and (b) is properly purged and leak tested according to code. No fuel leakage is permitted. See "Specifications" and "Preparation for Start-up" for more information.

Stationary Emergency Generator Lubrication

Check the engine crankcase oil level before operating and add oil to the proper level, the dipstick "FULL" mark. Never operate the engine with the oil level below the dipstick "ADD" mark. See "Specifications" and "Engine Oil Recommendations".

NOTE:

This engine is shipped from the manufacturer with "break-in" oil. This oil should be changed after 30 hours of operation.

PRIOR TO INITIAL START-UP

⚠ CAUTION!

Prior to initially starting the Stationary Emergency Generator, it must be properly prepared for use. Any attempt to crank or start the engine before it has been properly serviced with the recommended types and quantities of engine fluids (oil, coolant, fuel, etc.) may result in an engine failure.

ENGINE COOLANT

Have the engine cooling system properly filled with the recommended coolant mixture. Check the system for leaks and other problems. See "Specifications" and "Coolant" sections.

BELT TENSION

Check the engine fan belt tension and condition prior to placing the unit into service and at recommended intervals. Belt tension is correct when a force of approximately 22 pounds (10 kg), applied midway between pulleys, deflects the belt about 3/8- to 5/8-inch (10 to 16 mm).

ELECTRICAL SYSTEM

Make sure the generator is properly connected to an approved earth ground.

Make sure the generator battery is fully charged properly, installed and interconnected, and ready for use.

NOTE:

Battery charger must be connected to 120 VAC, 15 amp circuit to operate.

Check to ensure that there are no loose electrical connections. Restrain any loose wires to keep them clear of any moving generator set components.

START-UP CHECK LIST

⚠ WARNING!

⚠ Before working on the generator, ensure the following:

- **The Auto/Off/Manual switch is in the OFF position.**
- **The 120VAC supply to the battery charger is switched OFF.**
- Ensure the UTILITY supply is disconnected from the transfer switch.
- Remove the fuse from the control panel. For the H-100 open the front door of the control box and remove the 15 Amp ATO fuse in the lower left hand corner of the control box.
- Connect the battery cables to the battery. Attach negative battery cable LAST.
- Close the 120VAC circuit breaker to the battery charger.
- Measure the voltage at the battery before and after the charger is turned on.
- Verify all AC electrical connections are tight at the circuit breaker and transfer switch.
- Visually inspect entire area looking for loose paper, plastic wrappings, leaves, etc.
- Check all hoses clamps fittings for leaks or damage.
- Check all electrical plugs throughout the generator. Ensure each plug is seated correctly and fully inserted into its receptacle.
- Verify the AUTO/OFF/MANUAL switch is in OFF position.
- Open the valve to the engine fuel line.
- Bleed the fuel system of air. (necessary for long fuel lines).
- Open the generator main line circuit breaker.
- Connect a manometer to the gas line and record the static pressure. It must be as listed in the Specifications.
- Insert the fuse into the control panel.
- Move the AUTO/OFF/MANUAL switch to the manual position. The engine should now crank and start.
- Check voltage at the generator terminals.
- Check for coolant, fuel, oil, and exhaust leaks.
- Close the generators main line circuit breaker.
- Turn the generator set off.
- Connect the utility supply to transfer switch.
- Set the AUTO/OFF/MANUAL switch to AUTO.
- Disconnect utility power before the transfer switch. Engine should start, transfer to load. Run at least 15 minutes on generator power.
- Reconnect Utility power. Transfer switch will transfer back to Utility and engine will shut down within the given time parameters set up for the specific transfer switch and controller.
- Install all covers, access plates and door panel.
- Put the Owners Manual in a safe and accessible place.
- Make certain the AUTO/OFF/MANUAL switch is in the AUTO position.

START-UP INSPECTION FORM

When a start-up is performed by an Authorized Service Dealer, a standard three form titled "Start-up Inspection for Standby Power Systems" (part no. 067377), should be completed by the installation technician or engineer. The installer should complete the form and disseminate copies as follows:

- White copy: Mail to Generac Warranty Dept., PO. Box 340. 211 Murphy Dr., Eagle, WI 53119-2062.
- Pink Copy: For service file of installing dealer.
- Yellow Copy: For the customer's records.

ELECTRICAL CONNECTIONS

GROUNDING THE STATIONARY EMERGENCY GENERATOR

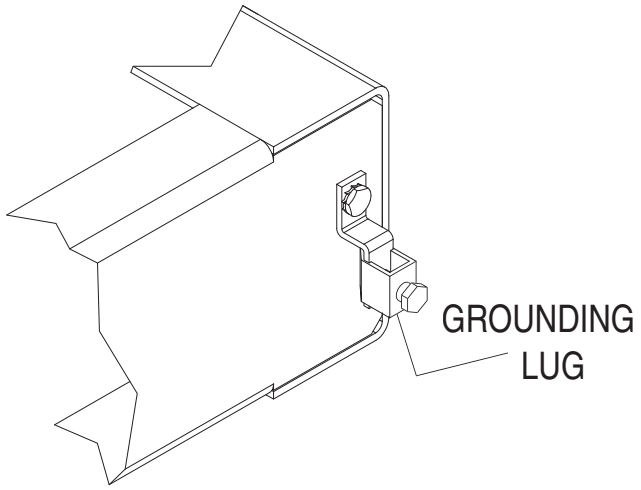
A GROUNDING LUG is provided on the generator mounting base for the purpose of grounding the frame and the external electrically conductive parts of this equipment to an approved earth ground and/or grounding rods where required by the National Electrical Code (Figure 8.2). Consult a qualified electrician for grounding requirements in the area. Grounding procedures must meet local regulations.

⚠ DANGER!

⚠ Do not connect the ground wire to any pipe that carries a flammable or explosive substance - FIRE or an EXPLOSION may result.

Proper grounding helps protect personnel against electrical shock in the event of a ground fault condition in the generator or in connected electrical devices. In addition, grounding helps dissipate static electricity that often builds up in ungrounded devices.

Figure 8.2 - Generator Grounding Lug (typical)



BATTERY CHARGER CONNECTION

The generator has been equipped with a 10 Amp battery charger installed. This charger needs to be plugged into an appropriate 120VAC 15 amp outlet.

BATTERY INSTALLATION

⚠ DANGER!

Stationary Emergency Generators installed with automatic transfer switches will crank and start automatically when NORMAL (UTILITY) source voltage is removed or is below an acceptable preset level. To prevent such automatic start-up and possible injury to personnel, do not connect battery cables until certain that; the AUTO/OFF/MANUAL switch is in the OFF position; the 15A fuse has been removed from the control box (see Start-up Check List); normal source voltage at the transfer switch is correct and the system is ready to be placed into operation.

Storage batteries give off explosive hydrogen gas. This gas can form an explosive mixture around the battery for several hours after charging. The slightest spark can ignite the gas and cause an explosion. Such an explosion can shatter the battery and cause blindness or other injury. Any area that houses a storage battery must be properly ventilated. Do not allow smoking, open flame, sparks or any spark producing tools or equipment near the battery.

Battery electrolyte fluid is an extremely caustic sulfuric acid solution that can cause severe burns. Do not permit fluid to contact eyes, skin, clothing, painted surfaces, etc. Wear protective goggles, protective clothing and gloves when handling a battery. If fluid is spilled, flush the affected area immediately with clear water.

⚠ WARNING!

Do not dispose of the battery in a fire. The battery is capable of exploding.

Do not open or mutilate the battery. Released electrolyte can be toxic and harmful to the skin and eyes.

TABLE 1 — VAPOR CAPACITY OF PROPANE STORAGE TANKS (FOR REFERENCE)

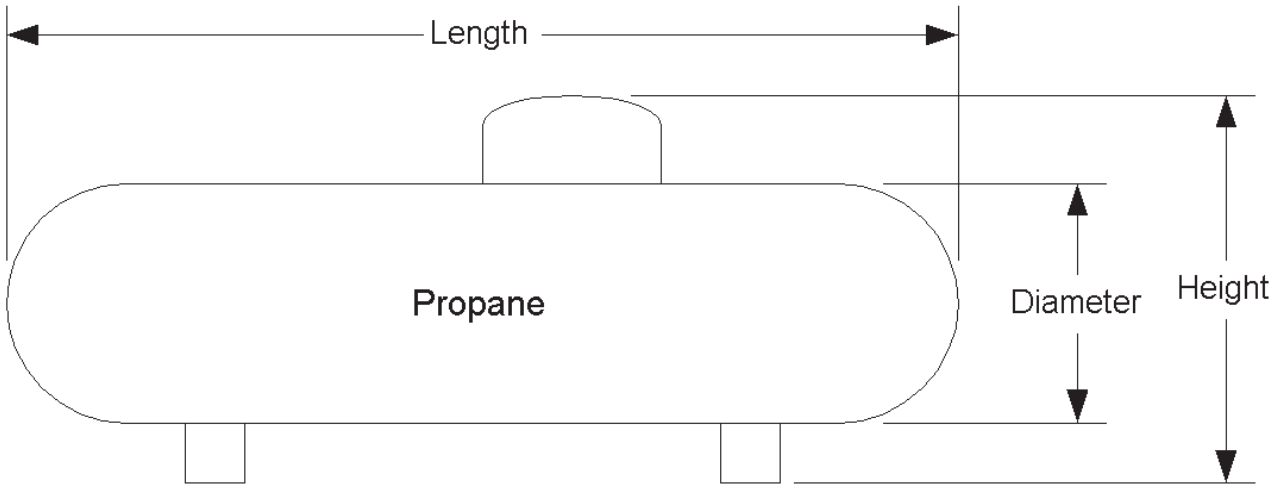
To Use: Go to the First column and pick the required kW load and then pick the minimum ambient temperature (40º, 20º or 0º F) that the generator would be operating in. The third column (tank capacity) will give the required tank size to continually produce the given fuel flow.

Max kW Vapor	Minimum Temp	Operating Hours @ Max kW	Tank Capacity (Gallons)	Length Inches	Dia Inches	Overall Ht. Inches
30 20 10	40 20 0	24 35 67	120	57	24	33
35 25 12	40 20 0	26 36 72	150	68	24	33
60 40 20	40 20 0	26 38 74	250	94	30	39
80 50 25	40 20 0	26 40 77	325	119	30	39
100 60 30	40 20 0	31 51 100	500	119	37	46
150 100 50	40 20 0	35 53 105	850	165	41	50
170 120 60	40 20 0	36 51 103	1000	192	41	50

Propane storage tanks can provide either a liquid or a vapor supply to the generator. The above chart is for **vapor withdrawal only** and provides the kW output or amount of vapor that can be withdrawn at a given temperature while keeping the temperature of the liquid above the boiling point. If the withdrawal rate is too high, the LP temperature goes below the boiling point, the pressure drops to zero and no vapor can be withdrawn. A primary regulator is also required at the tank to reduce the line pressure to the generator to 5-14 inches of water column for units less than 70kW or 11-14 inches of water column for units 70kW and above.

Propane Conversions: 36.38 ft^3 = 90,500 btu = 1 gal • 1lb = 21,500 btu = 8.56 ft^3

Figure 1.5 — Propane Storage Tank



STATIONARY EMERGENCY GENERATOR CONTROL AND OPERATION

Refer to the appropriate control panel operator's manual for this unit.

OPERATING UNIT WITH MANUAL TRANSFER SWITCH

If the Stationary Emergency Generator was installed in conjunction with a transfer switch capable of manual operation only, the following procedure applies. A manually operated transfer switch is one that will not provide automatic start-up and does not include an intelligence circuit.

ENGINE START-UP AND TRANSFER

For additional information, refer to the applicable control panel manual for this unit, as well as any literature pertaining to the specific transfer switch.

⚠ DANGER!

The Maintenance Disconnect Switch and the AUTO/OFF/MANUAL switches (if so equipped) must be set properly, or the generator will crank and start as soon as the utility power to the transfer switch is turned off. Refer to applicable control panel and transfer switch manuals for more information.

Do not proceed until certain that utility source voltage is available to the transfer switch and the transfer switch main contacts are set to UTILITY.

Do not attempt manual operation until all power supplies to the transfer switch have been positively turned off, or extremely dangerous - possibly lethal - electrical shock will result.

Transfer switch enclosure doors should be kept closed and locked. Only authorized personnel should be allowed access to the transfer switch interior. Extremely high and dangerous voltages are present in the transfer switch.

In order to transfer load from the utility source to the generator, follow these directions:

- Turn OFF or disconnect the utility power circuit to the transfer switch, using the means provided (such as the utility source main line circuit breaker).
- Set the transfer handle to its UTILITY (NORMAL) position with load circuits connected to the utility power supply.
- Set the generator's main line circuit breaker to its OFF (or OPEN) position.
- Start the generator.

⚠ CAUTION!

Do not crank the engine continuously for longer than 30 seconds, or the heat may damage the starter motor.

- Let engine stabilize and warm up.
- Check all applicable instrument and gauge readings. When certain that all readings are correct, move the transfer switch manual handle to the STANDBY position, i.e., load circuits supplied by the generator.
- Set the generator's main line circuit breaker to its ON (or CLOSED) position.
- Load circuits are now powered by the generator.

RETRANSFER AND SHUTDOWN

For additional information, refer to the applicable control panel manual for this unit, as well as any literature pertaining to the specific transfer switch.

To transfer the load back to the utility power source and shut down the generator, follow these directions:

- Set the generator's main line circuit breaker to its OFF (or OPEN) position.
- Manually move the transfer switch handle to its UTILITY (NORMAL) position, i.e., load circuits connected to the utility.
- Turn ON the utility power supply to the transfer switch, using the means provided (such as the utility power source main line circuit breaker).
- Let the generator run at no-load for a few minutes to stabilize internal temperatures.
- Shut down the generator.

OPERATING UNIT WITH AUTOMATIC TRANSFER SWITCH

If the Stationary Emergency Generator has been installed with an automatic transfer switch, such as an HTS or GTS-type transfer switch, the engine may be started and stopped automatically or manually.

NOTE:

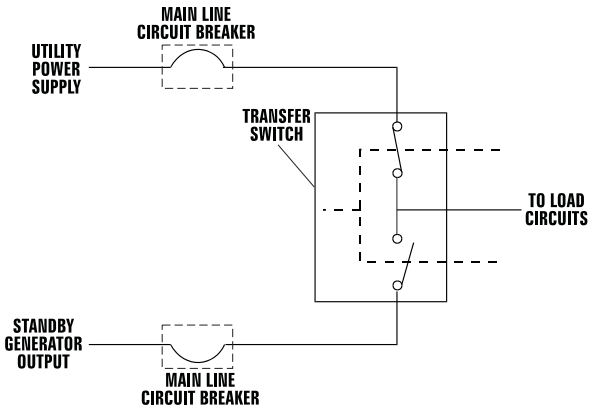
Refer to the applicable manual for your transfer switch and to "Transfer Switch Start Signal Connections". In addition, please note the dangers under "Engine Start-up and Transfer."

BASIC STATIONARY EMERGENCY GENERATOR ELECTRIC SYSTEM

Figure 9.1 shows a schematic diagram of a basic standby electric system. Both the UTILITY power supply and the Stationary Emergency Generator output are connected to an approved transfer switch. The transfer switch is required by electrical code and serves the following functions:

- Allows the LOAD circuits to be connected to only one power supply at a time.
- Prevents electrical backfeed between the generator and the UTILITY power circuits.

Figure 9.1 – Basic Stationary Emergency Generator Electric System



Notice that both the Stationary Emergency Generator and the UTILITY power supplies to the transfer switch are protected against overload by a main line circuit breaker.

STATIONARY EMERGENCY GENERATOR CIRCUIT ISOLATION METHOD

This prevents overloading the generator by keeping electrical loads below the wattage/amperage capacity of the generator. If the generator is powering only designated loads, within the wattage/amperage capacity, during utility power outages, consider using the emergency circuit isolation method.

Designated electrical loads are grouped together and wired into a separate "Standby Distribution Panel." Load circuits powered by that panel are within the wattage/amperage capacity of the generator set. When this method is used, it is difficult to overload the generator. The transfer switch must meet the following requirements:

- It must have an ampere rating equal to the total amperage rating of the standby distribution panel circuit.
- Have it installed between the building's main distribution panel and the standby distribution panel.

TOTAL CIRCUIT ISOLATION METHOD

When a generator capable of powering all electrical loads in the circuit is to be installed, use the "Total Circuit Isolation Method." It is possible for the generator to be overloaded when this isolation method is employed. The following apply to the transfer switch in this type of system.

- Ampere rating of the transfer switch must equal the ampere rating of the normal incoming utility service.
- The transfer switch is installed between the utility service entrance and the building distribution panel.

CONNECTION DIAGRAMS

All wiring in the Stationary Emergency Generator electric power system must be in strict compliance with applicable codes, standards and regulations. Such wiring must be properly supported, routed, and connected. In addition, wiring must be properly sized to carry the maximum load current to which it will be subjected.

The connections between the generator and transfer switch will vary depending on the equipment ordered. In each case there are two types of interconnections, load wiring and control wiring.

NOTE:

Control wiring must always be run in a separate conduit from the load wiring.

⚠ DANGER!

⚠ Make sure to turn OFF both the NORMAL (UTILITY) and GENERATOR (EMERGENCY) power supplies before trying to connect power source and load lines to the transfer switch. Supply voltages are extremely high and dangerous. Contact with such high voltage power supply lines causes extremely hazardous, possibly lethal, electrical shock.

⚠ CAUTION!

⚠ Be sure to maintain proper electrical clearances between live electrical parts and grounded metal. Allow at least one-half inch of clearance for circuits up to 400 amps.

MAINTENANCE PERFORMED BY SERVICE DEALER

⚠ WARNING!

⚠ Before working on the Stationary Emergency Generator, ensure the following:

- **The AUTO/OFF/MANUAL switch is in the OFF position.**
- **The 15A fuse has been removed from the control box.**
- **The 120VAC supply to the battery charger is switched OFF.**
- **The NEGATIVE battery cable has been REMOVED.**

EVERY THREE MONTHS

1. Check battery state of charge and condition.
2. Inspect and test fuel system.
3. Check transfer switch.
4. Inspect exhaust system.
5. Check engine ignition system.
6. Check fan belts.

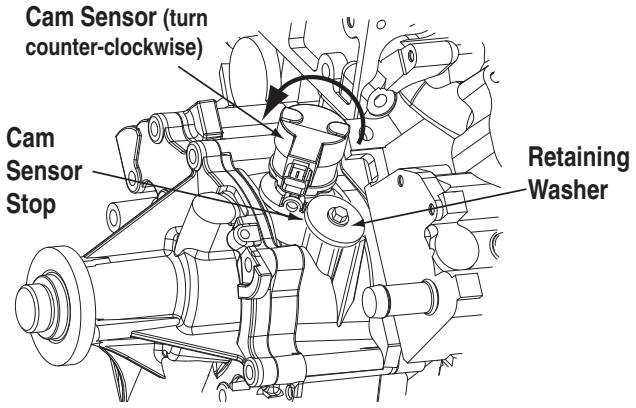
ONCE EVERY SIX MONTHS

1. Test Engine Safety Devices (low oil pressure, low coolant level, high coolant temperature).

ONCE ANNUALLY

1. Test engine governor. Adjust or repair, if needed.
2. Clean, inspect generator.
3. Flush cooling system.
4. Clean/re-gap spark plugs or replace as necessary.
5. Visually inspect Cam Sensor position. Cam sensor should be set in full counter-clockwise position up against the retaining washer. (Figure 10.1).

Figure 10.1 - Cam Sensor Position



FIRST 30 OPERATING HOURS

1. Change engine "break-in" oil and oil filter.

FIRST 100 OPERATING HOURS

1. Change engine oil and oil filter. (After initial change, service engine oil and filter at 150 operating hours or six (6) months, whichever comes first.)

EVERY 500 OPERATING HOURS

1. Service air cleaner.
2. Check starter.
3. Check engine DC alternator.

COOLING SYSTEM

Air intake and outlet openings in the generator compartment must be open and unobstructed for continued proper operation. This includes such obstructions as high grass, weeds, brush, leaves and snow.

Without sufficient cooling and ventilating air flow, the engine/generator quickly overheats, which causes it to shut down.

⚠ WARNING!

⚠ The exhaust system parts from this product get extremely hot and remain hot after shutdown. High grass, weeds, brush, leaves, etc. must remain clear of the exhaust. Such materials may ignite and burn from the heat of the exhaust system.

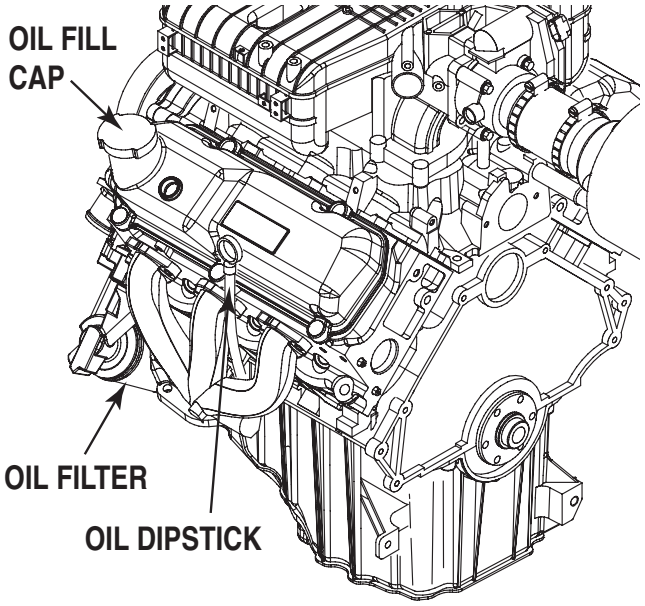
CHECKING FLUID LEVELS

CHECK ENGINE OIL

Check engine crankcase oil level (Figure 10.2) at least every 20 hours of operation, or prior to use.

- Remove oil dipstick and wipe dry with a clean, lint-free cloth.
- Install oil dipstick, then remove again.
- Oil should be between FULL and ADD marks.
- If oil level is below the dipstick ADD mark, remove oil fill cap. Add the recommended oil to bring oil level up to the FULL mark. DO NOT FILL ABOVE THE “FULL” MARK. See “Engine Oil Recommendations” for recommended oils.

Figure 10.2 - Oil Dipstick and Oil Fill Cap



BATTERY FLUID

Check battery electrolyte fluid based on the Maintenance Schedule. Fluid should cover separators in all battery cells. If fluid level is low, add distilled water to cover tops of separators. DO NOT USE TAP WATER IN BATTERY.

ENGINE COOLANT

Check coolant level in coolant recovery bottle. See the "Specifications" section.

- Add recommended coolant mixture as necessary.
- Periodically remove radiator pressure cap to make sure the coolant recovery system is functioning properly. Coolant should be at bottom of radiator filler neck. If coolant level is low, inspect gasket in radiator pressure cap. Replace cap, if necessary. To have pressure cap tested, contact a Service Dealer. Inspect cooling system and coolant recovery system for leaks.

MAINTENANCE OWNER/ OPERATOR CAN PERFORM

⚠ WARNING!

⚠ Before working on the generator, ensure the following:

- **The AUTO/OFF/MANUAL switch is in the OFF position.**
- **The 15A fuse has been removed from the control box.**
- **The 120VAC supply to the battery charger is switched OFF.**
- **The NEGATIVE battery cable has been REMOVED.**

CHECK ENGINE OIL LEVEL

Refer to the "Checking Fluid Levels" section.

CHECK BATTERY

- Check battery fluid level each week as outlined under "Check Fluid Levels".
- Check battery cables for condition, tightness, corrosion or damage. Clean, tighten or replace as necessary.

EXERCISE SYSTEM

Start the Stationary Emergency Generator engine at least once every seven days and let it run at least 20 minutes. For more detailed exercise information, see the respective sections in the Control Panel Technical Manual that is supplied with the unit.

INSPECT COOLING SYSTEM

- Inspect engine cooling system at least once each month.
- Check hoses for damage, deterioration, leaks, etc. Correct any discrepancies found.
- Check hose clamps for tightness.

CHECK ENGINE COOLANT LEVEL

See the "Checking Fluid Levels" section.

PERFORM VISUAL INSPECTION

Complete a thorough visual inspection of the entire engine-generator monthly. Look for obvious damage, loose, missing or corroded nuts, bolts and other fasteners. Look for fuel, oil or coolant leaks.

INSPECT EXHAUST SYSTEM

Inspect the exhaust system at least once every three months. Check all exhaust system pipes, mufflers, clamps, etc. for condition, tightness, leaks, security, damage.

CHECK FAN BELT

- Inspect fan belts every three months. Replace any damaged, deteriorated, worn or otherwise defective belt.
- Check fan belt tension. Thumb pressure, exerted midway between pulleys, should deflect about 3/8 to 5/8 inch. Adjust belt tension as required.

INSPECT ENGINE GOVERNOR

Visually inspect electronic governor.

⚠ DANGER ⚠

⚠ Do not attempt to adjust the governor. Only qualified service dealers should adjust the governor. Excessively high operating speeds are dangerous and increase the risk of personal injury. Low speeds impose a heavy load on the engine when adequate engine power is not available and may shorten engine life. Correct rated frequency and voltage are supplied only at the proper governed speed. Some connected electrical load devices may be damaged by incorrect frequency and/or voltage. Only qualified service technicians should adjust the governed speed.

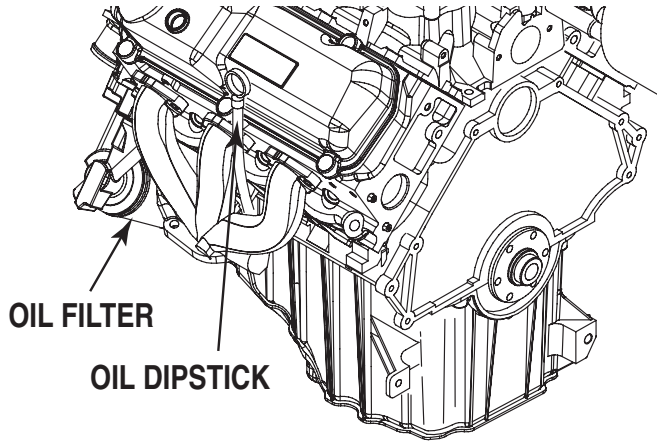
CHANGING ENGINE OIL

Refer to "Maintenance Performed by Service Dealer" for engine oil and filter change frequencies.

Drain the oil while the engine is still warm from running. This means warm up the engine, shut it down and drain immediately as follows:

1. Remove OIL DRAIN HOSE from its retaining clip.
2. Loosen and remove OIL DRAIN HOSE CAP. Drain oil completely into suitable container.
3. When all oil has drained, install and tighten OIL DRAIN HOSE CAP, and re-install into its retaining clip.
4. Turn OIL FILTER (Figure 10.3) counterclockwise and remove. Dispose of old filter.
5. Apply light coating of new engine oil to seal of new oil filter.-Install FILTER and tighten by hand only. DO NOT OVERTIGHTEN.
6. Remove OIL FILL CAP. Add recommended oil (see “Specifications”). Crankcase oil capacity is listed in the “Specifications”.

Figure 10.3 - Oil Filter



⚠ CAUTION!

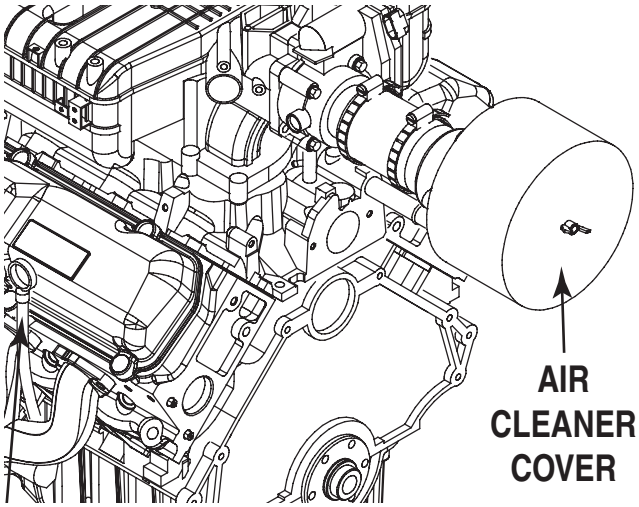
⚠ After refilling the crankcase with oil, always check oil level on dipstick. NEVER OPERATE ENGINE WITH OIL BELOW THE DIPSTICK “ADD” MARK.

7. Start engine and check for oil leaks.
8. Shut off engine. Wait 10 minutes for oil to settle down into the oil pan. Recheck oil level on dipstick. (DO NOT FILL ABOVE THE DIPSTICK “FULL” MARK.)

CHANGING THE ENGINE AIR FILTER

To replace the engine air filter, remove the air cleaner cover and replace the air filter making sure it is positioned properly before reattaching the cover (Figure 10.4).

Figure 10.4 — Engine Air Filter



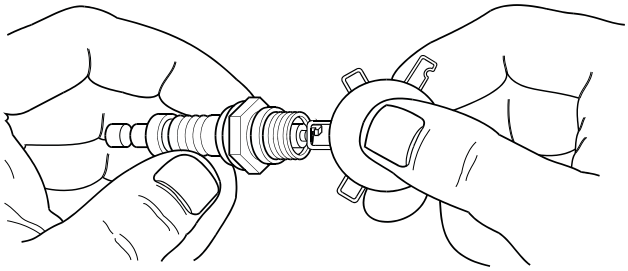
See the “Service Schedule” section for air cleaner maintenance.

SPARK PLUGS

Reset the spark plug gap or replace the spark plugs as necessary.

1. Clean the area around the base of the spark plugs to keep dirt and debris out of the engine. Clean by scraping or washing using a wire brush and commercial solvent. Do not blast the spark plugs to clean.
2. Remove the spark plugs and check the condition. Replace the spark plugs if worn or if reuse is questionable. See the “Service Schedule” section for recommended inspection.
3. Check the spark plug gap using a feeler gauge. Adjust the gap to 1.3-1.4 mm (0.052-0.056 inch) by carefully bending the ground electrode (Figure 10.5).

Figure 10.5 – Setting the Spark Plug Gap



COOLANT CHANGE

Every year, have a Service Dealer drain, flush and refill the cooling system. See the “Specifications” section for cooling system recommendations.

MISCELLANEOUS MAINTENANCE

CLEANING THE STATIONARY EMERGENCY GENERATOR

Keep the generator as clean and as dry as possible. Dirt and moisture that accumulates on internal generator windings have an adverse effect on insulation resistance.

Periodically clean generator exterior surfaces. A soft brush may be used to loosen caked on dirt. Use a vacuum system or dry, low pressure air to remove any accumulations of dirt. If the generator is housed inside an all-weather enclosure, clean the enclosure with a soft, damp cloth or sponge and water.

Once each year, have the generator cleaned and inspected by a Service Dealer. That dealer will use dry, low pressure air to clean internal windings. Parts inside the control console should be cleaned and inspected at this time as well.

Finally, have the insulation resistance of stator and rotor windings checked. If insulation resistances are excessively low, the generator may require drying.

BATTERY

All lead-acid storage batteries discharge when not in use. Refer to specific instructions and warnings that accompany the battery. If such information is not available, observe the following precautions when handling a battery:

- DO NOT use jumper cables and a booster battery to crank or start the generator engine.
- DO NOT recharge a weak battery while it is installed in the generator. Remove battery from generator and recharge in a well-ventilated area, away from fuel vapors, sparks, heat or flames.
- Battery electrolyte fluid is an extremely caustic sulfuric solution that can cause severe burns. DO NOT permit fluid to contact eyes, skin, clothing, painted surfaces, wiring insulation, etc. If any battery fluid is spilled, flush the affected area with clear water immediately.
- Always wear safety glasses, rubber apron and gloves when handling a battery.
- Batteries give off explosive hydrogen gas while charging. The gas can form an explosive mixture around the battery for several hours after charging. Any spark, heat or flames can ignite the gas and cause an explosion which can shatter the battery, causing blindness or other serious injury.

BATTERY MAINTENANCE

The battery should be inspected per the “Service Schedule” section. The following procedure should be followed for inspection:

1. Inspect the battery posts and cables for tightness and corrosion. Tighten and clean as necessary.
2. Check the battery fluid level of unsealed batteries and, if necessary, fill with DISTILLED WATER ONLY. DO NOT USE TAP WATER IN BATTERIES.
3. Have the state of charge and condition checked. This should be done with an automotive-type battery hydrometer.

⚠ DANGER!

Storage batteries give off explosive hydrogen gas. This gas can form an explosive mixture around the battery for several hours after charging. The slightest spark can ignite the gas and cause an explosion. Such an explosion can shatter the battery and cause blindness or other injury. Any area that houses a storage battery must be properly ventilated. Do not allow smoking, open flame, sparks or any spark producing tools or equipment near the battery.

Battery electrolyte fluid is an extremely caustic sulfuric acid solution that can cause severe burns. Do not permit fluid to contact eyes, skin, clothing, painted surfaces, etc. Wear protective goggles, protective clothing and gloves when handling a battery. If the fluid is spilled, flush the affected area immediately with clear water.

Do not use any jumper cables or booster battery to crank and start the generator engine. If the battery has completely discharged, remove it from the generator for recharging.

⚠ WARNING!

Be sure the AUTO/OFF/MANUAL switch is set to the OFF position before connecting the battery cables. If the switch is set to AUTO or MANUAL, the generator can crank and start as soon as the battery cables are connected.

Be sure the 120VAC power supply to the battery is turned OFF, or sparking may occur at the battery posts as the cables are attached and cause an explosion.

BATTERY REPLACEMENT

When replacing the batteries, use the same number and the following type batteries.

Part Number	BCI Group No.	CCA
058208	24F	525 @ 0 deg. F

NOTE:

The BCI number should be located directly on the battery. For more information, see "Specifications".

REPAIR PARTS

The latter portion of this manual consists of exploded views, parts lists and electrical data pertaining to this generator set. The parts lists consist of (a) an item number, (b) a part number, (c) the quantity required, and (d) a description of the part. The item number corresponds to an identical number on the exploded view drawing.

SERVICE SCHEDULE

22 KW - 150 KW GASEOUS STATIONARY EMERGENCY GENERATOR

The following is a recommended maintenance schedule for Gaseous Stationary Emergency Generator sets from 22kW to 150 kW in size. The established intervals in the schedule are the maximum recommended when the unit is used in an average service application. They will need to be decreased (performed more frequently) if the unit is used in a severe application. Use calendar time, from the previous maintenance interval to determine the next required maintenance interval.

Service Maintenance Interval Information:

The various service maintenance intervals are designated by interval numbers as follows:

1 An early inspection of the generator set to insure it is ready to operate when required and to identify any potential problem areas.

⚠ CAUTION!

This inspection may be performed by the end user providing the following safety steps are taken to prevent the engine from starting automatically without warning:

To prevent injury, perform the following steps in the order indicated before starting any maintenance:

- **Disable the generator set from starting and/or connecting to the load by setting the control panel Auto/Off/Manual switch to the "OFF" position.**
- **Remove the 15 amp control panel fuse.**
- **Turn off the battery charger.***
- **Remove the negative battery cable.**

⚠ CAUTION!

***** ***The battery charger must be turned off BEFORE removing the battery cable to prevent an over current condition from burning out sensitive control panel components and circuits.***

Following all maintenance, reverse these steps to insure the unit is returned to standby setup for normal operation when required.

2 A wear-in service inspection of the generator set to insure it is ready to operate and carry the load when required, and to identify any potential problem areas.

*Performed **ONLY ONCE** following the first three months or the first 30 hours of operation after purchase of the unit.*

This inspection contains some maintenance tasks which require special tools, equipment, and/or knowledge to accomplish and should be performed only by a Service Dealer.

3 An operational inspection of the generator set to insure it is ready to operate and carry the load when required, and to identify any potential problem areas.

Performed semi-annually or following each 50 hours of operation of the unit.

This inspection contains some maintenance tasks which require special tools, equipment, and/or knowledge to accomplish and should be performed only by a Service Dealer.

4 A mid-level inspection of the generator set to insure it is ready to operate and carry the load when required, and to identify any potential problem areas.

Performed annually or following each 100 hours of operation of the unit.

This inspection contains some maintenance tasks which require special tools, equipment, and/or knowledge to accomplish and should be performed only by a Service Dealer.

5 A comprehensive inspection of the generator set to insure it is properly serviced and ready to operate and carry the load when required, and to identify any potential problem areas.

Performed annually or following each 250 hours of operation of the unit.

This inspection contains some maintenance tasks which require special tools, equipment, and/or knowledge to accomplish and should be performed only by a Service Dealer.

Service Schedule

Maintenance Tasks	Level 1 Recommended to be done monthly/ 10 hrs.	Task Comp. (Date-Initials)	Level 2 Required to be done 3 months/ Break-in 30 hrs.	Task Comp. (Date-Initials)	Level 3 Required to be done Semi-annually/ 50 hrs.	Task Comp. (Date-Initials)	Level 4 Required to be done Annually/ 100 hrs.	Task Comp. (Date-Initials)	Level 5 Required to be done Bi-annually/ 250 hrs.	Task Comp. (Date-Initials)
1. Disable the unit from operating per the first page warning.	⬭		⬭		⬭		⬭		⬭	
2. Check the engine oil level. Adjust as necessary.	⬭		⬭		⬭		⬭		⬭	
3. Check the engine coolant level. Adjust as necessary.	⬭		⬭		⬭		⬭		⬭	
4. Check the engine coolant thermal protection level. Correct as necessary.							⬭		⬭	
5. Check the natural gas delivery system for leaks and correct pressure on gas engine driven units. Tighten connections as necessary.	⬭		⬭		⬭		⬭		⬭	
6. Check the air inlets and outlets of the enclosure and radiator for debris. Clean as necessary.	⬭		⬭		⬭		⬭		⬭	
7. Check the battery electrolyte level and specific gravity if accessible. Adjust as necessary.	⬭		⬭		⬭		⬭		⬭	
8. Check the battery posts, cables, and charger for loose connections, corrosion, and proper operation. Correct as necessary.	⬭		⬭		⬭		⬭		⬭	
9. Check the unit wiring for loose connections, corrosion, and damage. Correct as necessary.	⬭		⬭		⬭		⬭		⬭	

Service Schedule

Maintenance Tasks	Level 1 Recommended to be done monthly/ 10 hrs.	Task Comp. (Date-Initials)	Level 2 Required to be done 3 months/ Break-in 30 hrs.	Task Comp. (Date-Initials)	Level 3 Required to be done Semi-annually/ 50 hrs.	Task Comp. (Date-Initials)	Level 4 Required to be done Annually/ 100 hrs.	Task Comp. (Date-Initials)	Level5 Required to be done Bi-annually/ 250 hrs.	Task Comp. (Date-Initials)
10. Check the engine accessory drive belts and fan coupling device if equipped for correct tension, wear, weather cracking, and damage. Replace as necessary.			⬭				⬭		⬭	
11. Check the engine valve clearance/ lash. Adjust as necessary.**							⬭		⬭	
12. Visually inspect the unit looking for leaks, wear or damage, loose connections or components, and corrosion. Correct as necessary.							⬭		⬭	
13. Test the engine and transfer switch safety devices. Correct and/or adjust as necessary.	⬭		⬭		⬭		⬭		⬭	
14. Initiate an automatic start and transfer of the unit to site load and exercise it for at least 1 hour looking for leaks, loose connections or components, and abnormal operating conditions. Correct as necessary.							⬭		⬭	
15. Replace the engine accessory drive belts.									⬭	
16. Check gearbox oil level (if equipped).	⬭		⬭		⬭		⬭		⬭	
17. Change gearbox oil (if equipped).									⬭	

** Not required for engines equipped with hydraulic lifters. See the "Specification" section for lifter type.

Service Schedule

Maintenance Tasks	Level 1 Recommended to be done monthly/ 10 hrs.	Task Comp. (Date-Initials)	Level 2 Required to be done 3 months/ Break-in 30 hrs.	Task Comp. (Date-Initials)	Level 3 Required to be done Semi-annually/ 50 hrs.	Task Comp. (Date-Initials)	Level 4 Required to be done Annually/ 100 hrs.	Task Comp. (Date-Initials)	Level5 Required to be done Bi-annually/ 250 hrs.	Task Comp. (Date-Initials)
18. Start and exercise the unit at full rated load (use a load bank if the site load is not enough) for at least 2 hours looking for leaks, loose connections or components, and abnormal operating conditions. Correct as necessary.									⬭	
19. Perform an engine oil analysis (send a sample to a lab for results). Change the engine oil and filters if the analysis results indicate this is required.							⬭			
20. Change the engine oil.			⬭				⬭		⬭	
21. Replace the engine oil filter(s).			⬭				⬭		⬭	
22. Replace engine spark plugs. Clean and re-gap or replace as necessary.							⬭			
23. Replace the engine air filter(s).									⬭	
24. Perform a 5 minute no-load operational run of the unit looking for any post service problems.			⬭						⬭	
25. Return the unit to standby setup for operation when required.	⬭		⬭		⬭		⬭		⬭	

TROUBLESHOOTING GUIDE

PROBLEM	*CAUSE*	*CORRECTION*
Engine won't crank.	1. 15 amp fuse blown. 2. Loose or corroded or defective battery cables. 3. Defective starter contactor. 4. Defective starter motor. 5. Dead or Defective Battery. 6. 5 amp fuse blown.	1. Replace fuse. 2. Tighten, clean or replace battery cables as necessary. 3. Replace contactor.* 4. Replace starter motor.* 5. Remove, change or replace battery. 6. Replace fuse.*
Engine cranks but won't start	1. Out of fuel. 2. Fuel solenoid (FS) is defective 3. Open Wire #14A from Engine Control circuit board. 4. Spark plugs defective. 5. Door on tank not closed.	1. Replenish fuel. 2. Replace solenoid.* 3. Reconnect wire. 4. Clean, regap or replace plugs. 5. Close door on tank.
Engine starts hard, runs rough.	1. Flame arrestor (air cleaner) plugged or damaged. 2. Plugged fuel line. 3. Defective spark plugs. 4. Fuel pressure incorrect.	1. Clean or replace as needed. 2. Unclog fuel line. 3. Clean, regap or replace plugs. 4. Confirm fuel pressure to regulator is as recommended in SPECIFICATIONS.
Engine starts then shuts down.	1. Engine oil level is low. 2. Engine is overheated. 3. Defective Low Oil Pressure Switch 4. Defective Coolant Temperature Switch 5. Defective Control Module circuit board. 6. Coolant Level is Low. 7. Defective Low Coolant Level Switch	1. Check oil and add oil as needed. 2. Check cooling system for leaks. 3. Replace switch.* 4. Replace switch.* 5. Replace board.* 6. Repair leak - Add coolant. 7. Replace Switch.*
AUTO/OFF/MANUAL Switch at OFF, engine continues to run	1. Defective AUTO/OFF/MANUAL switch 2. Open/disconnected wire #15A between AUTO/OFF/MANUAL switch and Control Module circuit board. 3. Defective Control Module circuit board	1. Replace switch.* 2. Reconnect/close wire. 3. Replace board.*
No AC output from generator.	1. Check main line circuit breaker. 2. Check circuit breaker & fuses. 3. Transfer switch set to NORMAL position 4. Generator internal failure. 5. Thermal circuit breaker open.	1. Reset to ON or CLOSED. 2. Reset and replace, if necessary. 3. Set to GENERATOR position. 4. * 5. Auto-reset - Wait 5 min. and attempt restart.

***Contact the nearest Authorized Dealer for assistance.**

United States Environmental Protection Agency Warranty Statement (Stationary Emergency Spark-Ignited Generators)

Warranty Rights, Obligations and Coverage

The United States Environmental Protection Agency (EPA) and Generac Power Systems, Inc. (Generac) are pleased to explain the Emission Control System Warranty on your new stationary emergency engine. If during the warranty period, any emission control system or component on your engine is found defective in materials or workmanship, Generac will repair your engine at no cost to you for diagnosis, replacement parts and labor provided it be done by a Generac Authorized Warranty Service Facility. Your emission control system may include parts such as the fuel metering, ignition, and exhaust systems and other related emission related components listed below. Generac will warrant the emissions control systems on your 2009 and later model year engines provided there has been no abuse, neglect, unapproved modification or improper maintenance of your engine. For engines less than 130 HP the warranty period is two years from the date of sale to the ultimate purchaser. For engines greater than or equal to 130 HP the warranty period is three years from the date of the engine being placed into service.

Purchaser's/Owner's Warranty Responsibilities

As the engine purchaser/owner you are responsible for the following. 1.) The engine must be installed and configured in accordance to the Generac's installation specifications. 2.) The completion of all maintenance requirements listed in your Owner's Manual. 3.) Any engine setting adjustment must be done in accordance and consistent with the instructions in the Owner's Manual. 4.) Any emission control system or component must be maintained and operated appropriately in order to ensure proper operation of the engine and control system to minimize emissions at all times.

Generac may deny any/or all Emission Control System Warranty coverage or responsibility of the engine, or an emission control system or component on your engine thereof, if it has failed due to abuse, neglect, unapproved modification or improper maintenance, or the use of counterfeit and/or 'gray market' parts not made, supplied or approved by Generac. Warranty service can be arranged by contacting either your selling dealer or a Generac Authorized Warranty Service dealer, 1-800-333-1322 for the dealer nearest you. The purchaser/owner shall be responsible for any expenses or other charges incurred for service calls and/or transportation of the product to/from the inspection or repair facilities. The purchaser/owner shall be responsible for any and/or all damages or losses incurred while the engine is being transported/shipped for inspection or warranty repairs. Contact Generac Power Systems Inc. for additional Emission Control System Warranty related information, Generac Power Systems, Inc. P.O. Box 8, Waukesha, WI 53187, or call 1-800-333-1322 or www.generac.com.

Important Note

This warranty statement explains your rights and obligations under the Emission Control System Warranty, which is provided to you by Generac pursuant to federal law. Note that this warranty shall not apply to any incidental, consequential or indirect damages caused by defects in materials or workmanship or any delay in repair or replacement of the defective part(s). This warranty is in place of all other warranties, expressed or implied. Specifically, Generac makes no other warranties as to the merchantability or fitness for a particular purpose. Any implied warranties which are allowed by law, shall be limited in duration to the terms of the express warranty provided herein. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Emission Related Parts Include the Following (if so equipped)

1) Fuel Metering System
1.1) Gasoline Carburetor Assembly And Internal Components A) Fuel Filter, B) Carburetor, C) Fuel Pump
1.2) Carburetion Assembly And Its Components A) Fuel Controller, B) Carburetor And Its Gaskets, C) Mixer And It Gaskets, D) Primary Gas Regulator E) Liquid Vaporizer
1.3) Fuel Regulator
2) Air Induction System Including A) Intake Pipe/Manifold, B) Air Cleaner
3) Ignition System Including A) Spark Plug, B) Ignition Module, C) Ignition Coil, D) Spark Plug Wires
4) Exhaust System A) Catalyst Assembly, B) Exhaust Manifold, C) Muffler, D) Exhaust Pipe, E) Muffler Gasket
5) Crankcase Breather Assembly Including A) Breather Connection Tube, B) Pcv Valve
6) Oxygen Sensor
7) Diagnostic Emission-Control System

United States Environmental Protection Agency Compliance Requirements (Stationary Emergency Spark-Ignited Generators)

Purchaser's/Owner's Recordkeeping Responsibilities

The United States Environmental Protection Agency (EPA) and Generac Power Systems, Inc. (Generac) are pleased to explain your record-keeping requirements for compliance with Subpart JJJJ- Standards of Performance for Stationary Spark Ignition Internal Combustion Engines as listed in the Electronic Code of Federal Regulations Title 40 Part 60. As the engine purchaser/owner who operates and maintains their certified emergency stationary engine and emission control system according to applicable emission related guidelines as specified in this Owner's Manual, you are required to meet the following notification and recordkeeping requirements to demonstrate compliance. 1.) Maintain documentation that the engine is certified to meet emission standards. 2.) Recordkeeping of maintenance conducted. 3.) Recordkeeping of the provision allowing natural gas engines to operate using propane for a maximum of 100 hours per year as an alternate fuel solely during emergency operations provided the engine is not certified to operate on propane. 4.) Meet all compliance notifications submitted to the purchaser/owner and maintain all supporting documentation. 5.) Recordkeeping of hours of operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. For emergency engines greater than or equal to 130 HP, record-keeping of hours of operation begins January 1, 2011. For emergency engines less than 130 HP, recordkeeping of hours of operation begins January 1, 2009; Engines are equipped with non-resettable hour meters to facilitate recordkeeping.

Specific Air Quality Management or Air Pollution Control Districts may have different and additional record keeping/reporting requirements. Your permit to construct and/or operate the engine may be contingent upon compliance with those requirements. Check with your local Air Quality Management or Air Pollution Control District for specific requirements.

Emergency stationary internal combustion engines (ICE) may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, Generac, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. The purchaser/owner may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing.

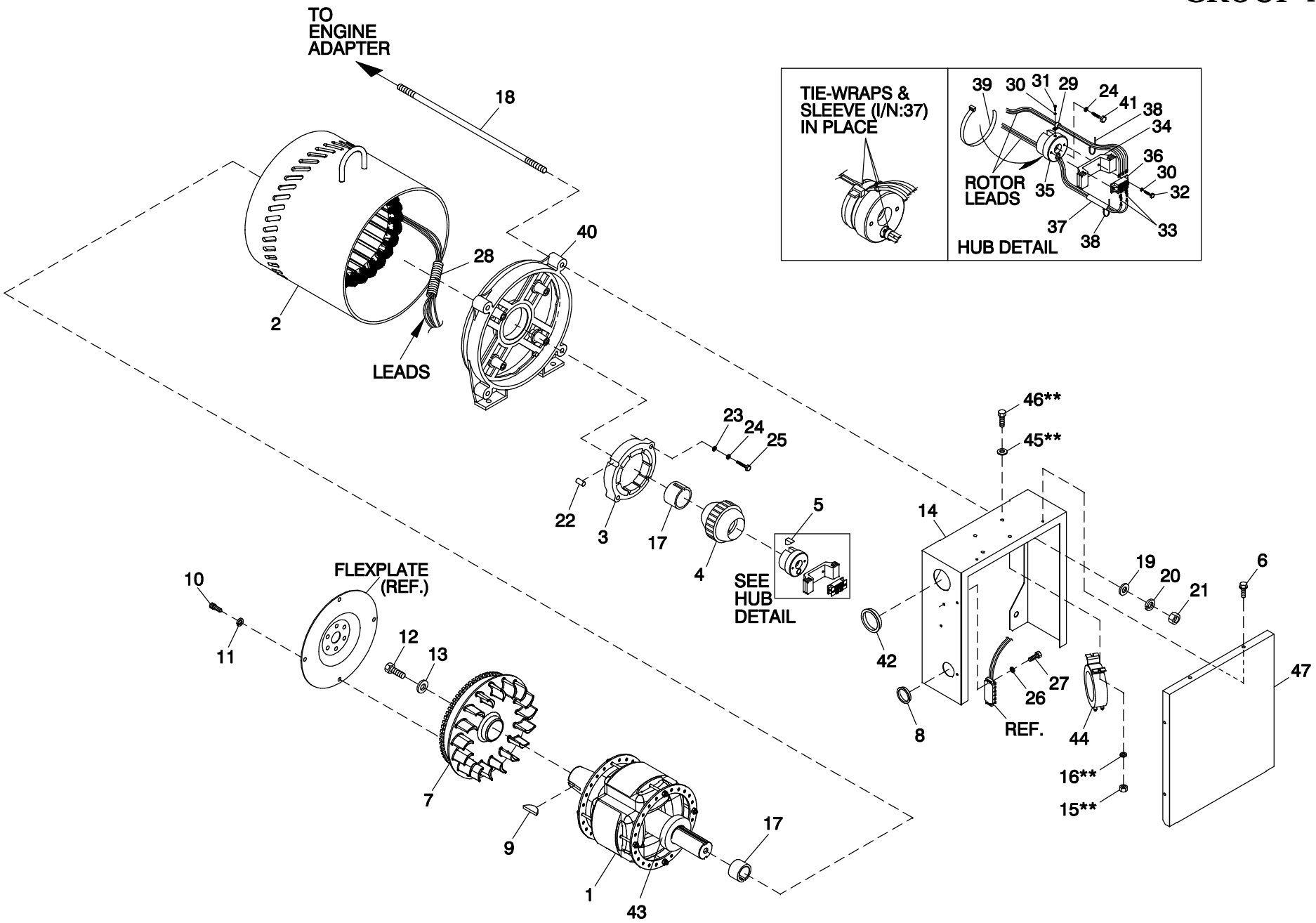
The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. For purchaser/owner of emergency engines, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in this section is prohibited.

If you operate and maintain your certified emergency stationary SI internal combustion engine and emissions control systems in accordance to the specifications and guidelines in this Owner's Manual EPA will not require engine performance testing. If not, your engine will be considered non-certified and you must demonstrate compliance according to Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines as listed in the Electronic Code of Federal Regulations Title 40 Part 60.

Emission-Related Installation Instructions

Your certified emergency stationary engine has pre-set emission control systems or components that require no adjustment. Inspection and replacement of an emissions related component is required to be done so in accordance with the requirements cited in the United States Environmental Protection Agency Warranty Statement or can be arranged by contacting either your selling dealer or a Generac Authorized Warranty Service dealer, 1-800-333-1322 for the dealer nearest you. Failing to follow these instructions when installing a certified engine in a piece of nonroad equipment violates federal law 40 CFR 1068.105 (b), subject to fines or penalties as described in the Clean Air Act.

GROUP A



EXPLODED VIEW:
TELECOM ALTERNATOR BRUSHLESS 30KW 4-POLE

DRAWING #: 0G6716

REVISION: H-9107-C
DATE: 6/16/11

EXPLODED VIEW: TELECOM ALTERNATOR BRUSHLESS 30KW 4-POLE
DRAWING #: 0G6716

GROUP A

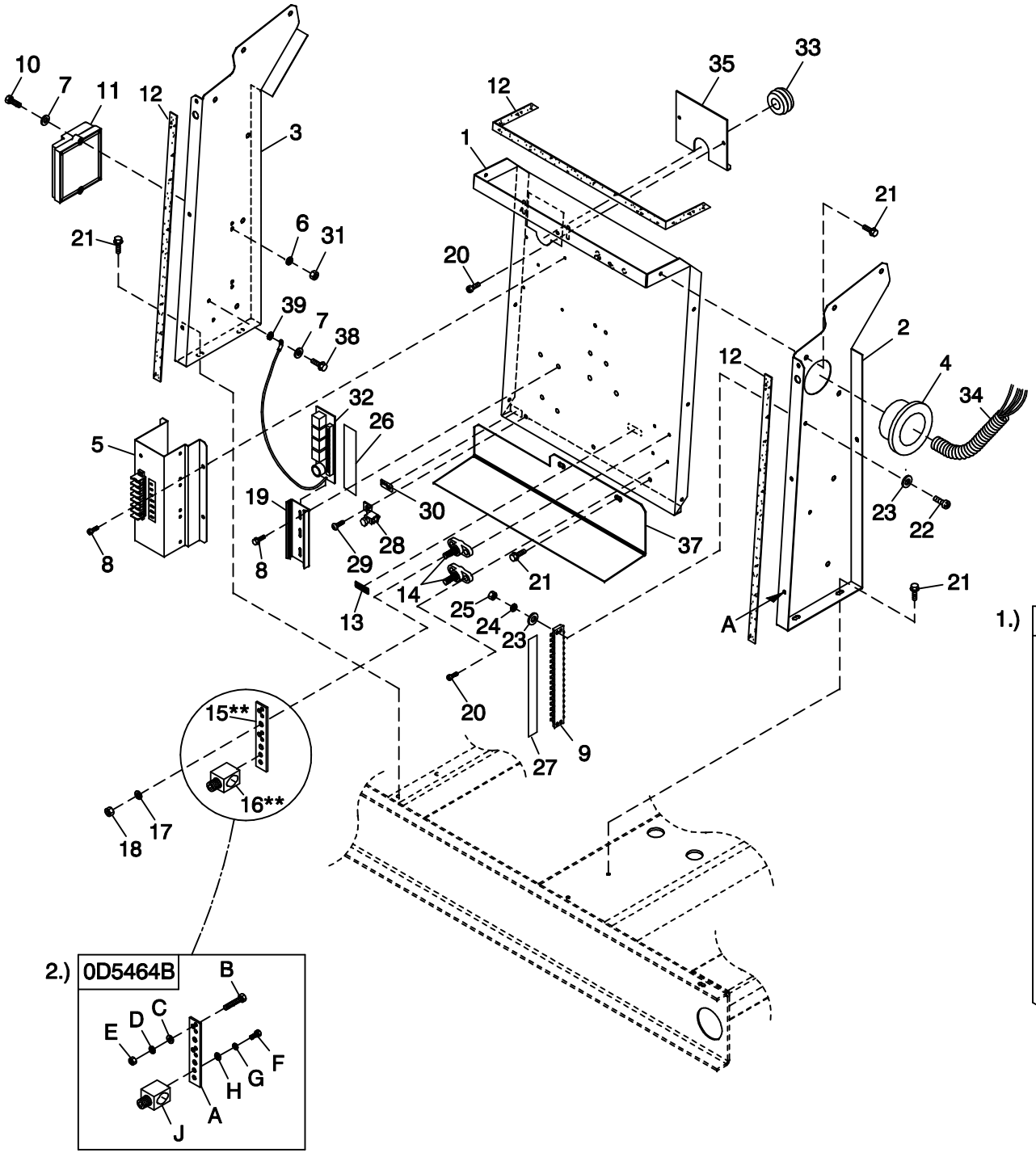
APPLICABLE TO:

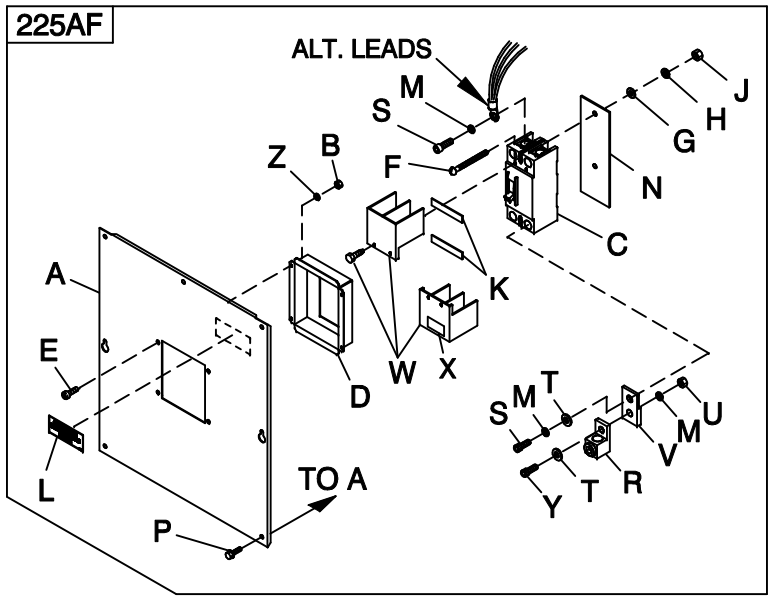
ITEM	PART #	QTY.	DESCRIPTION
1	0G6601	1	ASSY RTR 390 45AB3 CPL
2	0G6600	1	STATOR 390 45AB1 CPL
3	068405	1	EXCITER FIELD 15" 2" LG
4	087272	1	ASSY EXCITER 2.00" STK
5	072878	1	KEY SQ 3/8 X 3-1/4 STEEL
6	0C2454	6	SCREW THF M6-1X16 N WA Z/JS
7	0F5767B	1	FLYWHEEL,MACHINED &ASSY C4 CPL
8	023484K	1	BUSHING SNAP SB-1750-22
9	023454	1	KEY WOODRUFF #E
(2) 10	0F8408	4	SCREW HHC M10-1.50 X 16 C10.9
11	046526	4	WASHER LOCK M10
12	0A2601	1	SCREW HHC M16-2.0 X 45 G8.8
13	0A2602	1	WASHER FLAT .688ID X 3.25OD
14	0F6811	1	COVER, EXCITER
15	045771	4	NUT HEX M8-1.25 G8 CLEAR ZINC
16	022129	4	WASHER LOCK M8-5/16
17	092950	1	COLLAR SLIP FIT 390 MM
18	04576100BU	4	STUD M14-2.0 570 G5 ZINC
19	052646	4	WASHER FLAT M14
20	043123	4	WASHER LOCK M14
21	051779	4	NUT HEX M14-2.0 G8 YEL CHR
22	022392	2	PIN DOWEL 1/2 X 1-1/4
23	052259	2	WASHER FLAT M12
24	051769	3	WASHER LOCK M12
25	0E7230	2	SCREW HHC M12-1.75 X 80 G10.9
26	0C2428	2	SCREW PHTT #6-32 X 1/2 ZYC
27	022155	2	WASHER LOCK #6
28	077043F	1	CONDUIT FLEX 1.25” ID (18”LG)
29	020151	1	CLAMP VINYL .312 X .203 Z
30	023365	3	WASHER SHAKEPROOF INT #8
31	033133	1	SCREW HHM #8-32 X 3/8
32	033143	2	SCREW HHM #8-32 X 7/8
33	086032	2	LUG RT-ANG #10/10-12
34	090063	1	BRIDGE SUPPORT DIODE 15"
35	090064	1	CAP END ROTOR 390MM
36	090152	1	ASSY BRIDGE RECTIFIER
37	022661L	1	SLEEVING UL #0 .330 ID (3” LONG)
38	028739A	2	TIE WRAP UL 3.9" X .10" BLK
39	085662D	1	TIE WRAP UL 17.7 X .35 BLK HT
40	068113	1	REAR BEARING CARRIER
41	068406	3	SCREW HHC M12-1.75 X 60 G10.9
42	023484N	1	BUSHING SNAP SB-2.5-31
(1) 43	052624	1	BEARING BALL 6212 SEALED
44	0F4281B	2	XFMR CURRENT 150A W/BRKT
45	022145	4	WASHER FLAT 5/16-M8 ZINC
46	042907	4	SCREW HHC M8-1.25 X 16 G8.8
47	0F6812	1	COVER, EXCITER

(1) ROTOR REPLACEMENT PARTS.
(2) APPLY MEDIUM STRENGTH BLUE THREAD LOCKING FLUID TO THREADS.

REVISION: H-9107-C
DATE: 6/16/11

GROUP A





EXPLODED VIEW:
CONNECTION BOX & CIRCUIT BREAKER
DRAWING #: 0G6744

REVISION: H-3478-D
DATE: 11/12/08

EXPLODED VIEW: CONNECTION BOX & CIRCUIT BREAKER
DRAWING #: 0G6744

APPLICABLE TO:

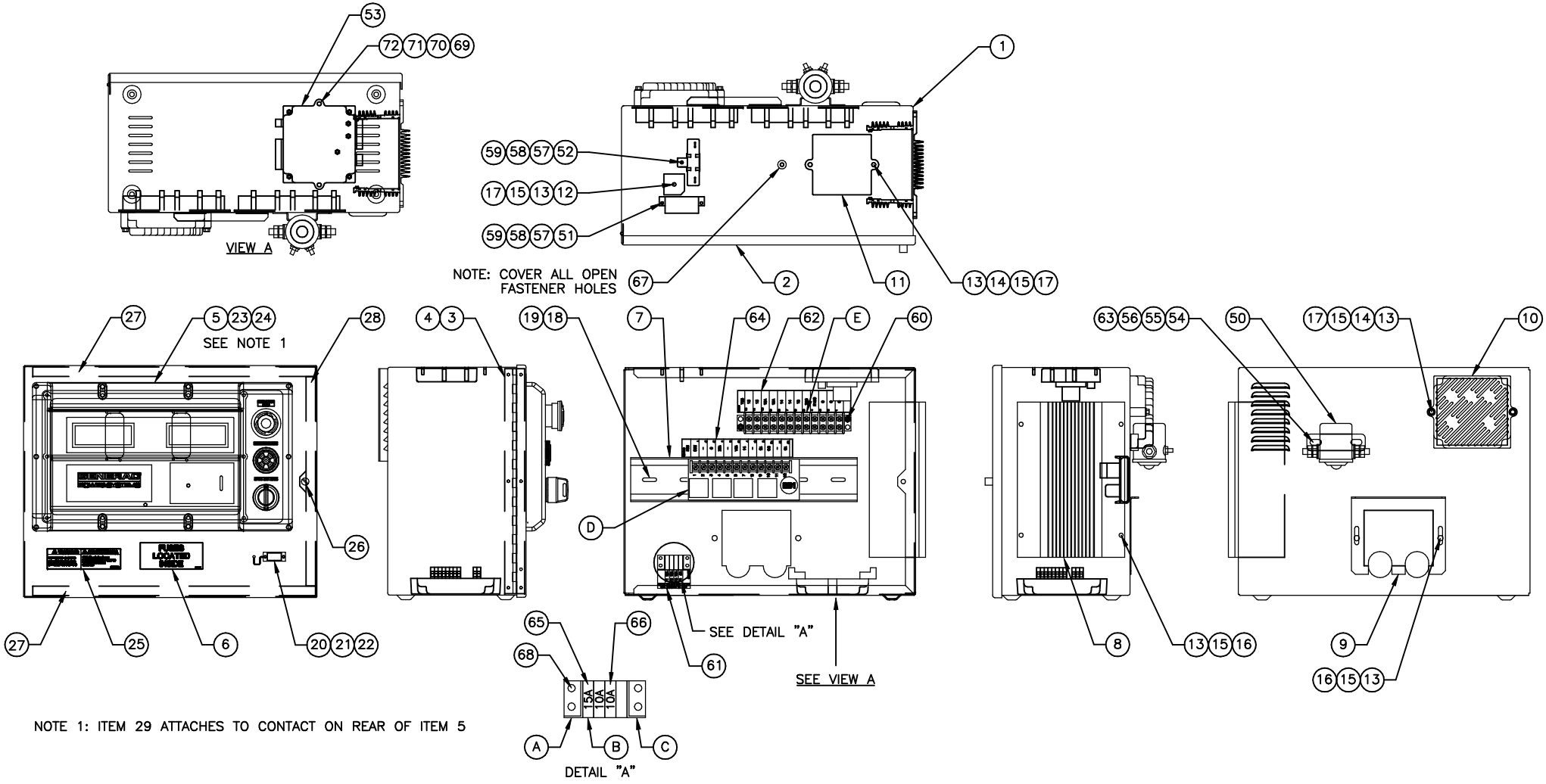
GROUP A

ITEM	PART #	QTY.	DESCRIPTION
1	0F3137	1	PAN CB CONN BOX
2	0F7655	1	STAND, R/H CONRTOL
3	0F7656	1	STAND, L/H CONTROL
4	023484N	1	BUSHING SNAP SB-2.5-31
5	0F4677	1	ASSY PCB INTERFACE 1PH 240V
6	022152	2	WASHER LOCK #10
7	023897	3	WASHER FLAT #10 ZINC
8	0C3990	6	SCREW PHTT M4-0.7 X 10 ZYC
(1) 9	043365	REF.	BLOCK TERM 20A 8 X 6 X 1100V
10	036943	2	SCREW PPHM #10/32 X 2
11	0H0348	1	ASSY ENCLOSURE PCB 4.2L IGN MD
12	029289	1	TAPE ELEC 1/2 FOAM (65.5" LG)
13	0A9457	1	DECAL NEUTRAL
14	057073	2	JUNCTION BLOCK 3/8-16
(2) 15	0D5466	REF.	BUS BAR NEUTRAL BLOCK 390
(2) 16	0A7822	REF.	LUG SLDLSS 600/250-1/0 X 1/4-28
17	022237	2	WASHER LOCK 3/8
18	022241	2	NUT HEX 3/8-16 STEEL
19	0E9764	1	RAIL SNAPTRACK PCB HOLDER BULK (6"LG)
20	0C2266	6	SCREW PHTT M5-0.8 X 16 ZYC
21	0C2454	19	SCREW THF M6-1 X 16 N WA Z/JS
22	036903	2	SCREW PPHM #6-32 X 5/8
23	022985	4	WASHER FLAT #6 ZINC
24	022155	2	WASHER LOCK #6
25	022188	2	NUT HEX #6-32 STEEL
26	0F0699	1	DECAL, SPARE OUTPUT
27	0F7475	1	DECAL, T-BLOCK H-100 CUST I/O
28	025433	1	LUG SLDLSS #6-14 X 13/64 CU
29	024469	1	SCREW HHTT #10-32 X 3/8 CZ
30	067210A	1	DECAL GROUND LUG
31	022158	2	NUT HEX #10-32 STEEL
32	0G6962B	1	ASSY RELAY PCB 12VDC
33	081008	1	GROMMET 1.25 X .25 X .75
34	077043J	1	CONDUIT FLEX 2.0" ID (36" LG)
35	0F6156	1	PLATE WIRE SNGL GALV TELECOM
36	0G4022	1	HARN ALT CON 1PH 2.4L TELECOM HUIO (NOT SHOWN)
37	0G71050GS0R	1	GLAND PLATE 4.2L CONBOX
38	045764	1	SCREW HHTT M4-0.7 X 8 ZP
39	023762	1	WASHER SHAKEPROOF EXT #10 STL

ITEM	PART #	QTY.	DESCRIPTION
1)			UL CIRCUIT BREAKER (2P 225AF)
A	0F8453	1	COVER CB C3 225AF
B	022188	4	NUT HEX #6-32 STEEL
C	0G5249	1	CB 150A 2 POLE 240V 225AF
D	0F4186AGS0R	1	COVER CB DISH 2P 225AF
E	036902	4	SCREW PPHM #6-32 X 1/2
F	053640	2	SCREW RHM #8-32 X 3-1/4
G	038150	2	WASHER FLAT #8 ZINC
H	022264	2	WASHER LOCK #8-M4
J	022471	2	NUT HEX #8-32 STEEL
K	029289	2	TAPE ELEC 1/2 FOAM
L	0F1733	1	DECAL CUSTOMER CONNECT INSIDE
M	022129	6	WASHER LOCK M8-5/16
N	0F8432A	1	INSULATOR CB 2P 225AF
P	0C2454	7	SCREW THF M6-1 X 16 N WA Z/JS
R	0F8451	2	LUG SLDLSS 300 MCM-6 AL/CU
S	049897	4	SCREW SHC M8-1.25 X 20 G8
T	022145	6	WASHER FLAT 5/16-M8 ZINC
U	045771	2	NUT HEX M8-1.25 G8 CLEAR ZINC
V	0F8843	2	BUS BAR 200A LUG ADAPTOR
(3) W	W/CB	2	TERMINAL COVER CB
X	0G3259	1	DECAL TERMINAL SHOCK HZD BI
Y	058306	2	SCREW SHC M8-1.25 X 25 G12.9
Z	022155	4	WASHER LOCK #6
2)			
A	0D5466	1	BUS BAR NEUTRAL BLOCK 390
B	039287	1	SCREW HHC M8-1.25 X 45 G8.8 FT
C	022145	1	WASHER FLAT 5/16-M8 ZINC
D	022129	1	WASHER LOCK M8-5/16
E	045771	1	NUT HEX M8-1.25 G8 YEL CHR
F	022473	2	WASHER FLAT 1/4-M6 ZINC
G	022097	2	WASHER LOCK M6-1/4
H	0A8261	2	SCREW HHC 1/4-28 X 5/8 .625TH
J	0A7822	1	LUG SLDLSS 600/250-1/0 X 1/4-28

(1) ITEM INCLUDED WITH HARNESS
(2) ITEM INCLUDED WITH 0D5464B
(3) HARDWARE FOR MTG. CB TERMINAL COVERS IS SUPPLIED WITH CIRCUIT BREAKERS.

GROUP B



REVISION: H-1483-B
DATE: 12/05/07

EXPLODED VIEW:
H-PANEL 10A BATTERY CHARGER 12V
DRAWING #: 0G6694D

EXPLODED VIEW: H-PANEL 10A BATTERY CHARGER 12V
DRAWING #: 0G6694D

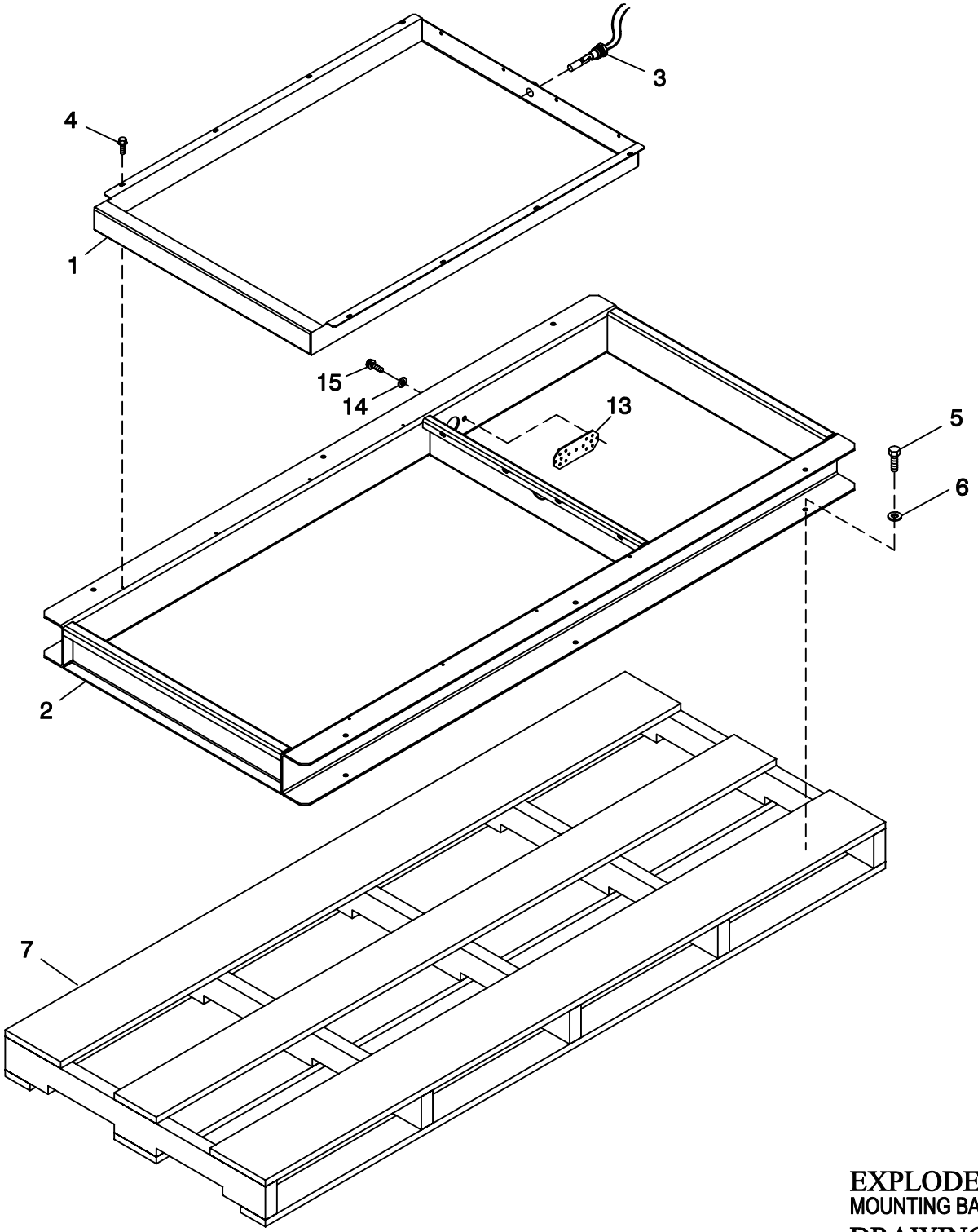
GROUP B

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
			COMPONENTS INCLUDED IN 0G4140E
1	0F1823CST06	1	ENCL H/G CONTROL PANEL
2	0F1824AST06	1	COVER CONTROL PANEL
3	0F2606	1	HINGE CONTINUOUS H PANEL
4	036261	7	RIVET POP .125 X .275 SS
5	0F5763	1	ASSY PROGRAMMED H-100
6	0F1732	1	DECAL FUSES LOCATED INSIDE
7	0E9764	1 FT.	RAIL SNAPTRACK PCB HOLDER BULK
8	0F1740C	1	ASSY PCB 10A UL BATT CHRGR 12V
9	0F1958	1	PLATE HARNESS CLAMP
10	0F2256	1	ASSY PCB PWR AVR W/AMP HEADER
11	0E3161	1	ASSY PCB BOSCH GOV DRIVER
12	029673	1	DIO BRIDGE 25A 600V
13	049226	11	WASHER LOCK M5
14	079224	4	SCREW PPHM M5-0.8 X 30 SS
15	051713	11	WASHER FLAT M5
16	0F5886	6	SCREW HHPM M5-0.8 X 12
17	051716	5	NUT HEX M5-0.8 G8 YEL CHR
18	043180	3	WASHER FLAT M4
19	0C3990	3	SCREW PHTT M4-0.7 X 10 ZYC
20	0F4333	1	CONN DUST CAP W/CHAIN DB9
21	0F5883	1	WASHER FLAT M3.5
22	0F5884	1	SCREW PHTT M3.5-0.6 X 10
23	055014	10	SCREW PPHM M4-0.7 X 8 BLX OX
24	022264	10	WASHER LOCK #8-M4
25	0G3546	1	DECAL WRN BATT CHRG 12/24V BI
26	0G3648	1	M5-0.8 CAPTIVE PANEL KNLD HD
27	0F6305	2	SEAL COVER 3.18 X 12.7 X 382
28	0F6305A	1	SEAL COVER 3.18 X 12.7 X 283
29	0G4329	1	HARNESS H-PNL INTEGRATED SW (NOT SHOWN)
			COMPONENTS INCLUDED IN WIRE HARNESS
A	0F1263	1	ADPTR RH SIDE WICKMANN 178.6191
B	0F1262	4	HOLDER FUSE WICKMANN 178.6150
C	0F1264	1	ADPTR LH SIDE WICKMANN 178.6192
D	0E9049B	1	ASSY PCB G-PANEL RELAY 12VDC
E	055911	1	BLOCK TERM 20A 12 X 6 X 1100V

ITEM	PART #	QTY.	DESCRIPTION
			COMPONENTS NOT INCLUDED IN 0G4140E OR WIRE HARNESS
50	056739	1	RELAY CONTACTOR 12VDC
51	048476	1	CB 4.5X1 AUT30KW CNT45K
52	0F5752B	1	RES WW 25R 5% 25W QK CONN
53	0G3226	1	H-PNL I/O EXPANSION MOD PROG
54	022287	2	SCREW HHC 1/4-20 X 3/4 G5
55	022473	4	WASHER FLAT M6-1/4
56	022097	2	WASHER LOCK M6-1/4
57	043182	3	WASHER LOCK M3
58	051714	3	NUT HEX M3-0.5 G8 YEL CHR
59	052777	3	WASHER FLAT M3
60	0C2323	2	SCREW PHTT #6-32 X 5/8 ZYC
61	0F5459	1	DECAL CPL CONTROL PANEL FUSES
62	0F5461	1	DECAL CPL 5.4/6.8L TB3
63	022127	2	NUT HEX 1/4-20 STEEL
64	0F5460	1	DECAL CPL 5.4/6.8L RELAY BOARD
65	0E7403C	1	FUSE ATO TYPE 15 AMP (BLUE)
66	0E7403B	2	FUSE ATO TYPE 10 AMP (RED)
67	0F6145	A/R	SEAL WEATHER .45"DIA
68	0C2699	2	SCREW PHTT #6-32 X 3/8 ZYC
69	020911	2	SCREW PPHM M5-0.8 X 30 ZINC
70	051716	2	NUT HEX M5-0.8 G8 CLEAR ZINC
71	051713	2	WASHER FLAT M5
72	049226	2	WASHER LOCK M5
73	0F7625	1	TAG, H-100 CONTROLLER (NOT SHOWN)

GROUP C



EXPLODED VIEW:
MOUNTING BASE
DRAWING #: 0F8044

REVISION: G-8691-A
DATE: 7/18/06

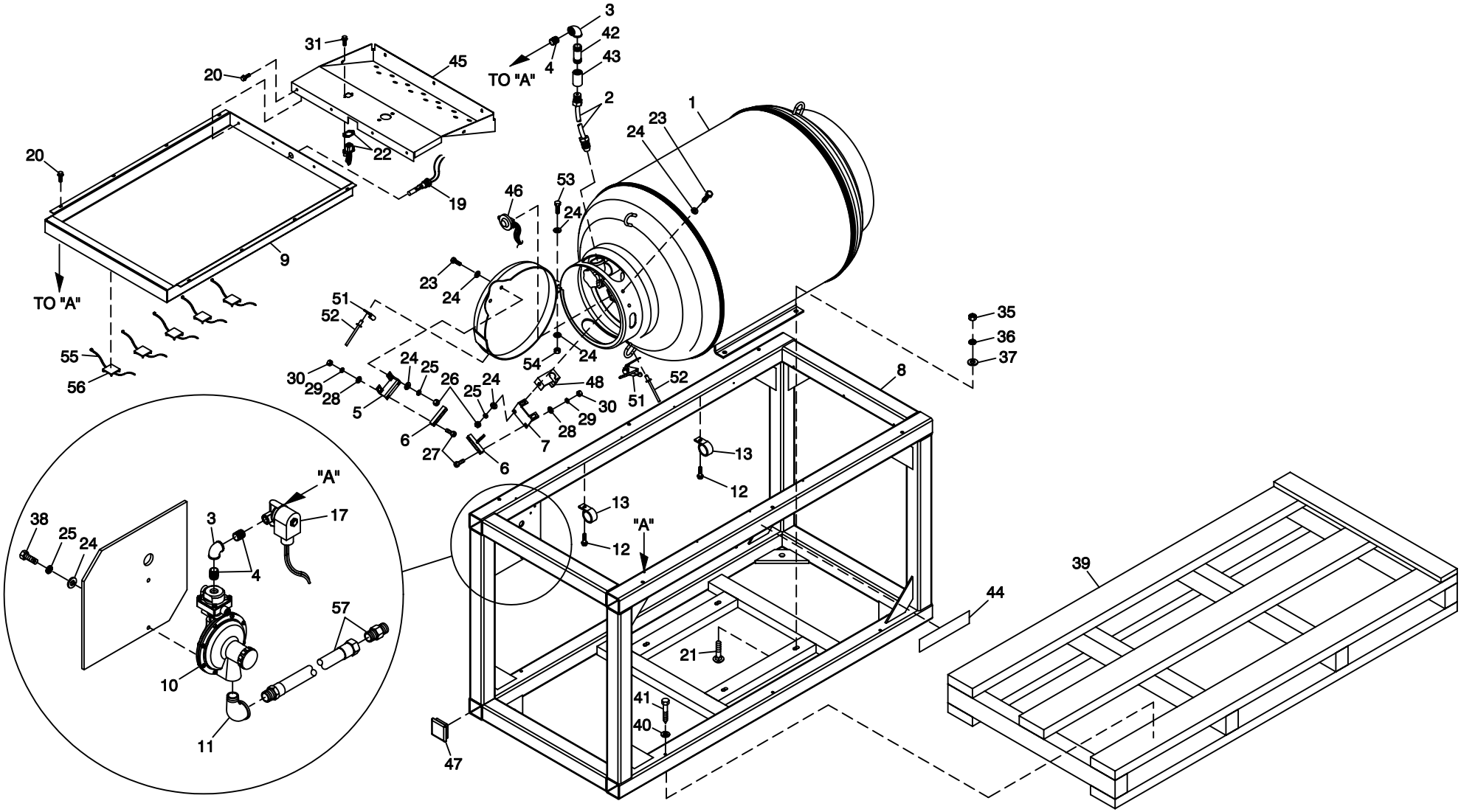
EXPLODED VIEW: MOUNTING BASE
DRAWING #: 0F8044

GROUP C

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0F6956	1	PAN, FLUID CONTAINMENT
2	0F7837	1	FRAME NATURAL GAS UNIT RISER
3	096500V	1	ASSY FUEL LEAK DET ALARM W/CON
4	074908	6	SCREW HHTT M5-0.8 X 10 BP
5	066428	6	SCREW HHL 3/8 X 2-1/2 ZINC
6	022131	6	WASHER FLAT 3/8-M10 ZINC
7	0E0767A	1	CRATE BASE 34" X 81"
8	0F8113	1	HARNESS, NAT GAS RISER FRAME (NOT SHOWN)
(1) 9	085916	6	SCREW HHC 3/8-16 X 1 SS
(1) 10	085917	6	WASHER LOCK 3/8 SS
(1) 11	085918	6	NUT HEX 3/8-16 SSTL
(1) 12	088775	12	WASHER FLAT 3/8 SS
(1) 13	0C4360	1	PLATE VARMINT
(1) 14	071693	2	WASHER FLAT .281ID X 1.0OD
(1) 15	0C2454	2	SCREW THF M6-1 X 16 N WA Z/JS

(1) MOUNTING HARDWARE FOR GENSET TO L/P TANK FRAME.
PUT IN BAG & TIE WRAP TO FRAME.



EXPLODED VIEW:
LPL TANK AND FRAME
DRAWING #: 0G3151

EXPLODED VIEW: LPL TANK AND FRAME
DRAWING #: 0G3151

GROUP C

APPLICABLE TO:

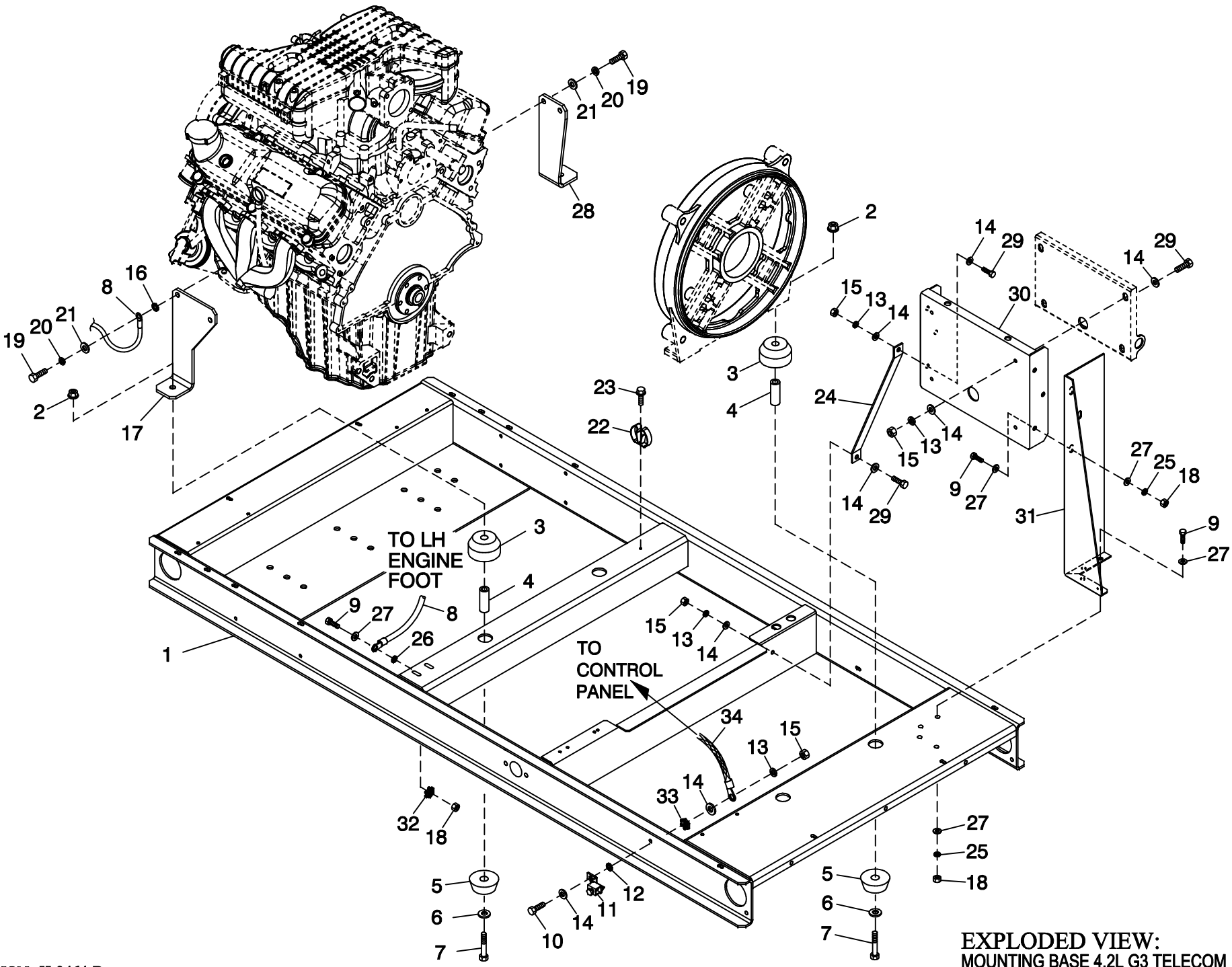
ITEM	PART #	QTY.	DESCRIPTION
1	0F6830	1	REWORK L/P TANK 120 GAL
2	0F7534	1	POL VALVE TUBE 1/4" NPT
3	033930	2	ELBOW 90D 1/4 NPT
4	026942	3	NIPPLE CLOSE 1/4 NPT X .875
5	0F7530	1	BRACKET MAGNETIC SENSOR DOOR
6	0F7643	1	SWITCH MAGNETIC REED
7	0F7531	1	BRACKET MAGNETIC SENSOR TANK
8	0F6831	1	FRAME L/P TANK
9	0F6956	1	PAN FLUID CONTAINMENT
10	0F7012	1	REGULATOR 2-STAGE
11	026739	1	ELBOW RED STREET 3/4 X 1/2
12	090388	2	SCREW HHTT M6-1.0 X 12 ZINC
13	055934N	2	CLAMP VINYL 1.31 X .281 Z
17	0F9111	1	ASSEMBLY SOLENOID 12V
19	096500V	1	ASSY FUEL LEAK DTCTR ALRMW/CON
20	074908	17	SCREW HHTT M5-0.8 X 10 BP
21	0F6832	4	BOLT CARR 9/16-12 X 2-1/4"
22	0F7035	1	HARNESS L/P TANK FRAME
23	047411	4	SCREW HHC M6-1.0 X 16 G8.8
24	022473	12	WASHER FLAT 1/4-M6 ZINC

ITEM	PART #	QTY.	DESCRIPTION
25	022097	6	WASHER LOCK M6-1/4
26	049813	4	NUT HEX M6 X 1.0 G8 YEL CHR
27	036902	4	SCREW PPHM #6-32 X 1/2
28	022985	4	WASHER FLAT #6 ZINC
29	022155	4	WASHER LOCK #6
30	022188	4	NUT HEX #6-32 STEEL
31	024413	2	SCREW HHTT #10-32 X 1/2 BP
(2) 32	085916	6	SCREW HHC 3/8-16 X 1 SS (NOT SHOWN)
(2) 33	088775	12	WASHER FLAT 3/8 SS (NOT SHOWN)
(2) 34	085917	6	WASHER LOCK 3/8 SS (NOT SHOWN)
35	0A6054	4	NUT HEX 9/16-12
36	070265	4	WASHER LOCK M16
37	0A1646	4	WASHER FLAT M16
38	022287	2	SCREW HHC 1/4-20 X 3/4 G5
39	0C4632	1	PALLET 'A' GRP OPEN
40	022131	6	WASHER FLAT 3/8-M10 ZINC
41	021442	6	SCREW HHL 3/8 X 4.0
42	035482	1	NIPPLE PIPE 1/4 IN X 6 IN
43	024268	1	COUPLING FULL 1/4-18
44	0F7667	2	DECAL NO FORKS
45	0G31530AL03	1	PAN RAIN RUNOFF
46	0D3573	1	ROCHESTER ELEC. GAUGE
47	0F7688	8	END CAP PLASTIC 3" X 3" SQUARE
48	0F2776D	1	BRACKET SIGNAL CONDITONER
(1) 49	029333	1	TIE WRAP UL 7.4" X .19" NATL (NOT SHOWN)
(2) 50	085918	6	NUT HEX 3/8-16 SSTL (NOT SHOWN)
51	0G0050	1	DOOR LATCH, 2-PIECE STEEL
52	0F9245	4	RIVET POP .125 X .337 SS
53	055816	1	SCREW HHC M6-1.0 X 70 G8.8
54	077992	1	NUT HEX LOCK M6-1.0 SS NY INS
55	028739A	5	TIE WRAP UL 3.9" X .10" BLK
56	057593	5	CABLE TIE MOUNT BLACK
57	0G3094A	1	FUEL HOSE ASSY NG/LPV 70"LG.

(1) TO HOLD SENSOR FROM HARNESS TO I/N 48.

(2) MOUNTING HARDWARE FOR GENSET TO L/P TANK FRAME. PUT IN BAG & TIE WRAP TO FRAME.

NOTES: 1.) ADD PIPE SEALANT TO ALL NPT FITTINGS.
2.) ADD RTV TO SEAM BETWEEN I/N 45 & I/N 9.
3.) I/N 13 TO HOLD I/N 57.
4.) I/N 55 & I/N 56 TO HOLD I/N 22.



EXPLODED VIEW:
MOUNTING BASE 4.2L G3 TELECOM
DRAWING #: 0G6727

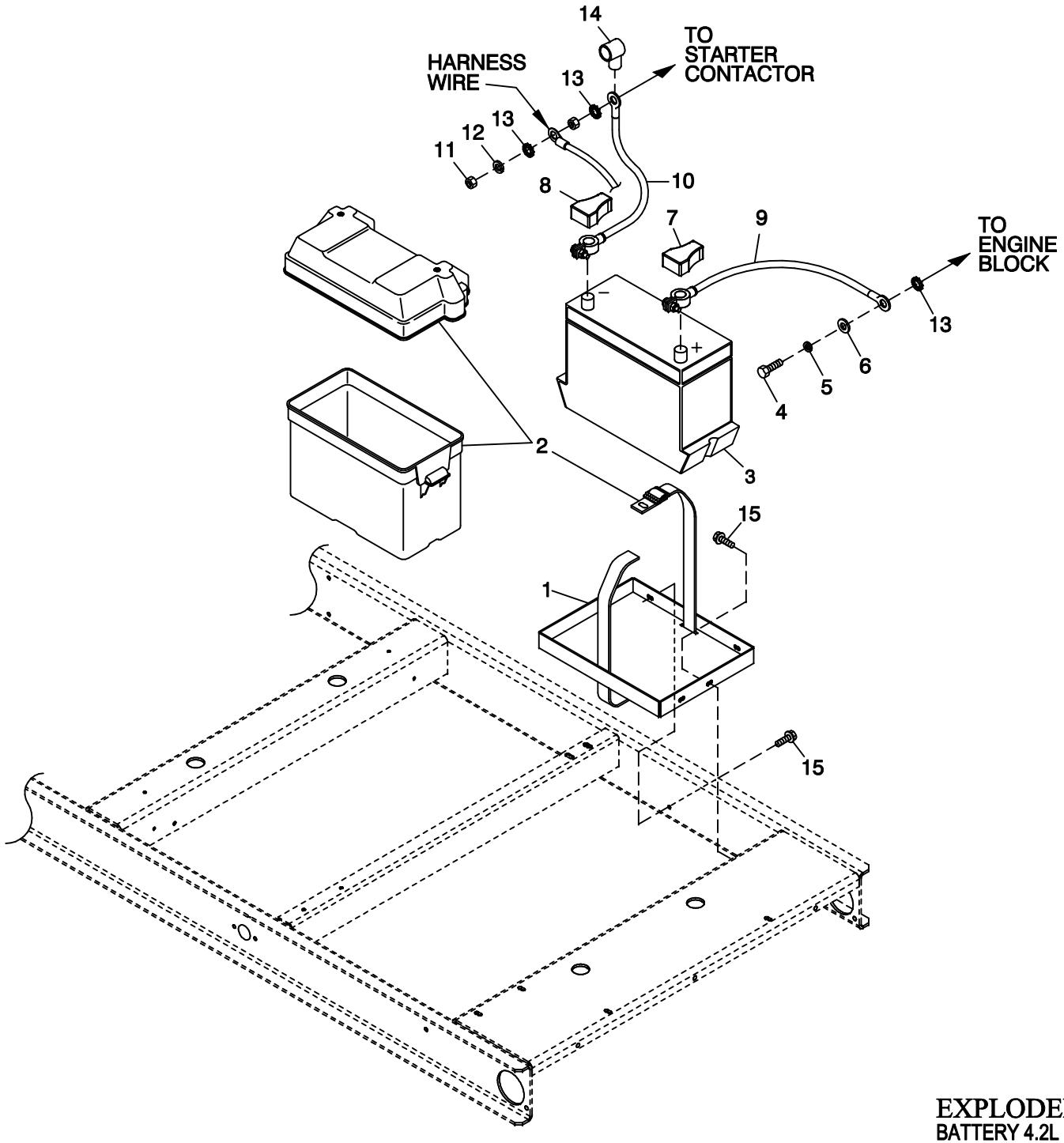
REVISION: H-2464-B
DATE: 5/21/08

EXPLODED VIEW: MOUNTING BASE 4.2L G3 TELECOM
DRAWING #: 0G6727

APPLICABLE TO:

GROUP C

ITEM	PART #	QTY.	DESCRIPTION
1	0G66880ST03	1	WELDMENT FRAME 4.2L VZW
2	052860	4	NUT FLANGED HEX M12-1.75
3	052251	4	DAMPENER VIBRATION 40 BLUE
4	052257	4	SPACER .49 X .62 X 1.87 PWDR/ZNC
5	052252	4	DAMPENER VIBRATION
6	052259	4	WASHER FLAT M12
7	052891	4	SCREW HHC M12-1.75 X 80 G8.8
8	0536210214	1	ASSY WIRE #0 15.00"
9	042909	8	SCREW HHC M8-1.25 X 30 G8.8
10	047411	1	SCREW HHC M6-1.0 X 16 G8.8
11	055414	1	LUG SLDLSS #2-#8 X 17/64 CU
12	026850	1	WASHER SHAKEPROOF EXT 1/4 STL
13	022097	7	WASHER LOCK M6-1/4
14	022473	14	WASHER FLAT M6-1/4 ZINC
15	049813	7	NUT HEX M6 -1.0 G8 YEL CHR
16	022261	1	WASHER SHAKEPROOF INT 3/8
17	0G52280ST03	1	ENGINE FOOT L/H 4.2L CPL
18	045771	8	NUT HEX M8-1.25 G8 CLEAR ZINC
19	059981	4	SCREW HHC M10-1.5 X 30 C10.9
20	046526	4	WASHER LOCK M10
21	022131	4	WASHER FLAT 3/8-M10 ZINC
22	065852	1	SPRING CLIP HOLDER .37-.62
23	045764	1	SCREW HHTT M4-0.7 X 8 BP
24	0G67260ST03	1	BRACKET, STIFFENER
25	022129	7	WASHER LOCK M8-5/16
26	027482	1	WASHER SHAKEPROOF EXT 5/16 STL
27	022145	15	WASHER FLAT 5/16-M8 ZINC
28	0G52300ST03	1	ENGINE FOOT R/H 4.2L CPL
29	042568	6	SCREW HHC M6-1.0 X 20 G8.8
30	0G69250ST03	1	PANEL REMOTE RELAY
31	0F7089	1	BRACKET REMOTE RELAY PANEL
32	0C3168	1	WASHER LOCK SPECIAL 5/16
33	0A1658	1	WASHER LOCK SPECIAL 1/4"
34	0E5649B	1	CABLE BRAIDED 1/4 X 1/4 X 51.5



EXPLODED VIEW:
BATTERY 4.2L G3 TELECOM
DRAWING #: 0G6920

REVISION: G-6295-A
DATE: 8/29/07

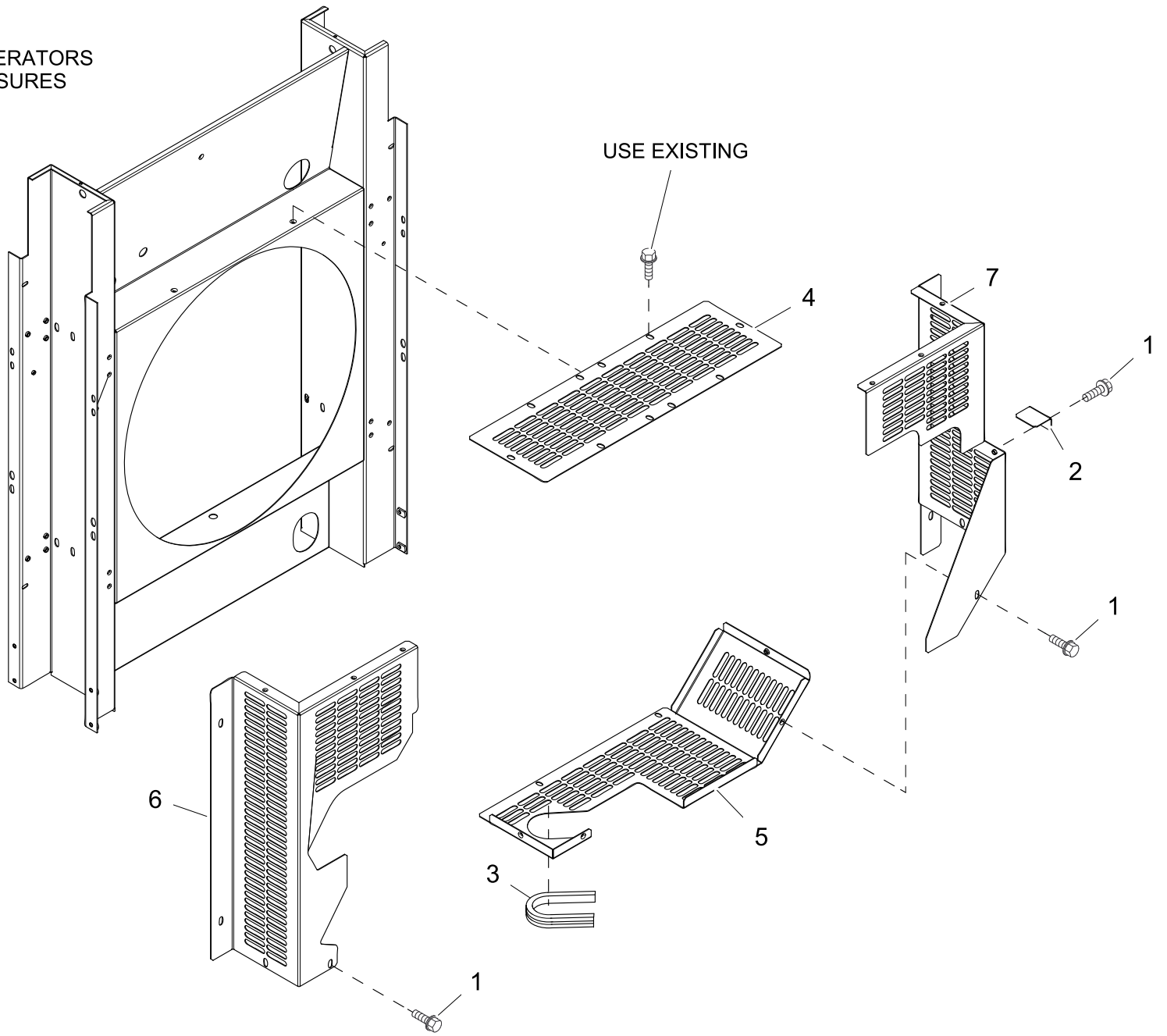
EXPLODED VIEW: BATTERY 4.2L G3 TELECOM
DRAWING #: 0G6920

GROUP C

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0F7037	1	TRAY, BATTERY BOX
2	0F7036	1	BATTERY BOX (24F) VENTED
3	058208	1	BATT 12VDC 24F 625
4	036833	1	SCREW HHC 3/8-16 X 1 G8
5	022237	1	WASHER LOCK 3/8
6	022131	1	WASHER FLAT 3/8-M10 ZINC
7	050331A	1	BATT POST COVER RED +
8	050331	1	BATT POST COVER BLK -
9	038805J	1	CABLE BATT BLK #1 X 30.00
10	038804U	1	CABLE BATT RED #1 X 28.00
11	045771	1	NUT HEX M8-1.25 G8 YEL CHR
12	022129	1	WASHER LOCK M8-5/16
13	027482	3	WASHER SHAKEPROOF EXT 5/16 STL
14	0F3976	1	BOOT, CONTACTOR CABLES
15	0C2454	4	SCREW THF M6-1 X 16 N WA Z/JS

NOTE:
APPLIES TO GENERATORS
WITHOUT ENCLOSURES



Revision: -A-
Date: 8/13/08

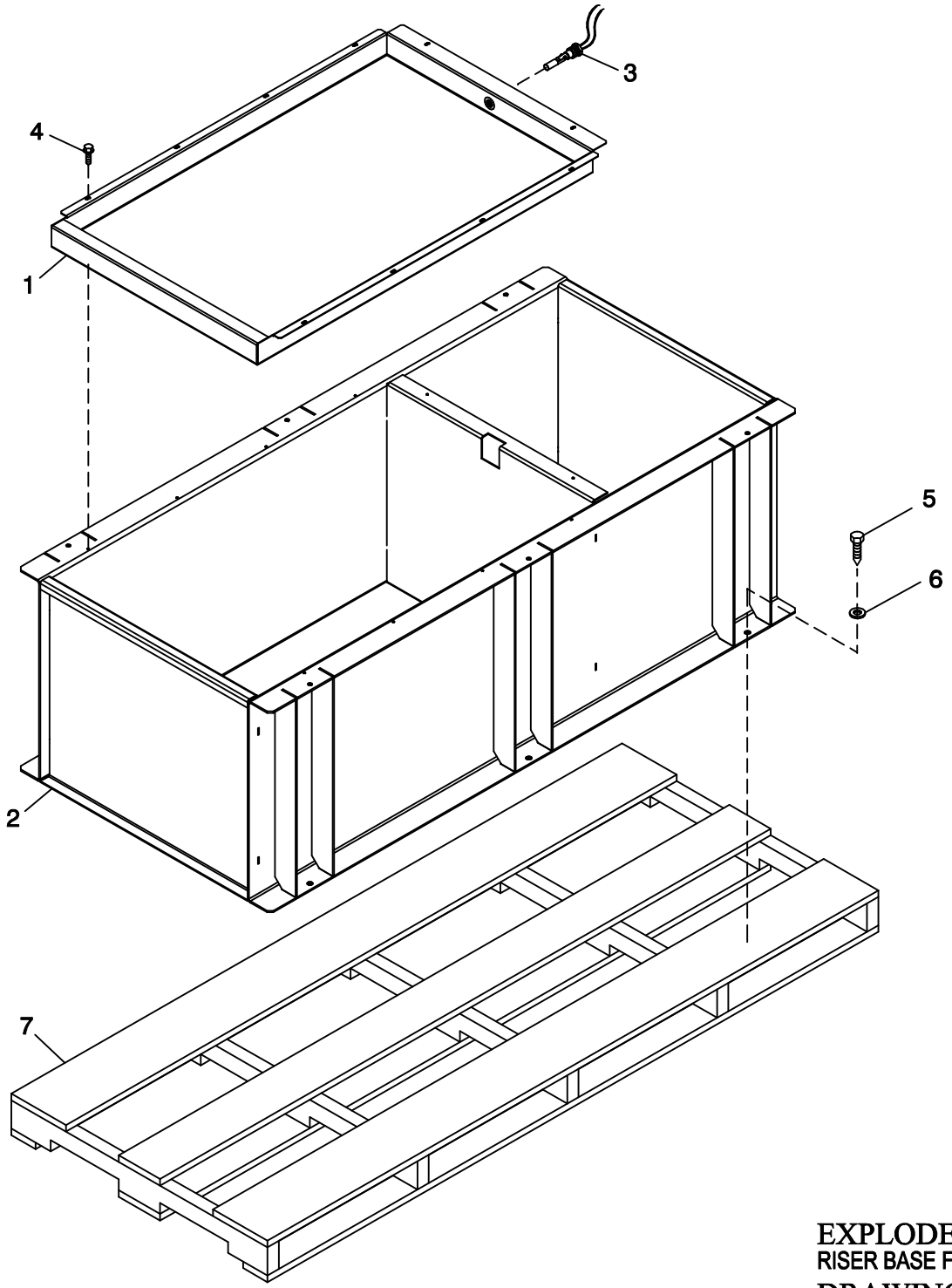
Exploded View: LEVEL 1 GUARD 4.2L G3 TELE
Drawing No.: 0G9440

EXPLODED VIEW: LEVEL 1 GUARD 4.2L G3 TELECOM
DRAWING #: 0G9440

GROUP D

ITEM	PART#	QTY.	DESCRIPTION
1	0C2454	11	SCREW THF M6-1 X 16 N WA Z/JS
2	0G96020ST03	1	GUARD CUTOUT LEVEL ONE 4.2L
3	056326	1	TRIM VINYL BLACK 1/8GP (11”LG)
4	0G95970ST03	1	GUARD TOP LEVEL ONE 4.2L
5	0G95980ST03	1	GUARD BOTTOM LEVEL ONE 4.2L
6	0G95990ST03	1	GUARD LEFT HAND LEVEL ONE 4.2L
7	0G96000ST03	1	GUARD RIGHT HAND LEV ONE 4.2L
8	0G89760ST03	1	GUARD ANGLE COVER

GROUP C



EXPLODED VIEW:
RISER BASE FRAME WITH SPILL CONTAINMENT
DRAWING #: 0G9617

REVISION: -A-
DATE: 8/13/08

EXPLODED VIEW: RISER BASE FRAME WITH SPILL CONTAINMENT
DRAWING #: 0G9617

GROUP C

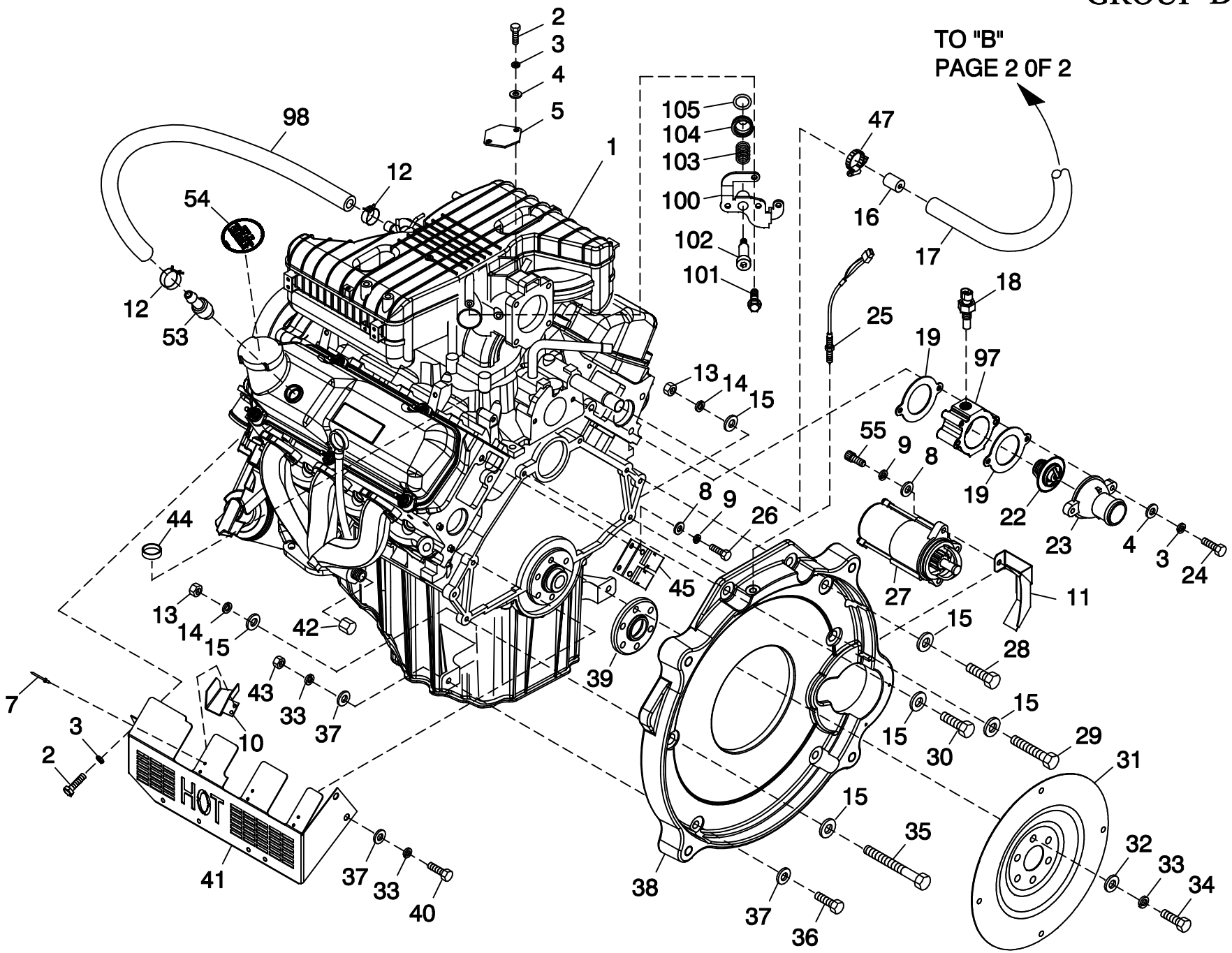
APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0H05390AL03	1	PAN, FLUID CONTAINMENT
2	0G97060ST03	1	BASE RISER FRAME
3	096500V	1	ASSY FUEL LEAK DET ALARM W/CON
4	074908	10	SCREW HHTT M5-0.8 X 10 BP
5	066428	6	SCREW HHL 3/8 X 2-1/2 ZINC
6	022131	6	WASHER FLAT 3/8-M10 ZINC
7	0E0767A	1	CRATE BASE 34" X 81"
8	0F8113	1	HARNESS, NAT GAS RISER FRAME (NOT SHOWN)
(1) 9	059980	6	SCREW HHC M10-1.5 X 25 C10.9 (NOT SHOWN)
(1) 10	046526	6	WASHER LOCK M10 (NOT SHOWN)
(1) 11	045772	6	NUT HEX M10-1.5 G8 YEL CHR (NOT SHOWN)
(1) 12	022131	12	WASHER FLAT 3/8-M10 ZINC (NOT SHOWN)
13	026535	1	BAG ZIP 6 X 9 4MIL PLASTIC (NOT SHOWN)
14	085662D	1	TIE WRAP UL 17.7 X .35 BLK HT (NOT SHOWN)

(1) MOUNTING HARDWARE FOR MOUNTING OF GENERATOR TO BASE FRAME RISER. PUT IN BAG & TIE WRAP TO FRAME.

REVISION: -A-
DATE: 8/13/08

GROUP D



EXPLODED VIEW:
ENGINE COMMON PARTS 4.2L G3
DRAWING #: 0G6538

REVISION: H-3923-F
DATE: 3/21/09

EXPLODED VIEW: ENGINE COMMON PARTS 4.2L G3
DRAWING #: 0G6538

GROUP D

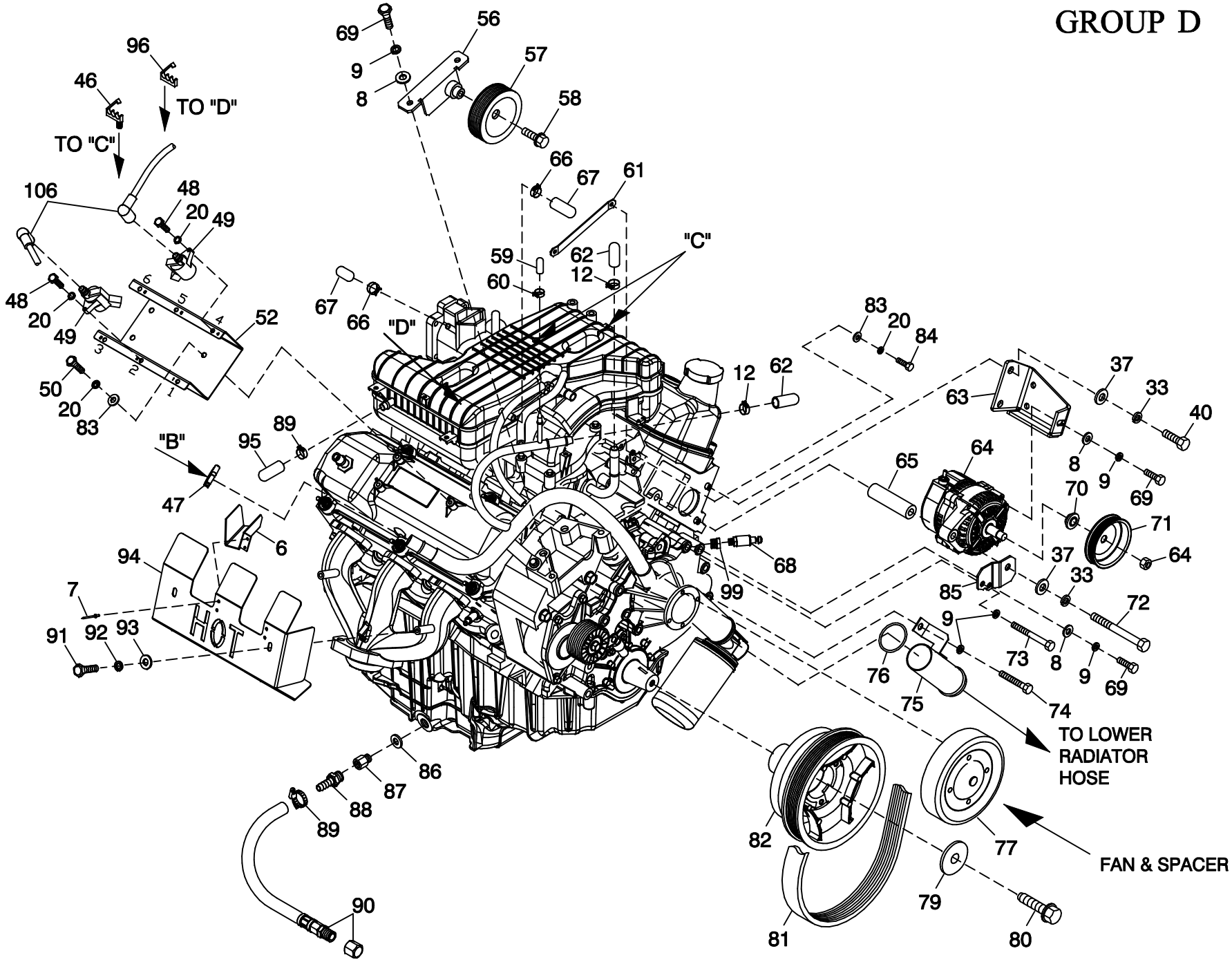
APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0G4969	1	ENGINE 4.2L G3 (FWD)
2	047411	4	SCREW HHC M6-1.0 X 16 C8.8
3	022097	6	WASHER LOCK M6-1/4
4	022473	4	WASHER FLAT 1/4-M6 ZINC
5	0E6585	1	COVER IAC ACTUATOR
6	0G6434	2	SHIELD SPARK PLUG BOOT RH
7	036261	10	RIVET POP .125 X .275 SS
8	022145	8	WASHER FLAT 5/16-M8 ZINC
9	022129	10	WASHER LOCK M8-5/16
10	0G6426	3	SHIELD SPARK PLUG BOOT LH
11	0G69420ST03	1	COVER STARTER 4.2L G3 TELECOM
12	048031L	4	CLAMP HOSE BAND 1.0"
13	045773	2	NUT HEX M12-1.75 G8 YEL CHR
14	051769	2	WASHER LOCK M12
15	049808	8	WASHER FLAT M12
16	0G5971	1	RESTRICTOR COOLANT BYPASS
17	0G5474	1	HOSE COOLANT BYPASS 4.2L
(3) 18	0E0502	1	TEMPERATURE SENDER, DELPHI
19	0G5511	2	GASKET THERMOSTAT 4.2L
20	049226	11	WASHER LOCK M5
(1) 22	REF.	1	THERMOSTAT 192 DEGREE
(1) 23	REF.	1	THERMOSTAT HOUSING
24	055816	2	SCREW HHC M6-1.0 X 70 C8.8
25	0D2244M	1	ASSY MAG PICKUP(3/8-24 MALE)
26	042907	1	SCREW HHC M8-1.25 X 16 C8.8
27	0D5418	1	STARTER MOTOR V-10 G3 ENGINE
28	052645	2	SCREW HHC M12-1.75 X 30 C8.8
29	068406	1	SCREW HHC M12-1.75 X 60 C10.9
30	053557	2	SCREW HHC M12-1.75 X 40 C8.8
31	0F9965D	1	FLEX PLATE G3
32	0F3844	6	WASHER FLAT .45 X 1.00
33	046526	11	WASHER LOCK M10
(2) 34	0G3757	6	SCREW HHC M10-1.0 X 30 C10.9
35	068407	1	SCREW HHC M12-1.75 X 90 C10.9
36	049541	2	SCREW HHC M10-1.5 X 35 C8.8
37	022131	9	WASHER FLAT 3/8-M10 ZINC
38	0G5231	1	ENGINE ADAPTER 4.2L MACHINED
39	0G5586	1	SPACER FLEXPLATE 4.2L
40	051756	4	SCREW HHC M10-1.5 X 20 C8.8
41	0G7106	1	HEAT SHIELD EXHST 4.2L W/TRCNT
42	0G5649	1	CAP TUBE M22-1.5 STEEL
43	045772	2	NUT HEX M10-1.5 G8 YEL CHR
44	0E0992A	6	PLUG EXPANSION 14 OD
45	0F2776C	1	BRACKET, SIGNAL COND. 2 PLACE
(1) 46	REF.	2	RETAINER SPARK PLUG WIRE-ATTACHED TYPE
47	057823	2	CLAMP HOSE #10 .56-1.06
48	052619	6	SCREW HHC M5-0.8 X 20 G8.8
49	0F2842	6	IGNITION COIL ASSY
50	052618	3	SCREW HHC M5-0.8 X 12 C8.8
51	0H3082	1	HARN ENG G4.2L G3 H-100 VZW (NOT SHOWN)
52	0G6368	1	BRACKET IGNITION COILS G3 4.2L
53	0G1818	1	VALVE PCV G3
54	0F5114	1	DECAL REFER TO OWNERS MANUAL
55	049821	3	SCREW SHC M8-1.25 X 30 G12.9
56	0G54910ST03	1	WELDMENT IDLER BRACKET 4.2L
57	0D8028	1	PULLEY GROOVED ENGINE IDLER
(2) 58	0D8025	1	BOLT HEX FL HD M8-1.25 X 28
59	0G1738A	1	CAP ANTIFREEZE RUBBER 8.5DIA
60	048031M	1	CLAMP HOSE BAND .75
61	0G5601	1	STRAP INTAKE ACTUATOR
62	077996	2	CAP ANTIFREEZE 5/8"ID X 1.2"LG
63	0G55800ST03	1	BRACKET DC ALTERNATOR LH 4.2L
(2) 64	0E9868A	1	ALTERNATOR DC W/OUT PULLEY
65	0G0638A	1	SPACER ALTERNATOR 4.2L G3
66	048031C	2	CLAMP HOSE BAND .50
67	0E9974	2	CAP VINYL 3/8"ID X 1"DP BLK
68	0F4612	1	SENDER OIL PRESSURE 1/8" NPT
69	043107	4	SCREW HHC M8-1.25 X 25 C8.8
70	0F3217	1	SPACER DC ALTERNATOR PULLEY
71	0F3216B	1	PULLEY 117 OD DC ALTERNATOR
72	0E2808	1	SCREW HHC M10-1.5 X 160 C8.8
(1) 73	REF.	1	SCREW HHC M8-1.25 X 115 LONG
(1) 74	REF.	1	SCREW HHC M8-1.25 X 105 LONG
75	0G54220ST11	1	TUBE COOLANT LOWER RADIATOR
76	0G5759	1	O-RING 1-1/2" X 1-3/4" X 1/8"
77	0G5748	1	PULLEY WATER PUMP 4.2L
(1) 79	REF.	1	SPACER 46.5 O.D. X 15 I.D. X 5 THK.
(1)(2) 80	REF.	1	SCREW HHC M14-1.5 X 40 LONG GRADE 10.9
81	0D3488E	1	BELT SERPENTINE 71.04"
82	0G5258	1	HARMONIC BALANCER REWORK 4.2L
83	051713	5	WASHER FLAT M5
(2) 84	045770	2	SCREW HHC M5-0.8 X 10 C8.8
85	0G55790ST03	1	BRACKET DC ALTERNATOR RH 4.2L
86	052677	1	WASHER NYLON .50 X .87 X .06
87	077456	1	ADAPTER M12-1.75 X 3/8NPT
88	055596	1	BARBED STR 3/8NPT X 3/8
89	048031J	2	CLAMP HOSE BAND .63
90	069860C	1	HOSE OIL DRAIN ASSY 21"
91	080826	2	SCREW HHC M6-1.0 X 12 SS
92	083896	2	WASHER LOCK 1/4-M6 SS
93	084929	2	WASHER FLAT 1/4 SS
94	0G5729	1	HEAT SHIELD EXH 4.2L RH
95	0E6593	1	CAP VINYL .5"ID X 1.0"DP BLK
(1) 96	REF.	1	RETAINER SPARK PLUG WIRE
97	0G5515A	1	ADAPTER THERMOSTAT
98	065386	1	HOSE COOL 5/8 ID 100R6 (26"LG)
99	035579	1	BSHG RDCR HEX 1/4 TO 1/8
100	0G6275	1	TUBE ASSY EGR OUTLET REWORK
(1)101	REF.	2	SCREW HHC M6-1.0 X 15 LONG
102	0G6393	1	BOLT STRIP 3/8-16 X 1-1/4
103	0G6406	1	SPRING COMPRESSION .711 X 1.00
104	0G6274	1	PRESSURE RELIEF VALVE
(1)105	REF.	1	O-RING 29mm I.D. X 36mm O.D. X 3.5mm
106	0G6382	1	SPARK PLUG WIRE SET 4.2L

(1) SUPPLIED WITH ENGINE
(2) APPLY MEDIUM STRENGTH BLUE THREAD LOCKING FLUID TO THREADS.
(3) USE TEFLON TAPE TO RESTRICT INSERTION DEPTH.

REVISION: H-3923-F
DATE: 3/21/09

GROUP D



EXPLODED VIEW:
ENGINE COMMON PARTS 4.2L G3
DRAWING #: 0G6538

REVISION: H-3923-F
DATE: 3/21/09

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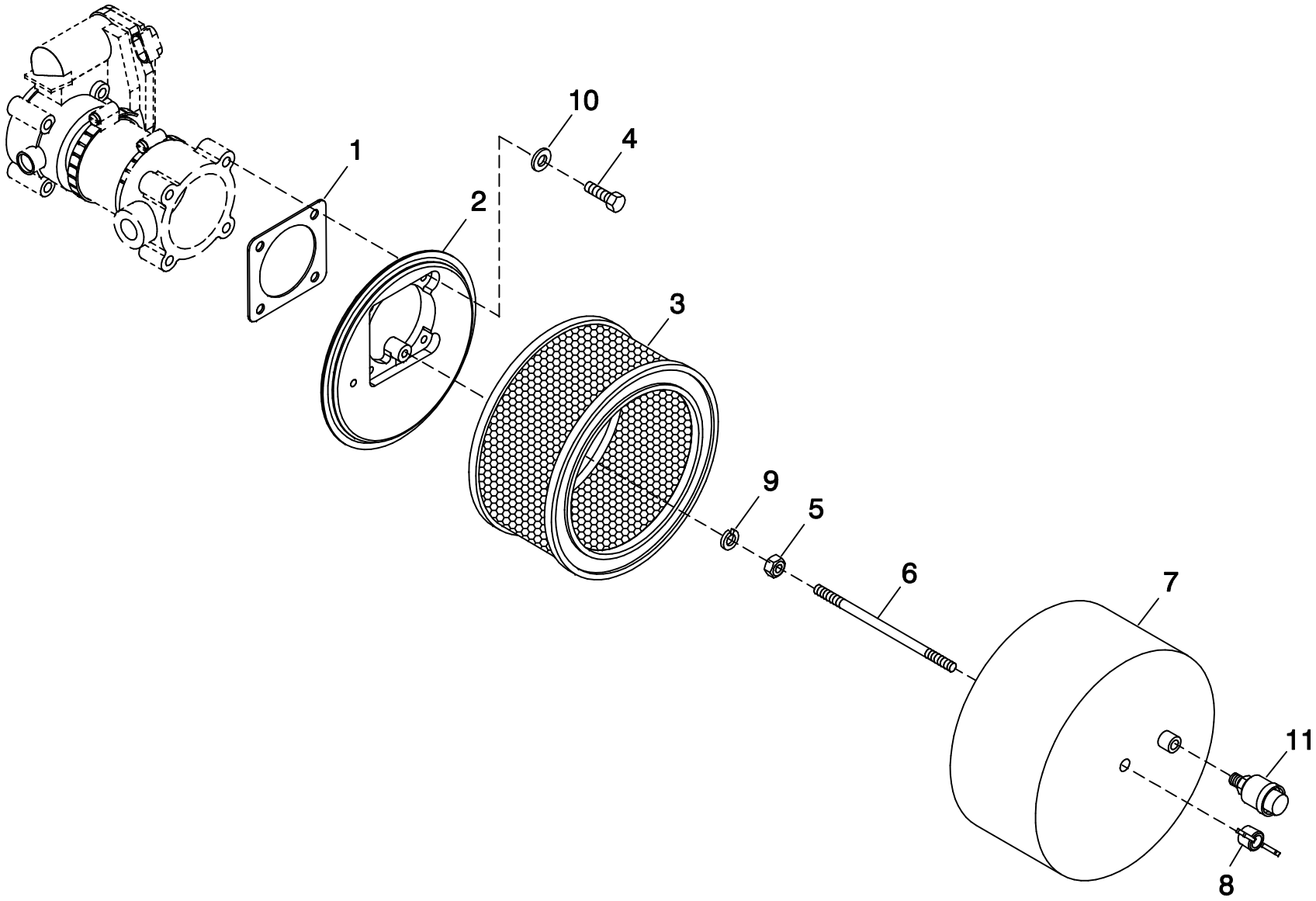


EXPLODED VIEW:
AIR CLEANER 4.2L G3 TELECOM
DRAWING #: 0G6541

EXPLODED VIEW: AIR CLEANER 4.2L G3 TELECOM
DRAWING #: 0G6541

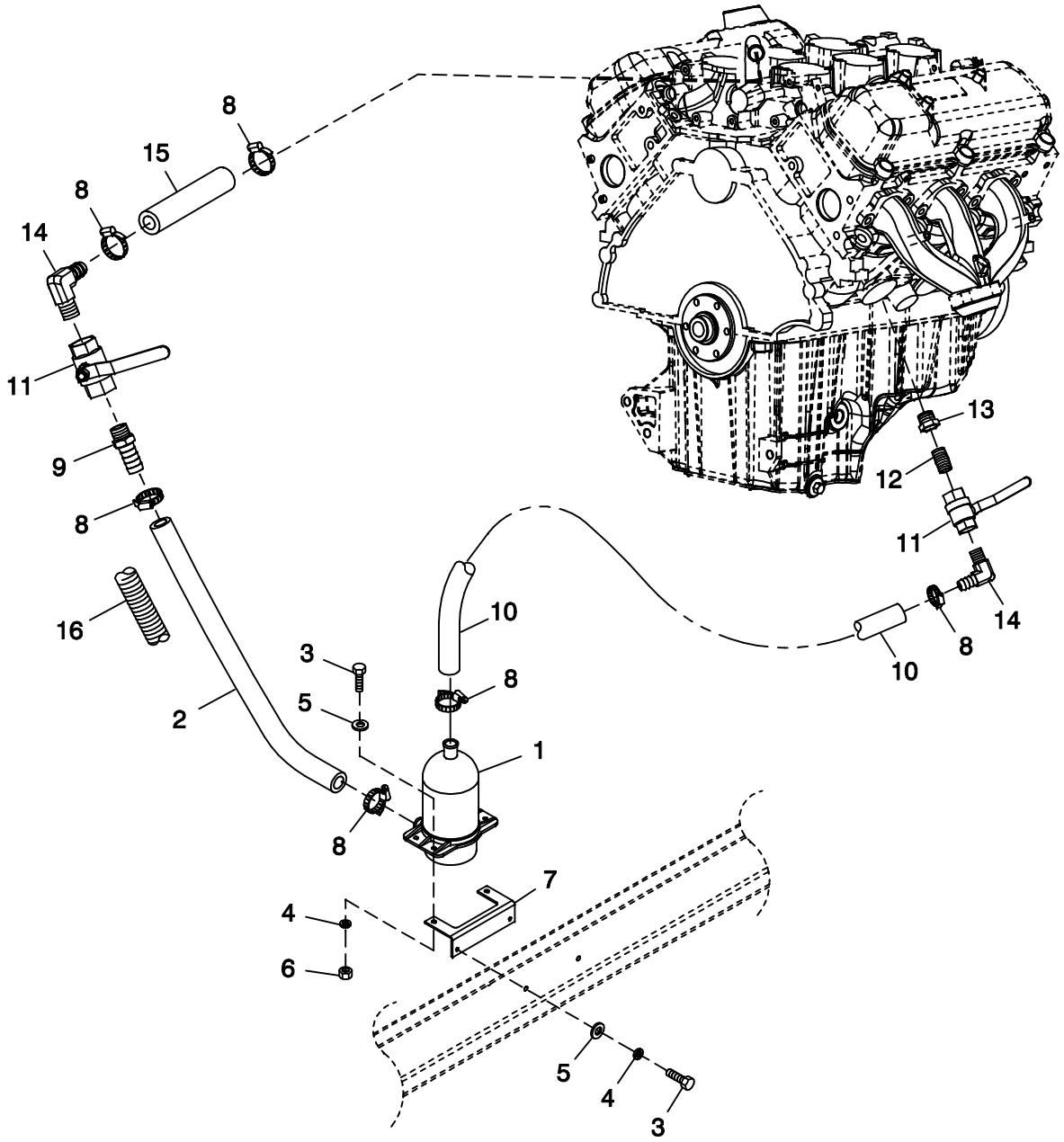
GROUP D

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0E6586	1	GASKET BOSCH 32 & 40
2	0E0519A	1	ADAPTER CARBURETOR W/PVC CONN
3	0C8127	1	ELEMENT AIR CLEANER
4	049815	4	SCREW HHC M5-0.8 X 16 G8.8
5	022127	1	NUT HEX 1/4-20 STEEL
6	062974	1	STUD TH 1/4-20 X 4-1/2 G2 ZNC
7	0G31200ST03	1	TOP PLATE AIR CLEANER
8	037561	1	NUT WING 1/4-20 NYLK
9	022097	1	WASHER LOCK M6-1/4
10	022769	4	WASHER SHAKEPROOF INT #10
11	0A4256	1	INDICATOR FILTER MINDER

REVISION: -A-
DATE: 8/2/07

ENGINE RIGHT SIDE



EXPLODED VIEW:
BLOCK HEATER 4.2L G3 TELECOM
DRAWING #: 0G6543

REVISION: -A-
DATE: 8/2/07

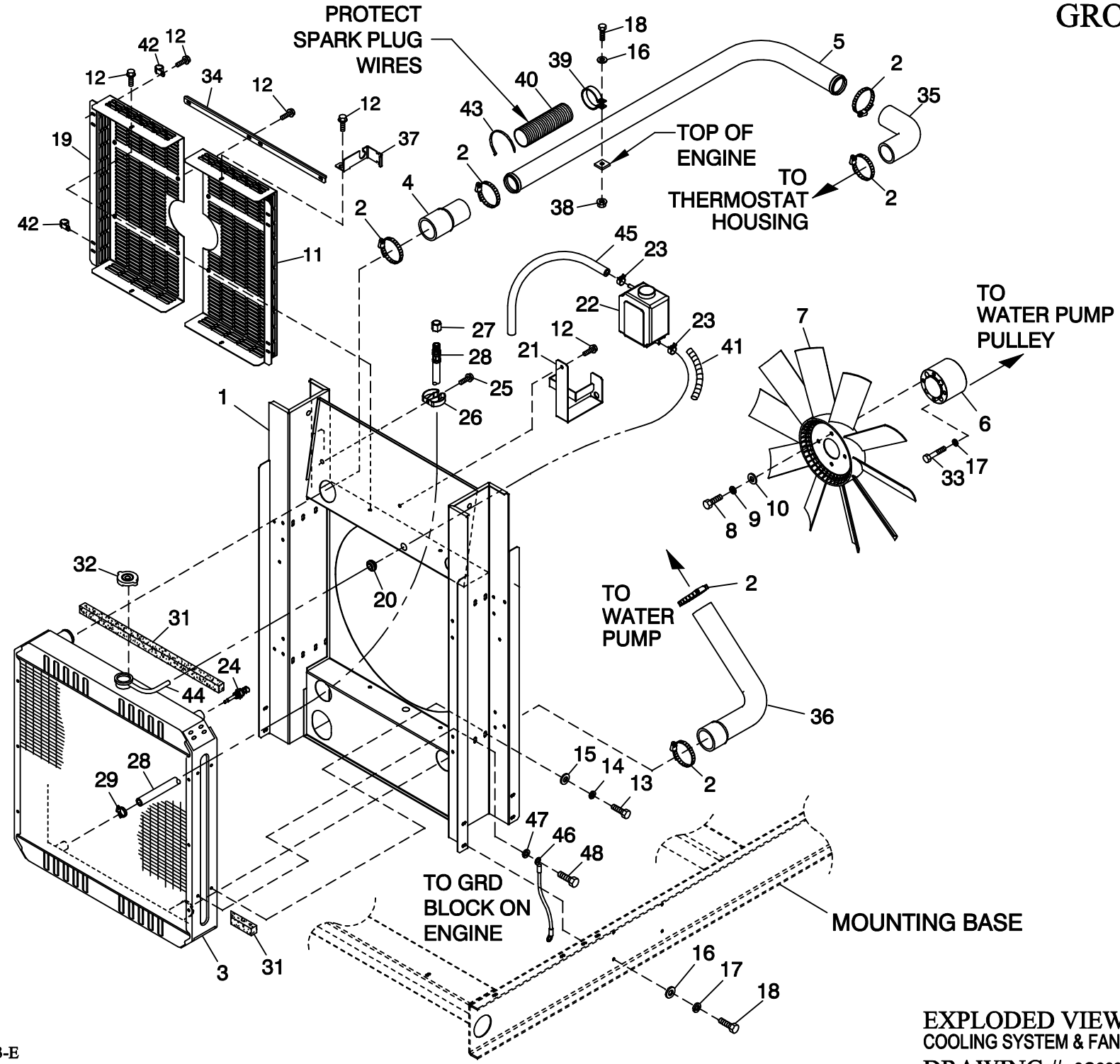
EXPLODED VIEW: BLOCK HEATER 4.2L G3 TELECOM
DRAWING #: 0G6543

GROUP D

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	084918G	1	HEATER BLOCK 1500W 120V
2	050967	1	HOSE COOL 5/8 ID 20R3 (29.5“LG)
3	042568	4	SCREW HHC M6-1.0 X 20 G8.8
4	022097	4	WASHER LOCK M6-1/4
5	022473	4	WASHER FLAT 1/4-M6 ZINC
6	049813	2	NUT HEX M6 X 1.0 G8 YEL CHR
7	084427	1	BRACKET HEATER W/WELDNUTS
8	0G0015	6	CLAMP, HOSE 7/8" OD DOUBLE WIR
9	044117	1	BARBED STR 3/8NPT X 5/8
10	0A6283	1	HOSE PREFORMED BLOCK HEATER
11	0G5212B	2	VALVE 3/8"
12	026942	1	NIPPLE CLOSE 1/4NPT X .875
13	035468	1	BSHG RDCR HEX 3/8 TO 1/4 BRS
14	034339	2	BARBED EL 90 3/8NPT X 5/8
15	050967	1	HOSE COOL 5/8 ID 20R3 (3”LG)
16	077043E	1	CONDUIT FLEX 1.0"ID (27”LG)

REVISION: -A-
DATE: 8/2/07



EXPLODED VIEW:
COOLING SYSTEM & FAN DRIVE
DRAWING #: 0G6692

REVISION: H-3923-E
DATE: 3/21/09

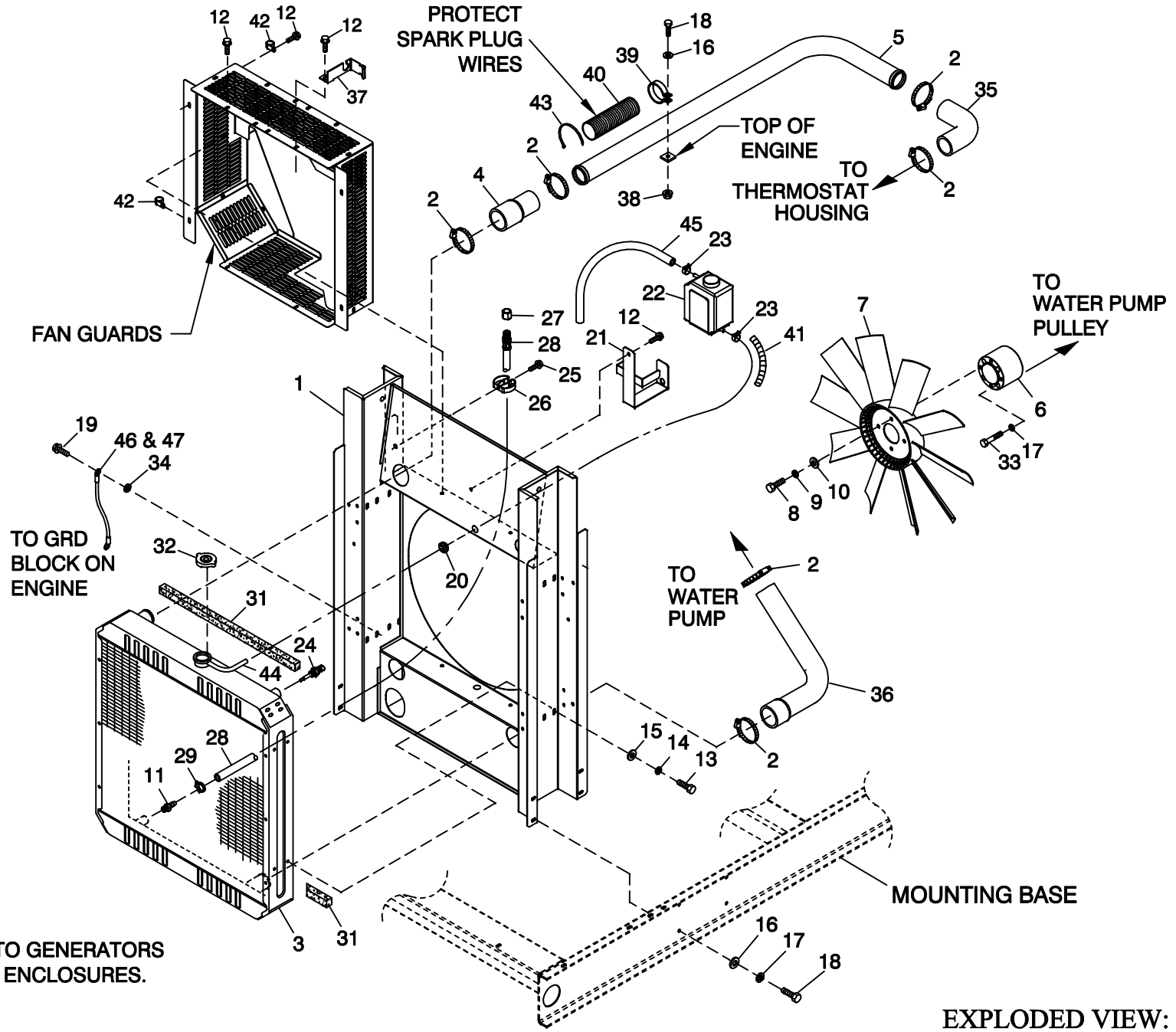
EXPLODED VIEW: COOLING SYSTEM & FAN DRIVE
DRAWING #: 0G6692

GROUP D

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0G66870ST03	1	WELDMENT, RADIATOR 4.2L TELECOM
2	035685	6	CLAMP HOSE #28 1.32-2.25
3	0F2608A	1	RADIATOR 598 X 568 X 49,CPL LH
4	0G6930	1	HOSE COOLNT REDCR 1 3/4X1 1/2
5	0G6926	1	TUBE UPPER COOLANT 4.2L G3
6	0G6689	1	SPACER, 4.2L G3 FAN
7	0F2820	1	FAN 22" DIA 10 BLADE
8	051756	4	SCREW HHC M10-1.5 X 20 G8.8
9	046526	4	WASHER LOCK M10
10	022131	4	WASHER FLAT 3/8-M10 ZINC
11	0G67040ST03	1	FAN GUARD L/H SIDE
12	0C2454	9	SCREW THF M6-1 X 16 NWA Z/JS
13	039253	7	SCREW HHC M8-1.25 X 20 G8.8
14	022129	7	WASHER LOCK M8-5/16
15	022145	7	WASHER FLAT 5/16-M8 ZINC
16	022473	9	WASHER FLAT 1/4-M6 ZINC
17	022097	12	WASHER LOCK M6-1/4
18	042568	9	SCREW HHC M6-1.0 X 20 G8.8
19	0G67050ST03	1	FAN GUARD R/H SIDE
20	089685	1	GROMMET .75 X .12 X .50
21	080712	1	BRKT COOLANT RECOVERY TANK
22	076749	1	TANK COOLANT RECOVERY
23	048031C	2	CLAMP HOSE BAND 1/4
24	0H1827	1	PROBE COOLANT LEVEL 3/8-18NPTF
25	045764	1	SCREW HHTT M4-0.7 X 8 BP
26	065852	1	SPRING CLIP HOLDER .37-.62
(1) 27	069811	REF.	CAP HEX 1/4 NPT BRASS
28	069860E	1	HOSE DRAIN ASSY 28"
29	0C7649	1	CLAMP HOSE .38-.87
31	052250	2	TAPE FOAM 1 X 1 (22.5" LG)
32	090283	1	CAP RADIATOR 13 PSI
33	040947	4	SCREW SHC M6-1.0 X 55 G12.9
34	0G67120ST03	2	SUPPORT BRACKET, FAN GUARD
35	0G6929	1	HOSE COOLANT 1 1/2 ID X 90DEG
36	0G6931	1	HOSE COOLANT LWR RADIATOR 4.2L
37	0F2776A	1	BRACKET, SIGNAL CONDITIONER
38	052857	1	NUT TOP LOCK FL M6-1.0
39	055934K	1	CLAMP VINYL 1.62 X .343 Z
40	077043F	1	CONDUIT FLEX 1.25"ID (6"LG)
41	077043A	1	CONDUIT FLEX .38"ID (5"LG)
42	055934C	2	CLAMP VINYL .5 X .406 Z
43	085662	1	TIE WRAP UL 14.6 X .14 BLK
44	029032	1	HOSE 9/32 ID (12"LG)
45	029032	1	HOSE 9/32 ID (54"LG)
46	0G7895A	1	HARN RADIATOR GND 80"
47	0C3168	1	WASHER LOCK SPECIAL 5/16
48	043107	1	SCREW HHC M8-1.25 X 25 C8.8

(1) ITEM #27 IS INCLUDED WITH ITEM #28.



EXPLODED VIEW:
COOLING SYSTEM & FAN DRIVE 4.2L G3 TEL
DRAWING #: 0G9606

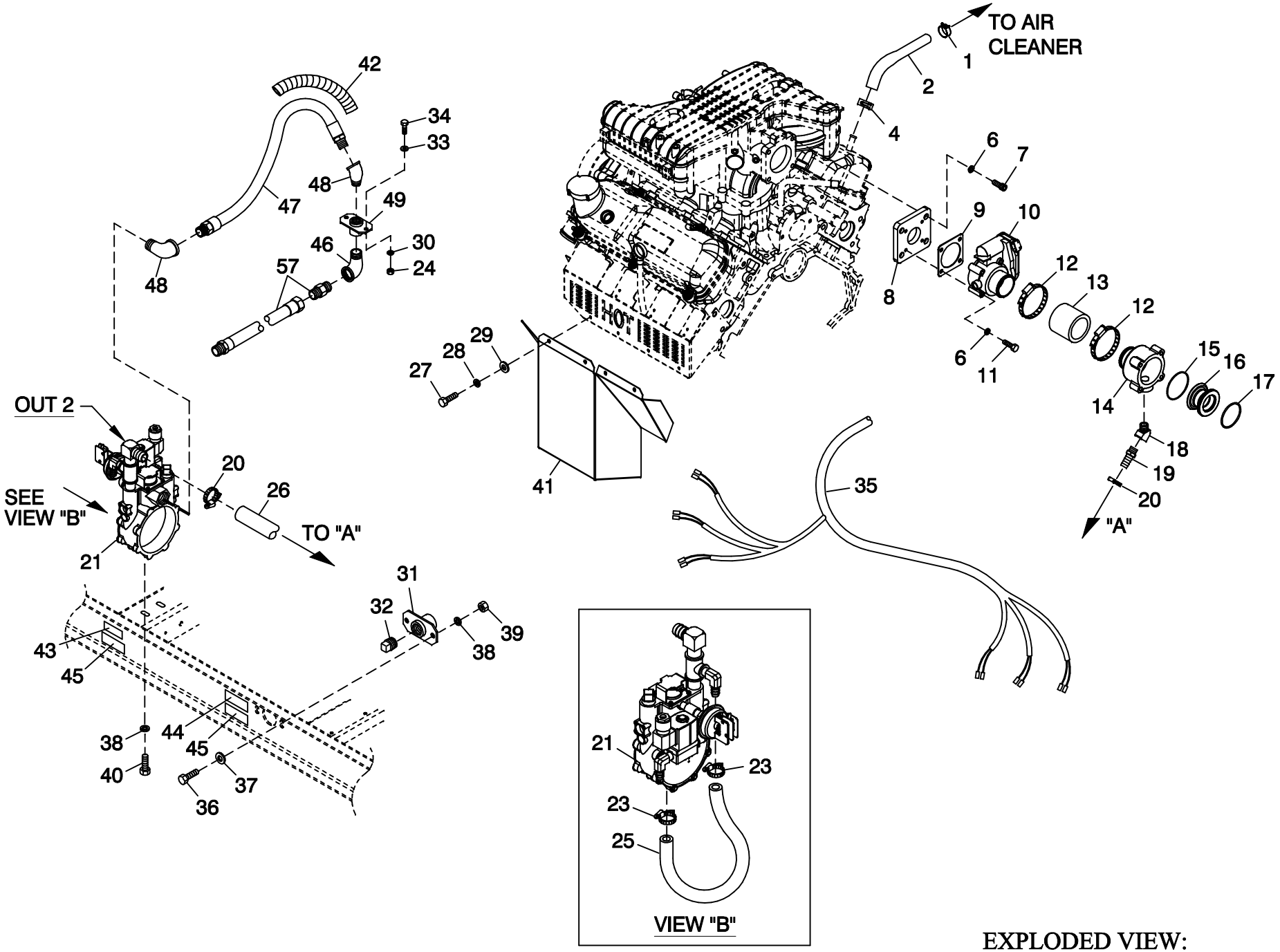
EXPLODED VIEW: COOLING SYSTEM & FAN DRIVE 4.2L G3 TEL
DRAWING #: 0G9606

GROUP D

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0G66870ST03	1	WELDMENT, RADIATOR 4.2L TELECOM
2	035685	6	CLAMP HOSE #28 1.32-2.25
3	0F2608A	1	RADIATOR 598 X 568 X 49,CPL LH
4	0G6930	1	HOSE COOLNT REDCR 1 3/4X1 1/2
5	0G6926	1	TUBE UPPER COOLANT 4.2L G3
6	0G6689	1	SPACER, 4.2L G3 FAN
7	0F2820	1	FAN 22" DIA 10 BLADE
8	051756	4	SCREW HHC M10-1.5 X 20 G8.8
9	046526	4	WASHER LOCK M10
10	022131	4	WASHER FLAT 3/8-M10 ZINC
11	055596	1	BARBED STR 3/8NPT X 3/8
12	0C2454	9	SCREW THF M6-1 X 16 NWA Z/JS
13	039253	7	SCREW HHC M8-1.25 X 20 G8.8
14	022129	7	WASHER LOCK M8-5/16
15	022145	7	WASHER FLAT 5/16-M8 ZINC
16	022473	9	WASHER FLAT 1/4-M6 ZINC
17	022097	12	WASHER LOCK M6-1/4
18	042568	9	SCREW HHC M6-1.0 X 20 G8.8
19	043107	1	SCREW HHC M8-1.25 X 25 C8.8
20	089685	1	GROMMET .75 X .12 X .50
21	080712	1	BRKT COOLANT RECOVERY TANK
22	076749	1	TANK COOLANT RECOVERY
23	048031C	2	CLAMP HOSE BAND 1/4
24	0H1827	1	PROBE COOLANT LEVEL 3/8-18NPTF
25	045764	1	SCREW HHTT M4-0.7 X 8 BP
26	065852	1	SPRING CLIP HOLDER .37-.62
(1) 27	069811	REF.	CAP HEX 1/4 NPT BRASS
28	069860E	1	HOSE DRAIN ASSY 28"
29	0C7649	1	CLAMP HOSE .38-.87
31	052250	2	TAPE FOAM 1 X 1 (22.5" LG)
32	090283	1	CAP RADIATOR 13 PSI
33	040947	4	SCREW SHC M6-1.0 X 55 G12.9
34	0C3168	1	WASHER LOCK SPECIAL 5/16
35	0G6929	1	HOSE COOLANT 1 1/2 ID X 90DEG
36	0G6931	1	HOSE COOLANT LWR RADIATOR 4.2L
37	0F2776A	1	BRACKET, SIGNAL CONDITIONER
38	052857	1	NUT TOP LOCK FL M6-1.0
39	055934K	1	CLAMP VINYL 1.62 X .343 Z
40	077043F	1	CONDUIT FLEX 1.25"ID (6"LG)
41	077043A	1	CONDUIT FLEX .38"ID (5"LG)
42	055934C	2	CLAMP VINYL .5 X .406 Z
43	085662	1	TIE WRAP UL 14.6 X .14 BLK
44	029032	1	HOSE 9/32 ID (12"LG)
45	029032	1	HOSE 9/32 ID (54"LG)
46	0G7895C	1	HARN RADIATOR GND 48" 1/4"RING
47	077043H	1	CONDUIT FLEX .25"ID (48"LG) (NOT SHOWN)

(1) ITEM #27 IS INCLUDED WITH ITEM #28.



EXPLODED VIEW:
FUEL SYS LPV 4.2L G3 TELECOM
DRAWING #: 0G6721

EXPLODED VIEW: FUEL SYS LPV 4.2L G3 TELECOM
DRAWING #: 0G6721

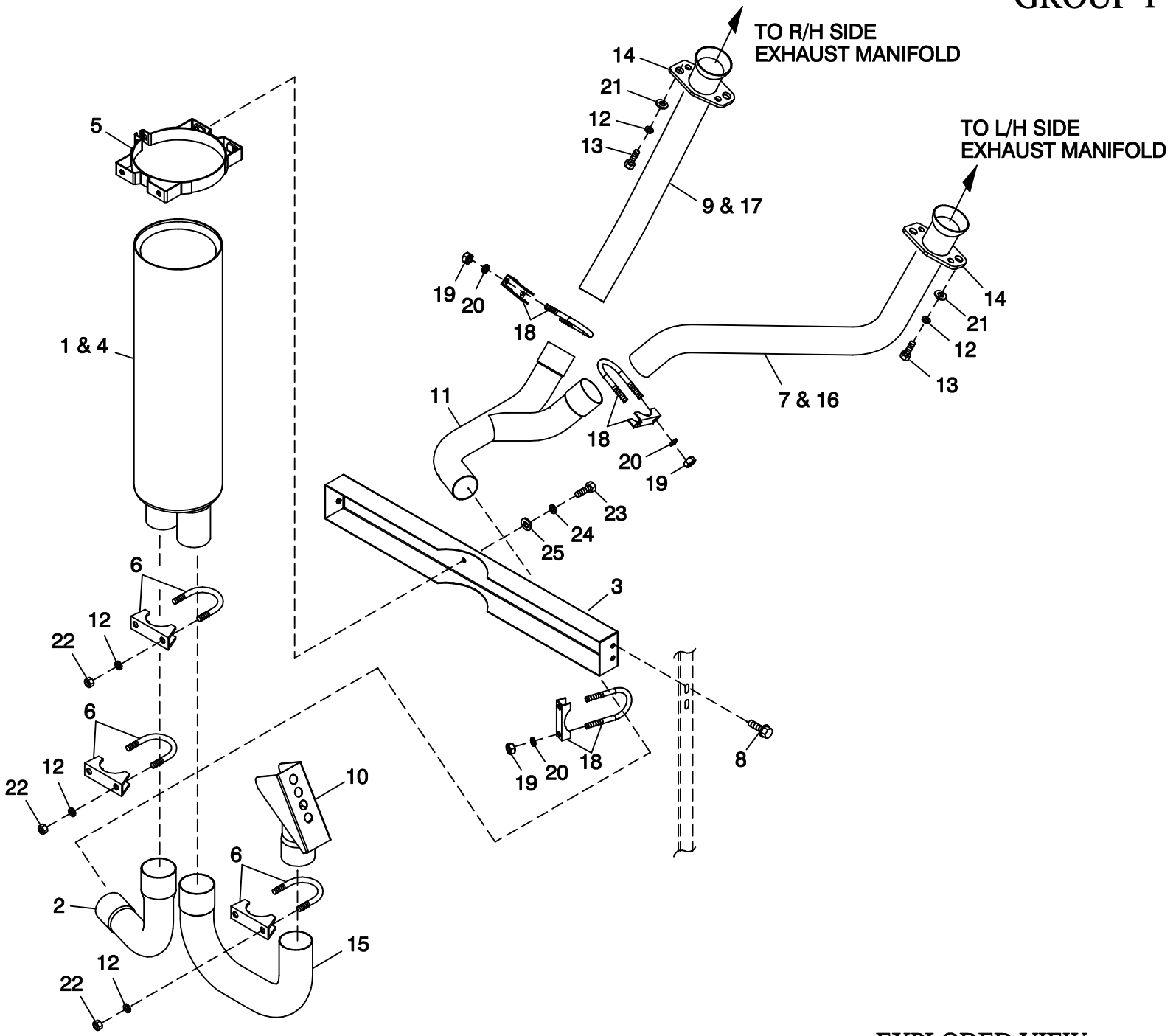
GROUP E

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	048031J	1	CLAMP HOSE BAND .63
2	0G7564	1	HOSE, VACUUM AIR CLEANER 4.2L
4	048031P	1	CLAMP HOSE BAND .88"
6	022097	8	WASHER LOCK M6-1/4
7	047487	4	SCREW SHC M6-1.0 X 18 G12.9
8	0E6123A	1	INTAKE ADAPTER 4.2L G3-BOSCH
9	0E6586	1	GASKET BOSCH 32 & 40
10	0E4394	1	ACTUATOR BOSCH 40, GOVERNOR
11	046580	4	SCREW SHC M6-1.0 X 45 G12.9
12	035685	2	CLAMP HOSE #28 1.32-2.25
13	040105	1	HOSE COOL 2IN ID 20R4 (3"LG)
14	0G4573B	1	MIXER ACTUATOR 40MM MACHINED
15	0E7121	1	O-RING 47.625 ID X 2.38 WIDTH
16	0F7790E	1	VENTURI THROTTLE 26MM
17	0F2119	1	O-RING 45.63 ID X 2.62 WIDTH
18	0E8286	1	ELBOW 45D STREET 1/2NPT BRASS
19	047527	1	BARBED STR 1/2NPT X 3/4
20	057823	2	CLAMP HOSE #10 .56-1.06
21	0F6390G	1	ASSY REGULATOR 4.2L LPV
22	0G3019A	REF	FUEL HOSE ASSY NG/LPV 70"LG
23	048031G	2	CLAMP HOSE BAND .41
(1) 24	045771	2	NUT HEX M8-1.25 G8 CLEAR ZINC
25	029470	1	HOSE 3/16 ID FUEL LINE (12"LG)
26	057147	1	HOSE 3/4 ID LPG & NG (35"LG)
27	052618	4	SCREW HHC M5-0.8 X 12 C8.8
28	049226	4	WASHER LOCK M5
29	051713	4	WASHER FLAT M5
(1) 30	022129	2	WASHER LOCK M8-5/16
31	075580	1	FLANGE, FUEL INLET
32	025655	1	PLUG STD PIPE 3/4 STEEL SQ HD
(1) 33	022145	2	WASHER FLAT 5/16-M8 ZINC
(1) 34	039253	2	SCREW HHC M8-1.25 X 20 C8.8
35	0G6546	REF	HARN ENG 4.2L G3 H-100 VZW
36	039253	2	SCREW HHC M8-1.25 X 20 C8.8
37	022145	2	WASHER FLAT 5/16-M8 ZINC
38	022129	4	WASHER LOCK M8-5/16
39	045771	2	NUT HEX M8-1.25 G8 CLEAR ZINC
40	042907	2	SCREW HHC M8-1.25 X 16 C8.8
41	0G70860GS0R	1	HEAT SHIELD 4.2L REGULATOR
(1) 42	077043F	1	CONDUIT FLEX 1.25"ID (6"LG)
43	050280	1	DECAL FUEL INLET LPG
44	050279	1	DECAL FUEL INLET NG
45	0D1509	2	DECAL INLET PRESSURE
(1) 46	026307	1	ELBOW 90D STREET 3/4
(1) 47	0E1056A	1	FUEL HOSE ASSY NG/LPV
(1) 48	025425	2	ELBOW 45D STREET 3/4NPT
(1) 49	075580	1	FLANGE, FUEL INLET
(1) 50	026535	1	BAG ZIP 6 X 9 4MIL PLASTIC (NOT SHOWN)
(1) 51	085662D	1	TIE WRAP UL 17.7 X .35 BLK HT (NOT SHOWN)

(1) HARDWARE FOR MOUNTING I/N 49, P/N 075580 TO SPILL CONTAINMENT PAN FOR FUEL HOOK-UP (NOT SHOWN). ALL PARTS TO BE PUT IN BAG & TIE WRAPPED TO STATOR.

GROUP F



EXPLODED VIEW:
MUFFLER EXHAUST 4.2L GE TELECOM
DRAWING #: 0G6701

REVISION: -A-
DATE: 8/9/07

EXPLODED VIEW: MUFFLER EXHAUST 4.2L GE TELECOM
DRAWING #: 0G6701

GROUP F

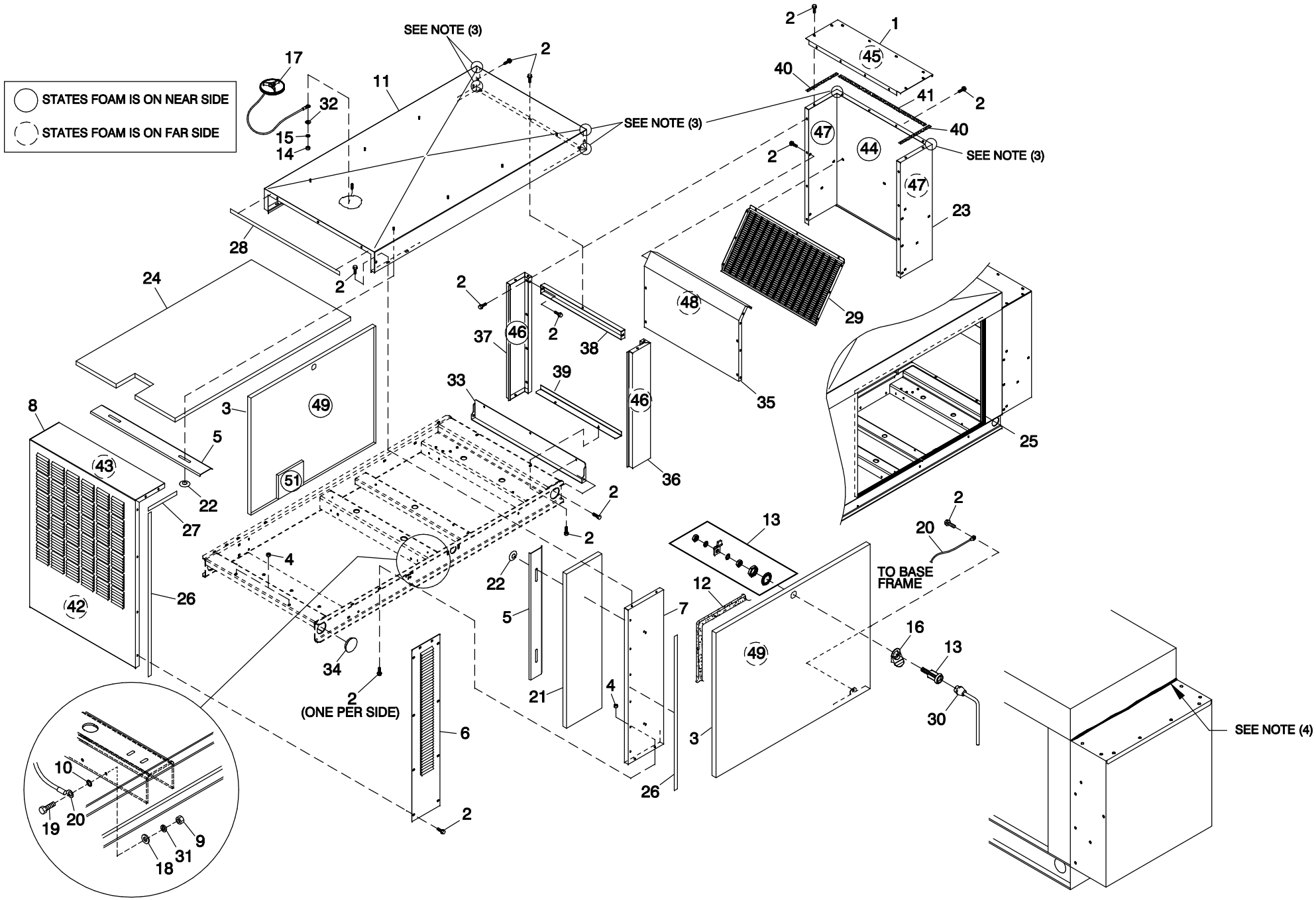
APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0C9650	1	MUFFLER 2-1/2" INLET/OUTLET
2	0G7047	1	ELBOW EXHAUST 2ID X 2 3/8 O.D.
3	0G70430ST03	1	BRACKET, MUFFLER
4	0G3163	1	BLANKET EXHAUST MUFFLER 450MM (NOT SHOWN)
5	0C4114A	1	CLAMP 6.5" BAND MUFFLER
6	080762	3	BOLT U 3/8-16 X 2.62
7	0G6697	1	PIPE, EXHAUST LH SIDE 4.2L VZW
8	0C2454	4	SCREW THF M6-1 X 16 N WA Z/JS
9	0G6696	1	PIPE, EXHAUST RH SIDE 4.2L VZW
10	0G7073	1	ASSY EXHAUST TUBE DEFLECTOR
11	0G6714	1	PIPE, Y EXHAUST 4.2L
12	0F4710	10	WASHER LOCK M10 SS
13	0G6401	4	SCREW HHC M10-1.5 X 45 SS FTH
14	0E8816	2	EXHAUST FLANGE 2" PIPE
15	0F2808B	1	PIPE EXHAUST MUFFLER OUT
16	0E0170B	1	EXHAUST BLANKET 850MM (NOT SHOWN)
17	0F3794B	1	EXHAUST BLANKET 700MM LONG (NOT SHOWN)
18	036797	3	BOLT U 5/16-18 X 2.25
19	022259	6	NUT HEX 5/16-18 STEEL
20	070006	6	WASHER LOCK M8 SS
21	088775	4	WASHER FLAT 3/8 SS
22	022241	6	NUT HEX 3/8-16 STEEL
23	042907	2	SCREW HHC M8-1.25 X 16 C8.8
24	022129	2	WASHER LOCK M8-5/16
25	022145	2	WASHER FLAT 5/16-M8 ZINC

* NOT USED ON OPEN SET.

REVISION: -A-
DATE: 8/9/07

GROUP F



EXPLODED VIEW:
ENCLOSURE 4.2L G3 TELECOM
DRAWING #: 0G6959

REVISION: H-1558-C
DATE: 1/11/08

EXPLODED VIEW: ENCLOSURE 4.2L G3 TELECOM
DRAWING #: 0G6959

APPLICABLE TO:

GROUP F

ITEM	PART #	QTY.	DESCRIPTION
1	0G46640AL08	1	DUCT AIR REAR TOP
2	0C2454	55	SCREW THF M6-1 X 16 N WA Z/JS
3	0F5849AG	2	DOOR C2 ALUM GRAY
(1) 4	077992	5	NUT HEX LOCK M6-1.0 SS NY INS
5	0F3890A	6	RETAINER INSULATION (740)
6	0F6647	2	DISCHARGE DUCT L/H & R/H SIDE
7	0F6642	2	FRONT CORNERS
8	0F6650	1	DISCHARGE DUCT MIDDLE
9	051716	2	NUT HEX M5-0.8 G8 CLEAR ZINC
10	022769	2	WASHER SHAKEPROOF INT #10
11	0F6644	1	ROOF
12	0E5968	1	GASKET EXTRUDED TRIM (158.50” LG)
13	0F5048D	2	VISE-ACTION LATCH SLOTTED CIR
14	022127	1	NUT HEX 1/4-20 STEEL
15	022097	1	WASHER LOCK M6-1/4
16	0F5049	2	TAB PULL
17	0C2634A	1	ASSEMBLY COVER ACCESS
18	051713	2	WASHER FLAT M5
19	052619	2	SCREW HHC M5-0.8 X 20 G8.8
20	0912970100	2	ASSY WIRE 14AWG 48.0" GRN/YLW
21	0G6953G	2	INSUL, SIDE SUPPORT
22	078115	12	WASHER SELF LOCKING DOME
23	0G45170AL08	1	DUCT AIR REAR WRAP
24	0G5892A	1	INSULATION ROOF TOP
25	089961	2	FOAM STRIP 3/4" WIDE X 3/16" THK (144” LG)
26	029289	4	TAPE ELEC 1/2 FOAM (40” LG)
27	029289	2	TAPE ELEC 1/2 FOAM (8” LG)
28	029289	1	TAPE ELEC 1/2 FOAM (33.187” LG)
29	0G45130AL08	1	BAFFLE AIR ANGULAR
30	0F8869D	1	KEY VISE-ACTION LATCH SLOT CIR
31	049226	2	WASHER LOCK M5
32	022473	1	WASHER FLAT 1/4-M6 ZINC
33	0G45200ST03	1	COVER BASE REAR
(2) 34	0G3746	4	PLUG DOME 2.5” BLACK
35	0G45140AL08	1	BAFFLE AIR VERTICAL
36	0G45150AL08	1	CORNER POST LH REAR
37	0G45160AL08	1	CORNER POST RH REAR
38	0G45180AL08	1	BRACE TOP REAR
39	0G45190AL08	1	BLOCK OFF BOTTOM REAR
40	029289	2	TAPE ELEC 1/2 FOAM (11”LG)
41	029289	1	TAPE ELEC 1/2 FOAM (32”LG)
42	0G6953A	1	INSUL, FRONT WRAP
43	0G6953B	1	INSUL, FRONT ROOF
44	0G6953C	1	INSUL, REAR DUCT
45	0G6953D	1	INSUL, TOP DUCT
46	0G6953E	2	INSUL, REAR SIDE DUCT
47	0G6953F	2	INSUL, SIDE DUCT
48	0G6953H	1	INSUL, INSIDE BAFFLE
49	0G5892	2	INSULATION DOOR C2
50	0C9724	A/R	CAULK CLIMACEL CLEAR
51	0E5298L	1	FOAM 300 X 300 THERMAL ACO

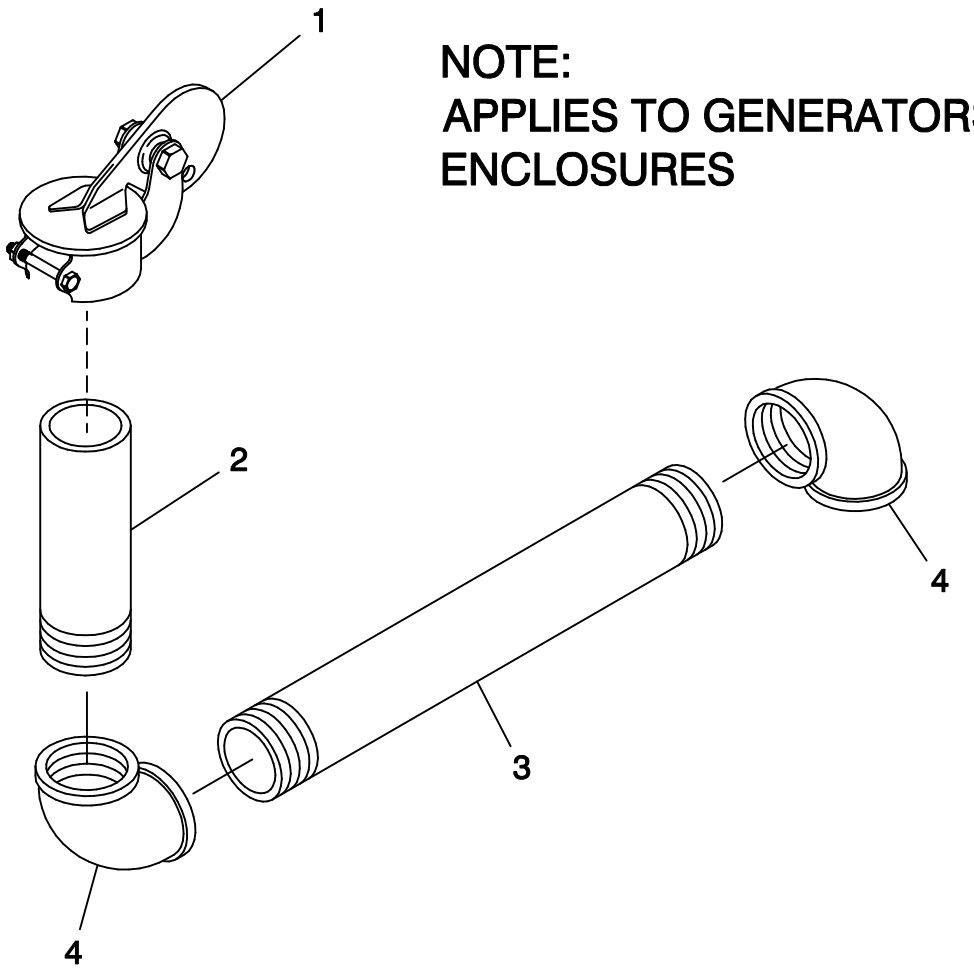
(1) ALUMINUM ENCLOSURE NOTE: ALL ENCLOSURE PANELS THAT FASTEN TO THE BASE FRAME MUST BE SECURED USING ITEM 2, THREAD FORMING FASTENER AND ITEM 4 LOCK NUT. LOCK NUT IS TO BE INSTALLED AFTER THREAD FORMING FASTENER HAS PENETRATED THROUGH EXTRUSIONS IN ENCLOSURE PANELS.

(2) ITEM 34 (PLUG DOME 2.5” BLACK) IS USED AFTER SHIPPING. HOLES ARE TO REMAIN UNCOVERED FOR SHIPPING PURPOSES. PLUGS CAN BE FOUND IN THE MANUAL BAG.

(3) CAULK CORNERS FROM INSIDE BEFORE ASSEMBLY.

(4) CAULK SEAM AFTER ASSEMBLY.

SPECIAL NOTE: LEAVE ALL ENCLOSURE FASTENERS LOOSE UNTIL DOORS ARE FITTED. AFTER DOOR FIT IS ACHIEVED TIGHTEN ALL FASTENERS.



NOTE:
APPLIES TO GENERATORS WITHOUT ENCLOSURES

NOTE:
ALL PARTS SHOWN TO BE SHIPPED LOOSE.

EXPLODED VIEW:
EXHAUST LOOSE PARTS
DRAWING #: 0G9488

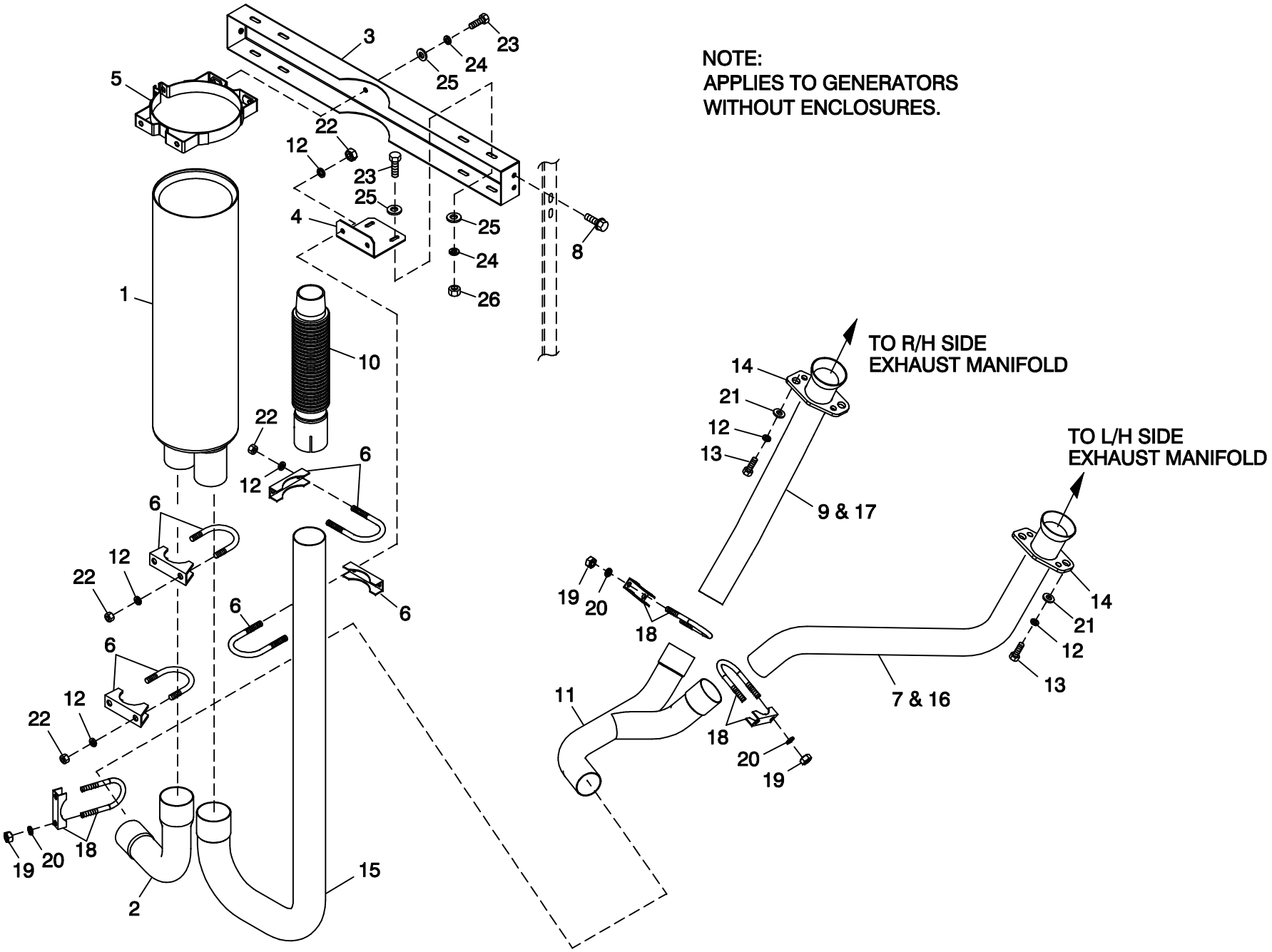
EXPLODED VIEW: EXHAUST LOOSE PARTS
DRAWING #: 0G9488

GROUP F

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	059939	1	RAIN CAP 2.37 I.D.
2	059109	1	NIPPLE TOE 2NPT X 9 BLK IRON
3	0D2736	1	NIPPLE PIPE 2 NPT X18" BLK IRN
4	059933	2	ELBOW 90D 2NPT
5	0G3770	1	EXHAUST BLANKET 737MM (NOT SHOWN)

REVISION: -A-
DATE: 6/18/08



EXPLODED VIEW:
MUFFLER EXHAUST OPEN SET 4.2L GE TELECOM
DRAWING #: 0G9616

REVISION: -A-
DATE: 6/17/08

EXPLODED VIEW: MUFFLER EXHAUST OPEN SET 4.2L GE TELECOM
DRAWING #: 0G9616

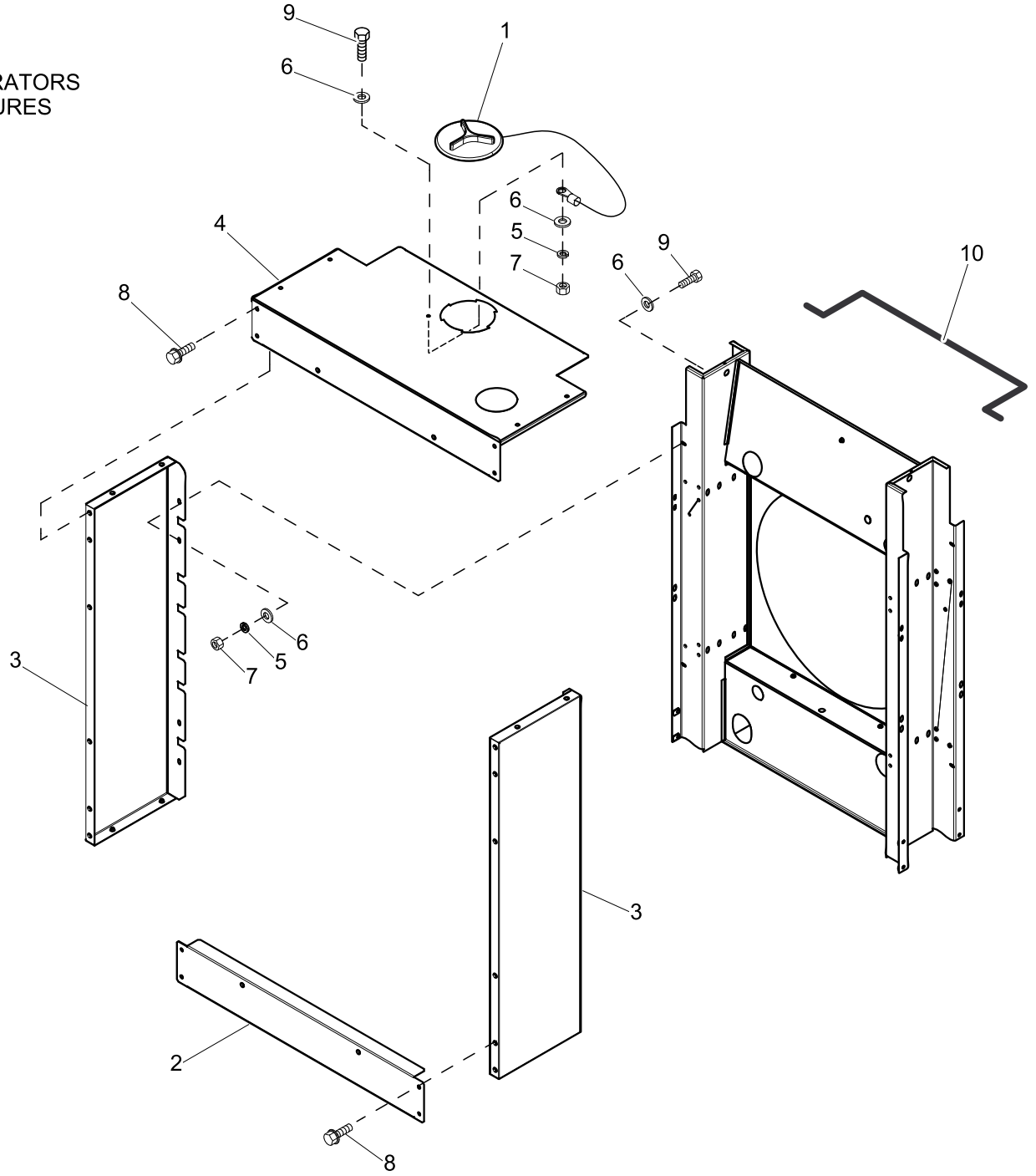
GROUP F

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1	0C9650	1	MUFFLER 2-1/2" INLET/OUTLET
2	0G7047	1	ELBOW EXHAUST 2ID X 2 3/8 O.D.
3	0G70430ST03	1	BRACKET, MUFFLER
4	0G96960ST10	1	BRACKET EXHAUST PIPE SUPPORT
5	0C4114A	1	CLAMP 6.5" BAND MUFFLER
6	080762	4	BOLT U 3/8-16 X 2.62
7	0G6697	1	PIPE, EXHAUST LH SIDE 4.2L VZW
8	0C2454	4	SCREW THF M6-1 X 16 N WA Z/JS
9	0G6696	1	PIPE, EXHAUST RH SIDE 4.2L VZW
10	0A4621C	1	FLEX PIPE 2.5OD X 2NPT X 375LG
11	0G6714	1	PIPE, Y EXHAUST 4.2L
12	0F4710	12	WASHER LOCK M10 SS
13	0G6401	4	SCREW HHC M10-1.5 X 45 SS FTH
14	0E8816	2	EXHAUST FLANGE 2" PIPE
15	0G9695	1	PIPE EXHAUST MUFFLER OUT
16	0E0170B	1	EXHAUST BLANKET 850MM (NOT SHOWN)
17	0F3794B	1	EXHAUST BLANKET 700MM LONG (NOT SHOWN)
18	036797	3	BOLT U 5/16-18 X 2.25
19	022259	6	NUT HEX 5/16-18 STEEL
20	070006	6	WASHER LOCK M8 SS
21	088775	4	WASHER FLAT 3/8 SS
22	022241	8	NUT HEX 3/8-16 STEEL
23	042907	4	SCREW HHC M8-1.25 X 16 C8.8
24	022129	4	WASHER LOCK M8-5/16
25	022145	6	WASHER FLAT 5/16-M8 ZINC
26	045771	2	NUT HEX M8-1.25 G8 CLEAR ZINC

REVISION: -A-
DATE: 6/17/08

NOTE:
APPLIES TO GENERATORS
WITHOUT ENCLOSURES



Revision: -A-
Date: 8/15/08

Exploded View: FRONT AIR DUCT 4.2L G3 TEL
Drawing No.: 0G9755

EXPLODED VIEW: FRONT AIR DUCT 4.2L G3 TEL

DRAWING #: 0G9755

GROUP D

ITEM	PART#	QTY.	DESCRIPTION
1	0C2634A	1	ASSY ACCESS COVER
2	0G9523	1	PANEL FRONT RAD DUCT OUTLET
3	0G9521	2	PANEL SIDE RAD DUCT OUTLET
4	0G9522	1	PANEL TOP RAD DUCT OUTLET
5	022097	5	WASHER LOCK M6-1/4
6	022473	10	WASHER FLAT 1/4-M6 ZINC
7	049813	5	NUT HEX M6 X 1.0 G8 YEL CHR
8	0C2454	12	SCREW THF M6-1 X 16 N WA Z/JS
9	047411	5	SCREW HHC M6-1.0 X 16 C8.8
10	029289	1	TAPE ELEC 1/2 FOAM (39” LG)

AVR CONNECTOR

PIN	WIRE	TO	FUNCTION
1	1	FIELD	– FIELD
2	194	J2–31	+12VDC
3	6	PME	PME OUTPUT
4	4	R1	+ FIELD
5	4	FIELD	+ FIELD
6	403	J2–8	GATE TRIGGER B
7	404	J2–20	GATE TRIGGER A
10	406	J2–30	ZERO CROSSING I/P
11	405	J2–19	GROUND (ISOLATED)
13	162	CB1	PME OUTPUT (AFTER CB)

GD CONNECTOR

PIN	WIRE	TO	FUNCTION
1	0	GND	NOTE 1
4	14	RB1–7	NOTE 3
8	771	GA–1	THROTTLE DRIVE LO
9	770	GA–4	THROTTLE DRIVE HI
10	0	GND	NOTE 1
12	769	J1–33	THROTTLE PWM

ICM CONNECTOR

PIN	WIRE	TO	FUNCTION
3	454	CYL4	IGNITION COIL DRIVE 4
4	451	CYL1	IGNITION COIL DRIVE 1
5	452	CYL2	IGNITION COIL DRIVE 2
7	455	CYL5	IGNITION COIL DRIVE 5
9	453	CYL3	IGNITION COIL DRIVE 3
10	SHLD	CUT	CAMSHAFT SENSOR DRAIN
11	56	RB1–10	STARTER RELAY OUT
12	14	RB1–7	NOTE 3
14	79A	CSS–2	CRANKSHAFT SENSOR +
15	456	CYL6	IGNITION COIL DRIVE 6
16	15C	F3	NOTE 7
17	0	GND	NOTE 1
18	15D	CYL1–CYL6	IGNITION COIL POWER
19	806	J2–15	IGNITION ALARM
20	SHLD	CUT	CRANKSHAFT SENSOR DRAIN
21	0A	CSS–1	CRANKSHAFT SENSOR –
22	0	CAM–1	CAMSHAFT SENSOR –
23	450	CAM–2	CAMSHAFT SENSOR +

HUIO CONNECTIONS

J1

PIN	WIRE	TO	FUNCTION
1	15A	F1	NOTE 5
2	0	GND	NOTE 1

J2

PIN	WIRE	TO	FUNCTION
1	601	LFP1	LOW FUEL PRESSURE + (LP)
2	0	LFP1	LOW FUEL PRESSURE RTN (LP)
5	447	GFB	GENERATOR FLUID BASIN +
6	0	GFB	GENERATOR FLUID BASIN RTN
7	795	SW1/MDS	LP TANK MAGNETIC DOOR SWITCH

J5

PIN	WIRE	TO	FUNCTION
1	R15BA	RB1A–3	FAULT SHUTDOWN
2	R15B	J1–10/ES1	FAULT SHUTDOWN
3	56B	RB1A–6	STARTER RELAY ENABLE
4	56A	J2–15	STARTER RELAY ENABLE

J6

PIN	WIRE	TO	FUNCTION
1	391	CUST/RRP/J1	RS485–
2	SHLD	CUST/RRP/J1	RS485 DRAIN
3	390	CUST/RRP/J1	RS485+

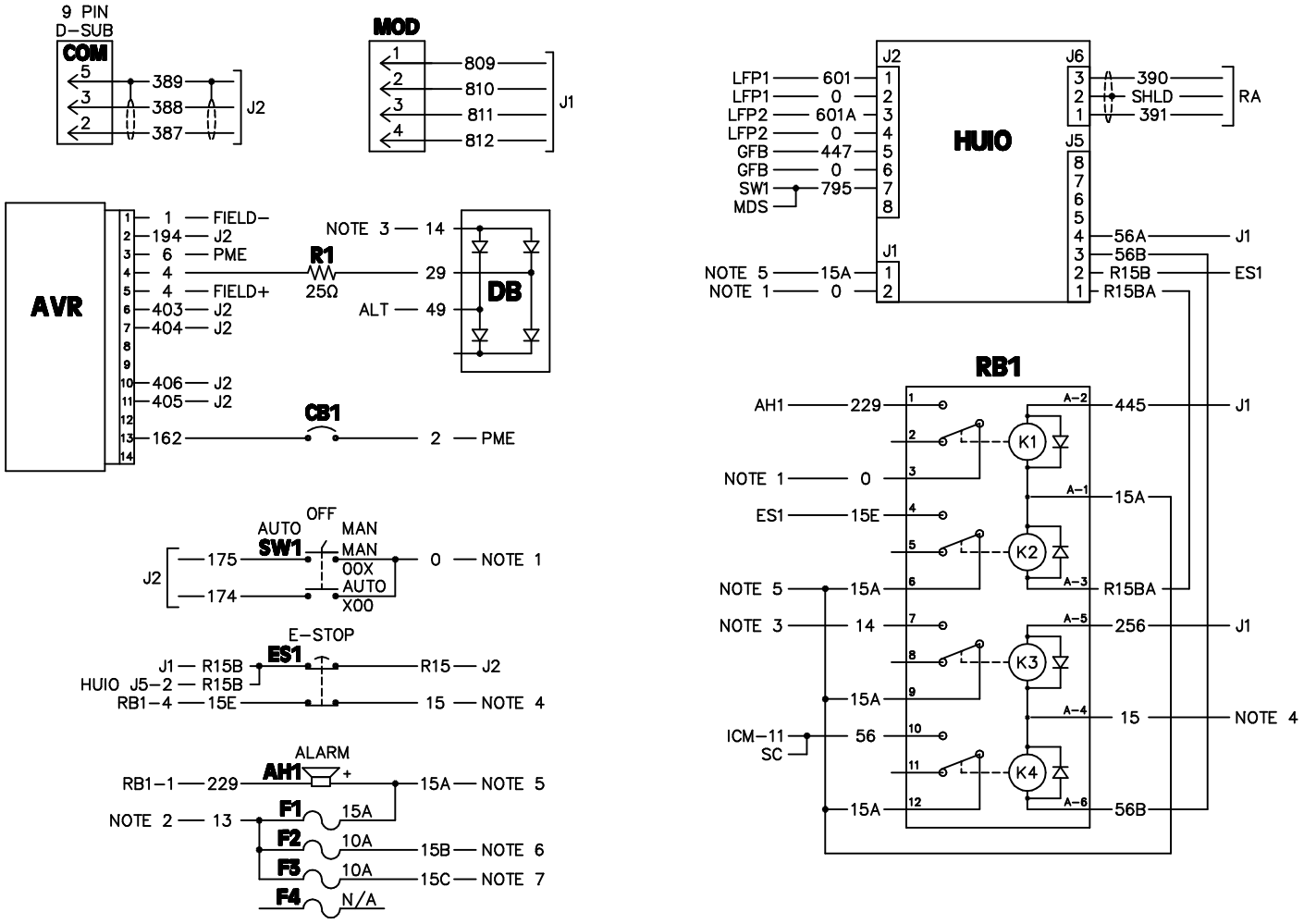
GENERATOR CONTROL MODULE CONNECTIONS

J1

PIN	WIRE	TO	FUNCTION
3	810	MOD–2	MODEM SIGNAL RETURN
4	0	GND	NOTE 1
6	575R	ESC6–2	FUEL LEVEL RTN
7	575V	ESC6–1	FUEL LEVEL +
10	R15B	HUIO J5–2/ES1	OVERSPEED/WATCHDOG
11	256	RB1A–5	FUEL RELAY
12	0	GND	NOTE 1
14	811	MOD–3	MODEM DATA CARRIER DETECT
15	68V	ESC1–1	COOLANT TEMP +
16	803	BCH	BAT CHARGER CURRENT
17	766R	ESC3–2	THROTTLE POS RTN
18	766V	ESC3–1	THROTTLE POS +
19	69R	OPS1–3	OIL PRESS RTN
20	69V	OPS1–2	OIL PRESS +
23	56A	HUIO J5–4	STARTER RELAY
24	0	MPU1–2	MPU1 SIGNAL –
25	79	MPU1–3	MPU1 SIGNAL +
26	812	MOD–4	MODEM ENABLE
29	573R	ESC2–2	COOLANT LVL RTN
30	573V	ESC2–1	COOLANT LVL +
31	68R	ESC1–2	COOLANT TEMP RTN
32	809	MOD–1	MODEM 12V POWER
33	769	GD–12	THROTTLE PWM
34	445	RB1A–2	ALARM RELAY
35	15B	F2	NOTE 6

J2

PIN	WIRE	TO	FUNCTION
1	391	CUST CON	RS485–
2	388	COM–3	RS232 TX (GENLINK)
3	DI3	CUST CON	LINE POWER SIGNAL
4	183	CUST CON	REMOTE START
5	174	SW1	"AUTO" START
6	224	IFT	V SENSE GEN A PH
7	227	IFT	V SENSE RTN
8	403	AVR–6	AVR GATE TRIGGER B
11	399A	CT1	GEN A PH CURRENT –
12	398A	CT1	GEN A PH CURRENT +
13	390	CUST CON	RS485+
14	387	COM–2	RS232 RX (GENLINK)
15	806	ICM–19	IGNITION ALARM
16	R15	ES1	EMERGENCY STOP
19	405	AVR–11	AVR GROUND
20	404	AVR–7	AVR GATE TRIGGER A
21	OC8	RB3A–6	SPARE OUTPUT 4
22	OC6	RB3A–3	SPARE OUTPUT 2
23	OC5	RB3A–2	SPARE OUTPUT 1
24	SHLD	CUST CON	RS485 DRAIN
25	389	COM–5	RS232 COM (GENLINK)
26	DI4	CUST CON	GEN POWER SIGNAL
27	505	BCH	BAT CHARGER FAIL
28	175	SW1	"MANUAL" START
29	225	IFT	V SENSE GEN B PH
30	406	AVR–10	AVR ZERO CROSSING I/P
31	194	AVR–2	AVR +12VDC
33	OC7	RB3A–5	SPARE OUTPUT 3
34	399B	CT2	GEN B PH CURRENT–
35	398B	CT2	GEN B PH CURRENT+



SCHEMATIC - DIAGRAM

REVISION: H-1117-B

H-100 VERIZON W/HUIO

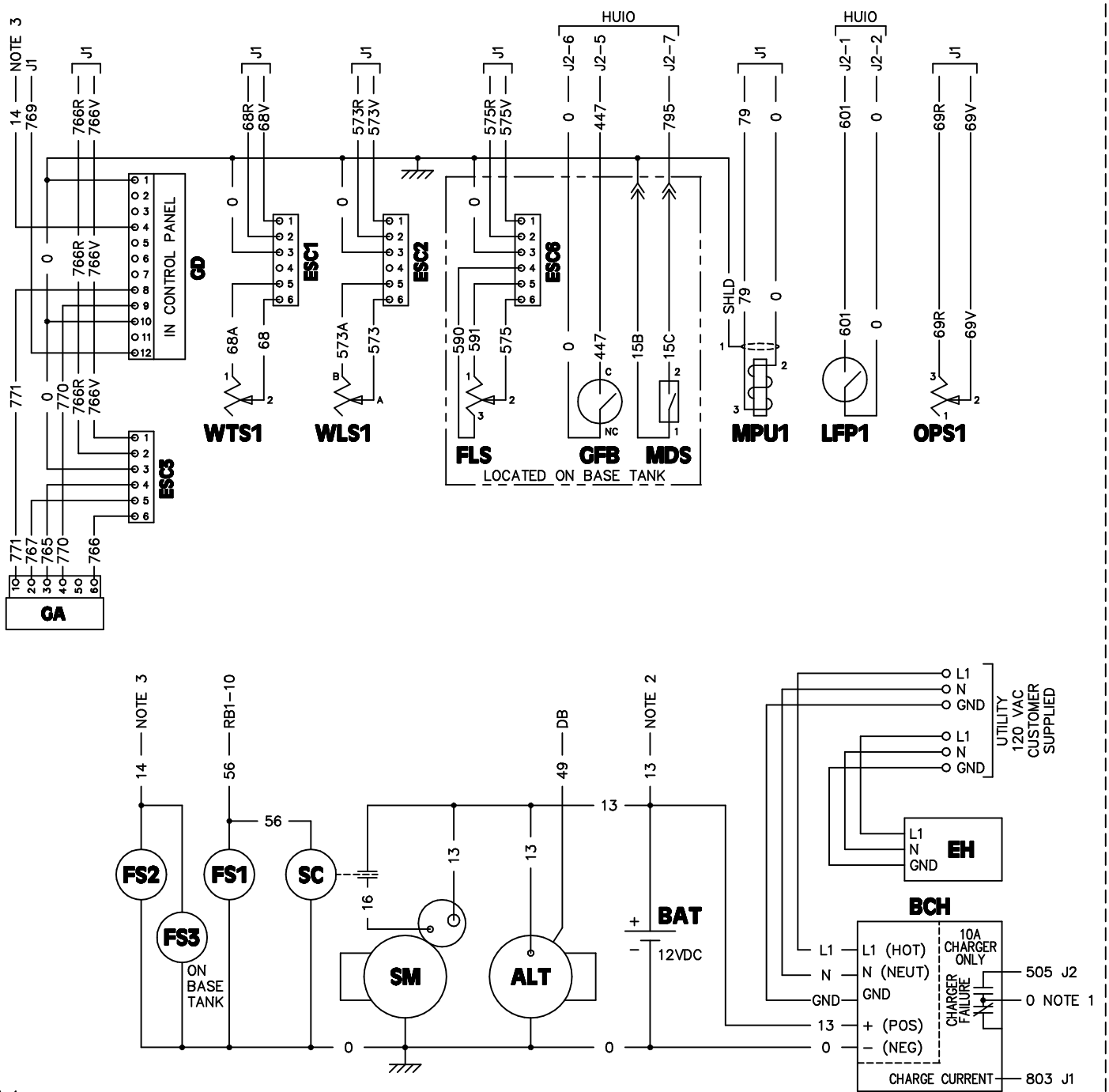
DATE: 9/17/07

PAGE 2 OF 4

DRAWING #: 0G6414

COMPONENTS LOCATED ON GENERATOR SET

NOTES:
1) WIRE# 0 IS CHASSIS GROUND (BATTERY–) UNLESS NOTED OTHERWISE.
2) WIRE# 13 IS UNFUSED +12VDC (BATTERY+).
3) WIRE# 14 IS FUSED +12VDC WHEN GENERATOR IS CRANKING OR RUNNING.
4) WIRE# 15 IS FUSED +12VDC WHEN E–STOP IS NOT ACTIVATED.
5) WIRE# 15A IS FUSED +12VDC FOR GENERAL USE.
6) WIRE# 15B IS FUSED +12VDC FOR THE GENERATOR CONTROL MODULE.
7) WIRE# 15C IS FUSED +12VDC FOR THE IGNITION CONTROL MODULE.



PAGE 3 OF 4

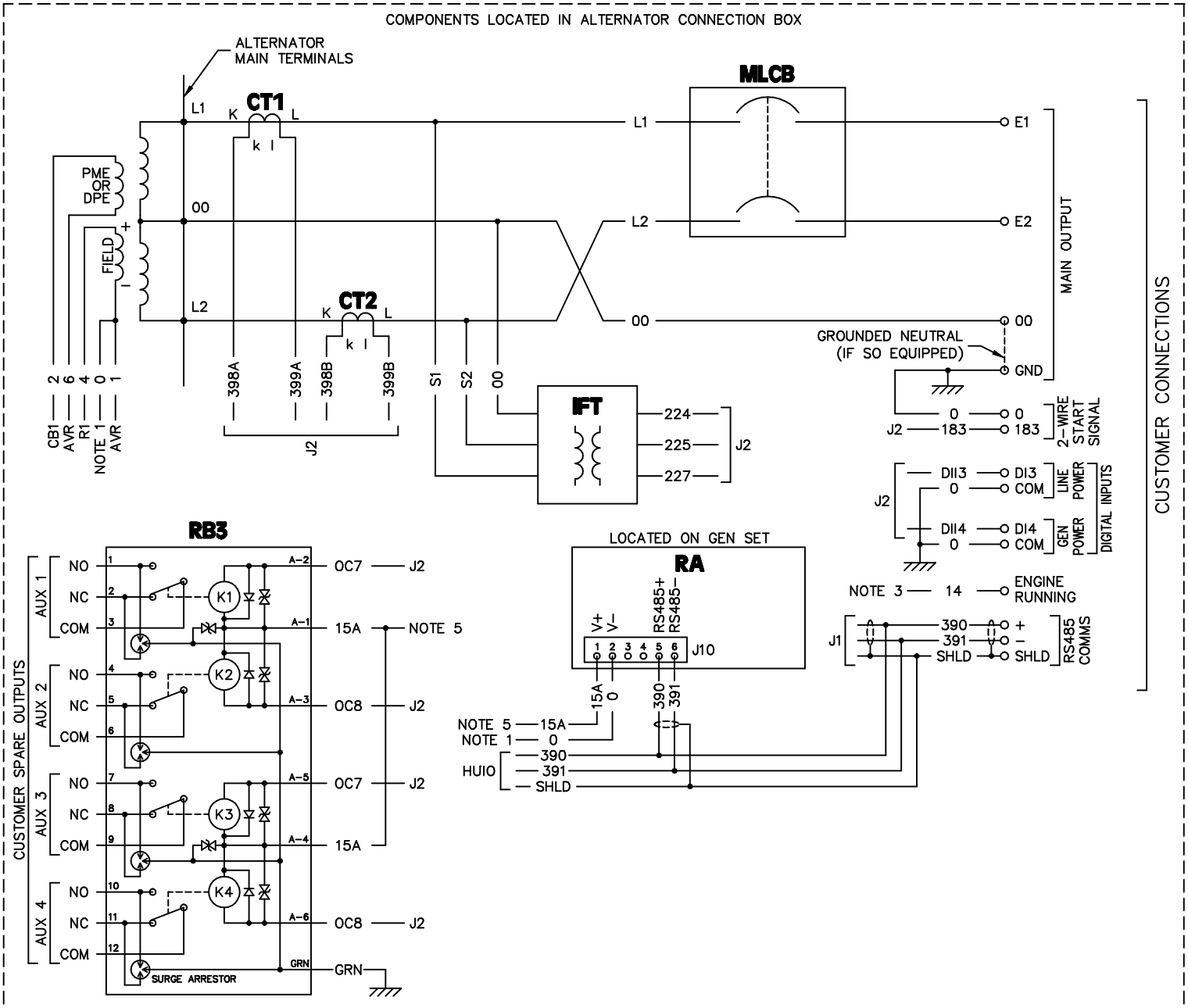
SCHEMATIC - DIAGRAM

REVISION: H-1117-B

H-100 VERIZON W/HUIO

DATE: 9/17/07

DRAWING #: 0G6414



LEGEND

00 – NEUTRAL	CT_ – CURRENT TRANSFORMER	GD – GOVERNOR DRIVER	OPS1 – OIL PRESSURE SENDER
AH1 – ALARM HORN	CYL – CYLINDER IGNITION COIL	GFB – GENERATOR FLUID BASIN	PME – PERMANENT MAGNET EXCITER
ALT – CHARGE ALTERNATOR	DB – DIODE BRIDGE	HUIO – H-PANEL UNIT I/O	R_ – RESISTOR
AVR – AUTOMATIC VOLTAGE REGULATOR	DI_ – DIGITAL INPUT	ICM – IGNITION CONTROL MODULE	RA – REMOTE ANNUNCIATOR
BAT – BATTERY	EH – ENGINE BLOCK HEATER	IFT – INTERFACE TRANSFORMER	RB_ – RELAY BOARD
BCH – BATTERY CHARGER	ES1 – EMERGENCY STOP	J_ – GEN. CONTROLLER CONNECTIONS	SC – STARTER CONTACTOR
CAM – CAMSHAFT SENSOR	ESC_ – ELECT. SIGNAL CONDITIONER	LFP – LOW FUEL PRESSURE SWITCH	SM – STARTER MOTOR
CB1 – CIRCUIT BREAKER	F_ – FUSE	MDS – MAGNETIC DOOR SWITCH	SP_ – SPARK PLUG
COM – COMMUNICATION CONNECTOR	FLS – FUEL LEVEL SENDER	MLCB – MAIN LINE CIRCUIT BREAKER	SW1 – AUTO/MANUAL SWITCH
CSS – CRANKSHAFT SENSOR	FS_ – FUEL SOLENOID	MOD – MODEM CONNECTOR	WLS1 – COOLANT LEVEL SENSOR
	GA – GOVERNOR ACTUATOR	MPU1 – MAGNETIC PICK UP	WTS1 – COOLANT TEMP. SENSOR

SCHEMATIC - DIAGRAM

REVISION: H-1117-B

H-100 VERIZON W/HUIO

DATE: 9/17/07

DRAWING #: 0G6414

NOTE: ALL WIRES 18 AWG 300V UL LISTED UNLESS SHOWN OTHERWISE

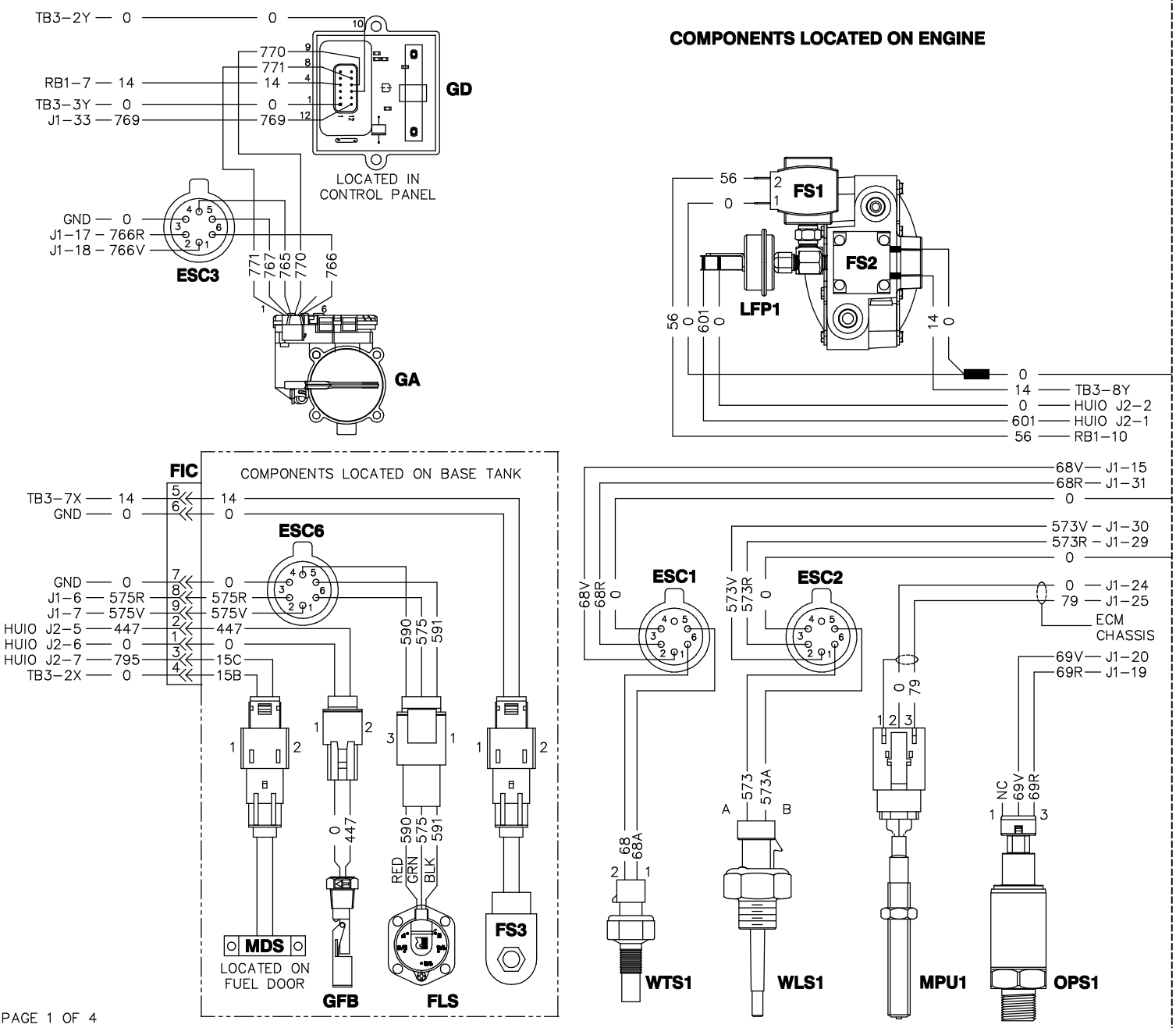
AWG SIZE

12

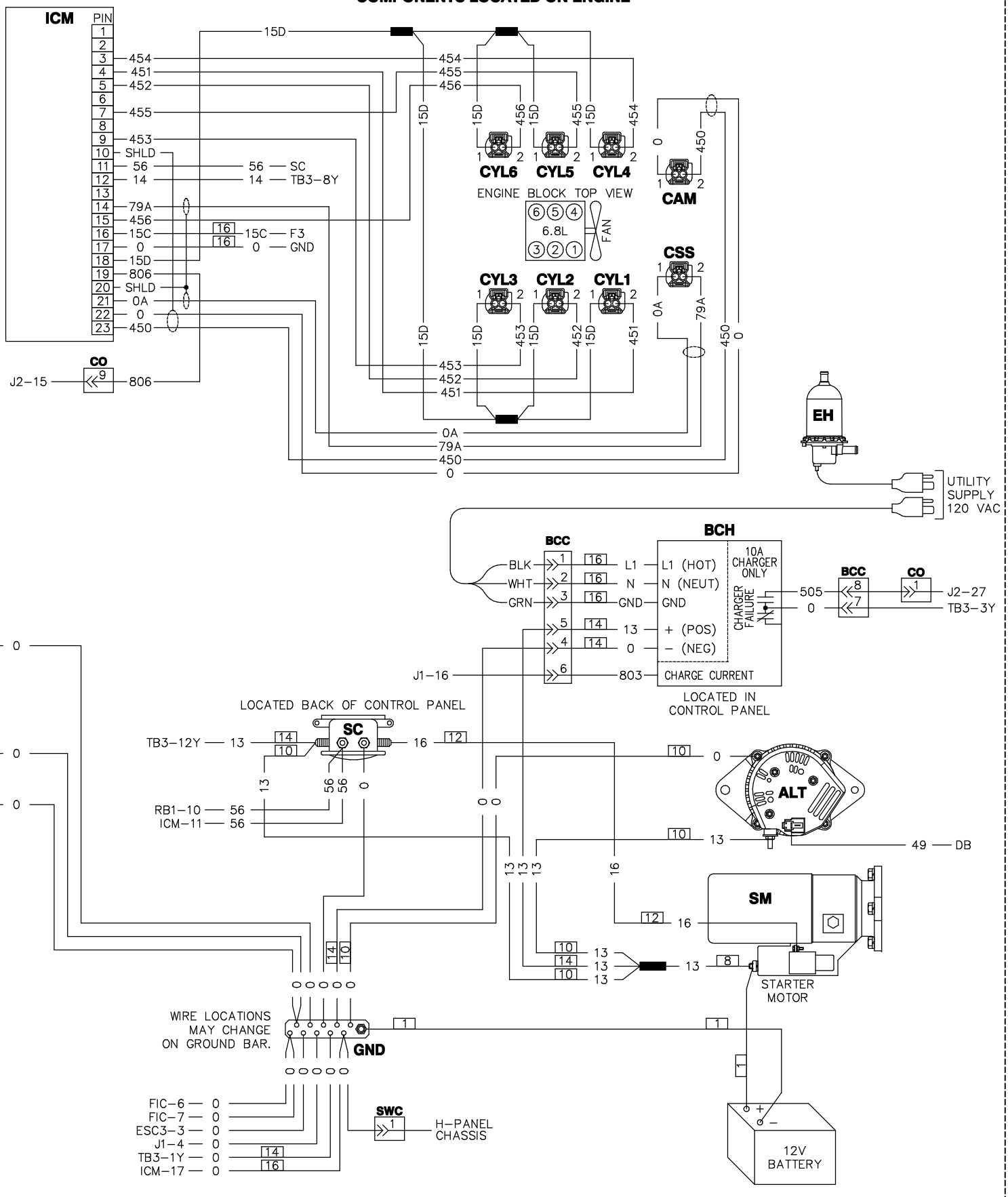
S1, S2, & 00 ARE 600V UL LISTED

LEGEND

AH1	– ALARM HORN	GND	– GROUND BAR
ALT	– DC CHARGE ALTERNATOR	HUIO	– H–PANEL UNIT I/O
AVR	– AUTOMATIC VOLTAGE REGULATOR	ICM	– IGNITION CONTROL MODULE
BCC	– BATTERY CHARGER CONNECTOR	IFT	– INTERFACE TRANSFORMER
BCH	– BATTERY CHARGER	J_	– ELECTRONIC CONTROL MODULE CONN.
CAM	– CAMSHAFT SENSOR	LFP_	– LOW FUEL PRESSURE SWITCH
CB1	– CIRCUIT BREAKER	MDS	– MAGNETIC DOOR SWITCH
CO	– CROSS OVER CONNECTOR	MLCB	– MAIN LINE CIRCUIT BREAKER
COM	– COMMUNICATIONS PORT	MOD	– MODEM CONNECTOR
CSS	– CRANKSHAFT SENSOR	MPU1	– MAGNETIC PICK UP
CT_	– CURRENT TRANSFORMER	OPS1	– OIL PRESSURE SENDER
CYL_	– CYLINDER IGNITION COIL	R_	– RESISTOR
DB	– DIODE BRIDGE	RA	– REMOTE ANNUNCIATOR
EH	– ENGINE BLOCK HEATER	RB_	– RELAY BOARD
ES1	– EMERGENCY STOP SWITCH	RB_A	– RELAY BOARD CONNECTOR
ESC_	– ELECTRONIC SIGNAL CONDITIONER	SC	– START CONTACTOR
FB_	– FUSE BLOCK	SM	– STARTER MOTOR CONNECTIONS
FIC	– FRAME INNER CONNECT	SW1	– OFF/AUTO/MANUAL SELECT SWITCH
FLS	– FUEL LEVEL SENDER	SWC	– SWITCH CONNECTOR
FS_	– FUEL SOLENOID	TB_	– TERMINAL BLOCKS
GA	– GOVERNOR ACTUATOR	WLS1	– COOLANT LEVEL SENDER
GD	– GOVERNOR DRIVER	WTS1	– COOLANT TEMP. SENDER
GFB	– GENERATOR FLUID BASIN	Y_	– COMMUNICATIONS Y CONNECTOR



PAGE 1 OF 4



WIRING - DIAGRAM

REVISION: H-6782-C

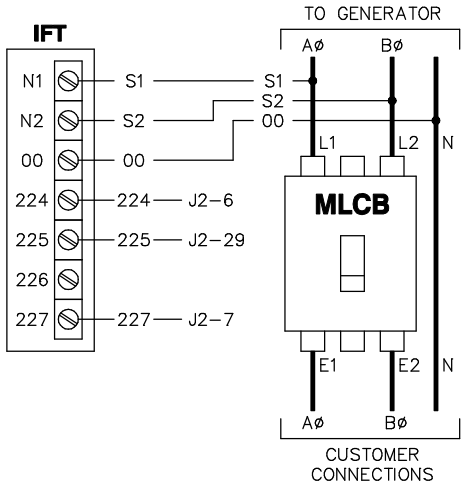
H-100 VERIZON W/HUIO

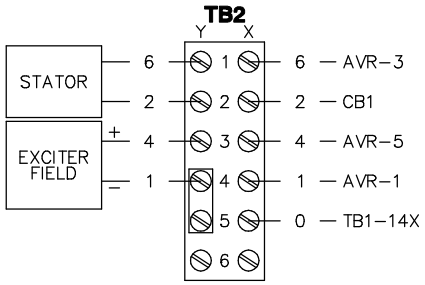
DATE: 6/17/10

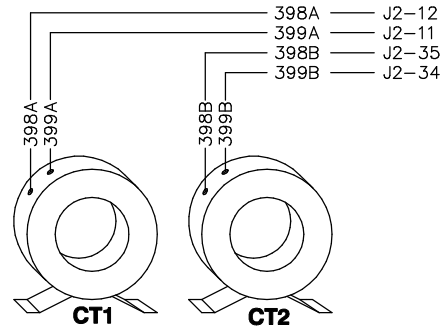
PAGE 2 OF 4

DRAWING #: 0G6545

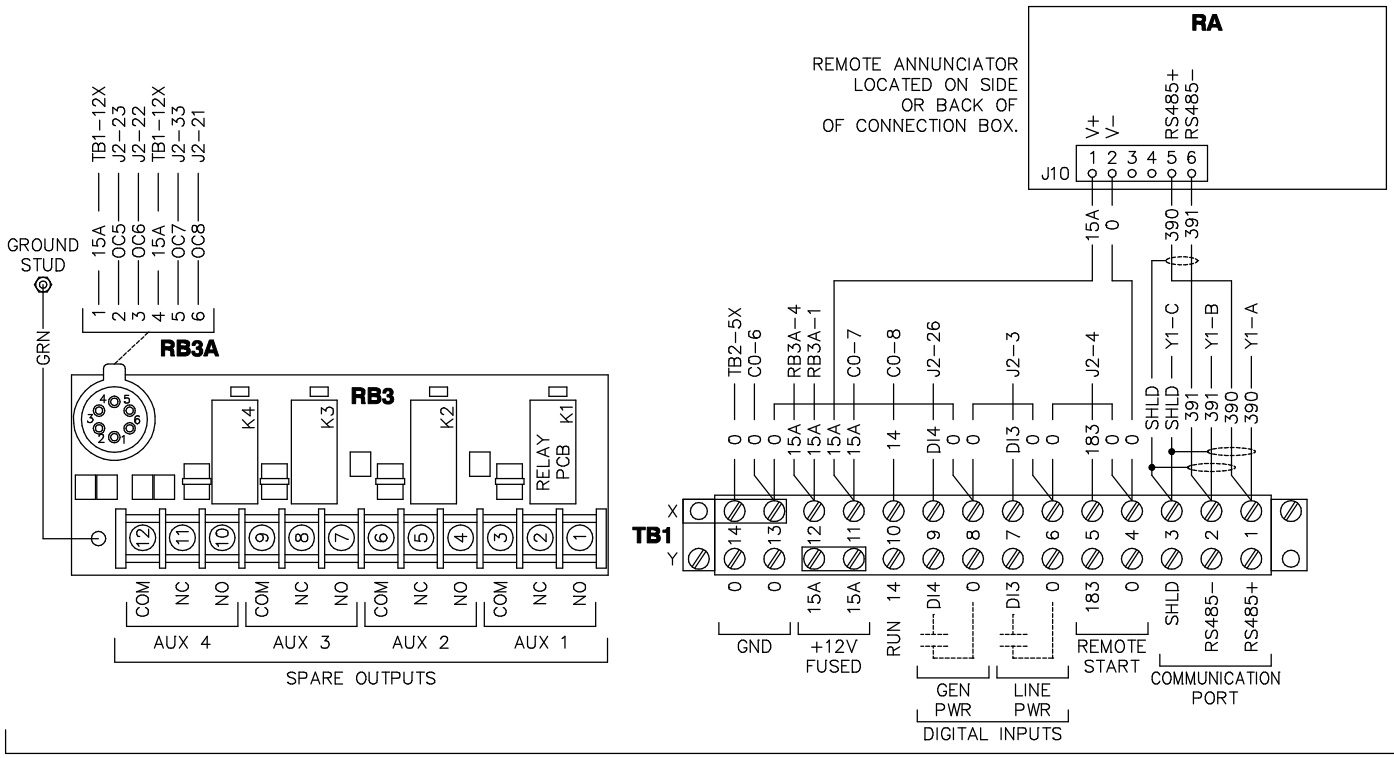
COMPONENTS LOCATED IN ALTERNATOR CONNECTION BOX



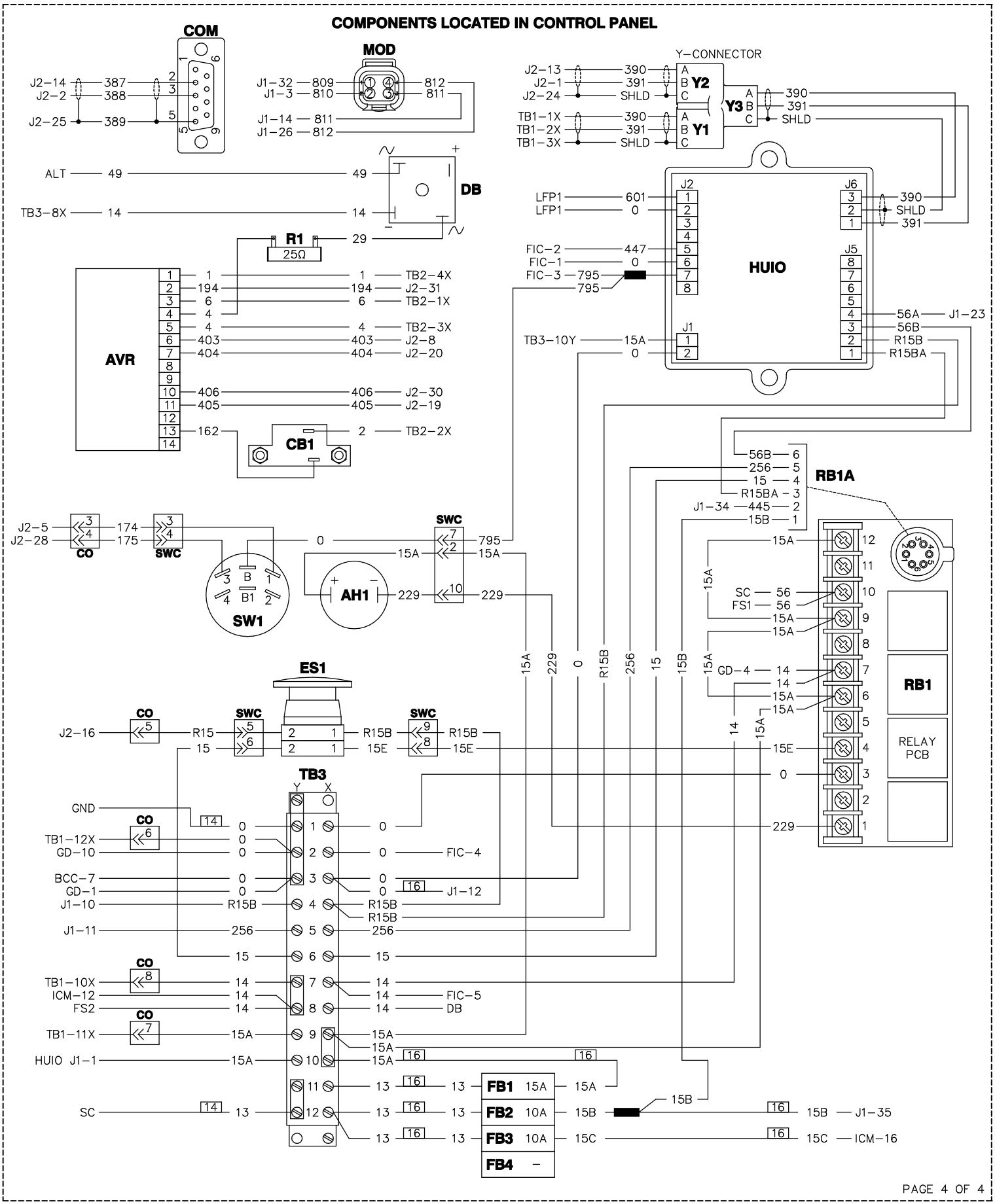




SEE DRAWING 0F8214 FOR CT WIRING.



CUSTOMER CONNECTIONS



REVISION: H-6782-C
DATE: 6/17/10

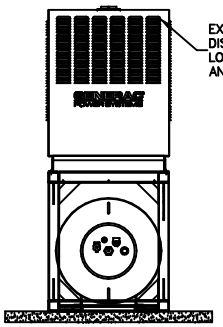
WIRING - DIAGRAM
H-100 VERIZON W/HUIO
DRAWING #: 0G6545

GROUP G

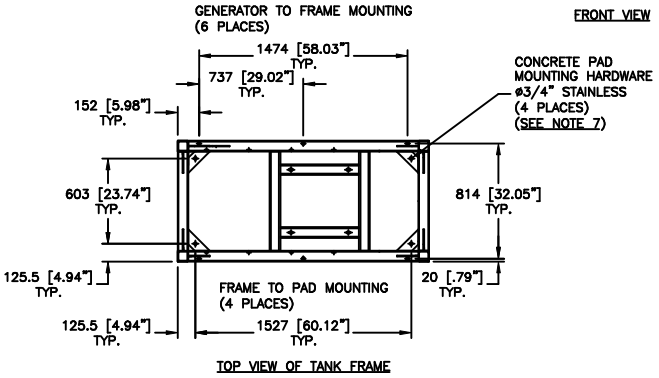
WEIGHT DATA (WITH PALLET)
4.2L 30KW – 705 KG (1555 LB)
TANK AND FRAME – 315 KG (694 LB)

NOTES:

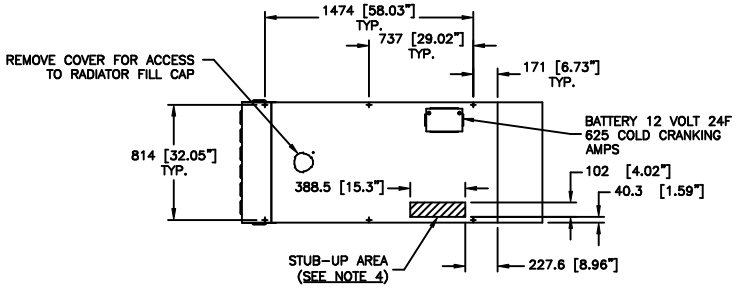
1) MINIMUM RECOMMENDED CONCRETE PAD SIZE: 1463.6 [57.62"] WIDE X 2387.6 [94"] LONG. REFERENCE INSTALLATION GUIDE SUPPLIED WITH UNIT FOR CONCRETE PAD GUIDELINES.
2) ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE AND SERVICING. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 37 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE AND LOCAL CODES FOR MINIMUM DISTANCES FROM OTHER STRUCTURES.
3) CIRCUIT BREAKER INFORMATION: SEE SPECIFICATION SHEET WITHIN OWNERS MANUAL.
4) INSIDE STUB–UP AREA FOR AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, BATTERY CHARGER 120 VOLT AC (.5 AMP MAX.) CONNECTION AND ACCESS TO TRANSFER SWITCH CONTROL WIRES. REMOVE FRONT COVER FOR ACCESS.
5) REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS. HOLES ARE ø63.5 [ø2.5"] AND SPACED 1685 [66.34"] APART. INSTALL COVERS AFTER LIFTING INTO PLACE.
6) REMOVE EITHER LEFT OR RIGHT HAND SIDE PANEL TO ACCESS EXHAUST MUFFLER.
7) WIND LOAD AND CALCULATIONS (AT 150MPH), FOR MOUNTING TO CONCRETE PAD. RECOMMEND A MINIMUM BOLT OF ø3/4" (A307) IN CONCRETE OF STRENGTH $^{\circ}F$ = 3,000PSI WITH EMBEDMENT IN CONCRETE OF 5". SMALLER DIAMETER AND BOLT LENGTH WILL RESULT IN DECREASED MOUNTING WIND LOAD RESISTANCE CAPABILITY.
8) DO NOT RUN ANY 2 WIRE START OR COMMUNICATION WIRE WITH ANY AC POWER RUNS.
9) CONCRETE PAD (DESIGNED AND INSTALLED BY OTHERS) MUST BE CONSTRUCTED TO ADEQUATE PARAMETERS OR TIPPING OF UNIT MAY RESULT, EVEN WITH LAGGING AS INDICATED IN NOTE 7.
10) APPLY A BEAD OF TRANSPARENT 100% SILICONE CAULK/SEALANT ALL AROUND BETWEEN THE GENSET BASE FRAME AND THE LP TANK/FRAME.

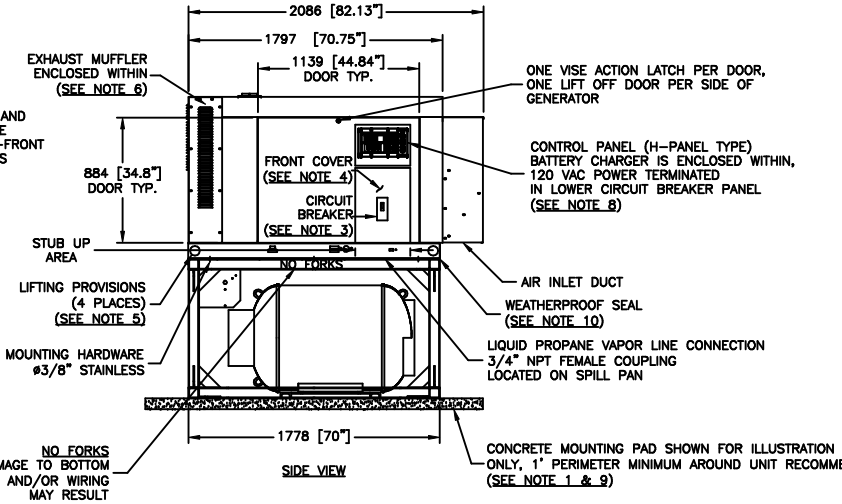


FRONT VIEW



TOP VIEW OF TANK FRAME



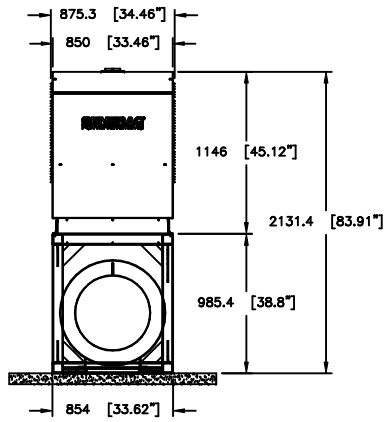


SIDE VIEW

SERVICE ITEM ACCESSIBILITY CHART

SERVICE ITEM	4.2L 30KW
OIL FILL CAP	THRU LEFT DOOR
OIL DIP STICK	THRU LEFT DOOR
OIL FILTER	THRU LEFT DOOR
OIL DRAIN HOSE	THRU RIGHT DOOR
RADIATOR DRAIN HOSE	THRU RIGHT DOOR
AIR CLEANER ELEMENT	THRU RIGHT DOOR
SPARK PLUGS	BOTH DOORS
MUFFLER	SEE NOTE 6
FAN BELT	EITHER DOOR
BATTERY	THRU RIGHT DOOR

REFERENCE OWNERS MANUAL FOR PERIODIC REPLACEMENT PART LISTINGS



REAR VIEW

REVISION: -A-
DATE: 9/21/07

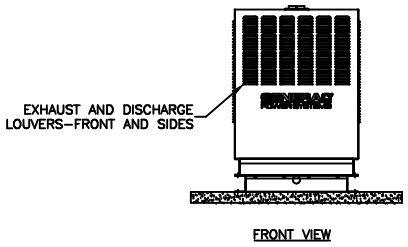
EXPLODED VIEW:
4.2L 30KW TELECOM
DRAWING #: 0G6753

GROUP G

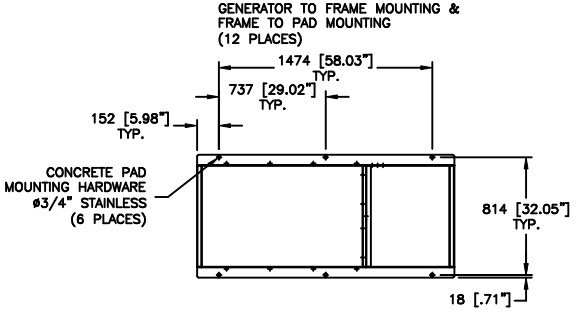
WEIGHT DATA (WITH PALLET)
4.2L 30KW – XXX KG (XXXX LB)
NATURAL GAS RISER FRAME – XX KG (XX LB)

NOTES:

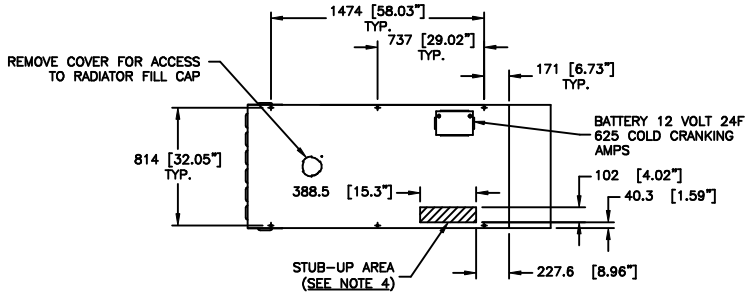
1) MINIMUM RECOMMENDED CONCRETE PAD SIZE: 1463.6 [57.62"] WIDE X 2387.6 [94"] LONG. REFERENCE INSTALLATION GUIDE SUPPLIED WITH UNIT FOR CONCRETE PAD GUIDELINES.
2) ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE AND SERVICING. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 37 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE AND LOCAL CODES FOR MINIMUM DISTANCES FROM OTHER STRUCTURES.
3) CIRCUIT BREAKER INFORMATION: SEE SPECIFICATION SHEET WITHIN OWNERS MANUAL.
4) INSIDE STUB-UP AREA FOR AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, BATTERY CHARGER 120 VOLT AC (.5 AMP MAX.) CONNECTION AND ACCESS TO TRANSFER SWITCH CONTROL WIRES. REMOVE FRONT COVER FOR ACCESS.
5) REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS. HOLES ARE ø63.5 [ø2.5"] AND SPACED 1685 [66.34"] APART. INSTALL COVERS AFTER LIFTING INTO PLACE.
6) REMOVE EITHER LEFT OR RIGHT HAND SIDE PANEL TO ACCESS EXHAUST MUFFLER.
7) WIND LOAD AND CALCULATIONS (AT 150MPH), FOR MOUNTING TO CONCRETE PAD. RECOMMEND A MINIMUM BOLT OF ø3/4" (A307) IN CONCRETE OF STRENGTH °F = 3,000PSI WITH EMBEDMENT IN CONCRETE OF 5". SMALLER DIAMETER AND BOLT LENGTH WILL RESULT IN DECREASED MOUNTING WIND LOAD RESISTANCE CAPABILITY.
8) DO NOT RUN ANY 2 WIRE START OR COMMUNICATION WIRE WITH ANY AC POWER RUNS.
9) CONCRETE PAD (DESIGNED AND INSTALLED BY OTHERS) MUST BE CONSTRUCTED TO ADEQUATE PARAMETERS OR TIPPING OF UNIT MAY RESULT, EVEN WITH LAGGING AS INDICATED IN NOTE 7.

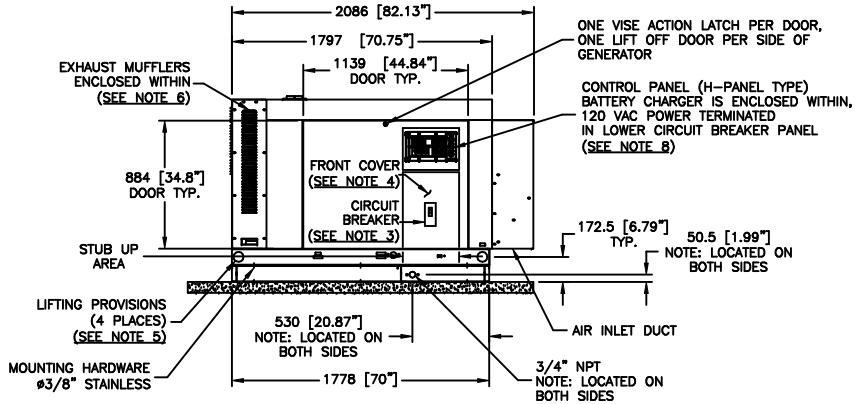


FRONT VIEW

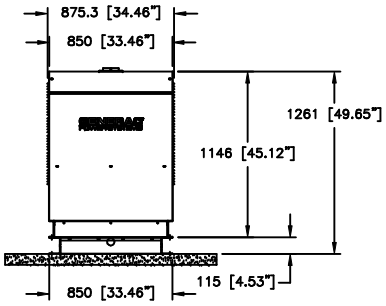


TOP VIEW OF N/G RISER FRAME





SIDE VIEW



REAR VIEW

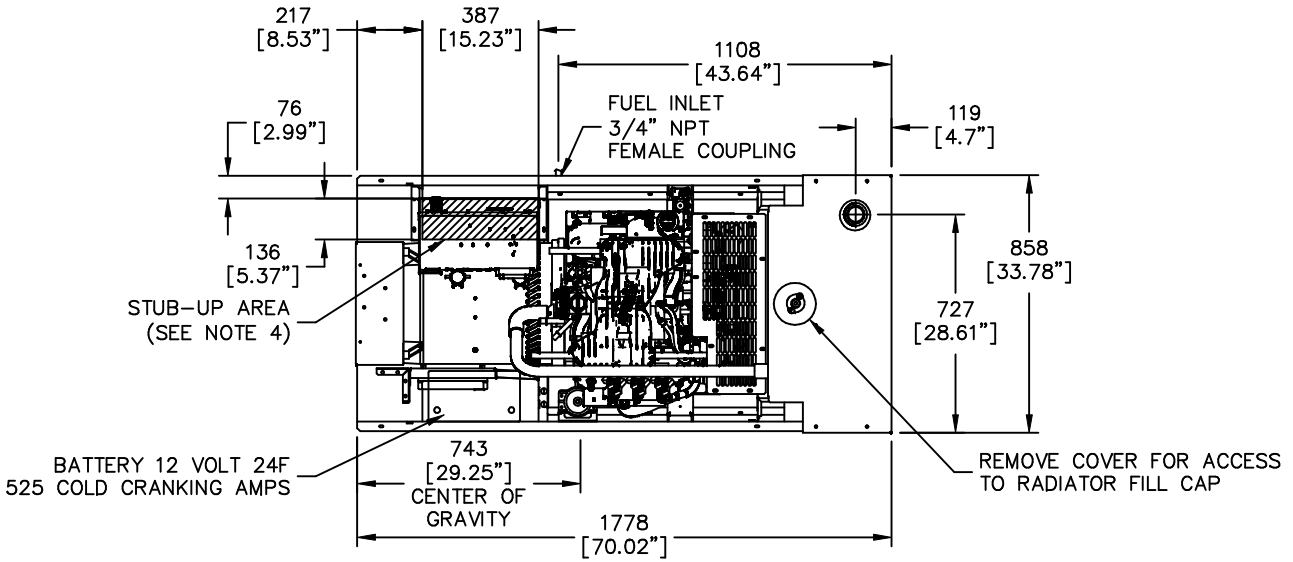
SERVICE ITEM ACCESSIBILITY CHART

SERVICE ITEM	4.2L 30KW
OIL FILL CAP	THRU LEFT DOOR
OIL DIP STICK	THRU LEFT DOOR
OIL FILTER	THRU LEFT DOOR
OIL DRAIN HOSE	THRU RIGHT DOOR
RADIATOR DRAIN HOSE	THRU RIGHT DOOR
AIR CLEANER ELEMENT	THRU RIGHT DOOR
SPARK PLUGS	BOTH DOORS
MUFFLER	SEE NOTE 6
FAN BELT	EITHER DOOR
BATTERY	THRU RIGHT DOOR

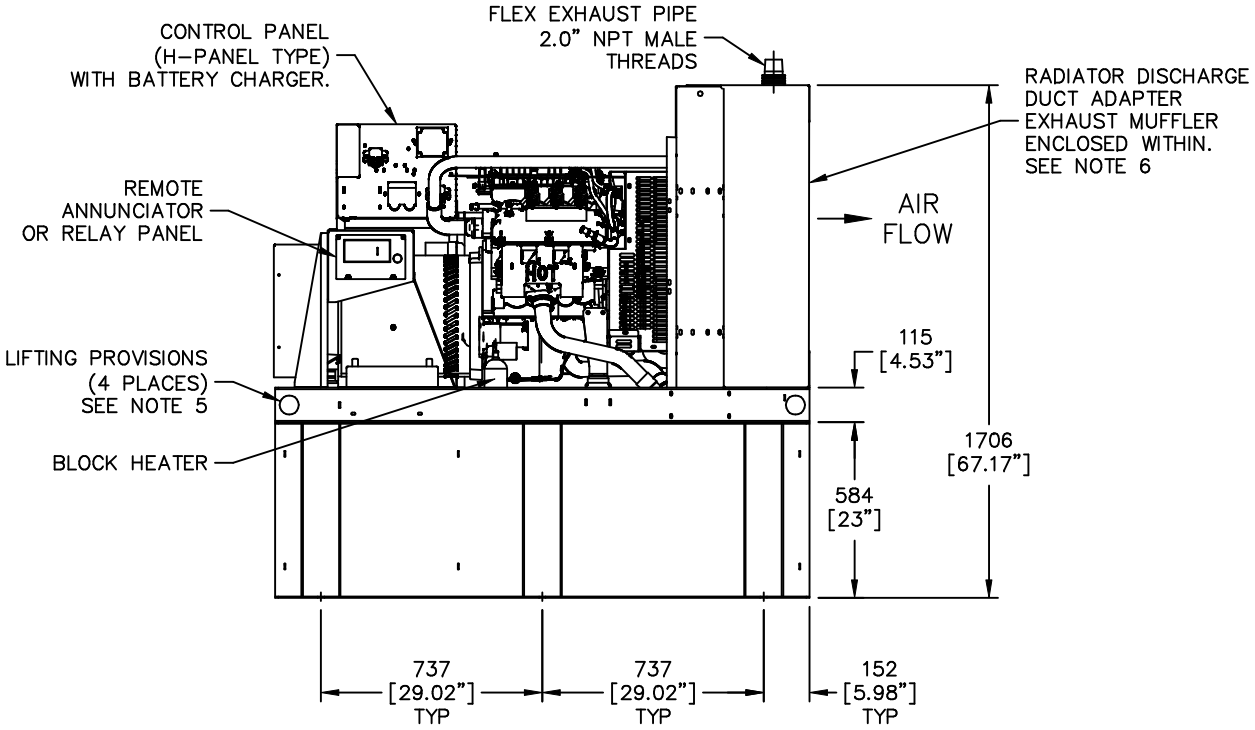
REFERENCE OWNERS MANUAL FOR PERIODIC REPLACEMENT PART LISTINGS

REVISION: -A-
DATE: 9/21/07

EXPLODED VIEW:
4.2L 30KW TELECOM
DRAWING #: 0G6753



TOP VIEW

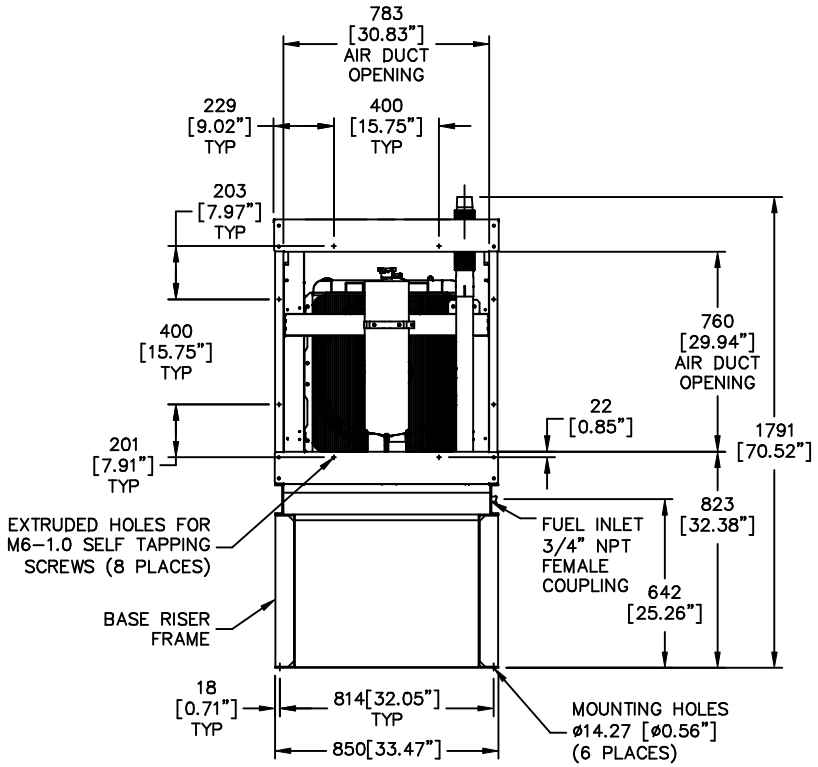


RIGHT SIDE VIEW

REVISION: -A-
DATE: 8/26/08

EXPLODED VIEW:
BASE RISER FRAME 4.2L 30KW VZW
DRAWING #: 0G9765

NOTES:
1) REFERENCE INSTALLATION GUIDE FOR CONCRETE PAD GUIDELINES.
2) ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE AND SERVICING. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 37 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE AND LOCAL CODES FOR MINIMUM DISTANCES FROM OTHER STRUCTURES.
3) CIRCUIT BREAKER INFORMATION:
   SEE SPECIFICATION SHEET WITHIN OWNERS MANUAL.
4) STUB–UP AREA FOR: AC LOAD LEAD & NEUTRAL, 120 VOLT AC UTILITY FOR BATTERY CHARGER & BLOCK HEATER (15 AMP MAX.), AND TRANSFER SWITCH / COMMUNICATION CONDUITS.
   COMMUNICATIONS & 2–WIRE START MUST NOT BE RUN IN CONDUIT WITH AC WIRING.
   REMOVE FRONT COVER FOR ACCESS.
5) REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
   HOLES ARE ø63.5 [ø2.5"] AND SPACED 1685 [66.34"] APART.
   SEE ALSO CENTER OF GRAVITY DIMENSION.
6) REMOVE EITHER LEFT OR RIGHT HAND SIDE PANEL TO ACCESS EXHAUST MUFFLER.



FRONT VIEW

SERVICE ITEM ACCESSIBILITY CHART

SERVICE ITEM	LOCATION
OIL FILL CAP	LEFT SIDE
OIL DIP STICK	LEFT SIDE
OIL FILTER	LEFT SIDE
OIL DRAIN HOSE	RIGHT SIDE
RADIATOR DRAIN HOSE	RIGHT SIDE
AIR CLEANER ELEMENT	RIGHT SIDE
SPARK PLUGS	BOTH SIDES
MUFFLER	SEE NOTE 6
FAN BELT	BOTH SIDES
BATTERY	RIGHT SIDE

REFERENCE OWNERS MANUAL FOR
PERIODIC REPLACEMENT PART LISTINGS

WEIGHT DATA – GENERATOR			
MODEL	GENERATOR Kg[lbs]	SHIPPING SKID Kg[lbs]	TOTAL Kg[lbs]
0057090	603[1330]	68[150]	671[1480]

WEIGHT DATA – BASE FRAME RISER			
MODEL	RISER Kg[lbs]	SHIPPING SKID Kg[lbs]	TOTAL Kg[lbs]
0057100	147[325]	18[40]	165[365]

EXPLODED VIEW:
BASE RISER FRAME 4.2L 30KW VZW

DRAWING #: 0G9765

REVISION: -A-
DATE: 8/26/08

Notes

Notes

Warranty

GENERAC POWER SYSTEMS STANDARD FIVE-YEAR COMPREHENSIVE LIMITED WARRANTY FOR STATIONARY EMERGENCY POWER SYSTEMS

NOTE: ALL UNITS MUST HAVE A START-UP INSPECTION PERFORMED BY AN AUTHORIZED GENERAC DEALER.

For a period of five (5) years or two thousand (2,000) hours of operation from the date of start-up, which ever occurs first, Generac Power Systems, Inc. will, at its option, repair or replace any part(s) which, upon examination, inspection, and testing by Generac Power Systems or an Authorized/Certified Generac Power Systems Dealer, or branch thereof, is found to be defective under normal use and service, in accordance with the warranty schedule set forth below. Any equipment that the purchaser/owner claims to be defective must be examined by the nearest Authorized/Certified Generac Power Systems Dealer, or branch thereof. This warranty applies only to Generac Power Systems Generators used in "Stationary Emergency" applications, as Generac Power Systems, Inc. has defined Stationary Emergency, provided said generator has been initially installed and/or inspected on-site by an Authorized/Certified Generac Power Systems Dealer, or branch thereof. Scheduled maintenance, as outlined by the generator owner's manual, must be performed by an Authorized/Certified Generac Power Systems Dealer, or branch thereof. This will verify service has been performed on the unit throughout the warranty period. This warranty is limited to and available only on Liquid-cooled units.

WARRANTY SCHEDULE

YEARS ONE, TWO, THREE, FOUR AND FIVE — One hundred percent (100%) coverage on mileage, labor, and parts listed.
• ALL COMPONENTS — ENGINE, ALTERNATOR AND TRANSFER SWITCH

Gearbox Equipped Units - Limited Gearbox Coverage

YEARS ONE THROUGH FIVE — Parts and labor coverage on gearbox and components.
YEARS SIX THROUGH TEN — Parts only coverage on gearbox and components.

GUIDELINES:

- Warranty only applies to permanently wired and mounted units.
- Any and all warranty repairs and/or concerns, must be performed and/or addressed by an Authorized/Certified Generac Power Systems Dealer, or branch thereof.
- A Generac Power Systems, Inc. Transfer Switch is highly recommended to be used in conjunction with the generator set. If a Non-Generac Power Systems, Inc. Transfer Switch is substituted for use and directly causes damage to the generator set, no warranty coverage shall apply.
- All warranty expense allowances are subject to the conditions defined in Generac Power Systems Warranty, Policies, Procedures and Flat Rate Manual.
- Units that have been resold are not covered under the Generac Power Systems Warranty, as this Warranty is not transferable except with change of ownership of original structure.
- Unit enclosure is only covered during the first year of the warranty provision.
- Use of Non-Generac replacement part(s) will void the warranty in its entirety.
- Engine coolant heaters (block-heaters), heater controls and circulating pumps are only covered during the first year of the warranty provision.

THIS WARRANTY SHALL NOT APPLY TO THE FOLLOWING:

1. Any unit built/manufactured prior to July 1, 2004.
2. Costs of normal maintenance (i.e. tune-ups, associated part(s), adjustments, loose/leaking clamps, installation and start-up).
3. Any failure caused by contaminated fuels, oils, coolants/antifreeze or lack of proper fuels, oils or coolants/antifreeze.
4. Units sold, rated or used for "Prime Power", "Trailer Mounted" or "Rental Unit" applications as Generac Power Systems has defined Prime Power, Trailer Mounted or Rental Unit. Contact a Generac Power Systems Distributor for Prime Power, Trailer Mounted or Rental Unit definition.
5. Failures caused by any act of God and other force majeure events beyond the manufactures control.
6. Products that are modified or altered in a manner not authorized by Generac Power Systems in writing.
7. Failures due, but not limited to, normal wear and tear, accident, misuse, abuse, negligence, or improper installation or sizing.
8. Any incidental, consequential or indirect damages caused by defects in materials or workmanship, or any delay in repair or replacement of the defective part(s).
9. Damage related to rodent and/or insect infestation.
10. Failure due to misapplication, misrepresentation, or bi-fuel conversion.
11. Telephone, facsimile, cellular phone, satellite, Internet, or any other communication expenses.
12. Rental equipment used while warranty repairs are being performed (i.e. rental generators, cranes, etc.).
13. Overtime, holiday, or emergency labor.
14. Modes of transportation deemed abnormal (refer to Generac Power Systems Warranty, Policies, Procedures and Flat Rate Manual).
15. Steel enclosures that are rusting due to improper installation, location in a harsh or saltwater environment or scratched where integrity of paint applied is compromised.
16. Any and all expenses incurred investigating performance complaints unless defective Generac materials and/or workmanship were the direct cause of the problem.
17. Starting batteries, fuses, light bulbs, engine fluids, and overnight freight cost for replacement part(s).

THIS WARRANTY IS IN PLACE OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, SPECIFICALLY, GENERAC POWER SYSTEMS MAKES NO OTHER WARRANTIES AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Any implied warranties which are allowed by law, shall be limited in duration to the terms of the express warranty provided herein. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to purchaser/owner.

GENERAC POWER SYSTEMS ONLY LIABILITY SHALL BE THE REPAIR OR REPLACEMENT OF PART(S) AS STATED ABOVE. IN NO EVENT SHALL GENERAC POWER SYSTEMS BE LIABLE FOR ANY INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF SUCH DAMAGES ARE A DIRECT RESULT OF GENERAC POWER SYSTEMS, INC. NEGLIGENCE. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to purchaser/ owner. Purchaser/owner agrees to make no claims against Generac Power Systems, Inc. based on negligence. This warranty gives purchaser/owner specific legal rights. Purchaser/owner also may have other rights that vary from state to state.

Generac Power Systems, Inc. • P.O. Box 8 • Waukesha, WI 53187
Ph: (262) 544-4811 • Fax: (262) 544-4851
1-888-GENERAC (1-888-436-3722)

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