



Model: 14767940100  
Type: SD050  
Engine: D3.4

# Owner's Manual

## Stationary Emergency Industrial Generator

**⚠ DANGER!**

**⚠ ONLY QUALIFIED ELECTRICIANS OR CONTRACTORS SHOULD ATTEMPT INSTALLATION!**



**This manual should remain with the unit.**

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## INTRODUCTION

Thank you for purchasing this model of the stationary emergency generator set.

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 having an authorized Service Dealer provide instruction to any designated operators in the safe inspection, starting, operating, and stopping of this unit. This prepares them if they need to operate the equipment in an emergency.

### INSTALLATION, OPERATION AND MAINTENANCE

This stationary emergency electric system must be installed by an Authorized Service Dealer or other competent, qualified contractor. In order for the warranty for this unit to be valid the initial startup must be performed and documented by a factory authorized Service Dealer. A factory authorized Service Dealer can also provide the necessary training for authorized operators. 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 stationary emergency electric system has been installed by an Authorized Service Dealer or other competent, qualified contractor. Installation and Initial Startup of this equipment is not a "do-it-yourself" project.

### HOW TO OBTAIN SERVICE

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

When contacting an Authorized Service Dealer about parts and service, always supply the complete model number of the unit as given on the front cover of this manual or on the DATA LABEL affixed to the unit.

## **AUTHORIZED SERVICE DEALER LOCATION**

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

**1-800-333-1322**

DEALER LOCATION INFORMATION  
CAN BE OBTAINED AT THIS NUMBER  
or visit the website at

**[www.generac.com](http://www.generac.com)**

# Safety Rules

## **⚠ WARNING!**

**⚠ 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.**

**⚠ SAVE THESE INSTRUCTIONS – This manual contains important instructions that should be followed during installation and maintenance of the generator and batteries.**

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 using a procedure, work method or operating technique 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. Exhaust gases must be piped safely away from any building or enclosure that houses the generator to an area where people, animals, etc., will not be harmed. This exhaust system must be installed properly, 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 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 stationary emergency 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 people 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 generator set must be grounded in accordance with the National Electrical Code and any state or local requirements.
- 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. See the Field Wiring Requirements Table.

- 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.
- 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.
- 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.

## **STANDARDS INDEX**

Applicable national, state, or local laws, codes, and regulations pertaining to the installation of engine-generator power systems must be strictly complied with. Always use the current acceptable version or edition of the applicable code or standard. In the absence of pertinent local laws and standards, the following published booklets may be used as a guide:

1. National Fire Protection Association (NFPA) 70: The NATIONAL ELECTRIC CODE (NEC) \*
2. NFPA 10: Standard for Portable Fire Extinguishers \*
3. NFPA 30: Flammable And Combustible Liquids Code \*
4. NFPA 37: Standard for Stationary Combustion Engines And Gas Turbines \*
5. NFPA 54: National Fuel Gas Code \*
6. NFPA 58: Standard for Storage And Handling Of Liquefied Petroleum Gases \*
7. NFPA 68: Standard On Explosion Protection By Deflagration Venting \*
8. NFPA 70E: Standard For Electrical Safety In The Workplace \*
9. NFPA 99: Health Care Facilities Code \*
10. NFPA 101: Life Safety Code \*
11. NFPA 110: Standard for Emergency and Standby Power Systems \*
12. NFPA 211: Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances \*
13. NFPA 220: Standard on Types of Building Construction \*
14. NFPA 5000: Building Code \*\*
15. International Building Code \*\*
16. Agricultural Wiring Handbook \*\*\*
17. ASAE EP-364.2 Installation and Maintenance of Farm Standby Electric Power \*\*\*\*

This list is not all inclusive. Check with the Authority Having Local Jurisdiction (AHJ) for any local codes or standards which may be applicable. The above listed standards are available from the following internet sources:

\* [www.nfpa.org](http://www.nfpa.org)

\*\* [www.iccsafe.org](http://www.iccsafe.org)

\*\*\* [www.nerc.org](http://www.nerc.org), Rural Electricity Resource Council P.O. Box 309Wilmington, OH 45177-0309

\*\*\*\* [www.asabe.org](http://www.asabe.org), American Society of Agricultural & Biological Engineers 2950 Niles Road, St. Joseph, MI 49085

Changes to previous standards: The National Building Code was superseded by the International Building Code and/or NFPA 5000 Building Code. The local AHJ will determine which if either applies.

### **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.



## Generator Model Number

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

### NOTE:

The XPL Label figure is a generic representation of an XPL label. For actual information related to this particular model, please refer to the "construction document" located at the end of this manual, or to the data cards affixed to the unit.

## EQUIPMENT DESCRIPTION

This equipment is a revolving field, alternating current generator set. The generator was designed to supply electrical power for the operation of compatible electrical loads-when the UTILITY power supply is not available or has dropped to an unacceptable level.

The generator's revolving field is directly connected to and driven by an engine by means of flexible discs and in some models a gearbox. Generators with a four-pole rotor are driven at rated speeds of 1,800 rpm to supply a frequency of 60 Hertz, or 1500 rpm for 50Hz.

Refer to the data label on this specific generator or to the data label affixed to the unit for rated AC voltage, wattage, amperage, number of phases, etc. See "Identification Code" for an explanation of the way to identify the unit's features.

## STANDARD GENERATOR FEATURES

This generator incorporates the following generator features:

- The rotor insulation system is Class "H" rated, and the stator insulation is Class "H" rated as defined by NEMA MG1-22.4 and NEMA MG1-1.65.
- 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 MG1-22.
- All prototype tested models have passed three-phase symmetrical short circuit test to ensure system protection and reliability.

## SINGLE-PHASE "A" CODE UNITS

For single phase units with the "A" code 390 mm alternator the following statement applies:

This generator is suitable for supplying typical residential loads such as: induction motors, (sump pumps, refrigerators, air conditioners, furnaces, etc.) electronic components (computer, TV, Monitor, etc...), lighting loads and microwaves.

## THREE-PHASE LOAD IMBALANCE LIMITS

For three phase units the maximum load imbalance between phases can not exceed 20% of rated load (current).

## AMBIENT CONDITION DERATE

The maximum ambient temperature for the generator is indicated on the unit data tag. De-rate values for Ambient Temperature in excess of that indicated on the unit data tag, as well as altitude and humidity, may apply depending on the engine and kW rating of the unit. Consult the factory or an Authorized Service Dealer for any de-rates applicable to this specific generator set.

## 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 sensors to provide the control panel with information it needs to protect the engine. The control panel is designed to shut down the engine if potentially damaging conditions occur; for instance low oil pressure, high coolant temperature, low coolant level, or engine overspeed.

### 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 SENSOR

This control panel automatically shuts down the engine if the engine coolant temperature rises above a safe level.

## LOW COOLANT LEVEL SENSOR

Should the engine coolant level drop below the level of the high coolant temperature sensor, it is possible for the engine to overheat without automatic shutdown. To prevent such overheating, the engine has a low coolant level sensor. If the level of engine coolant drops below the level of the low coolant level sensor, the control panel will shut the engine down.

## OIL PRESSURE SENSOR

This sensor monitors oil pressure in the engine. If oil pressure drops below a safe level, the control system automatically shuts down the engine.

## OVERSPEED SHUTDOWN

A speed circuit controls engine cranking, start-up, operation and shutdown. Engine speed signals are delivered to the control panel whenever the unit is running. Should the engine overspeed above a safe, preset value, the control panel initiates an automatic engine shutdown.

## General Information

### **OVERCRANK SHUTDOWN**

After a prespecified duration of cranking, this function ends the cranking if the engine has failed to start. The default settings are: the unit will attempt to start (crank) three (3) times. Each crank cycle lasts either 10 or 15 seconds, followed by a five (5) second rest (to cool the starter). After three (3) crank attempts the unit will shutdown.

### **RPM SENSOR LOSS SHUTDOWN**

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

### **DC FUSES**

These fuses are located inside the front panel of the control system. They protect the panel wiring and components from damaging overload. Refer to the applicable control panel manual for the location of the fuses.

## **FUEL SYSTEM**

### **DIESEL FUEL SYSTEM**

Diesel fuel is supplied to the generator set from a base-mounted fuel tank or external source.

Diesel fuels are less volatile than gaseous fuels, however, careless installation can lead to safety hazards and/or serious problems with engine/generator performance and reliability.

#### **NOTE:**

**Appropriate care should be taken in applications where extremely low ambient temperatures are possible to ensure the temperature of the diesel fuel is not allowed to fall below levels where “gelling” could occur.**

### **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 should be measured at the inlet of the unit mounted regulator. This pressure should never be above the maximum recommended pressure for the unit. Gas supply volume to the connection point on the generator must be sufficient to ensure that the supply gas pressure never falls below the minimum pressure recommended for the unit when operating at its full load capacity. Check the specification sheet for the unit for the minimum pressure requirement.

### **LP FUEL SYSTEM**

LP is supplied as a liquid in pressure tanks. It is usually made up of propane, butane, or a mixture of the two gases. Propane tends to vaporize readily even at temperatures as low as -20° F (-29° C).

However, butane reverts to its liquid state when temperatures drop below 32° F (0° C).

LP in a liquid withdrawal system must be converted to its gaseous state before it is introduced into the engine carburetor. A vaporizer converter is generally used to accomplish this. In such a converter, heated engine coolant is ported through the converter to provide the necessary heat for conversion of the fuel from a liquid to a gaseous state.

#### **NOTE:**

**On units with LP gas liquid withdrawal fuel systems, a block heater is included as standard equipment. The heater is powered by the UTILITY power source during non-operating periods. Thus, heated coolant is always available to aid the fuel vaporization process.**

### **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:

- Gas pressure requirements for an LP-Gas system at the connection point on the generator set are the same as those for Natural Gas and are listed in the specification sheet for the unit.
- 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 which could adversely effect the fuel supply.

### **COMBINATION LP/NATURAL GAS FUEL SYSTEM**

In some areas, the cost of natural gas may be reduced considerably by procuring the gas on “interrupted service” rates. Such rates may be obtained by using LP gas as an emergency fuel when natural gas is not available. Automatic changeover is accomplished by using two regulators, either controlled by the control system or controlled by pressure. Changeover is automatic with the engine operating.

## SPECIFICATIONS

### GENERATOR

Refer to the data plate on the generator for rated watts, amperes, frequency, voltage, phase and other pertinent information. Refer to the drawings in the back of this manual for engine, cooling system, and exhaust system specifications.

### 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 CC, CG/CH for diesel engines and SD, SE, SF or SJ for gaseous engines". 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 (Figure 1.3).

### COOLANT

Use only de-ionized or distilled water and Ethylene glycol antifreeze (Propylene glycol can also be used but should not be mixed with Ethylene glycol - see DANGER below). When adding coolant, always add the recommended 50-50 mixture.

### ⚠ 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.

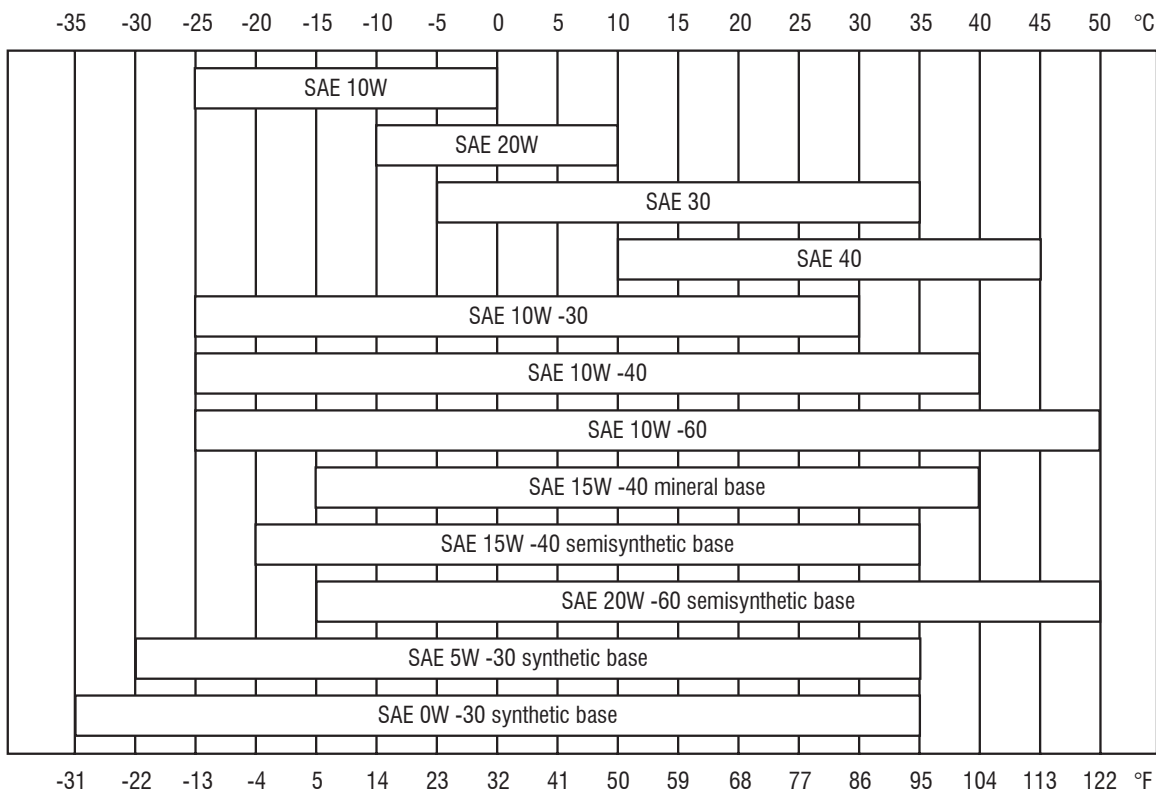
### ⚠ CAUTION!

- ⚠ **Do not use any chromate base rust inhibitor with propylene glycol base antifreeze.** Using any high silicate antifreeze boosters or additives also will cause overheating. We also recommend that any soluble oil inhibitor is **NOT USED** for this equipment.

### GEARBOX LUBRICATION

If the generator set is equipped with a gearbox, the appropriate lubricant is SAE 90 gear oil with a correct proportion of Lucas Heavy Duty Oil Stabilizer added; see the maintenance section of this manual for the correct proportion of additive to gear oil to use.

Figure 1.3 – Engine Oil Recommendations



# Installation

## **FUEL SYSTEM REQUIREMENTS AND RECOMMENDATIONS**

### **Diesel Fuel System**

The manufacturer recommends the use of No. 2D diesel fuel when temperatures are above freezing and No. 1D diesel fuel when temperatures drop below freezing. Diesel fuel must meet the following requirements:

1. Beginning **October 1, 2007**, owners and operators that use diesel fuel must use diesel fuel that meets:
  - A. Sulfur content of 500 parts per million (ppm) maximum.
  - B. Cetane index or aromatic content as follows:
    - A minimum cetane index of 40 or;
    - A maximum aromatic content of 35 volume percent.
2. Beginning **October 1, 2010**, owners and operators that use diesel fuel must use diesel fuel that meets:
  - A. Sulfur content of 15 parts per million (ppm) maximum.
  - B. Cetane index or aromatic content as follows:
    - A minimum cetane index of 40 or;
    - A maximum aromatic content of 35 volume percent.

### **Gaseous Fuel System**

Gas supply volume to the connection point on the generator must be sufficient to ensure that the supply gas pressure never falls below the minimum pressure recommended for the unit when operating at its full load capacity.

Check the specification sheet for the unit for the minimum and maximum pressure requirement. The supply gas pressure is always measured at the inlet of the unit mounted regulator.

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## **GENERATOR AND LOAD COMPATIBILITY**

The generator must be fully compatible with the rated voltage, phase and frequency of the connected electrical loads. The generator, connected electrical devices, or both, can be damaged if voltage, phase and frequency are not compatible.

### **NOTE:**

**This manual assumes that the stationary emergency generator has been properly selected, installed and interconnected by a competent, qualified electrician or installation contractor. Once the installation is complete, do nothing that may result in non-compatibility between the generator and connected electrical loads.**

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## **STARTING AIDS**

The stationary emergency generator may be equipped with one or more starting aids that serve to provide quicker, easier starts under varying climactic conditions.

This generator may have been mounted with (a) an engine coolant heater, (b) an engine oil heater, (c) a battery warmer or (d) a battery charger. These aids are powered by a normal (utility) power source during non-operating periods.

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## **ENGINE COOLANT HEATERS**

If the unit is equipped with an engine coolant (block) heater, it is powered by a circuit normally fed by the utility power supply. This heats the engine coolant when the unit is not operating. This action keeps the engine warm even in cold weather, helping to ensure quicker starts.

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## **BATTERY CHARGERS**

There are two types of battery chargers available: 2.5-amp and 10-amp (nine-amp UL) rated. The 2.5-amp charger is 12 VDC only. The 10-amp is available as 12 VDC or 24 VDC, as appropriate for the engine's DC system voltage. These chargers are UL component recognized for use on these generator sets.

Both of the chargers are fully automatic float types and are fully fuse protected (input and output). They have automatic current limiting to reduce risk of overcharging, and have automatic maintenance of charge voltage. Therefore, they can be connected to the batteries continuously.


The chargers require the connection of a battery in order to turn on. The battery provides boost voltage for the charger, so a completely dead battery will not allow the charger to operate. The boost required is approximately nine to 11 volts for a 12 VDC system and 18 to 22 volts for a 24 VDC system. If the battery is below the boost voltage, it needs to be replaced.

They are not water resistant, so they must be installed within a rain resistant enclosure.


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## **STATIONARY EMERGENCY GENERATOR INSTALLATION**

### **⚠ DANGER!**

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

### **⚠ CAUTION!**

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

This genset must be installed on a level surface. The base frame must be level within two (2) inches all around.

## UNITS WITH ENCLOSURES

Units with enclosures are designed for outdoor installation only and must meet all applicable federal, state, and local codes. On units with enclosures the exhaust system is configured at the factory. Some applications may require extending the exhaust for safe operation. In such a case it is best to consult the factory for the recommended exhaust piping size for the length of run required. The controlling factor for extending the exhaust piping is the back-pressure on the engine. Excessive back-pressure on the exhaust system will lead to unit loss of power, and possible engine and or exhaust system overheating and engine damage.

## OPEN UNITS FOR INDOOR INSTALLATION

Open units are designed for installation in a properly designed engine room or dedicated generator room. There are many requirements that need to be met for indoor unit installation with Fire-Safety being the most important. Other considerations are providing adequate cooling and combustion air, properly exhausting the cooling air and the engine exhaust, among other things. The installation must meet all federal, state and local codes. Open units are shipped with the muffler or Catalytic convertor (if used) loose for installation on site. It is important to use the exhaust kits provided with the unit to insure that the exhaust system operates as intended. It is also important to consult the installation drawings for any requirements for length of piping from the engine connection to the muffler/silencer, the size of the exhaust outlet at the engine, and any other specific unit requirements.

### ▲ CAUTION!

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

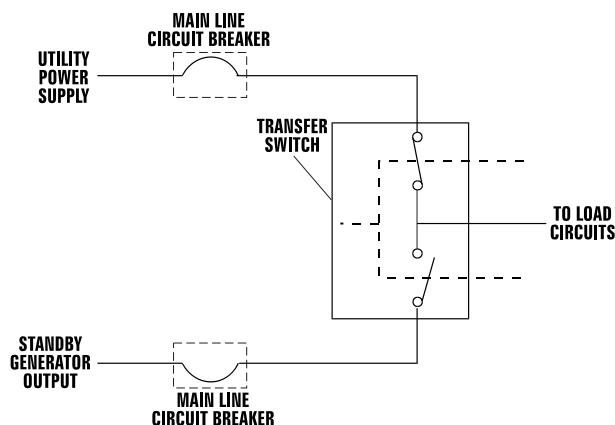
## BASIC STATIONARY EMERGENCY ELECTRIC SYSTEM

Figure 2.1 shows a schematic diagram of a basic stationary emergency electric system. Both the UTILITY power supply and the STANDBY (GENERATOR) output are connected to an approved transfer switch. The transfer switch is required by electrical code and serves the following functions:

- Permits 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.

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

**Figure 2.1 – Basic Stationary Emergency Electric System**



## EMERGENCY 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 critical loads, within the wattage/amperage capacity, during utility power outages, consider using the emergency circuit isolation method.

Critical electrical loads are grouped together and wired into a separate “Emergency 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 emergency distribution panel circuit.
- Have it installed between the building’s main distribution panel and the emergency 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.

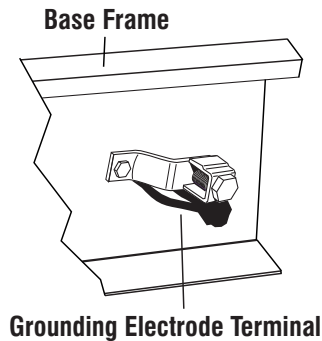
## GROUNDING THE GENERATOR

The generator set must be grounded in accordance with the National Electrical Code and any state or local requirements.

### **⚠ DANGER!**

**⚠ DO NOT connect the ground wire to any pipe that carries a flammable or explosive substance – FIRE or an EXPLOSION may result.**

*Figure 2.2 – Grounding Electro Terminal (typical)*



## GENERATOR AC NEUTRAL CONNECTIONS

Grounding is recommended only at one point in the system. Consult local building codes for proper neutral grounding requirements.

### INITIAL START-UP

The initial startup of this stationary emergency electrical system must be performed and documented by an authorized Service Dealer. Failure to do so will void the manufacturer's warranty.

### **⚠ CAUTION!**

**⚠ Prior to initially starting the 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.**

### **⚠ CAUTION!**

**⚠ For diesel units use a suitable container to catch the fuel that will spill during system bleeding process. Clean up all spilled fuel after bleeding.**

## GENERATOR CONTROL AND OPERATION

The operation of this stationary emergency electrical system should only be performed by an Authorized Operator. An "Authorized Operator" is someone who has been properly trained by an Authorized Service Dealer. For assistance in training authorized operators please contact your local Authorized Service Dealer. Refer to the appropriate control panel operator's manual for this unit. The instructions in this section assume that the stationary emergency generator has been properly installed, serviced, tested, adjusted and otherwise prepared for use by a competent, qualified installation contractor and Authorized Service Dealer. 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.

## OPERATING UNIT WITH MANUAL TRANSFER SWITCH

If the 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 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 manually transfer load from the utility source to the generator, follow these directions:

1. 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).
2. Set the transfer handle to its UTILITY (NORMAL) position with load circuits connected to the utility power supply.
3. Set the stationary emergency generator's main line circuit breaker to its OFF (or OPEN) position.
4. Start the generator.
5. Let engine stabilize and warm up.
6. Check all applicable instrument and gauge readings. When certain that all readings are correct, move the transfer switch manual handle to its STANDBY (GENERATOR) position, i.e., load circuits supplied by the generator.
7. Set the stationary emergency generator's main line circuit breaker to its ON (or CLOSED) position.
8. Load circuits are now powered by the stationary emergency 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 transfer switch.

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

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

## **OPERATING UNIT WITH AUTOMATIC TRANSFER SWITCH**

If the generator has been installed along with an automatic transfer switch, such as a GTS-type switch, the engine may be started and stopped automatically or manually.

### **NOTE:**

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

## **SERVICE SCHEDULE**

This service schedule reflects the minimum tasks that need to be accomplished to ensure that the unit remains operational. Some of the tasks can be performed by an authorized operator and others must be performed by an Authorized Service Dealer Technician. There may be additional service/maintenance requirements depending on the unit application. Consult the applicable codes for specific requirements (NFPA 99, NFPA 110, etc.).

### **NOTE:**

**An authorized operator is one who has been trained by a manufacturer authorized Service Dealer in the proper inspection and operation of this standby electrical power system.**

## **AUTHORIZED OPERATOR MAINTENANCE FUNCTIONS**

### **Every Month or 10 Hours (whichever comes first)**

- Test stationary emergency generator system.
- Inspect battery (batteries) and cables.
- Check engine oil level.
- Check gearbox oil level (if so equipped).
- Check engine coolant level.
- Check generator ground connections.
- Test/inspect starting aids.

### **Every Three Months or Every 30 Hours (whichever comes first)**

- Inspect and test fuel system and connections.
- Inspect exhaust system.
- Inspect/test fuel supply system (diesel).

## **AUTHORIZED SERVICE TECHNICIAN MAINTENANCE FUNCTIONS**

### **After First 30 Hours of Operation**

- Inspect wiring.
- Change engine crankcase oil and oil filter.
- Inspect engine fan belts.
- Inspect battery (batteries) and cables.

### **Every Six Months or Every 100 Hours (whichever comes first)**

- Lubricate engine controls.
- Service fuel strainers/separators (diesel).
- Test engine safety controls.
- Inspect fan belts.
- Check engine coolant level.
- Inspect engine cooling system hoses.
- Check optional starting aids.
- Check battery (batteries).
- Check electrical connections.
- Check/test annunciator panel.
- Perform operational test.

# Maintenance

## Annually or Every 200 Hours (whichever comes first)

- Change engine oil and filter.
- Change fuel filters (diesel).
- Change air filter.
- Inspect all wiring.
- Test engine starter operation.
- Drain water from fuel tank.
- Retorque fan bolts.
- Drain and refill gearbox (if so equipped).

## Every Two Years

- Replace all rubber hoses.
- Replace engine fan belts.
- Inspect the Stationary Emergency Generator System.
- Drain, flush, refill cooling system.
- Inspect AC alternator.
- Check injection pump timing (see engine manual for applicability).
- Check/adjust valve lash (see engine manual for applicability).

## Every 1,000 Operating Hours

Some of the following items will be engine specific and will not apply to all models.

- Inspect engine DC alternator.
- Inspect engine starter.
- Retorque engine mounting brackets.
- Remove/test fuel injection pump.
- Remove/test cooling system thermostat.

## As Required

- Bleed engine fuel system.
- Clean and inspect the base tank and enclosure for signs of paint failure and rust or corrosion. In humid or salty environments periodic cleaning, inspection and correction may be required. Touch up paint is available to help cover and control any rust which may occur.

## PERIODIC MAINTENANCE

A rigorous program of scheduled periodic maintenance should be established and maintained. Such a program, if adhered to diligently, will provide added assurance that the power system functions properly when it is needed.

Keeping a "Maintenance Log" is highly recommended. Such a log should be a continuous record of periodic inspections, service, repairs, parts replacements, gauge and instrument readings during operational tests, etc.

The manufacturer requires that a "Scheduled Maintenance Plan" be established between the user of this equipment and the installing Authorized Service Dealer. Under this agreement, an Authorized Service Technician performs prestart and engine running tests and checks at six-month and one-year intervals. Ask an Authorized Service Dealer about this agreement.

The tasks listed in the "Service Schedule" cover the minimum recommended maintenance requirements for this equipment.

Many of the tests and checks listed in the schedule are to be performed only by an Authorized Service Technician. Fluid capacities and recommendations, as well as other applicable specifications, are listed in "Specifications".

## TEST STATIONARY EMERGENCY GENERATOR SYSTEM OPERATION AND COMPONENTS

An authorized operator should test the operation of the stationary emergency generator system and inspect its components monthly (or every 10 operating hours, whichever comes first).

Every 12 months (or 200 hours), an Authorized Service Technician should perform a system operational test. During this operational test, all instrument and gauge readings should be recorded in a "Maintenance Log." The transfer system also should be tested at this time. The engine should be run under system load for at least 60 minutes and all components should be inspected (checking for leaks, loose fittings and connections, etc) and any discrepancies corrected immediately.

## INSPECT BATTERY

### **⚠ 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 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.**

 **The battery represents a risk of high short circuit current. When working on the battery, always remove watches, rings or other metal objects, and only use tools that have insulated handles.**

An authorized operator should inspect the engine battery system monthly (or 10 hours). At this time, the battery fluid level should be checked and distilled water added if needed. Battery cables and connections also should be inspected for cleanliness and corrosion.

Once every six months (or 100 hours), an Authorized Service Technician should inspect the battery system. At this time the battery condition and state of charge should be checked using a battery hydrometer. The battery should be recharge or replaced as required.


## THE BATTERY

### **WARNING!**

Service of the battery is to be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.

### **DANGER!**

 **DO NOT dispose of the battery in a fire. The battery is capable of exploding.**

 **A battery presents a risk of electrical shock and high short circuit current. The following precautions are to be observed when working on batteries:**

- Remove the 10A and 15A fuses from the generator control panel.
- Remove watches, rings or other metal objects;
- Use tools with insulated handles;
- Wear rubber gloves and boots;
- Do not lay tools or metal parts on top of the battery; and
- Disconnect charging source prior to connecting or disconnecting battery terminals.

### **WARNING!**

 **DO NOT open or mutilate the battery. Released electrolyte has been known to be harmful to the skin and eyes, and to be toxic.**

 **The electrolyte is a dilute sulfuric acid that is harmful to the skin and eyes. It is electrically conductive and corrosive.**


The following procedures are to be observed:


- Wear full eye protection and protective clothing;
- Where electrolyte contacts the skin, wash it off immediately with water;
- Where electrolyte contacts the eyes, flush thoroughly and immediately with water and seek medical attention; and

- Spilled electrolyte is to be washed down with an acid neutralizing agent. A common practice is to use a solution of 1 pound (500 grams) bicarbonate of soda to 1 gallon (4 liters) of water. The bicarbonate of soda solution is to be added until the evidence of reaction (foaming) has ceased. The resulting liquid is to be flushed with water and the area dried.

 **Lead-acid batteries present a risk of fire because they generate hydrogen gas. The following procedures are to be followed:**

- **DO NOT SMOKE** when near the battery;
- **DO NOT cause flame or spark in battery area;** and
- **Discharge static electricity from body before touching the battery by first touching a grounded metal surface.**

 **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 utility power supply to the battery charger is turned OFF and the 10A and 15A fuses are removed from the generator control panel, or sparking may occur at the battery posts as the cables are attached and cause an explosion.**

A negative ground system is used. Battery connections are shown on the wiring diagrams. Make sure the battery is correctly connected and terminals are tight. Observe battery polarity when connecting the battery to the generator set.

## BATTERY REPLACEMENT

For battery replacement consult the battery replacement tables.

Diesel Engine	Battery Size	Minimum CCA
2.4L	GRP 27 or GRP 31	650 or 925
3.4L		
4.5L	GRP 31 or GRP 31E	925
6.7L (100, 130kW)	1 or 2 X GRP 31	925
6.7L (150, 175kW)	2 X GRP 31	925
8.7L		
10.3L	2 x GRP 8D	925 or 1155
12.9L		
13.0L		
16.0L		
18.0L		
22.0L		

# Maintenance

Gaseous Engine	Battery Size	Minimum CCA
2.4L	GRP 26	525
4.2L	GRP 24F or GRP 27F	525 700
5.4L	GRP 24F, GRP 27F or 2 X GRP 31	525
6.8L		700
12.9L	2 X GRP 31 or 2 GRP 8D	925
13.3L		

Fill the battery with the proper electrolyte fluid if necessary and have the battery fully charged before installing it.

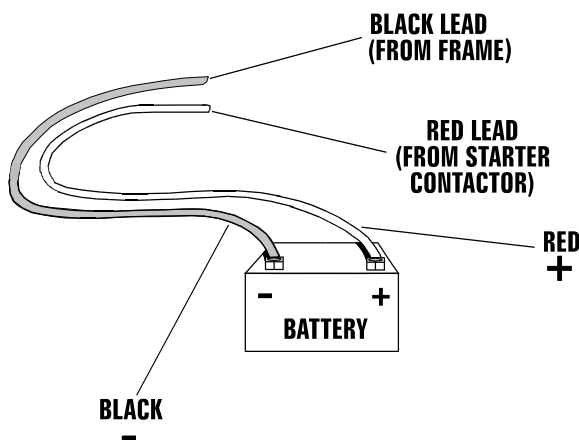
Before installing and connecting the battery, complete the following steps:

1. Set the generator's AUTO/OFF/MANUAL switch to OFF.
2. Turn off utility power supply to the battery charger circuit.
3. Remove the 10A and 15A fuses from the generator control panel.

Battery cables were factory connected at the generator connection points (Figure 1.4). Connect cables to battery posts as follows:

4. Connect the red battery cable (from starter contactor) to the battery post indicated by a positive, POS or (+).
5. Connect the black battery cable (from frame ground) to the battery post indicated by a negative, NEG or (—).
6. Reinstall the 10A and 15A fuses into their correct positions inside the control panel.
7. Turn on the utility power supply to the battery charger circuit.
8. If the unit was previously operational turn the AUTO/OFF/MANUAL switch back to the AUTO position.

**Figure 1.4 – Battery Cable Connections**



**NOTE:**

Damage will result if battery connections are made in reverse.

**NOTE:**

The generator is equipped with a battery trickle charger that is active when the unit is set up for automatic operation. With the battery installed and utility power source voltage available, the battery receives a trickle charge while the engine is not running, to prevent self-discharge. The trickle charger is designed to help extend the life of the battery by maintaining the battery when the unit is not running. The trickle charge feature cannot be used to recharge a discharged battery.

### CHECK FLUIDS

An authorized operator should check the levels of engine oil, and engine coolant monthly (or 10 hours). The oil level should be maintained between the "FULL" and "ADD" marks on the engine dipstick. Recommended fluids are listed in the "Specifications" section.

Check the engine oil as follows:

1. Locate the engine oil dipstick.
2. The most accurate oil level readings are measured when the engine is cold. If the engine was running, **wait at least 10 minutes** before proceeding to the next step.
3. Remove the dipstick and wipe dry with a clean, lint free cloth.
4. The clean dip stick should be **slowly** inserted into the dip stick tube. Visually confirm that the dip stick is fully seated in the dip stick tube. A visual inspection is required because some dip sticks will require more effort than others to fully seat.
5. After **10 seconds** have passed, remove the dip stick.
6. Look at the oil level on **both sides** of the dip stick. The **lower** of the two readings will be the correct oil level measurement.
7. Adjust the oil level accordingly. After adding or changing the oil, the engine should run for one minute before checking the oil level according to the above procedure starting at step 1. You must wait the full 10 minutes to ensure that the oil has fully drained into the oil pan.

Typical root causes of inaccurate oil level readings:

- Reading the high level of the dip stick.
- Reading the dip stick before the oil fully drains into the oil pan (step #2).
- Inserting and removing the dip stick too quickly (step #5).
- Dip stick isn't fully seated in the dip stick tube.

### CHECK GEARBOX OIL (IF EQUIPPED)

Once annually (or at every 200 hour intervals), an authorized service technician should completely drain and refill the gearbox (if so equipped) using the following procedure (Figure 4.1):

1. Remove panel fuse and negative battery cable.
2. Remove the oil filler/vent cap.
3. Remove the drain plug and drain the oil into an appropriate container. Dispose of or recycle the oil properly.
4. Reinstall the oil drain plug.
5. To add oil to the gearbox, remove the oil level check plug.

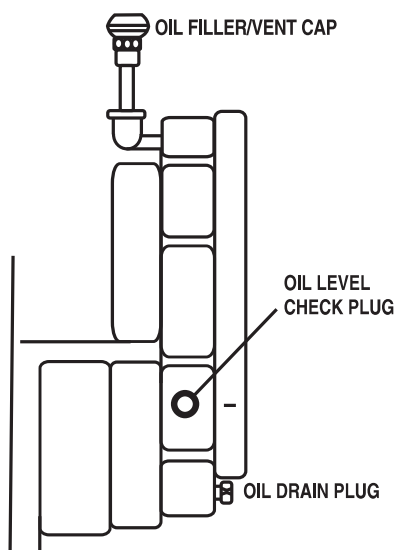
6. Add the recommended oil until it just starts to flow from the oil level check plug opening. See the following information for the correct quantity of gear oil and Lucas additive to add to a particular gearbox.
7. Finally, install and tighten the oil filler/vent cap and oil level check plug.
8. Re-install negative battery cable and panel fuse. Start unit and check for leaks.

Gear oil should be 80W-90. Lucas Heavy Duty Oil Stabilizer should be added (PN 0F6147B).

Fluid Quantity:

- 390 Gearbox - Approximately 32oz total. 26oz gear oil & 6oz Lucas Heavy Duty Oil Stabilizer.
- 520 gearbox - Approximately 55oz total. 44oz gear oil & 11oz Lucas Heavy Duty Oil Stabilizer.
- 520 gearbox (D12.0L 375kW) - approximately 85oz total. 68oz gear oil & 17oz Lucas Heavy Duty Oil Stabilizer.

**Figure 4.1 – Gearbox Oil Servicing Points**



## ***INSPECT EXHAUST SYSTEM***

Every three months (or 30 hours), an authorized operator should inspect the entire exhaust system. Abnormal noise levels heard during each operational test may indicate a defective exhaust pipe or muffler. Any defective or leaking component should be repaired or replaced immediately by an Authorized Service Technician.

## ***INSPECT/TEST FUEL SUPPLY SYSTEM***

Every three months (or 30 hours), an authorized operator should inspect and test the fuel supply system, as well as all fuel system connections. All connections must be tight and in good condition. A loose fuel system line (diesel units) may show no signs of leakage, but may draw air into the system causing rough operation and starting difficulties. Any defective or leaking component should be repaired or replaced immediately by an Authorized Service Technician.

## **MAINTENANCE AND REPAIR PARTS**

All recommended service maintenance or repairs should be completed by an authorized service technician to maintain the warranty status of a unit.



## Warranty

### **United States Environmental Protection Agency Warranty Statement (Stationary Emergency Compression-Ignition Generators)**

#### **Warranty Rights, Obligations and Coverage**

Your emission-related warranty covers only components whose failure would increase an engine's emissions of any regulated pollutant where they are designed, built, and equipped to be free from defects in materials and workmanship under applicable regulations of section 213 of the clean air act. To receive information about how to make an emission-related warranty claim, and how to make arrangements for authorized repairs call **1-800-333-1322** or **www.generac.com**. Emission-related warranty claims may be denied without proof of proper maintenance or use, accidents beyond the control of the manufacturer, or act of God. Proper maintenance is specified in the Owner's Manual. Usage is limited to stationary emergency operations and 100 hours per year for maintenance and readiness testing. The warranty period begins when the engine is placed into service. Warranty periods for compression ignition engines greater than 25 horsepower is five years. This warranty is applicable to compression-ignition generator models; equal to and larger than an SD80 starting 1/1/2011, equal to and larger than an SD35 starting 1/1/2012, and all compression-ignition generator models starting 1/1/2013.

#### **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.

# Warranty

## 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](http://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   | 3) Ignition System Including  |
| 1.1) Gasoline Carburetor Assembly And Internal Components A) Fuel Filter, B) Carburetor, C) Fuel Pump   | A) Spark Plug, B) Ignition Module, C) Ignition Coil, D) Spark Plug Wires                                    |
| 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 | 4) Exhaust System A) Catalyst Assembly, B) Exhaust Manifold, C) Muffler, D) Exhaust Pipe, E) Muffler Gasket |
| 1.3) Fuel Regulator   | 5) Crankcase Breather Assembly Including A) Breather Connection Tube, B) Pcv Valve                          |
| 2) Air Induction System Including A) Intake Pipe/Manifold, B) Air Cleaner   | 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, recordkeeping 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.

# Warranty

## United States Environmental Protection Agency & California Warranty Statement (Compression- Ignition Generators)

### Warranty Rights, Obligations and Coverage

The United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) together with Generac Power Systems, Inc. (Generac), are pleased to explain the Emission Control System Warranty on your new non-road diesel engine. New non-road diesel engines must be designed, built and equipped to meet stringent anti-smog standards for the state of California and the federal government. Generac will warrant the emission control system on your non-road diesel engine for the periods of time listed below provided there has been no abuse, neglect, unapproved modification or improper maintenance of your non-road diesel engine.

Your emission control system may include such parts as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies. Generac will repair your non-road diesel engine at no cost to you for diagnosis, replacement parts and labor, should a warrantable condition occur.

Emission control systems on 1996 and later model year non-road diesel engines are warranted for five years, or 3,000 hours of use, whichever occurs first. In the absence of an hourmeter, the said coverage is five years. If, during said warranty period, any emission-related component or system on your engine is found to be defective in materials or workmanship, repairs or replacement will be performed by a Generac Authorized Warranty Service Facility.

This warranty is applicable to compression-ignition generator models; equal to and smaller than an SD60 starting 1/1/2011, equal to and smaller than an SD30 starting 1/1/2012, and not applicable to any compression-ignition generator models starting 1/1/2013.

### Purchaser's/Owner's Warranty Responsibilities

As the non-road diesel engine purchaser/owner, you are responsible for the completion of all required maintenance as listed in your factory supplied Owner's Manual. For warranty purposes, Generac recommends that you retain all receipts covering maintenance of your non-road diesel engine. However, Generac cannot deny warranty solely due to lack of receipts or for your failure to ensure the completion of all scheduled maintenance.

As the non-road diesel engine purchaser/owner, you should, however, be aware that Generac may deny any and/or all warranty coverage or responsibility if your non-road diesel engine, or a part/component thereof, has failed due to abuse, neglect, improper maintenance or unapproved modifications., or the use of counterfeit and/or "grey market" parts not made, supplied or approved by Generac.

Your engine is designed to operate on diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with federal or California emission requirements.

You are responsible for contacting a Generac Authorized Warranty Service Facility as soon as a problem occurs. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

Warranty service can be arranged by contacting either your selling dealer or a Generac Authorized Warranty Service Facility. To locate the Generac Authorized Warranty Service Facility nearest you, call our toll-free number: 1-800-333-1322.

**IMPORTANT NOTE:** This Warranty statement explains your rights and obligations under the Emission Control System Warranty (ECS Warranty), which is provided to you by Generac pursuant to federal and California law. See also the "Generac Limited Warranties for Generac Power Systems, Inc.," which is enclosed herewith on a separate sheet, also provided to you by Generac. The ECS Warranty applies only to the emission control system of your new non-road diesel engine. If there is any conflict in terms between the ECS Warranty and the Generac Warranty, the ECS Warranty shall apply except in circumstances where the Generac Warranty may provide a longer warranty period. Both the ECS Warranty and the Generac describe important rights and obligations with respect to your new non-road diesel engine.

Warranty service can be performed only by a Generac Authorized Warranty Service Facility. When requesting warranty service, evidence must be presented showing the date of sale to the original purchaser/owner.

If you have any questions regarding your warranty rights and responsibilities, you should contact Generac at the following address: Attention Warranty Department, Generac Power Systems, Inc., 211 Murphy Drive, Eagle, WI 53119.

### Important Note

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.

# Warranty

## United States Environmental Protection Agency & California Warranty Statement (Stationary Compression-Ignition Generators)

### Emission Control System Warranty

Emission Control System Warranty (ECS Warranty) for 1996 and later model year non-road diesel engines:

- (A) Applicability: This warranty shall apply to 1996 and later model year non-road diesel engines. The ECS Warranty shall begin on the date the new engine or equipment is purchased by/delivered to its original, end-use purchaser/owner and shall continue for five years, or 3,000 hours of use, thereafter, whichever occurs first.
- (B) General Emissions Warranty Coverage: Generac warrants to the original, end-use purchaser/owner of the new non-road diesel engine or equipment, and to each subsequent purchaser/owner, that each non-road diesel engine is ...
- (1) Designed, built and equipped so as to conform with all applicable regulations adopted by the EPA and CARB pursuant to their respective authority, and
  - (2) Free from defects in materials and workmanship, which, at any time during the ECS Warranty Period, may cause a warranted emission-related part to fail to be identical in all material respects to the part as described in the engine manufacturer's application for certification.
- (C) The ECS Warranty pertains only to emissions-related parts on your non-road diesel engine, as follows:
- (1) Any warranted, emissions-related parts that are not scheduled for replacement as required maintenance in the Owner's Manual shall be warranted for the ECS Warranty Period. If any such part fails during the ECS Warranty Period, it shall be repaired or replaced by Generac according to Subsection (4) below. Any such part repaired or replaced under the ECS Warranty shall be warranted for the remainder of the ECS Warranty Period.
  - (2) Any warranted, emissions-related part that is scheduled only for regular inspection as specified in the Owner's Manual shall be warranted for the ECS Warranty Period. A statement in such written instructions to the effect of "repair or replace as necessary" shall not reduce the ECS Warranty Period. Any such part repaired or replaced under the ECS Warranty shall be warranted for the remainder of the ECS Warranty Period.
  - (3) Any warranted, emissions-related part that is scheduled for replacement as required maintenance in the Owner's Manual shall be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part shall be repaired or replaced by Generac according to Subsection (4) below. Any such emissions-related part repaired or replaced under the ECS Warranty shall be warranted for the remainder of the ECS Warranty Period prior to the first scheduled replacement point for such emissions-related part.
  - (4) Repair and replacement of any warranted, emissions-related part under this ECS Warranty shall be performed at no charge to the owner by a Generac Authorized Warranty Service Facility.
  - (5) When the engine is inspected by a Generac Authorized Warranty Service Facility, the owner shall not be held responsible for diagnostic costs if the repair is deemed warrantable.
  - (6) Generac shall be liable for damages to other original engine components or approved modifications proximately caused by a failure under warranty of any emissions-related part covered by the ECS Warranty.
  - (7) Throughout the ECS Warranty Period, Generac shall maintain a supply of warranted emissions-related parts sufficient to meet the expected demand for such emission-related parts.
  - (8) Any Generac authorized and approved emission-related replacement part may be used in the performance of any ECS warranty maintenance or repairs and will be provided without charge to the owner. Such use will not reduce Generac's ECS Warranty obligations.

### Emission Related Parts Include the Following (if so equipped)

- |   |  |
|---|--|
| (A) FUEL METERING SYSTEM:                       | (C) EXHAUST SYSTEM:  |
| (1) FUEL INJECTION SYSTEM                       | (1) EXHAUST MANIFOLD AND GASKET (TURBOCHARGED ENGINES ONLY)  |
| (B) AIR INDUCTION SYSTEM:                       | (2) CATALYTIC CONVERTER ONLY                                 |
| (1) INTAKE MANIFOLD AND GASKET                  | (D) MISCELLANEOUS ITEMS USED IN ABOVE SYSTEMS:               |
| (2) TURBOCHARGER SYSTEMS (IF SO EQUIPPED)       | (1) HOSES, CONNECTORS, ASSEMBLIES, CLAMPS, FITTINGS, TUBING, |
| (3) CHARGE AIR COOLING SYSTEMS (IF SO EQUIPPED) | SEALING GASKETS OR DEVICES, AND MOUNTING HARDWARE            |

# Warranty

## GENERAC POWER SYSTEMS STANDARD TWO-YEAR BASIC LIMITED WARRANTY FOR STANDBY POWER SYSTEMS

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

For a period of two (2) years or two thousand (2,000) hours of operation from the date of start up, which ever occurs first, Generac Power Systems, Inc. (Generac) will, at its option, repair or replace any part(s) which, upon examination, inspection, and testing by Generac or an Authorized/Certified Generac Dealer, or branch thereof, is found to be defective under normal use and service, in accordance with the warranty schedule set forth below. Repair or replacement pursuant to this limited warranty shall not renew or extend the original warranty period. Any repaired product shall be warranted for the remaining original warranty period only. Any equipment that the purchaser/owner claims to be defective must be examined by the nearest Authorized/Certified Generac Dealer, or branch thereof. This warranty applies only to Generac Generators used in "Standby" applications, as Generac has defined Standby, provided said generator has been initially installed and/or inspected on-site by an Authorized/Certified Generac Dealer, or branch thereof. It is highly recommended that scheduled maintenance, as outlined by the generator owner's manual, be performed by an Authorized/Certified Generac 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.

**\*\*\*This warranty only applies to units sold for use in the US and Canada.\*\*\***

### WARRANTY SCHEDULE

YEAR ONE — Limited comprehensive coverage on mileage, labor, and parts listed.

• ALL COMPONENTS — ENGINE, ALTERNATOR AND TRANSFER SWITCH

YEAR TWO — Limited comprehensive coverage on parts listed.

• ALL COMPONENTS — ENGINE, ALTERNATOR AND TRANSFER SWITCH PARTS ONLY

### 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:

1. Travel allowance is limited to 300 miles maximum, and 7.5 hours maximum (per occurrence), round trip, to the nearest authorized Generac Service Facility.
2. Warranty only applies to permanently wired and mounted units.
3. All warranty repairs, must be performed and/or addressed by an Authorized/Certified Generac Dealer, or branch thereof.
4. A Generac Transfer Switch is highly recommended to be used in conjunction with the generator set. If a Non-Generac Transfer Switch is substituted for use and directly causes damage to the generator set, no warranty coverage shall apply.
5. All warranty expense allowances are subject to the conditions defined in Generac's General Service Policy Manual.
6. Units that have been resold are not covered under the Generac Warranty, as this Warranty is not transferable.
7. Unit enclosure is only covered during the first year of the warranty provision.
8. Use of Non-Generac replacement part(s) will void the warranty in its entirety.
9. Engine coolant heaters (block-heaters), heater controls and circulating pumps are only covered during the first year of the warranty provision.
10. Generac may chose to Repair, Replace or Refund a piece of equipment.
11. Warranty Labor Rates are based on normal working hours. Additional costs for overtime, holiday or emergency labor costs for repairs outside of normal business hours will be the responsibility of the customer.
12. Warranty Parts shipment costs are reimbursed at ground shipment rates. Costs related to requests for expedited shipping will be the responsibility of the customer.
13. Batteries are warranted by the battery manufacturer.
14. Verification of required maintenance may be required for warranty coverage.

### THIS WARRANTY SHALL NOT APPLY TO THE FOLLOWING:

Any unit built/manufactured prior to July 1, 2004.

1. Costs of normal maintenance (i.e. tune-ups, associated part(s), adjustments, loose/leaking clamps, installation and start-up).
1. Any failure caused by contaminated fuels, oils, coolants/antifreeze or lack of proper fuels, oils or coolants/antifreeze.
3. Units sold, rated or used for "Prime Power", "Trailer Mounted" or "Rental Unit" applications as Generac has defined Prime Power, Trailer Mounted or Rental Unit. Contact a Generac Distributor for Prime Power, Trailer Mounted or Rental Unit definition and warranty.
4. Failures caused by any external cause or act of God such as, but not limited to, collision, fire, theft, freezing, vandalism, riot or wars, lightning, earthquake, windstorm, hail, volcanic eruption, water or flood, tornado, hurricane, terrorist acts or nuclear holocaust.
5. Products that are modified or altered in a manner not authorized by Generac in writing.
6. Failures due, but not limited to, normal wear and tear, accident, misuse, abuse, negligence, or improper installation, maintenance, or sizing.
7. 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).
8. Damage related to rodent and/or insect infestation.
9. Failure due to misapplication, misrepresentation, or bi-fuel conversion.
10. Telephone, facsimile, cellular phone, satellite, Internet, or any other communication expenses.
11. Rental equipment used while warranty repairs are being performed (i.e. rental generators, cranes, etc.).
12. Modes of transportation deemed abnormal (refer to Generac General Service Policy Manual).
13. 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.
14. Any and all expenses incurred investigating performance complaints unless defective Generac materials and/or workmanship were the direct cause of the problem.
15. Starting batteries, fuses, light bulbs, engine fluids, and overnight freight cost for replacement part(s).

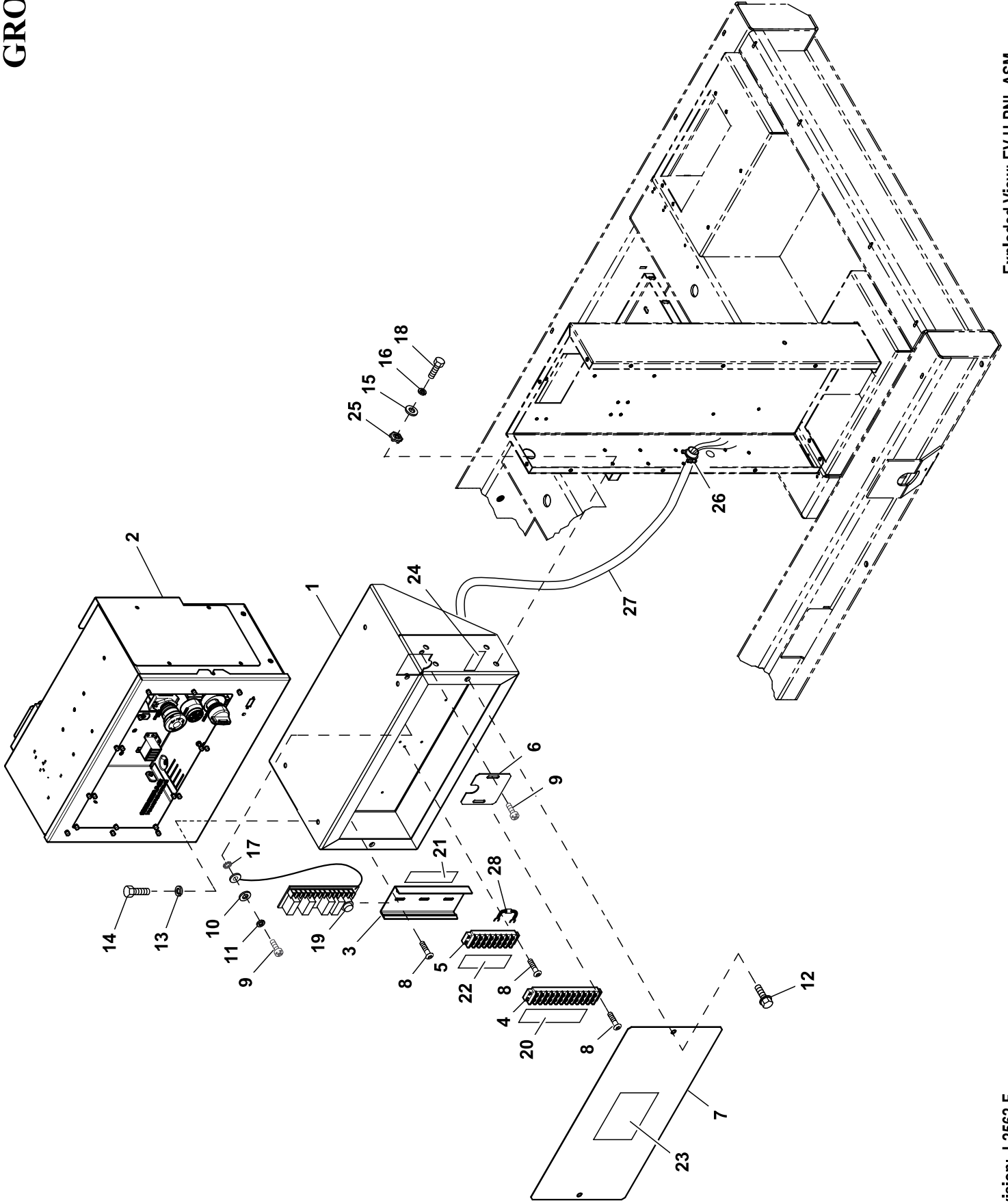
THIS WARRANTY IS IN PLACE OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, SPECIFICALLY, GENERAC MAKES NO OTHER WARRANTIES AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Any implied warranties which are allowed by law, shall be limited in duration to the terms of the express warranty provided 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'S ONLY LIABILITY SHALL BE THE REPAIR OR REPLACEMENT OF PART(S) AS STATED ABOVE. IN NO EVENT SHALL GENERAC BE LIABLE FOR ANY INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF SUCH DAMAGES ARE A DIRECT RESULT OF GENERAC'S 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 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**



# GROUP B



**EXPLODED VIEW: EV H-PNL 10A BC NO E-GOV DSL24**

**DRAWING #: 0J0288**

**GROUP B**

**APPLICABLE TO:**

<b>ITEM</b>	<b>PART#</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
(1)1	OH84230STOR	1	BRACKET H-PNL MOUNTIN CCI IND
2	OH4733E	1	ASSY H-PANEL 2.5A BATC 12V
	OG4140E	1	ASSY H-PANEL 10A BATC 12V
	OG4141E	1	ASSY H-PANEL NO BATC NO E-GOV
	OG4144E	1	ASSY H-PANEL 10A BATC 24V
3	OE9764	1	RAIL SNAPTRACK PCB HOLDER BULK
(2)4	055911	REF	BLOCK TERM 20A 12 X 6 X 1100V
(2)5	057701	REF	BLOCK TERM 20A 8 X 6 X 1100V
(1)6	OJ01360STOR	1	PLATE, WIRE HARN BLOCKOFF
(1)7	OH96870STOR	1	COVER, COSTOMER CONN H-PNL
8	OJ5462	6	SCREW THTT M4-0.7 X 16 ZP
9	OJ5464	3	SCREW THTT M5-0.8 X 16 ZP
10	051713	3	WASHER FLAT M5
11	049226	3	WASHER LOCK M5
12	0C2454	2	SCREW HWHT M6-1 X 16 N WA Z/JS
13	022097	4	WASHER LOCK M6-1/4
14	047411	4	SCREW HHC M6-1.0 X 16 C8.8
15	022145	4	WASHER FLAT 5/16-M8 ZINC
16	022129	4	WASHER LOCK M8-5/16
17	026850	1	WASHER LOCK EXT 1/4 STL
18	039253	4	SCREW HHC M8-1.25 X 20 C8.8
19	OG6962A	1	ASSY PCB RELAY 24VDC
	OG6962B	1	ASSY PCB RELAY 12VDC
20	OJ0392	1	DECAL, TB1 LV CUSTOMER CONN
21	OJ0398	1	DECAL, CONTACT RAT 30VAC/30VDC
22	OJ0393	1	DECAL, TB2 LV CUSTOMER CONN
23	OJ0545	1	DECAL, LV CUSTOMER CONN INSIDE
24	OJ0575	1	DECAL, CUSTOMER WIRE #14
25	0C3168	1	WASHER LOCK SPECIAL 5/16
(5)26	022206	1	FITTING CONDUIT STR 3/8
(6)(3)27	OH9845	REF	HARN 390/520 CONBOX H-PANEL
(4)28	0C8065	1	DIODE ASSEMBLY
29	OJ5349	REF	HARN 390/520 CONBOX 12V GAS H (NOT SHOWN)

UNLESS OTHERWISE SPECIFIED:

(1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING GENERIC PARTS (NO COLOR).

- **MANUFACTURING:** FOR CORRECT MATERIAL AND COLOR REFER TO AS400 BOM.
- **CUSTOMER:** FOR CORRECT MATERIAL AND COLOR OF REPLACEMENT PARTS REFER TO "REPLACEMENT SHEET METAL PARTS ORDERING GUIDE-0H7169" INCLUDED IN THE MANUAL OR AVAILABLE ON THE GENERAC WEBSITE.

(2) PART OF CONNECTION BOX HARNESS

(3) HARNESS GETS WIRED TO LOAD CENTER IF EQUIPPED.

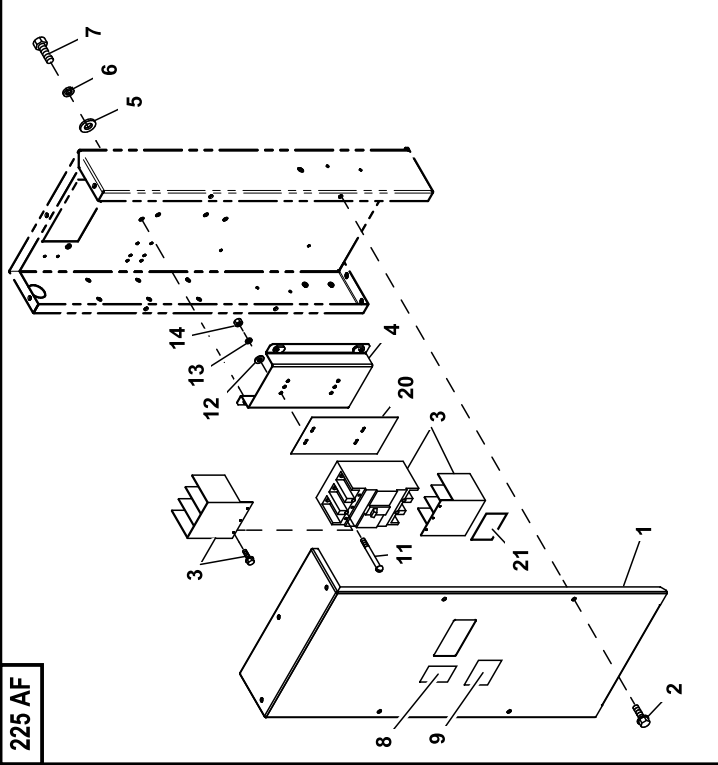
(4) REFERENCE WIRE DIAGRAM FOR PROPER LOCATION.

(5) NOT REQUIRED IF EQUIPPED WITH 0J1594, KIT BATTERY CHARGER POWER CORD.

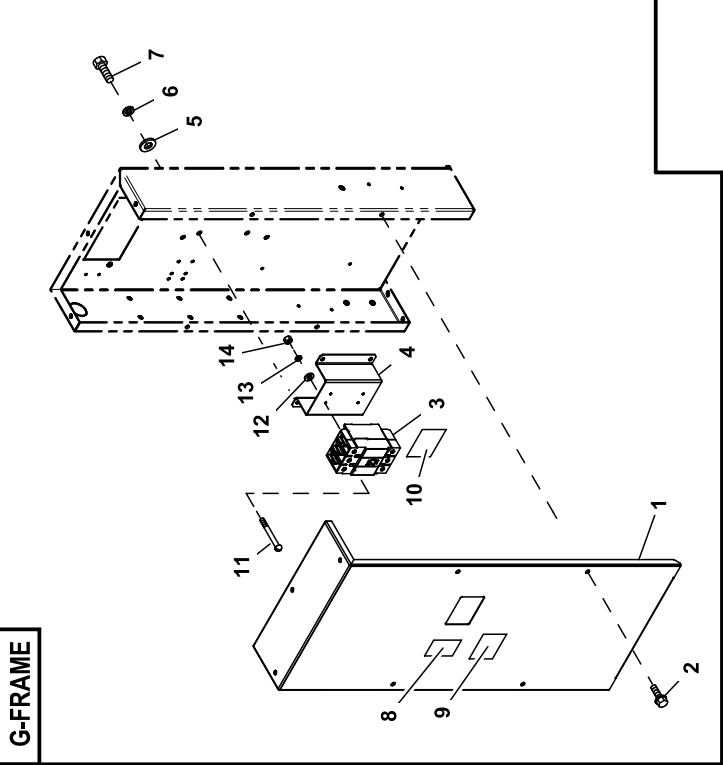
(6) HARNESS GETS TIED BACK AND BUNDLED WITH OTHER HARNESS AND LEFT UNCONNECTED IF EQUIPPED WITH 0J1594, KIT BATTERY CHARGER POWER CORD.

# GROUP H

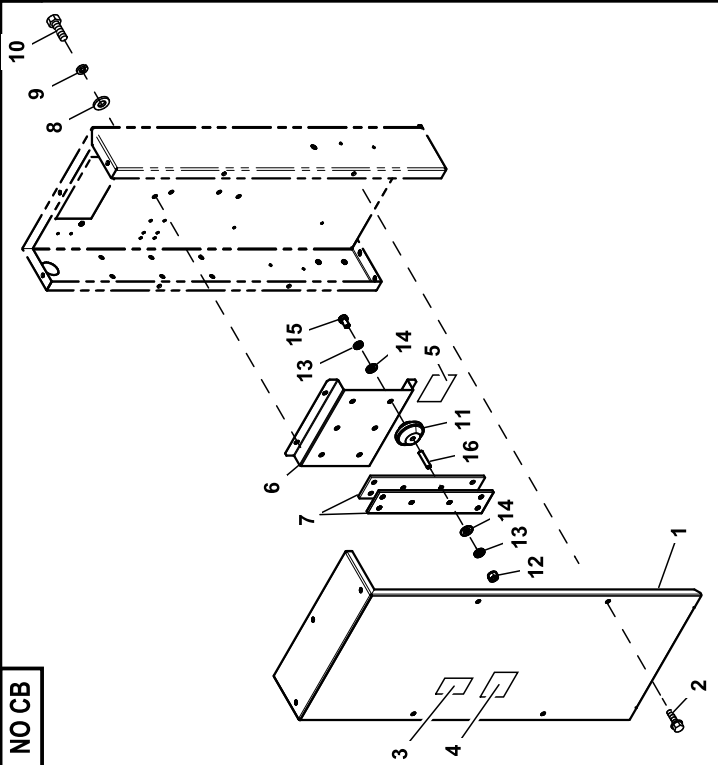
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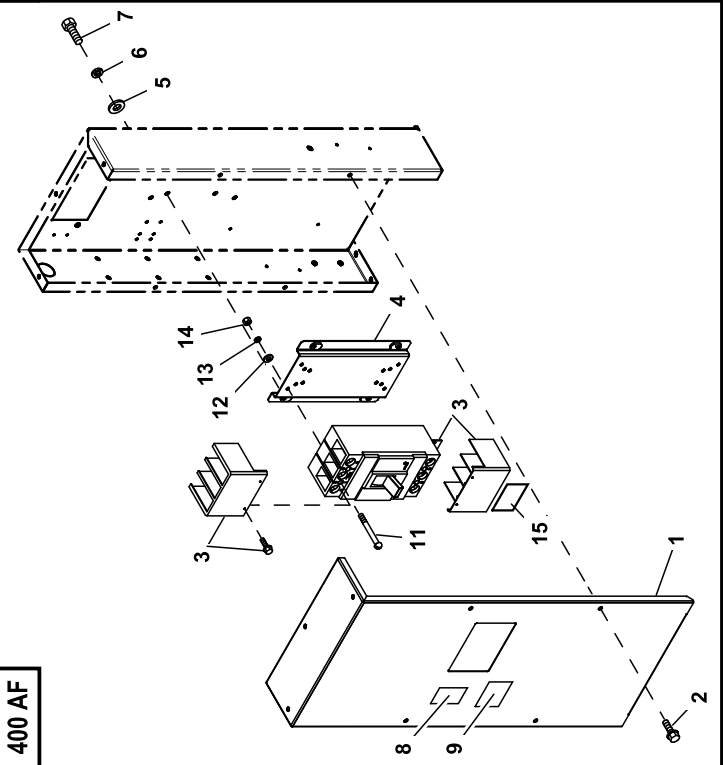
G-FRAME



NO CB

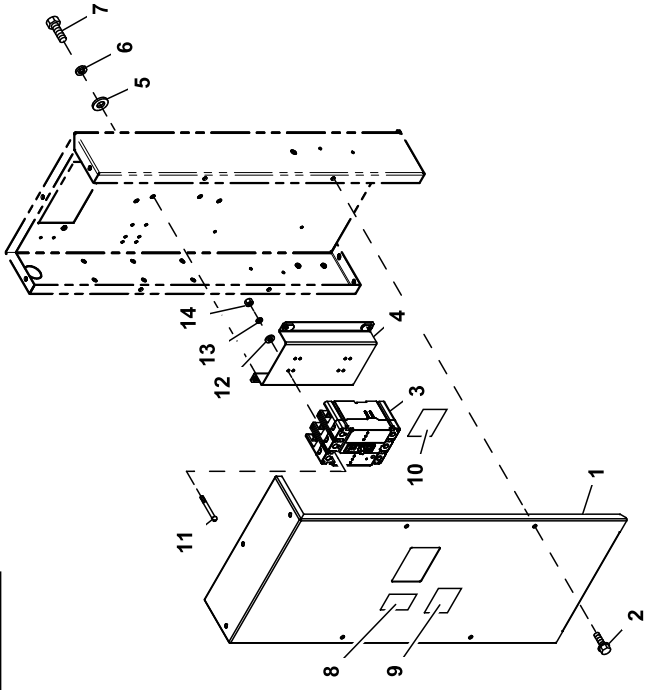


400 AF

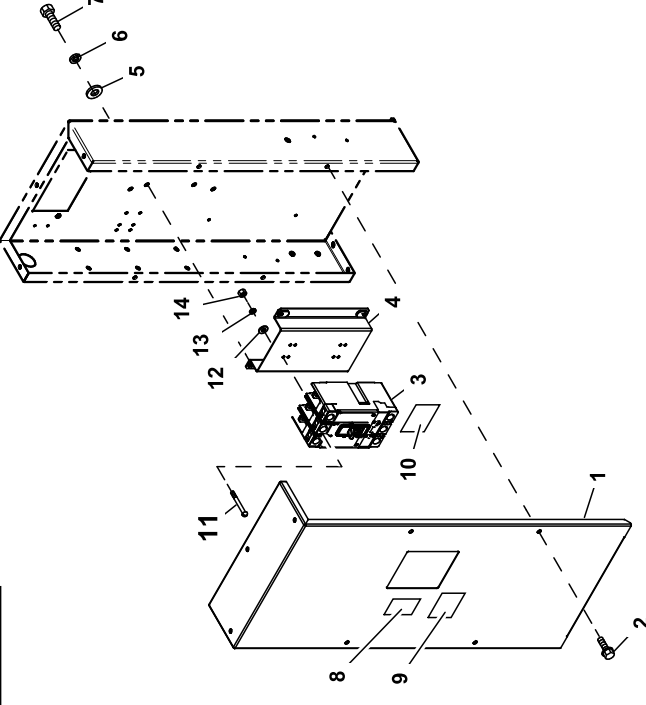


# GROUP H

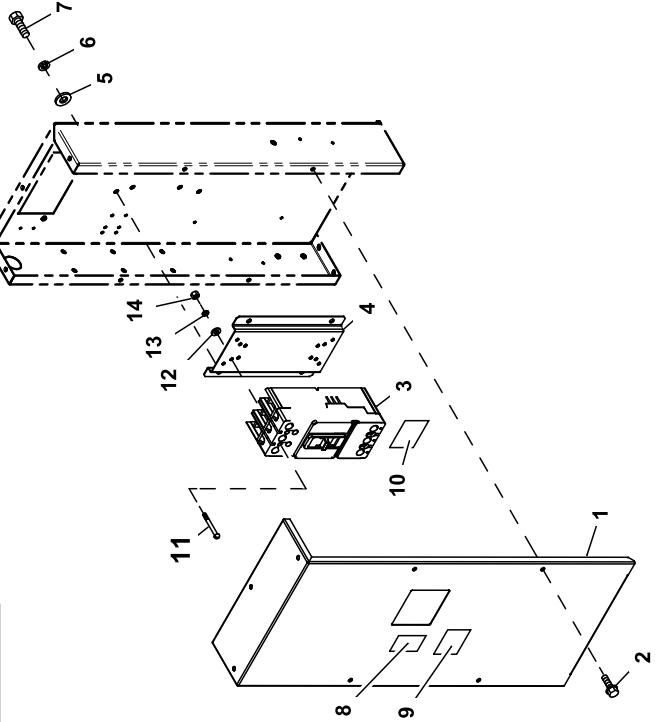
F-FRAME



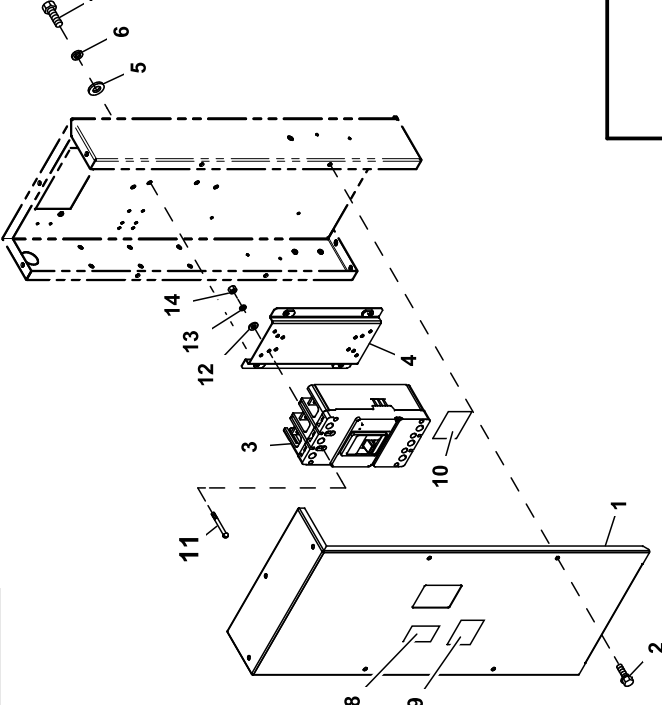
JG-FRAME



F-FRAME



J-FRAME





**EXPLODED VIEW: EV, CB MOUNTING KIT MD1 390**

**DRAWING #: 0J1027**

**GROUP H**

**APPLICABLE TO:**

ITEM	PART#	QTY.	DESCRIPTION
NO CIRCUIT BREAKERS			
(1)1	0H93780ST0R	1	MD1,MODULE COVER 390 G-FRAME
2	0C2454	9	SCREW HWHT M6-1 X 16 N WA Z/JS
3	0J0679	1	DECAL, CANADIAN SAFETY CODE
4	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
5	0D3719C	REF	DECAL, HV CUSTOMER CONN INSIDE
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3
(1)6	0J34710ST0R	1	MD1-MD3 NO CB MNT BRACKET
7	0J3958	REF	CU BUSS BAR 1/4"X2.5" 625A
8	022145	4	WASHER FLAT 5/16-M8 ZINC
9	022129	4	WASHER LOCK M8-5/16
10	042907	4	SCREW HHC M8-1.25 X 16 C8.8
11	0C6937M	6	INSULATOR, STANDOFF 600V3/8-16
12	022241	6	NUT HEX 3/8-16 STEEL
13	022237	12	WASHER LOCK 3/8
14	022131	12	WASHER FLAT 3/8-M10 ZINC
15	032414	8	SCREW HHC 3/8-16 X 5/8 G5
16	090865	6	STUD 3/8-16 X 1.75 G5 STEEL
UL CIRCUIT BREAKER (225AF)			
(1)1	0H9378EST0R	1	MD1,MODULE COVER 390 GEN-225
	0H9378KST0R	1	MD1,CB COVER 390 GEN-225 1PH
2	0C2454	7	SCREW HWHT M6-1 X 16 N WA Z/JS
3	REF	1	CIRCUIT BREAKER
(1)4	0J14770ST0R	1	MD1, C/B MOUNTING BRACKET 225
5	022145	4	WASHER FLAT 5/16-M8 ZINC
6	022129	4	WASHER LOCK M8-5/16
7	042907	4	SCREW HHC M8-1.25 X 16 C8.8
8	0J0679	1	DECAL, CANADIAN SAFETY CODE
9	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
(2)11	053640	2/4	SCREW RHM #8-32 X 3-1/4
(2)12	038150	2/4	WASHER FLAT #8 ZINC
(2)13	022264	2/4	WASHER LOCK #8-M4
(2)14	022471	2/4	NUT HEX #8-32 STEEL
20	0F8432	1	INSUL CB 225AF (3 PHASE)
	0F8432A	1	INSULATOR CB 2P 225AF (1 PHASE)
21	0D3719C	REF	DECAL CUSTOMER CONN E1 E2 E3
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3
UL CIRCUIT BREAKER (400AF)			
(1)1	0H9378JST0R	1	MD1,MODULE COVER 390 GEN-400
2	0C2454	7	SCREW HWHT M6-1 X 16 N WA Z/JS
3	REF	1	CIRCUIT BREAKER
(1)4	0J00680ST0R	1	MD2, C/B BACK MOUNTING BRACKET
5	022145	4	WASHER FLAT 5/16-M8 ZINC
6	022129	4	WASHER LOCK M8-5/16
7	042907	4	SCREW HHC M8-1.25 X 16 C8.8
8	0J0679	1	DECAL, CANADIAN SAFETY CODE
9	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
11	069232	4	SCREW RHM #10-32 X 3-3/4
12	023897	4	WASHER FLAT #10 ZINC
13	022152	4	WASHER LOCK #10
14	022158	4	NUT HEX #10-32 STEEL
15	0D3719C	REF	DECAL CUSTOMER CONN E1 E2 E3
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3
UL CIRCUIT BREAKER (G-FRAME)			
(1)1	0H9378AST0R	1	MD1,MODULE COVER 390 G-FRAME
2	0C2454	7	SCREW HWHT M6-1 X 16 N WA Z/JS
3	REF	1	CIRCUIT BREAKER
(1)4	0J14880ST0R	1	MD1, C/B MOUNTING BRACKET G
5	022145	4	WASHER FLAT 5/16-M8 ZINC
6	022129	4	WASHER LOCK M8-5/16
7	042907	4	SCREW HHC M8-1.25 X 16 C8.8
8	0J0679	1	DECAL, CANADIAN SAFETY CODE
9	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
10	0D3719C	REF	DECAL CUSTOMER CONN E1 E2 E3
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3

**EXPLODED VIEW: EV, CB MOUNTING KIT MD1 390**

**DRAWING #: 0J1027**

**GROUP H**

**APPLICABLE TO:**

11	0J4465	4	SCREW SHC M4-0.7 X 80 C12.9
12	043180	4	WASHER FLAT M4
13	022264	4	WASHER LOCK #8-M4
14	051715	4	NUT HEX M4-0.7 G8 YEL CH

ITEM	PART#	QTY.	DESCRIPTION
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ITEM	PART#	QTY.	DESCRIPTION
UL CIRCUIT BREAKER (F -FRAME)			
(1)1	0H9378BSTOR	1	MD1,MODULE COVER 390 F-FRAME
2	0C2454	7	SCREW HWHT M6-1 X 16 N WA Z/JS
3	REF	1	CIRCUIT BREAKER
(1)4	0J14860STOR	1	MD1, C/B MOUNTING BRACKET F
5	022145	4	WASHER FLAT 5/16-M8 ZINC
6	022129	4	WASHER LOCK M8-5/16
7	042907	4	SCREW HHC M8-1.25 X 16 C8.8
8	0J0679	1	DECAL, CANADIAN SAFETY CODE
9	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
10	0D3719C	REF	DECAL CUSTOMER CONN E1 E2 E3
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3
11	0J4899	4	SCREW SHC M4-0.7 X 45 C12.9
12	043180	4	WASHER FLAT M4
13	022264	4	WASHER LOCK #8-M4
14	051715	4	NUT HEX M4-0.7 G8 YEL CHR
UL CIRCUIT BREAKER (JG -FRAME)			
(1)1	0H9378DSTOR	1	MD1,MODULE COVER 390 JG-FRAME
2	0C2454	7	SCREW HWHT M6-1 X 16 N WA Z/JS
3	REF	1	CIRCUIT BREAKER
(1)4	0J14860STOR	1	MD1, C/B MOUNTING BRACKET F
5	022145	4	WASHER FLAT 5/16-M8 ZINC
6	022129	4	WASHER LOCK M8-5/16
7	042907	4	SCREW HHC M8-1.25 X 16 C8.8
8	0J0679	1	DECAL, CANADIAN SAFETY CODE
9	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
10	0D3719C	REF	DECAL CUSTOMER CONN E1 E2 E3
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3
11	0J4466	4	SCREW SHC M4-0.7 X 100 C12.9
12	043180	4	WASHER FLAT M4
13	022264	4	WASHER LOCK #8-M4
14	051715	4	NUT HEX M4-0.7 G8 YEL CHR
UL CIRCUIT BREAKER (J -FRAME)			
(1)1	0H9378CSTOR	1	MD1,MODULE COVER 390 J-FRAME
2	0C2454	7	SCREW HWHT M6-1 X 16 N WA Z/JS
3	REF	1	CIRCUIT BREAKER
(1)4	0J00680STOR	1	MD2, C/B BACK MOUNTING BRACKET
5	022145	4	WASHER FLAT 5/16-M8 ZINC
6	022129	4	WASHER LOCK M8-5/16
7	042907	4	SCREW HHC M8-1.25 X 16 C8.8
8	0J0679	1	DECAL, CANADIAN SAFETY CODE
9	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
10	0D3719C	REF	DECAL CUSTOMER CONN E1 E2 E3
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3
11	049967	4	SCREW SHC M6-1.0 X 70 C12.9
12	022473	4	WASHER FLAT 1/4-M6 ZINC
13	022097	4	WASHER LOCK M6-1/4
14	049813	4	NUT HEX M6-1.0 G8 CLEAR ZINC
UL CIRCUIT BREAKER (K -FRAME)			
(1)1	0H9378FSTOR	1	MD1,MODULE COVER 390 K-FRAME
2	0C2454	7	SCREW HWHT M6-1 X 16 N WA Z/JS
3	REF	1	CIRCUIT BREAKER
(1)4	0J00680STOR	1	MD2, C/B BACK MOUNTING BRACKET
5	022145	4	WASHER FLAT 5/16-M8 ZINC
6	022129	4	WASHER LOCK M8-5/16
7	042907	4	SCREW HHC M8-1.25 X 16 C8.8
8	0J0679	1	DECAL, CANADIAN SAFETY CODE
9	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
10	0D3719C	REF	DECAL CUSTOMER CONN E1 E2 E3
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3

**EXPLODED VIEW: EV, CB MOUNTING KIT MD1 390**

**DRAWING #: 0J1027**

**GROUP H**

**APPLICABLE TO:**

11	046580	4	SCREW SHC M6-1.0 X 45 C12.9
12	022473	4	WASHER FLAT 1/4-M6 ZINC
13	022097	4	WASHER LOCK M6-1/4
14	049813	4	NUT HEX M6-1.0 G8 CLEAR ZINC

ITEM	PART#	QTY.	DESCRIPTION
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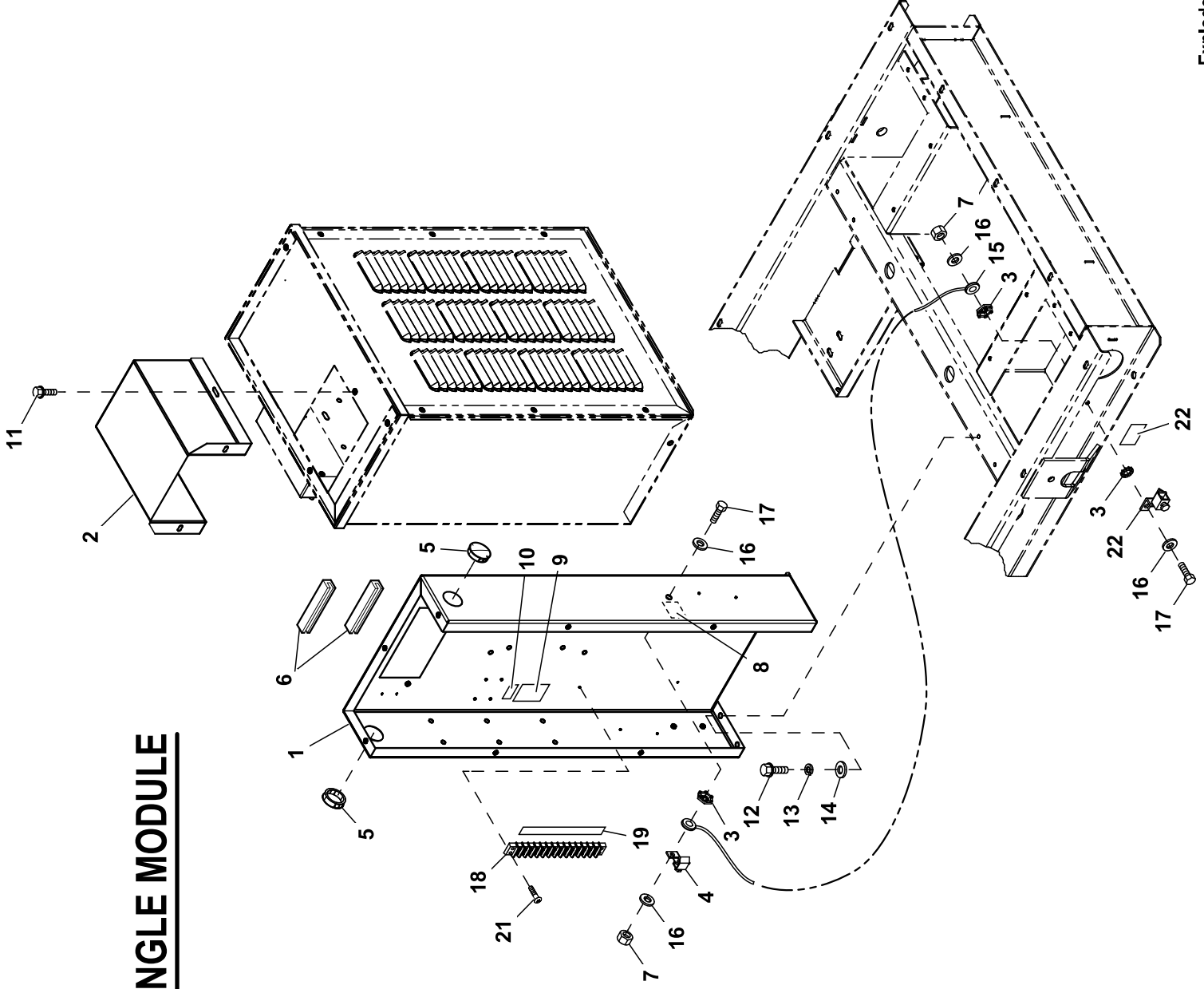
UL CIRCUIT BREAKER (L -FRAME)			
(1)1	0H9378GST0R	1	MD1,MODULE COVER 390 L-FRAME
2	0C2454	7	SCREW HWHT M6-1 X 16 N WA Z/JS
3	REF	1	CIRCUIT BREAKER
(1)4	0J00680ST0R	1	MD2, C/B BACK MOUNTING BRACKET
5	022145	4	WASHER FLAT 5/16-M8 ZINC
6	022129	4	WASHER LOCK M8-5/16
7	042907	4	SCREW HHC M8-1.25 X 16 C8.8
8	0J0679	1	DECAL, CANADIAN SAFETY CODE
9	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
10	0D3719C	REF	DECAL CUSTOMER CONN E1 E2 E3
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3
11	046580	4	SCREW SHC M6-1.0 X 45 C12.9
12	022473	4	WASHER FLAT 1/4-M6 ZINC
13	022097	4	WASHER LOCK M6-1/4
14	049813	4	NUT HEX M6-1.0 G8 CLEAR ZINC

UL CIRCUIT BREAKER (LG-FRAME)			
(1)1	0H9378HST0R	1	MD1,MODULE COVER 390 LG-FRAME
2	0C2454	7	SCREW HWHT M6-1 X 16 N WA Z/JS
3	REF	1	CIRCUIT BREAKER
(1)4	0J00680ST0R	1	MD2, C/B BACK MOUNTING BRACKET
5	022145	4	WASHER FLAT 5/16-M8 ZINC
6	022129	4	WASHER LOCK M8-5/16
7	042907	4	SCREW HHC M8-1.25 X 16 C8.8
8	0J0679	1	DECAL, CANADIAN SAFETY CODE
9	0J0546	1	DECAL, HV CUSTOMER CONN INSIDE
10	0D3719C	REF	DECAL CUSTOMER CONN E1 E2 E3
	0D3719D	REF	DECAL CUSTOMER CONN E1 E3
11	0J4467	4	SCREW SHC M5-0.8 X 100 C12.9
12	051713	4	WASHER FLAT M5
13	049226	4	WASHER LOCK M5
14	051716	4	NUT HEX M5-0.8 G8 CLEAR ZINC

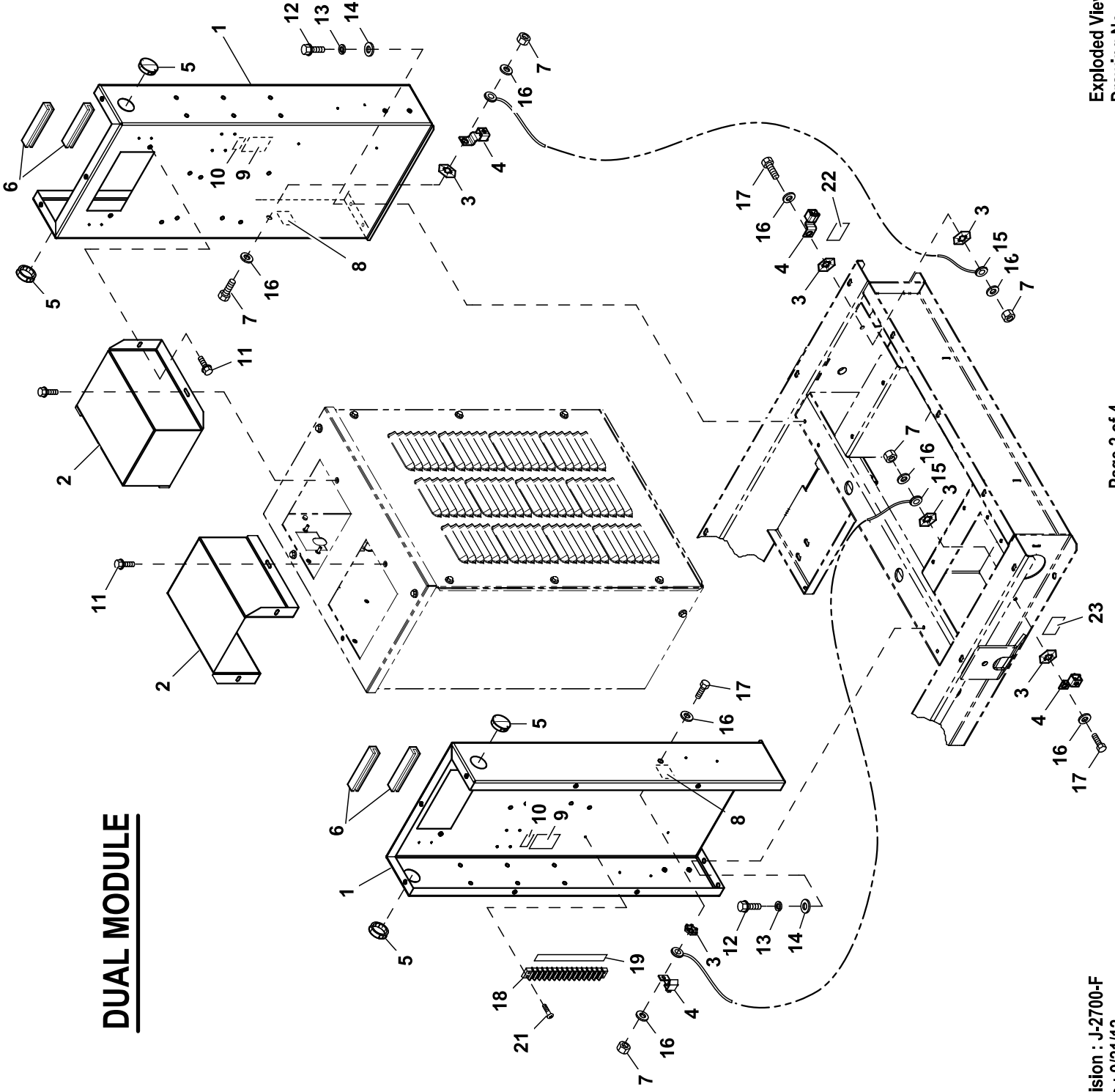
**NOTES (UNLESS OTHERWISE SPECIFIED):**

- (1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING GENERIC PARTS (NO COLOR)
  - MANUFACTURING: FOR CORRECT MATERIAL AND COLOR REFER TO AS400 BOM.
  - CUSTOMER: WHEN ORDERING REPLACEMENT PARTS ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR (FOR REFERENCE SEE GUIDELINE 0H7169).
- (2) QTY. REQUIRED FOR 1Ø BREAKER / QTY. REQUIRED FOR 3Ø BREAKER.

**SINGLE MODULE**



**DUAL MODULE**



**EXPLODED VIEW: EV CONBOX 390 MODULE**

**DRAWING #: 0J1339**

**GROUP A**

**APPLICABLE TO:**

ITEM	PART#	QTY.	DESCRIPTION
SINGLE MODULE			
(1)1	0H95790ST0R	1	MD1 / MD2 CB MODULE 390 ALT
(1)2	0J17560ST0R	1	WIRE TUNNEL, MD1-2 390 ALT
3	0A4456	3	WASHER LOCK SPECIAL 3/8
4	061383	2	LUG SLDLSS 3/0-#4 X 13/32 CU
5	0E1534A	2	PLUG PLASTIC 1.50"
6	056326	2	TRIM VINYL BLACK 1/8GP (7.1"LG)
7	045772	1	NUT HEX M10-1.5 G8 YEL CHR
8	067210A	1	DECAL GROUND LUG
9	0H8006	1	DECAL CAUTION ELEC SHOCK SM
10	0A9457	1	DECAL NEUTRAL
11	0C2454	4	SCREW HWHT M6-1 X 16 N WA Z/JS
12	024526	4	SCREW HHTT 5/16-18 X 3/4 CZ
13	022129	4	WASHER LOCK M8-5/16
14	022145	4	WASHER FLAT 5/16-M8 ZINC
15	0441140781	1	WIRE ASM, GND 2/0 WIRE 3/8 LUG
16	022131	4	WASHER FLAT 3/8-M10 ZINC
17	049541	2	SCREW HHC M10-1.5 X 35 C8.8
(4)(3)(2)18	0J0455	REF	BLOCK, TERM 14 POS X 8 X 1600V
(4)(3)(2)19	0J9078	REF	DECAL, TB4 HV CUSTOMER CONN
(4)(3)(2)21	0J5462	REF	SCREW THTT M4-0.7 X 16 ZP
22	067210A	1	DECAL GROUND LUG
DUAL MODULE			
(1)1	0H95790ST0R	2	MD1 / MD2 CB MODULE 390 ALT
(1)2	0J17560ST0R	2	WIRE TUNNEL, MD1-2 390 ALT
3	0A4456	6	WASHER LOCK SPECIAL 3/8
4	061383	4	LUG SLDLSS 3/0-#4 X 13/32 CU
5	0E1534A	4	PLUG PLASTIC 1.50"
6	056326	4	TRIM VINYL BLACK 1/8GP (7.1"LG)
7	045772	2	NUT HEX M10-1.5 G8 YEL CHR
8	067210A	2	DECAL GROUND LUG
9	0H8006	2	DECAL CAUTION ELEC SHOCK SM
10	0A9457	2	DECAL NEUTRAL
11	0C2454	8	SCREW HWHT M6-1 X 16 N WA Z/JS
12	024526	8	SCREW HHTT 5/16-18 X 3/4 CZ
13	022129	8	WASHER LOCK M8-5/16
14	022145	8	WASHER FLAT 5/16-M8 ZINC
15	0441140781	2	WIRE ASM, GND 2/0 WIRE 3/8 LUG
16	022131	8	WASHER FLAT 3/8-M10 ZINC
17	049541	4	SCREW HHC M10-1.5 X 35 C8.8
(4)(3)(2)18	0J0455	REF	BLOCK, TERM 14 POS X 8 X 1600V
(4)(3)(2)19	0J9078	REF	DECAL, TB4 HV CUSTOMER CONN
(4)(3)(2)21	0J5462	REF	SCREW THTT M4-0.7 X 16 ZP
22	067210A	2	DECAL GROUND LUG

NOTES (UNLESS OTHERWISE SPECIFIED):

- (1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING GENERIC PARTS (NO COLOR)
  - MANUFACTURING: FOR CORRECT MATERIAL AND COLOR REFER TO AS400 BOM.
  - CUSTOMER: WHEN ORDERING REPLACEMENT PARTS ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR (FOR REFERENCE SEE GUIDELINE 0H7169).
- (2) WILL BE INSTALLED ON PRIMARY CB MODULES ONLY. NOT REQUIRED WITH LOAD CENTER.
- (3) NOT REQUIRED IF EQUIPPED WITH LOAD CENTER.
- (4) NOT REQUIRED IF EQUIPPED WITH 0J1594, KIT BATTERY CHARGER POWER CORD.

**EXPLODED VIEW: EV CONBOX 390 MODULE**

**DRAWING #: 0J1339**

**APPLICABLE TO:**

**GROUP A**

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**EXPLODED VIEW: EV ALTCOMPRT 390 ALTERNATOR**

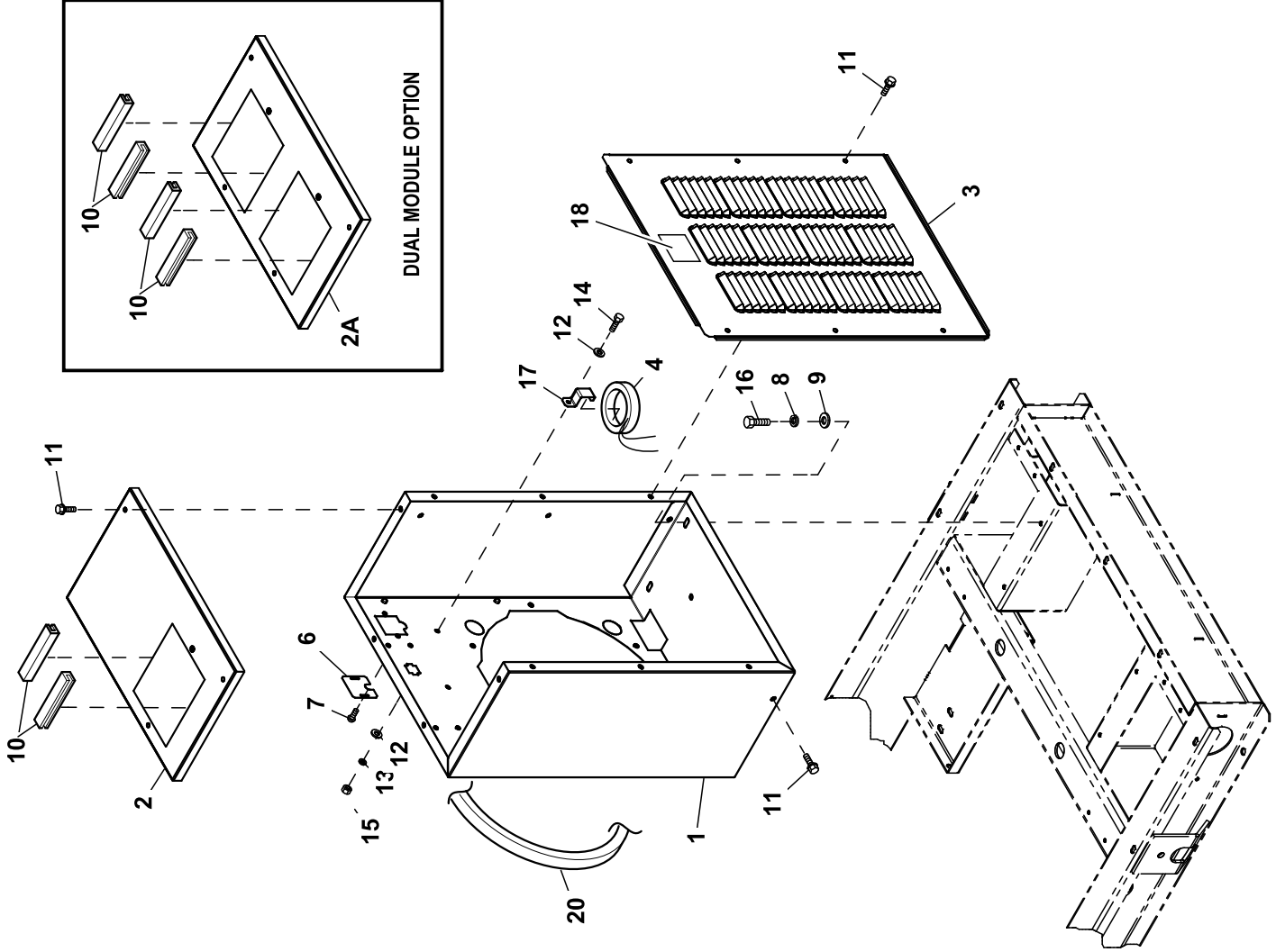
**DRAWING #: 0J1407**

**GROUP A**

**APPLICABLE TO:**

ITEM	PART#	QTY.	DESCRIPTION
1	051769	9	WASHER LOCK M12
2	049808	6	WASHER FLAT M12
3	VARIES	REF	FLEX PLATE
4	055173	6	SCREW HHC M8-1.25 X 20 G10.9
5	022129	8	WASHER LOCK M8-5/16
6	022145	8	WASHER FLAT 5/16-M8 ZINC
7	0G0724	1	FAN MACHINED 390 SAE ALTERATOR
8	0A2601	1	SCREW HHC M16-2.0 X 45 G8.8
9	0A2602	1	WASHER FLAT .688ID X 3.25OD
10	0A3870	1	KEY SQ 3/8 X 1-9/16 STEEL
11	0A3009	1	HUB DRIVE 390 SAE GB
12	VARIES	REF	ROTOR PER ORDER (SEE BOM)
13	068407	2	SCREW HHC M12-1.75 X 90 C10.9 (2.00" STACK)
14	0A5580	4	SCREW HHC M14-2.0 X 140 G8.8
15	0A1633	4	WASHER,390 SAE ALT.
16	VARIES	REF	STATOR PER ORDER (SEE BOM)
17	022131	12	WASHER FLAT 3/8-M10 ZINC
18	046526	12	WASHER LOCK M10
19	057642	12	SCREW HHC M10-1.5 X 40 G8.8
20	068113	1	CARRIER REAR BRG 15"
21	0H8394A	1	390, BOARD SOLID LEAD TERM BRL
22	043123	4	WASHER LOCK M14
23	051779	4	NUT HEX M14-2.0 G8 YEL CHR
24	022304	2	WASHER FLAT 1/2 ZINC
25	068406	1	SCREW HHC M12-1.75 X 60 C10.9 (2.00" STACK)
26	070274	1	KEY SQ 3/8 X 2-3/4 STEEL
27	087272	1	ASSY EXCITER 2.00" STK
28	068405	1	EXCITER FIELD 15" 2" LG
29	092950	1	COLLAR SLIP FIT 390 MM
30	020151	1	CLAMP VINYL .312 X .203 Z
31	090063	1	BRIDGE SUPPORT DIODE 15"
32	090152	1	ASSY BRIDGE RECTIFIER
33	023365	3	WASHER SHAKEPROOF INT #8
34	033143	2	SCREW HHM #8-32 X 7/8
35	090064	1	CAP END ROTOR 390MM
36	033133	1	SCREW HHM #8-32 X 3/8
37	068406	6	SCREW HHC M12-1.75 X 60 C10.9
38	028739A	2	TIE WRAP 3.9" X .10" BLK UL
39	085662D	1	TIE WRAP UL 17.7 X .35 BLK HT
40	022661L	1	SLEEVING UL #0 .330 ID
41	042914	2	SCREW HHC M8-1.25 X 90 C8.8
42	0H9157	2	HOLLOW DOWEL PIN, 1/2 X 1-1/4
43	0A2110	2	SCREW SWAGE 1/4-20 X 1/2 Z/YC
44	0A4089	1	ASSY SCROLL 390 SAE
45	0A1786	.5cc	ADH LOCTITE #8931 AA W/S
46	0C1473	1	SPACER 390 ALT-SAE 10 X 11-1/2
KIT 0A4089 PARTS			
50	0A2491	2	SHROUD ALT SHEET METAL
51	0A2497	2	SCREEN SHROUD SAE
52	0A2496	2	BRKT TENSIONER SAE SCROLL
53	056326	8.4 FT.	TRIM VINYL BLACK 1/8GP
54	022097	6	WASHER LOCK M6-1/4
55	022473	6	WASHER FLAT 1/4-M6 ZINC
56	045757	2	SCREW HHC M6-1.0 X 25 G8.8
57	047411	4	SCREW HHC M6-1.0 X 16 G8.8
58	0A2110	12	SCREW SWAGE 1/4-20 X 1/2 Z/YC

# GROUP A



**EXPLODED VIEW: EV 390 ALTERNATOR TOWER ASM**

**DRAWING #: 0J7594**

**GROUP A**

**APPLICABLE TO:**

<b>ITEM</b>	<b>PART#</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
(1)1	0J75960ST0R	1	MAIN, ALT TOWER 390 W/ SHROUD
(1)2	0H94310ST0R	1	TOP, ALT TOWER 390 SINGLE CB
	0H9431BST0R	1	TOP ALT TOWER 390 SNGL CB RH
(1)2A	0H9431AST0R	1	TOP, ALT TOWER 390 DUAL CB
(1)3	0H94320ST0R	1	COVER, ALT TOWER 390
(3)4	0J0481	2/3	XFMR CURRENT 50A W/BRKT UL RCG
	0J0481A	2/3	XFMR CURRENT 100A W/BRKT UL G
	0J0481B	2/3	XFMR CURRENT 150A W/BRKT UL
	0J0481C	2/3	XFMR CURRENT 200A W/BRKT UL
	0J0481D	2/3	XFMR CURRENT 300A W/BRKT UL
	0J0481E	2/3	XFMR CURRENT 400A W/BRKT UL
	0J0481F	2/3	XFMR CURRENT 500A W/BRKT UL
	0J0481G	2/3	XFMR CURRENT 600A W/BRKT UL
5	N/A		
(1)6	0J01360ST0R	1	PLATE, WIRE HARN BLOCKOFF
7	0J5464	2	SCREW THTT M5-0.8 X 16 ZP
8	022097	4	WASHER LOCK M6-1/4
9	022473	4	WASHER FLAT 1/4-M6 ZINC
(2)10	056326	2/4	TRIM VINYL BLACK 1/8GP (6"LG)
11	0C2454	12	SCREW HWHT M6-1 X 16 N WA Z/JS
(3)12	022145	4/8	WASHER FLAT 5/16-M8 ZINC
(3)13	022129	2/3	WASHER LOCK M8-5/16
14	042907	2/3	SCREW HHC M8-1.25 X 16 C8.8
15	045771	2/3	NUT HEX M8-1.25 G8 CLEAR ZINC
16	024983	4	SCREW HHTT 1/4-20 X 3/4 CZ
(3)17	0J1857	2/3	CT BRKT 1.1" WINDOW FRAME
	0J1857A	2/3	CT BRKT 2.25" WINDOW FRAME
18	0C1229	1	DECAL WARNING ELECTRICAL SHOCK
19	0H9845	1	HARN 390/520 CONBOX H-PANEL (NOT SHOWN)
20	052250	1	TAPE FOAM 1X1 (49" LG)

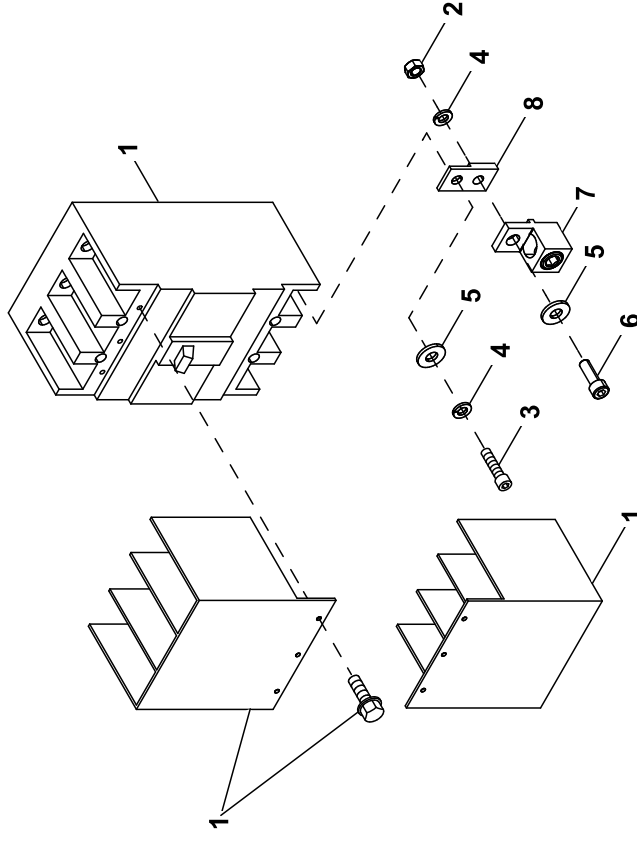
**NOTES (UNLESS OTHERWISE SPECIFIED):**

(1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING GENERIC PARTS (NO COLOR)

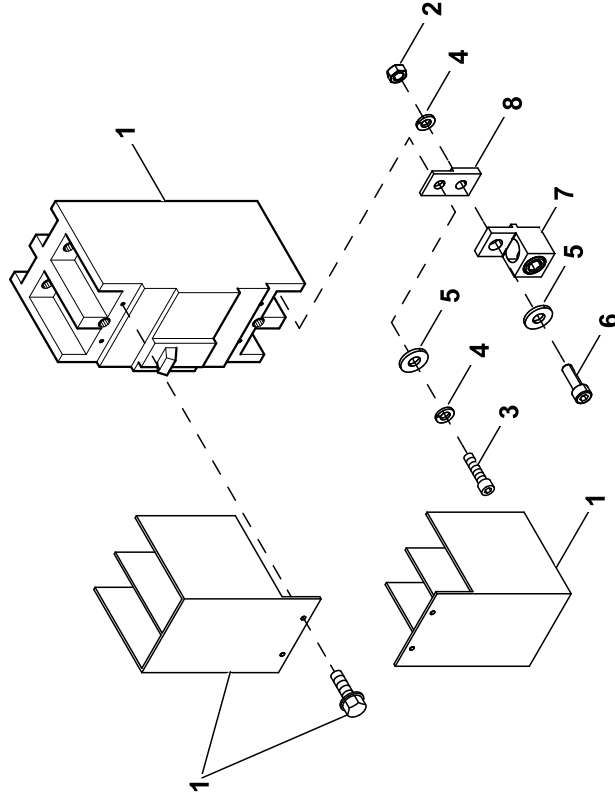
- MANUFACTURING: FOR CORRECT MATERIAL AND COLOR REFER TO AS400 BOM.
- CUSTOMER: WHEN ORDERING REPLACEMENT PARTS ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR (FOR REFERENCE SEE GUIDELINE 0H7169).

(3) QTY. REQUIRED FOR 1 PHASE / QTY. REQUIRED FOR 3 PHASE.

# GROUP A



**225AF 3Ø CIRCUIT BREAKER**



**225AF 1Ø CIRCUIT BREAKER**

**EXPLODED VIEW: EV,CB ASSEMBLY 225AF****DRAWING #: 0J8468****GROUP A**

<b>ITEM</b>	<b>PART#</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	REF	1	MAIN CIRCUIT BREAKER
(1)2	045771	4/6	NUT HEX M8-1.25 G8 CLEAR ZINC
(1)3	049897	4/6	SCREW SHC M8-1.25 X 20 G8
(1)4	022129	8/12	WASHER LOCK M8-5/16
(1)5	022145	8/12	WASHER FLAT 5/16-M8 ZINC
(1)6	058306	4/6	SCREW SHC M8-1.25 X 25 C12.9
(1)7	0F8451	4/6	LUG SLDLSS 300 MCM-6 AL/CU
(1)8	0F8843	4/6	BUS BAR 200A LUG ADAPTOR

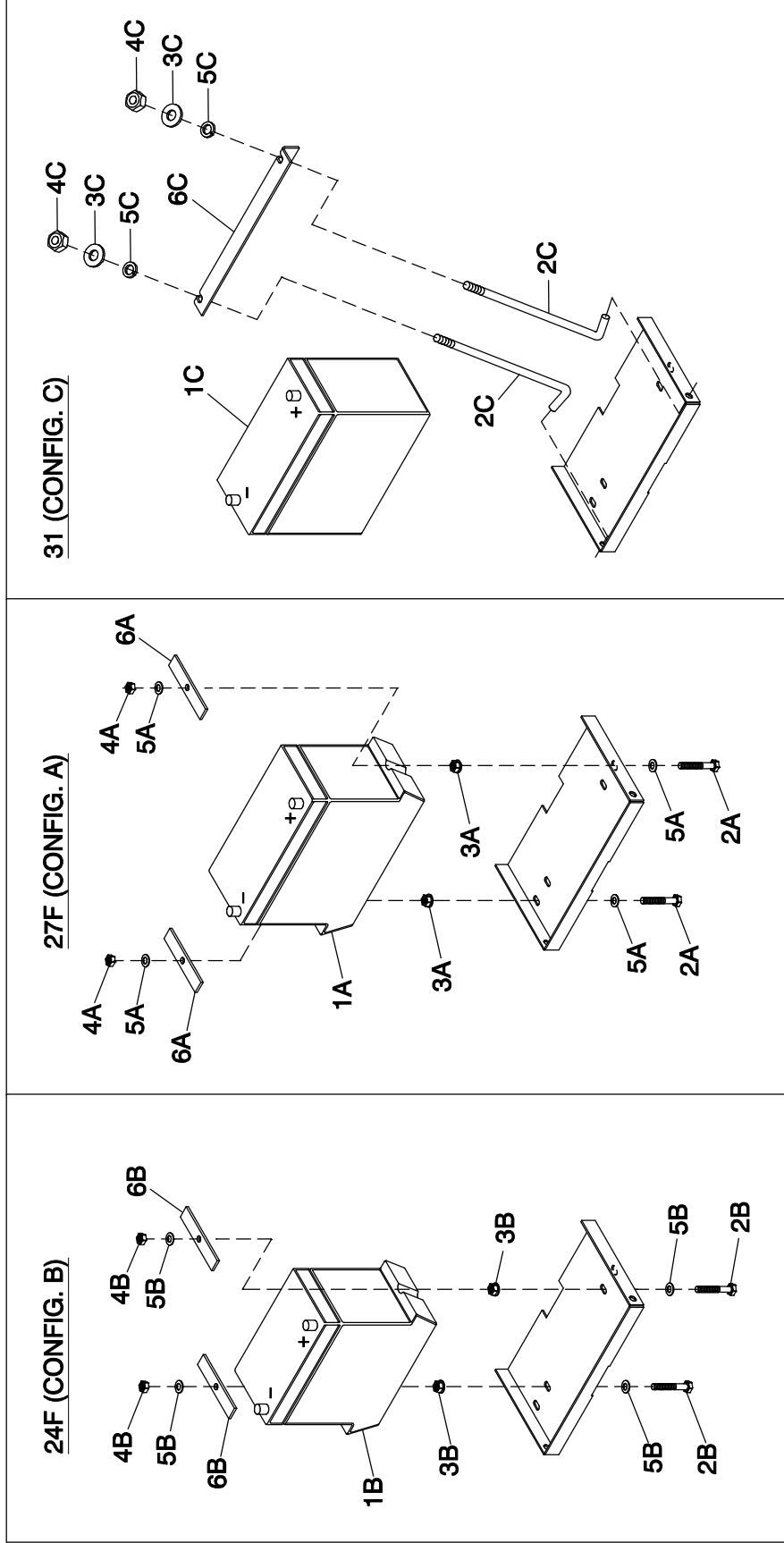
(1) QTY. REQUIRED FOR 1Ø BREAKERS / QTY. REQUIRED FOR 3Ø BREAKERS.

APPLICABLE TO:

DPE Breaker and Field Boost Resistor Table for Gensets with H-Panel Control & 12V Battery								
VOLTAGE	FREQUENCY	EXCITATION	SIZE	kW RATING	DPE BREAKER		FIELD BOOST RESISTOR	
					PART NO.	SIZE	PART NO.	SIZE
120/240 1φ	60 Hz	direct	390 mm or smaller	1kW - 8.9kW	048512	5A	0F5752E	5 ohm
		PME/brushless		9kW - 45kW	048467	7A		
				1kW - 15kW	053623	2.5A		
				16kW - 18kW	049350	4A		
				19kW - 26kW	054450	5.5A		
				27kW - 41kW	048505	6A		
		45kW - 130kW		048476	4.5A	0F5752D	75 ohm	
520 mm	any	048476	4.5A					
120/208 3φ	60 Hz	direct	390 mm or smaller	1kW - 8.9kW	048512	5A	0F5752E	5 ohm
		PME/brushless		9kW - 45kW	048467	7A		
				1kW - 15kW	053623	2.5A		
				16kW - 18kW	049350	4A		
				19kW - 26kW	054450	5.5A		
				27kW - 41kW	048505	6A		
		45kW - 130kW		048476	4.5A	0F5752D	75 ohm	
520 mm	any	048476	4.5A					
120/240 3φ	60 Hz	direct	390 mm or smaller	1kW - 8.9kW	048512	5A	0F5752E	5 ohm
		PME/brushless		9kW - 45kW	048467	7A		
				1kW - 15kW	053623	2.5A		
				16kW - 18kW	049350	4A		
				19kW - 26kW	054450	5.5A		
				27kW - 41kW	048505	6A		
		45kW - 130kW		048476	4.5A	0F5752D	75 ohm	
520 mm	any	048476	4.5A					
277/480 3φ	60 Hz	direct	390 mm or smaller	1kW - 8.9kW	048512	5A	0F5752E	5 ohm
		PME/brushless		9kW - 45kW	048467	7A		
				1kW - 15kW	053623	2.5A		
				16kW - 26kW	054450	5.5A		
				27kW - 41kW	048505	6A		
				45kW - 130kW	048476	4.5A	0F5752D	75 ohm
		520 mm		any	048476	4.5A		
346/600 3φ	60 Hz	direct	390 mm or smaller	1kW - 8.9kW	048512	5A	0F5752E	5 ohm
		PME/brushless		9kW - 45kW	048467	7A		
				1kW - 15kW	053623	2.5A		
				16kW - 18kW	049350	4A		
				19kW - 26kW	054450	5.5A		
				27kW - 130kW	048476	4.5A	0F5752D	75 ohm
		520 mm		any	048476	4.5A		
110/220 1φ	50 Hz	direct	390 mm or smaller	1kW - 8.9kW	048512	5A	0F5752E	5 ohm
		PME/brushless		9kW - 45kW	048467	7A		
				1kW - 15kW	053623	2.5A		
				16kW - 18kW	049350	4A		
				19kW - 26kW	048476	4.5A		
				27kW - 130kW	048505	6A	0F5752D	75 ohm
		520 mm		any	048476	4.5A		
100/200 3φ	50 Hz	direct	390 mm or smaller	1kW - 8.9kW	048512	5A	0F5752E	5 ohm
		PME/brushless		9kW - 45kW	048467	7A		
				1kW - 15kW	053623	2.5A		
				16kW - 18kW	049350	4A		
				19kW - 26kW	048476	4.5A		
				27kW - 130kW	048505	6A	0F5752D	75 ohm
		520 mm		any	048476	4.5A		
115/200 3φ	50 Hz	direct	390 mm or smaller	1kW - 8.9kW	048512	5A	0F5752E	5 ohm
		PME/brushless		9kW - 45kW	048467	7A		
				1kW - 15kW	053623	2.5A		
				16kW - 18kW	049350	4A		
				19kW - 26kW	048476	4.5A		
				27kW - 130kW	048505	6A	0F5752D	75 ohm
		520 mm		any	048476	4.5A		
231/400 3φ	50 Hz	direct	390 mm or smaller	1kW - 8.9kW	048512	5A	0F5752E	5 ohm
		PME/brushless		9kW - 45kW	048467	7A		
				1kW - 15kW	053623	2.5A		
				16kW - 18kW	049350	4A		
				19kW - 26kW	054450	5.5A		
				27kW - 41kW	048505	6A	0F5752D	75 ohm
		45kW - 130kW		048476	4.5A			
520 mm	any	048476	4.5A					

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# GROUP C



EXPLODED VIEW:  
BATTERY HOLD DOWN 24, 27, & 31  
DRAWING #: 0G7790

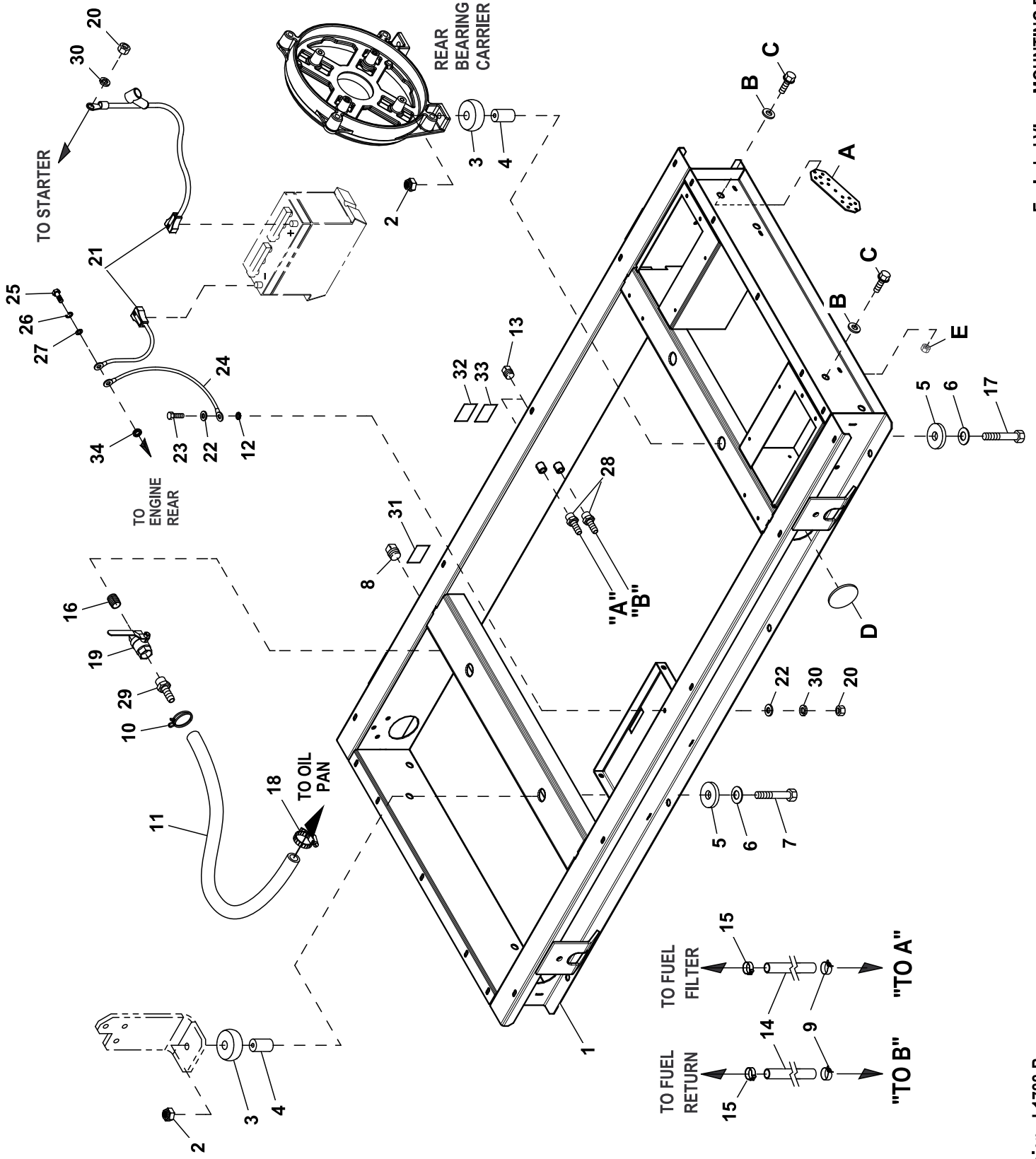
EXPLODED VIEW: BATTERY HOLD DOWN 24, 27,& 31  
DRAWING #: 0G7790

GROUP C

APPLICABLE TO:

ITEM	PART #	QTY.	DESCRIPTION
1A	058665	1	BATTERY 12VDC 90-AH 27F
	058665A	1	BATTERY SERVICE DRY
B	058208	1	BATTERY 12VDC 24F 525 CCA
C	061119	1	BATTERY BCI GRP 31
	061119A	1	31E BATTERY SERVICE DRY
2A	0A4010	2	SCREW HHC M8-1.25 X 60 C8.8 FT
B	0A4010	2	SCREW HHC M8-1.25 X 60 C8.8 FT
C	099049	2	J BOLT BATTERY TRAY
3A	052858	2	NUT LOCK FL M8-1.25
B	052858	2	NUT LOCK FL M8-1.25
C	022129	2	WASHER LOCK M8-5/16
4A	049820	2	NUT LOCK HEX M8-1.25 NYL INS
B	049820	2	NUT LOCK HEX M8-1.25 NYL INS
C	045771	2	NUT HEX M8-1.25 G8 CLEAR ZINC
5A	022145	4	WASHER FLAT 5/16-M8 ZINC
B	022145	4	WASHER FLAT 5/16-M8 ZINC
C	058653	2	WASHER FLAT M8
6A	061902	2	HOLD DOWN BATTERY (60-100KW)
B	061902	2	HOLD DOWN BATTERY (60-100KW)
C	059568B	2	BATT HOLD DOWN BAR 368MM

# GROUP C



**EXPLODED VIEW: EV MTG BASE 3.4L G16 A-GRP**

**DRAWING #: 0H0434**

**GROUP C**

**APPLICABLE TO:**

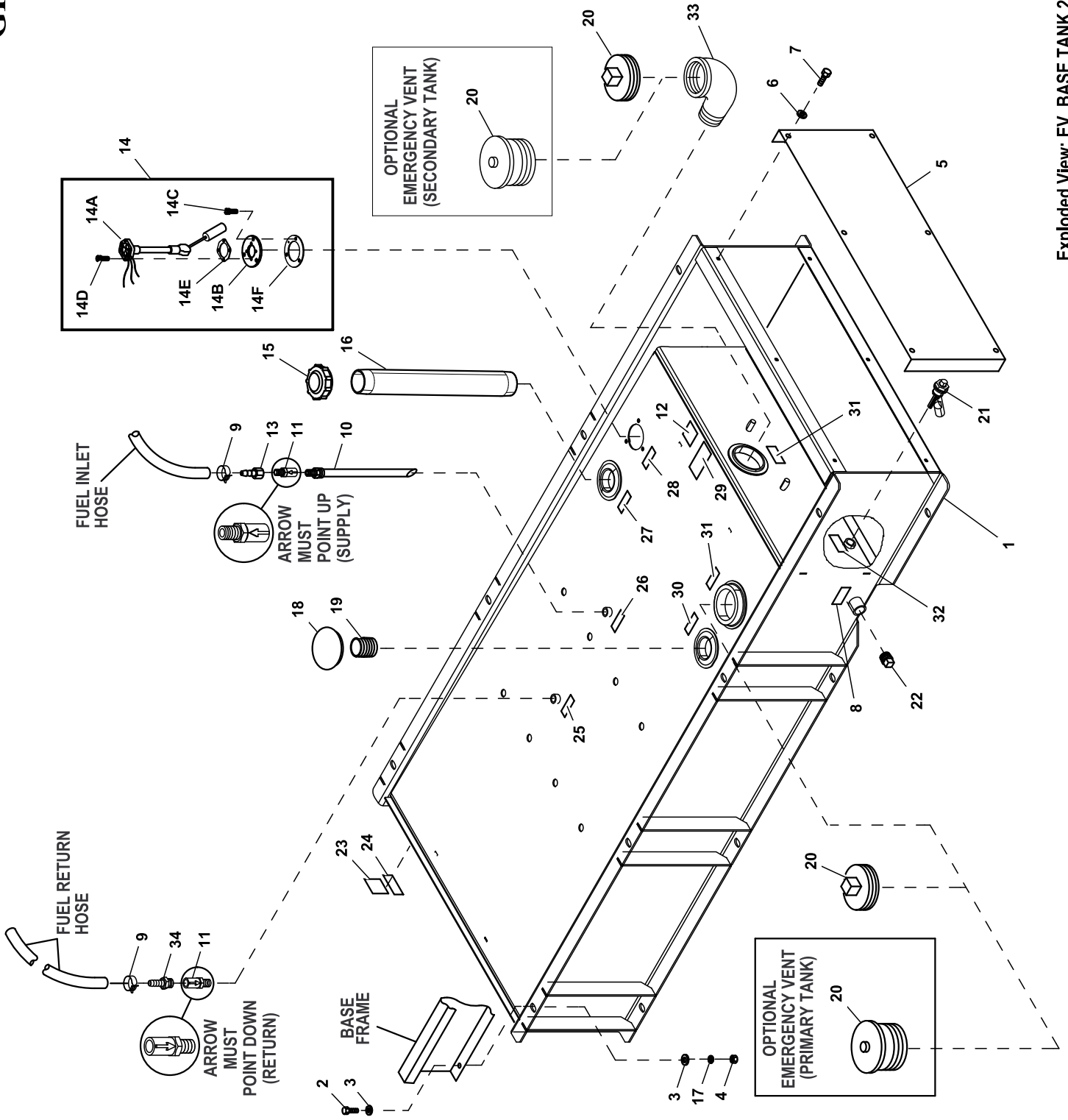
ITEM	PART#	QTY.	DESCRIPTION
(1)1	0H46830STOR	1	ASSY MTG BASE D3.4L G16 A-GRP
2	052860	4	NUT FLANGED HEX M12-1.75
3	052251A	4	DAMPENER VIB 50 WHITE
4	052257	4	SPACER .49 X .62 X 1.87 PWDR/ZNC
5	052252	4	DAMPENER VIBRATION
6	052259	4	WASHER FLAT M12
7	052891	2	SCREW HHC M12-1.75 X 80 G8.8
8	024310	1	PLUG STD PIPE 1/2 STEEL SQ HD
9	048031N	2	CLAMP HOSE BAND .53
10	0G0015	1	CLAMP HOSE 7/8" OD DOUBLE WIRE
11	065386	1	HOSE COOL 5/8 ID 100R6 (17" LG)
12	0C3168	1	WASHER LOCK SPECIAL 5/16
13	026073A	2	PLUG STD PIPE 1/4 STEEL SQ HD
14	052221	2	HOSE 5/16 ID TYP1 SNGL HTR (53" LG)
15	0G3662	2	CLAMP,HOSE OETIKER STEPLESS 17
16	030985	1	NIPPLE CLOSE 1/2 X 1.125
17	055597	2	SCREW HHC M12-1.75 X 85 C8
18	057822	1	CLAMP HOSE #8 .53-1.00
19	0G5212A	1	VALVE 1/2"
20	045771	2	NUT HEX M8-1.25 G8 CLEAR ZINC
21	0H5360A	1	BATTERY CABLE KIT 2.4-3.4L G16
22	022145	2	WASHER FLAT 5/16-M8 ZINC
23	043107	1	SCREW HHC M8-1.25 X 25 C8.8
24	0536210147	1	ASSY WIRE #0 10.0"
25	051768	1	SCREW HHC M12-1.75 X 25 C8.8
26	022195	1	WASHER LOCK 1/2
27	049808	1	WASHER FLAT M12
28	058043	2	BARBED STR 1/4 NPT X 5/16
29	044118	1	BARBED STR 1/2NPT X 5/8
30	022129	2	WASHER LOCK M8-5/16
31	050277	1	DECAL OIL DRAIN
32	056727	1	DECAL FUEL INLET DIESEL
33	056726	1	DECAL FUEL RETURN
34	070022	1	WASHER SHAKEPROOF M12 EXT
KIT VARMINT GUARD P/N 0J4533			
A	0C4360	4	PLATE VARMINT
B	071693	10	WASHER FLAT SPECIAL .281 I.D.
C	0C2454	10	SCREW TH-FRM M6-1 X 16 N WA Z/JS
D	0A8785	4	PLUG, BUTTON 3" DIA.
E	077992	2	NUT HEX LOCK M6-1.0 SS NY INS

NOTES (UNLESS OTHERWISE SPECIFIED):

(1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING GENERIC PARTS (NO COLOR)

- MANUFACTURING: FOR CORRECT MATERIAL AND COLOR REFER TO AS400 BOM.
- CUSTOMER: WHEN ORDERING REPLACEMENT PARTS ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR (FOR REFERENCE SEE GUIDELINE 0H7169).

# GROUP C



**EXPLODED VIEW: EV, BASE TANK 2.4L A-GRP 1-3FT**

**DRAWING #: 0J1114**

**GROUP C**

**APPLICABLE TO:**

ITEM	PART#	QTY.	DESCRIPTION
1	0J18370ST03	1	BASETANK AD054U1N TYPE 1
	0J18380ST03	1	BASETANK AD132U2N TYPE 1
	0J18390ST03	1	BASETANK AD211U3N TYPE 1
2	0C6789	8	SCREW HHC M12-1.75 X 30 SS FT
3	087171	16	WASHER FLAT 1/2 SS
4	051548	8	NUT HEX M12-1.75 G8 SS
5	0E1567	1	COVER, STUB-UP (A GRP 1FT)
	0E1567A	1	COVER, STUB-UP (A GRP 2FT)
	0E1567B	1	COVER, STUB-UP (A GRP 3FT)
6	050190	6	WASHER FLAT .344 ID X 1.0 OD
7	051754	6	SCREW HHC M8-1.25 X 12 G8.8
9	048031N	2	CLAMP HOSE BAND .53
(3) 8	0A1482	1	STICKER DRAIN
10	021623	1	FUEL DIP PIPE 233MM
	021623B	1	FUEL DIP PIPE 538MM
	021623D	1	FUEL DIP PIPE 843MM
11	070327	2	VALVE CHECK 3/8 NPT
(3) 12	021825B	1	DECAL EMERGENCY RELIEF VENTING
13	0D3038	1	BARBED STR FE 3/8NPT X 5/16
14	0H5761	1	FUEL LEVEL GAUGE KIT-1 FT ELECTRICAL (TO INCLUDE ITEMS 14A, 14B, 14C, 14D, 14E & 14F)
14A	0G8010A	1	ELEC FUEL GAUGE 1FT DW
14B	0D2668	1	PLATE ADAPTOR
14C	052829	3	SCREW SHC M8-1.25 X 14 G12.9
14D	097962	4	SCREW SHC M6-1.0 X 25 G12.9
14E	0E4351	1	GASKET, ROCHESTER FUEL LEVGAUGE
14F	0E4352	1	GASKET, ADAPTER PLATE
14	0H5761A	1	FUEL LEVEL GAUGE KIT-2 FT ELECTRICAL TO INCLUDE ITEMS 14A, 14B, 14C, 14D, 14E & 14F)
14A	0G8010B	1	FUEL LEVEL GAUGE
14B	0D2668	1	PLATE ADAPTOR
14C	052829	3	SCREW SHC M8-1.25 X 14 G12.9
14D	097962	4	SCREW SHC M6-1.0 X 25 G12.9
14E	0E4351	1	GASKET, ROCHESTER FUEL LEVGAUGE
14F	0E4352	1	GASKET, ADAPTER PLATE
14	0H5761B	1	FUEL LEVEL GAUGE KIT-3FT ELECTRICAL TO INCLUDE ITEMS 14A, 14B, 14C, 14D, 14E & 14F)
14A	0G8010C	1	FUEL LEVEL GAUGE
14B	0D2668	1	PLATE ADAPTOR
14C	052829	3	SCREW SHC M8-1.25 X 14 G12.9
14D	097962	4	SCREW SHC M6-1.0 X 25 G12.9
14E	0E4351	1	GASKET, ROCHESTER FUEL LEVGAUGE
14F	0E4352	1	GASKET, ADAPTER PLATE
15	0A1492	1	CAP FUEL FILL
16	(1) 0D2670	1	NECK FUEL FILL (STANDARD-4")
	(2) 0D2737	1	FUEL FILL AND PRIMARY VENT EXT. KIT 8"
	(2) 0D2739	1	FUEL FILL AND PRIMARY VENT EXT. KIT 13"
	(2) 0D2740	1	FUEL FILL AND PRIMARY VENT EXT. KIT 19"
17	083215	8	WASHER LOCK 1/2 SS
18	021178	1	VENT OEM 2" NPT
19	(1) 0A7238	1	NIPPLE PIPE 2NPT X 3.5 BL IRON
	(2) 0D2737	1	FUEL FILL AND PRIMARY VENT EXT. KIT 8"
	(2) 0D2739	1	FUEL FILL AND PRIMARY VENT EXT. KIT 13"
	(2) 0D2740	1	FUEL FILL AND PRIMARY VENT EXT. KIT 19"
(1) 20	028619A	2	PLUG PIPE 3" SQ HD ZINC
(2) 20	072989J	2	VENT CAP EMERG 3"NPT
21	096500V	1	ASSY FUEL LEAK DET ALARM W/CON

**EXPLODED VIEW: EV, BASE TANK 2.4L A-GRP 1-3FT**

**DRAWING #: 0J1114**

**GROUP C**

**APPLICABLE TO:**

ITEM	PART#	QTY.	DESCRIPTION
22	025655	1	PLUG STD PIPE 3/4" STEEL SQ HD
23	021821	1	PLATE GENERAC
24	021823	1	PLATE UL
(3) 25	0A1478	1	STICKER FUEL RETURN
(3) 26	0A1477	1	STICKER FUEL SUPPLY
(3) 27	0A1476	1	STICKER FUEL FILL
(3) 28	0A1546	1	STICKER FUEL LEVEL
(3) 29	021824	1	STICKER WARNING
(3) 30	0A1479	1	STICKER VENT
(3) 31	021826	2	DECAL EMERGENCY VENT
(3) 32	0A1481	1	DECAL LEAK DETECTOR
33	028689	1	ELBOW 90D STREET 3
34	067982	1	BARBED STR 3/8NPT X 5/16

- (1) ITEMS ARE STANDARD COMPONENTS.
- (2) ITEMS ARE OPTIONAL COMPONENTS.
- (3) UL STICKER KIT P/N 0A1493B.

**EXPLODED VIEW: EV, BASE TANK 2.4L A-GRP 1-3FT**

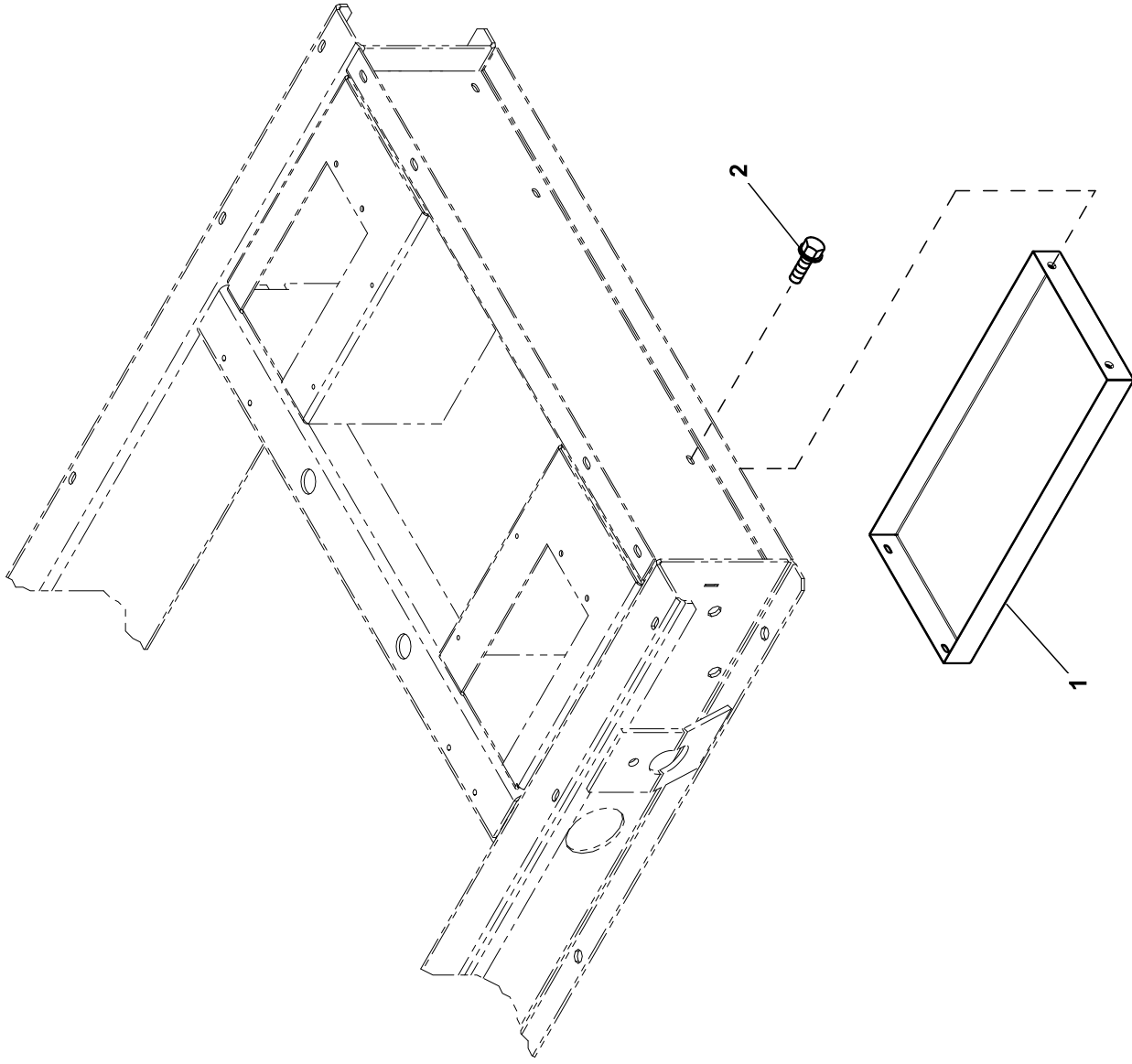
**DRAWING #: 0J1114**

**APPLICABLE TO:**

**GROUP C**

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# GROUP C



**NOTE:**  
GLAND PLATE (ITEM 1), TO BE INSTALLED UNDER EACH  
HIGH VOLTAGE CONNECTION TOWER.

**EXPLODED VIEW: EV GLAND PLATE**

**DRAWING #: 0J4768**

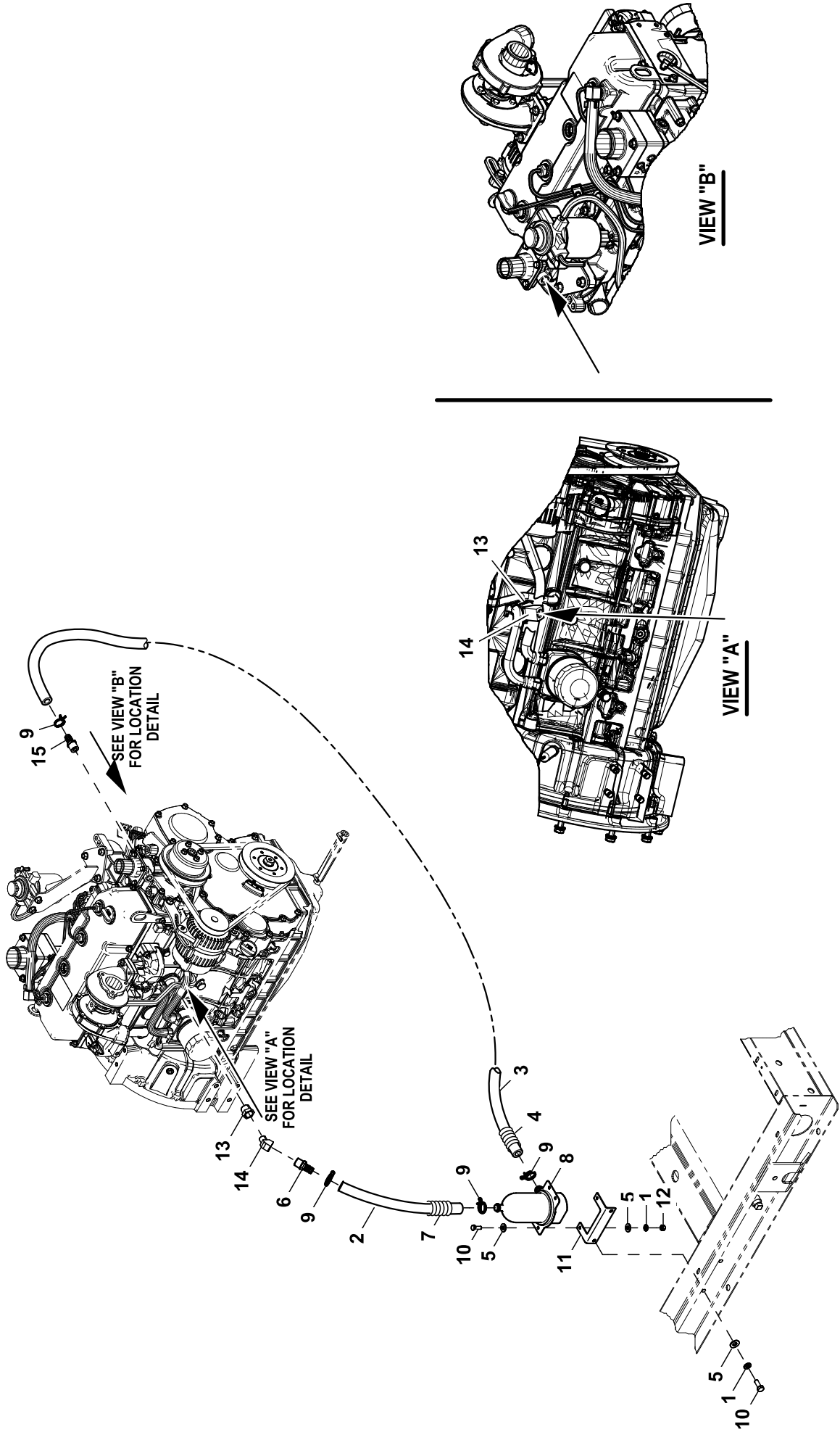
**GROUP C**

**APPLICABLE TO:**

ITEM	PART#	QTY.	DESCRIPTION
(1)(2)1	---	1/2	GLAND PLATE
(1)2	0C2454	4/8	SCREW HWHT M6-1 X 16 N WA Z/JS

(1) QTY. REQUIRED FOR SINGLE CIRCUIT BREAKER / QTY. REQUIRED FOR DUAL CIRCUIT BREAKER.  
(2) SEE BILL OF MATERIALS FOR PART NUMBER.

# GROUP



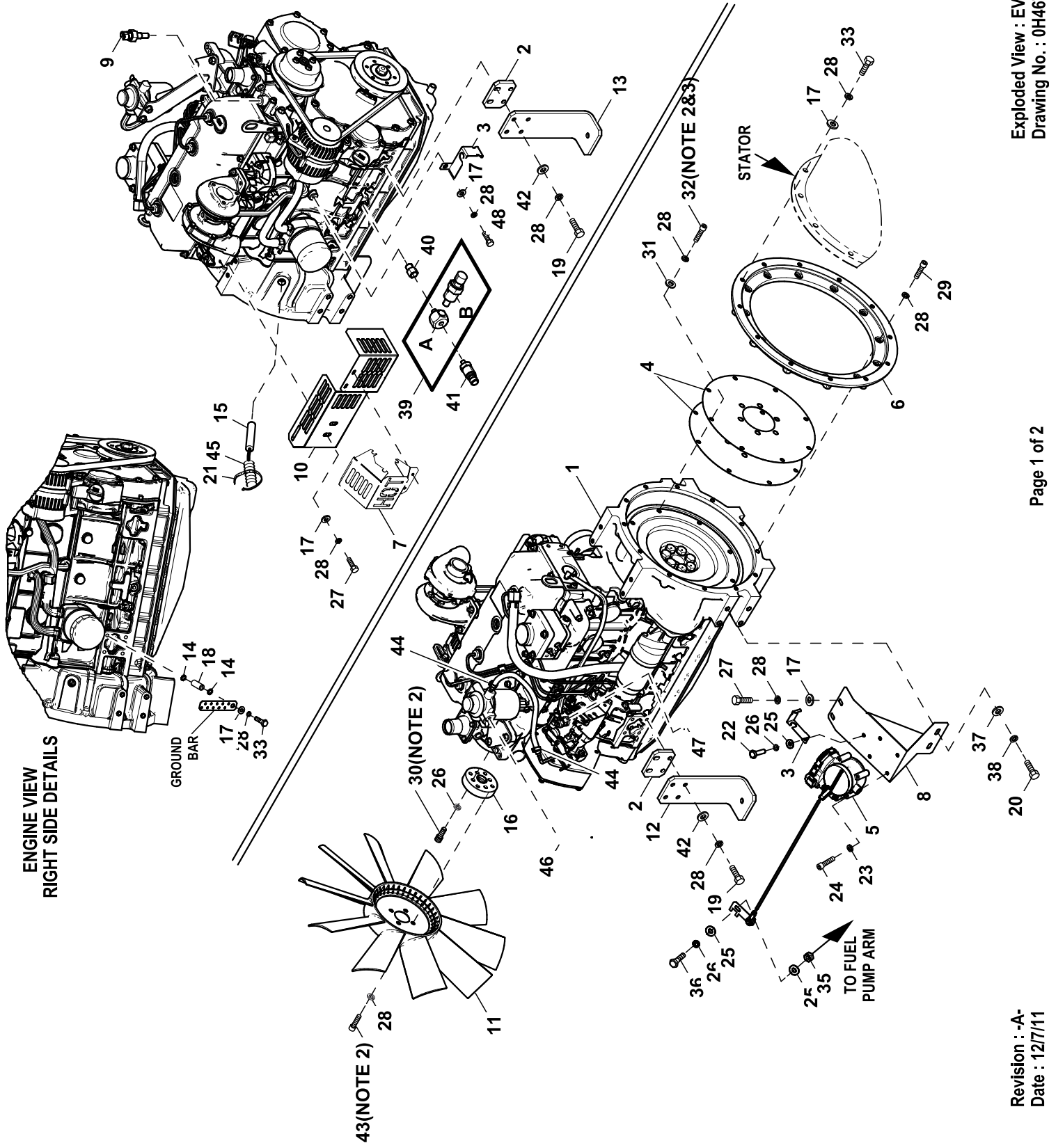
**EXPLODED VIEW: EV BLOCK HEATER D3.4L G16****DRAWING #: 0J7712****GROUP C**

<b>ITEM</b>	<b>PART#</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	022097	4	WASHER LOCK M6-1/4
2	050967	1	HOSE COOL 5/8 ID 20R3 (16"LG)
3	050967	1	HOSE COOL 5/8 ID 20R3 (50"LG)
4	077043E	1	CONDUIT FLEX 1.0"ID (50"LG)
5	022473	6	WASHER FLAT 1/4-M6 ZINC
6	044118	1	BARBED STR 1/2NPT X 5/8
7	077043E	1	CONDUIT FLEX 1.0"ID (16"LG)
8	084918L	1	HEATER BLOCK 1500W 120V
9	0G0015	4	CLAMP HOSE 7/8" OD DOUBLE WIRE
10	047411	4	SCREW HHC M6-1.0 X 16 C8.8
11	084427	1	BRACKET, ENGINE HEATER
12	049813	2	NUT HEX M6-1.0 G8 CLEAR ZINC
(1)13	094992	1(REF)	BSHG RDCR HEX 1 TO .5 BRASS
(1)14	0E8286	1(REF)	ELBOW 45D STREET 1/2NPT BRASS
15	044117	1	BARBED STR 3/8NPT X 5/8

NOTES(UNLESS OTHERWISE SPECIFIED):

(1) SUPPLIED WITH ENGINE.

# GROUP D



**EXPLODED VIEW: EV ENGCMPRT 3.4L G16**

**DRAWING #: 0H4676**

**GROUP D**

ITEM	PART#	QTY.	DESCRIPTION
1	0J7489	1	ENGINE D3.4L G16 50KW
(1)2	0H78770STOR	2	SPACER, 3.4L G16 ENGINE FOOT
3	0F2776A	2	BRACKET SIGNAL CONDITIONER
4	0A8240	2	FLEX PLATE SAE10
5	0J8004	1	ASSY 3.4L G16 BOSCH FUEL
6	0A8241	1	ADAPTER SAE 4 X SAE 3
7	0J7569	1(REF)	HEAT SHIELD 3.4L G16 TURBO
(1)8	0H82080STOR	1	BRACKET, 3.4L G16 BOSCH
9	0E0502	1	TEMPERATURE SENDER, DELPHI
10	0J7568	1	HEAT SHIELD 3.4L G16 MANIFOLD
11	0F4011	1	FAN COOL 22" DIA 10 BLADE LH
(1)12	0G97140STOR	1	ENGINE MOUNT, FRONT L/H SIDE
(1)13	0G9714ASTOR	1	ENGINE MOUNT, FRONT R/H SIDE
14	025507	2	WASHER LOCK EXT 7/16 STL
15	084206C	1	SENDER MPU - IGNITION
16	0J9281	1	FAN SPACER 3.4L G16 22" FAN
17	022131	18	WASHER FLAT 3/8-M10 ZINC
18	033437	1	SPACER .41 X .75 X .56 STL/ZNC
19	0A7387	8	SCREW HHC M10-1.5 X 40 C10.9
20	052617	2	SCREW HHC M12-1.75 X 20 C8.8
21	029333A	2	TIE WRAP UL 7.4"X .19" BLK
22	039253	1	SCREW HHC M8-1.25 X 20 C8.8
23	022097	4	WASHER LOCK M6-1/4
24	0D2157	4	SCREW SHC M6-1.0 X 50 C8.8
25	022145	3	WASHER FLAT 5/16-M8 ZINC
26	022129	6	WASHER LOCK M8-5/16
27	051756	4	SCREW HHC M10-1.5 X 20 C8.8
28	046526	50	WASHER LOCK M10
29	052647	12	SCREW SHC M10-1.5 X 25 C12.9
(2)30	058306	4	SCREW SHC M8-1.25 X 25 C12.9
31	070264	8	WASHER FLAT M10
(2)(3)32	052648	8	SCREW SHC M10-1.5 X 20 C12.9
33	057642	13	SCREW HHC M10-1.5 X 40 C8.8
34	0H4599	1	HARN ENG D3.4L G16 H-PANEL (NOT SHOWN)
35	045771	1	NUT HEX M8-1.25 G8 CLEAR ZINC
36	043107	1	SCREW HHC M8-1.25 X 25 C8.8
37	049808	2	WASHER FLAT M12
38	051769	2	WASHER LOCK M12
39	(OPTIONAL) KIT OIL TEMP KIT (P/N 0H6771)		
A	0G4099	1	OIL TEMP PIPE TEE
B	0E0502	1	TEMPERATURE SENDER, DELPHI
C	0G0349	1	HARN OIL TEMP SENDER OPTION (NOT SHOWN)
40	042574	1	ADAPTOR 1/8NPTF TO 1/8BSPT
41	0F4612	1	SENDER OIL PRESSURE 1/8"NPT
42	0A5768	8	WASHER FLAT M10 HEAVY DUTY
(2)43	052647	4	SCREW SHC M10-1.5 X 25 C12.9
44	0G3662	2	CLAMP,HOSE OETIKER STEPLESS 17
45	077043A	1	CONDUIT FLEX .38"ID (10"LG)
46	032552	1	BARBED EL 90 5/16 X 1/8NPT
47	058043	1	BARBED STR 1/4 NPT X 5/16
48	0F8408	1	SCREW HHC M10-1.50 X 16 C10.9

NOTES (UNLESS OTHERWISE SPECIFIED):

(1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING GENERIC PARTS (NO COLOR)

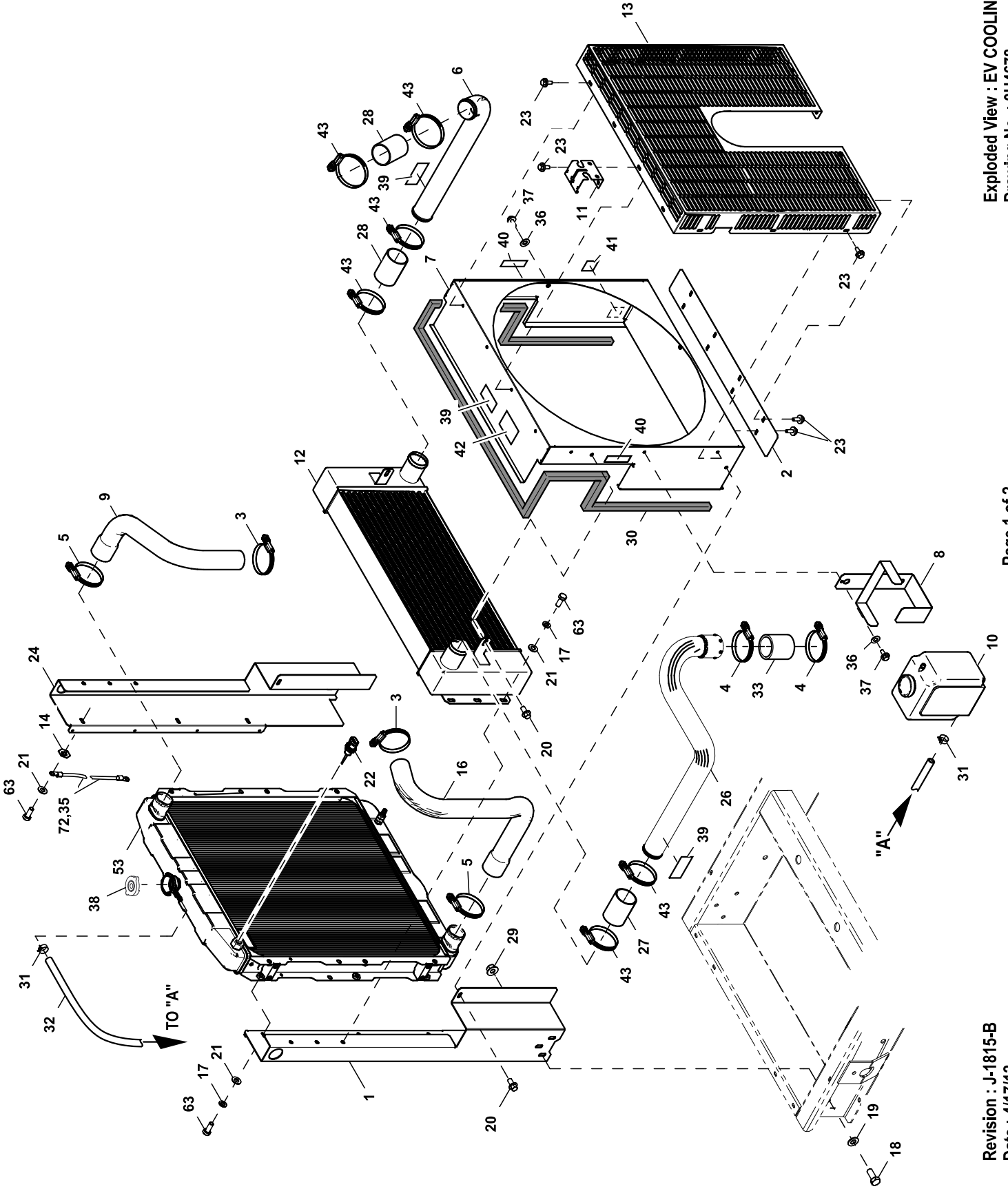
- MANUFACTURING: FOR CORRECT MATERIAL AND COLOR REFER TO AS400 BOM.
- CUSTOMER: WHEN ORDERING REPLACEMENT PARTS ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR (FOR REFERENCE SEE GUIDELINE 0H7169).

(2) APPLY MEDIUM STRENGTH BLUE THREAD LOCKING FLUID TO THREADS.

(3)TORQUE VALUES: ITEM #32 – 46 FT-LBS.

(4) ALL STANDARD HARDWARE TO BE TORQUED PER EDS001.

# GROUP D



**EXPLODED VIEW: EV COOLING SYSTEM 3.4L G16**

**DRAWING #:0H4678**

**GROUP D**

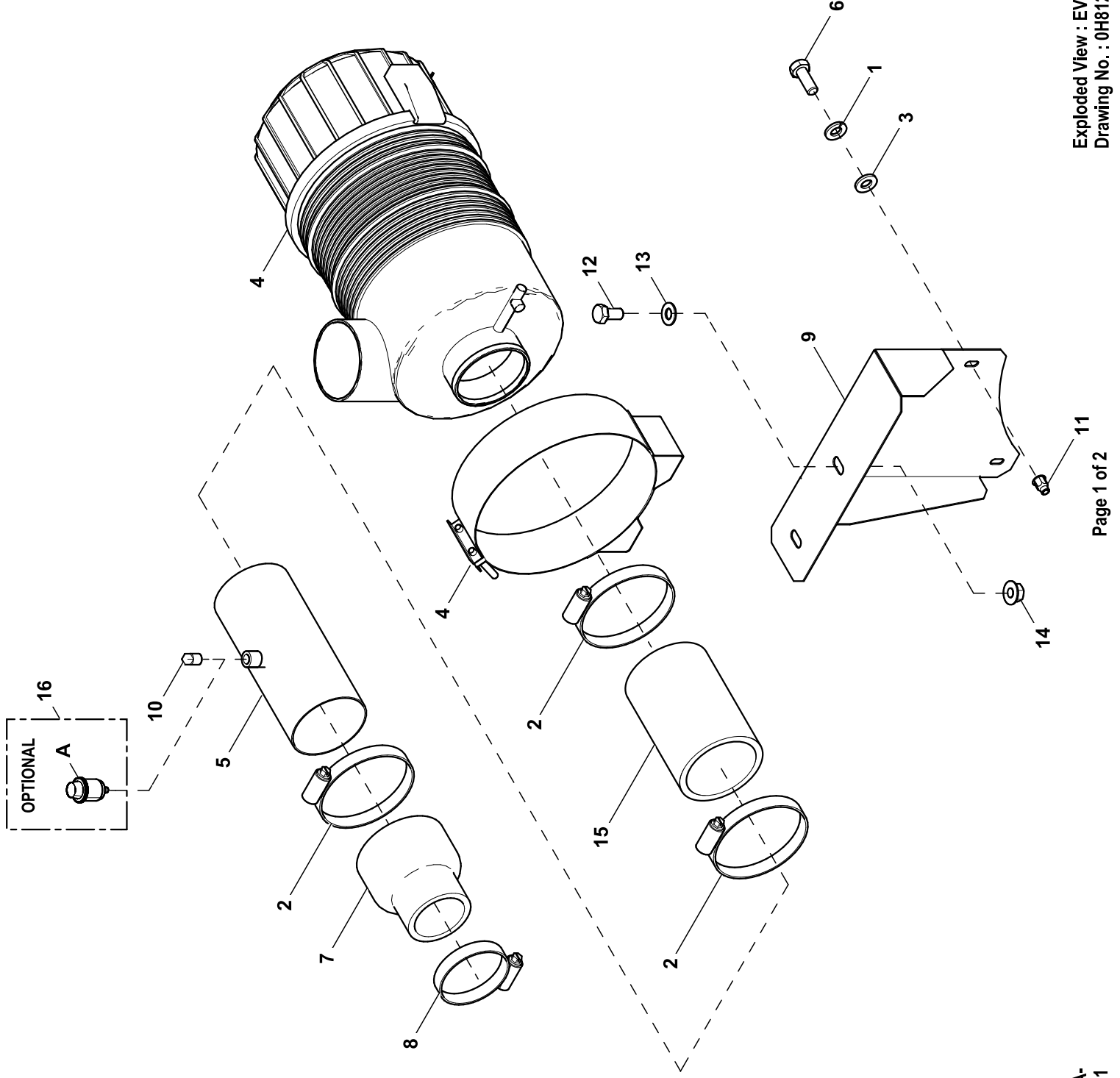
ITEM	PART#	QTY.	DESCRIPTION
(1)1	0H46680ST0R	1	RADIATOR SUPPORT LH D3.4L G16
(1)2	0H94040ST0R	1	FAN GUARD SUPPORT
3	086133B	2	CLAMP HI TORQUE 1.25 - 2.125
4	0G1285D	2	CLAMP CNST TENSION 2.25-3.125
5	086133C	2	CLAMP HI TORQUE 1.75 - 2.625
6	0H8065	1	PIPE 3.4L G16 CAC IN
(1)7	0H46880ST0R	1	VENTURI 3.4L G16 A-GRP
8	080712	1	BRKT COOLANT RECOVERY TANK
9	0H4694	1	HOSE 3.4L A-GROUP RAD TOP
10	076749	1	TANK COOLANT RECOVERY
11	0F2776C	1	BRACKET, SIGNAL COND. 2 PLACE
12	0G6815A	1	ASSY CAC IN:LOW-RT OUT:UP-LT
(1)13	0J59000ST0R	1	FAN GUARD 3.4L SINGLE PIECE
14	0A4456	1	WASHER LOCK SPECIAL 3/8
15	0F2608B	1	RAD 598 X 568 X 49,DIESEL ONLY
16	0H4696	1	HOSE 3.4L A-GROUP RAD BOTTOM
17	022129	11	WASHER LOCK M8-5/16
18	049814	6	SCREW HHC M10-1.5 X 25 C8.8
19	022131	6	WASHER FLAT 3/8-M10 ZINC
20	083512	4	SCREW HHTT M8-1.2 X 16 YC
21	022145	12	WASHER FLAT 5/16-M8 ZINC
22	0H1827	1	PROBE COOLANT LEVEL 3/8-18NPTF
23	0C2454	16	SCREW HWHT M6-1 X 16 N WA Z/JS
(1)24	0H46690ST0R	1	RADIATOR SUPPORT RH D3.4L G16
25	039253	12	SCREW HHC M8-1.25 X 20 C8.8
26	0H8066	1	PIPE 3.4L G16 CAC OUT
27	0A5259B	1	HOSE 2"ID X 4.0"LG
28	071296A	2	HOSE 2"ID X 3.0"LG
29	052859	6	NUT TOP LOCK FL M10-1.50
30	052250	1	TAPE FOAM 1X1 (108 "LG)
31	048031C	2	CLAMP HOSE BAND .50
32	029032	1	HOSE 9/32 ID (35" LG)
33	0D8086A	1	HOSE STUB,COOLANT,2.25ID X 3"L
34	0G7895A	1	HARN RADIATOR GND 80"
35	077043H	1	CONDUIT FLEX .25"ID (80"LG)
36	0A2115	2	WASHER NYLON .257
37	0E4443	2	SCREW HWHS 1/4-20 X 3/8" NY/W
38	0E4162	1	CAP RADIATOR 20 PSI
39	0G3263	3	DECAL WARNING HOT SURFACES BI
40	0G3269	2	DECAL WARNING FAN BI
41	050276	1	DECAL RADIATOR DRAIN
42	0G3266	1	DECAL WARNING COOLANT EGLY BI
43	0G1285C	6	CLAMP CNST TENSION 1.75-2.625

NOTES(UNLESS OTHERWISE SPECIFIED):

(1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING GENERIC PARTS (NO COLOR)

- MANUFACTURING: FOR CORRECT MATERIAL AND COLOR REFER TO AS400 BOM.
- CUSTOMER: WHEN ORDERING REPLACEMENT PARTS ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR (FOR REFERENCE SEE GUIDELINE 0H7169).

# GROUP D



**EXPLODED VIEW: EVAIR CLEANER 3.4L G16 STAGE-2****DRAWING #: 0H8121****GROUP D**

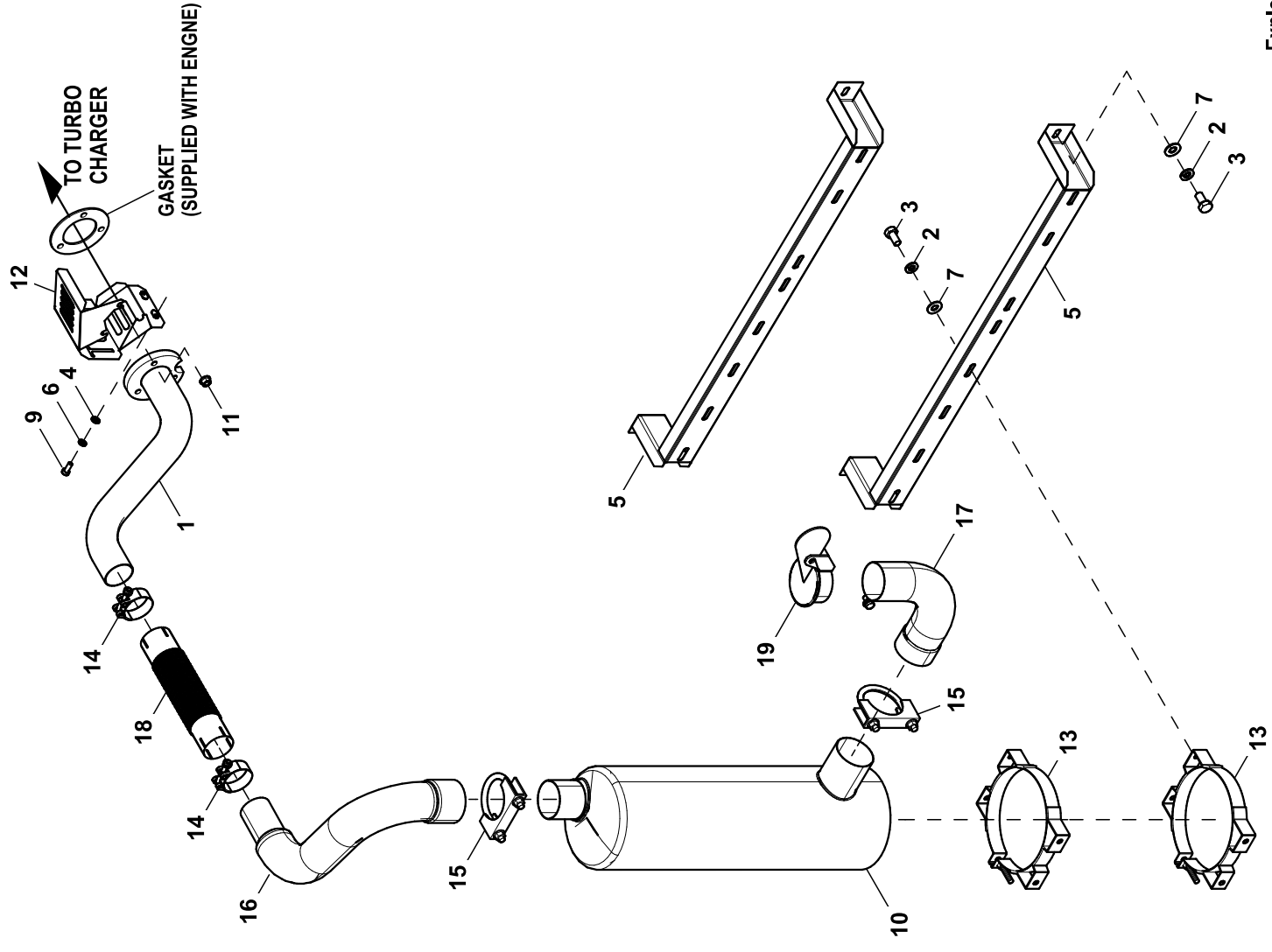
<b>ITEM</b>	<b>PART#</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	022097	2	WASHER LOCK M6-1/4
2	086133E	3	CLAMP HI TORQUE 2.75 - 3.625
3	049811	2	WASHER FLAT M6
4	0J7871	1	AIR CLEANER, STG-2 3" O.D.
5	0H8122A	1	PIPE, 3.4L G16 AIR INTAKE
6	047411	2	SCREW HHC M6-1.0 X 16 C8.8
7	0F3857	1	REDUCER RUBBER 3.0"-2.00"
8	086133C	1	CLAMP HI TORQUE 1.75 - 2.625
(1)9	0J78430ST0R	1	BRACKET, 3.4L G16 2-STG CLEAN
10	026073	1	PLUG STD PIPE 1/8 STEEL SQ HD
11	092120	2	NUT LOCK TRIC M6 X 1.0 Y/ZNC
12	042907	2	SCREW HHC M8-1.25 X 16 C8.8
13	022145	2	WASHER FLAT 5/16-M8 ZINC
14	052858	2	NUT TOP LOCK FL M8-1.25
15	0A5260A	1	HOSE 3"ID X 3.0"LG
16	OPTIONAL FILTER INDICATOR KIT (0A4256A)		
A	0A4256	1	INDICATOR FILTER MINDER

## NOTES (UNLESS OTHERWISE SPECIFIED):

(1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING GENERIC PARTS (NO COLOR)

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- CUSTOMER: WHEN ORDERING REPLACEMENT PARTS ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR (FOR REFERENCE SEE GUIDELINE 0H7169).

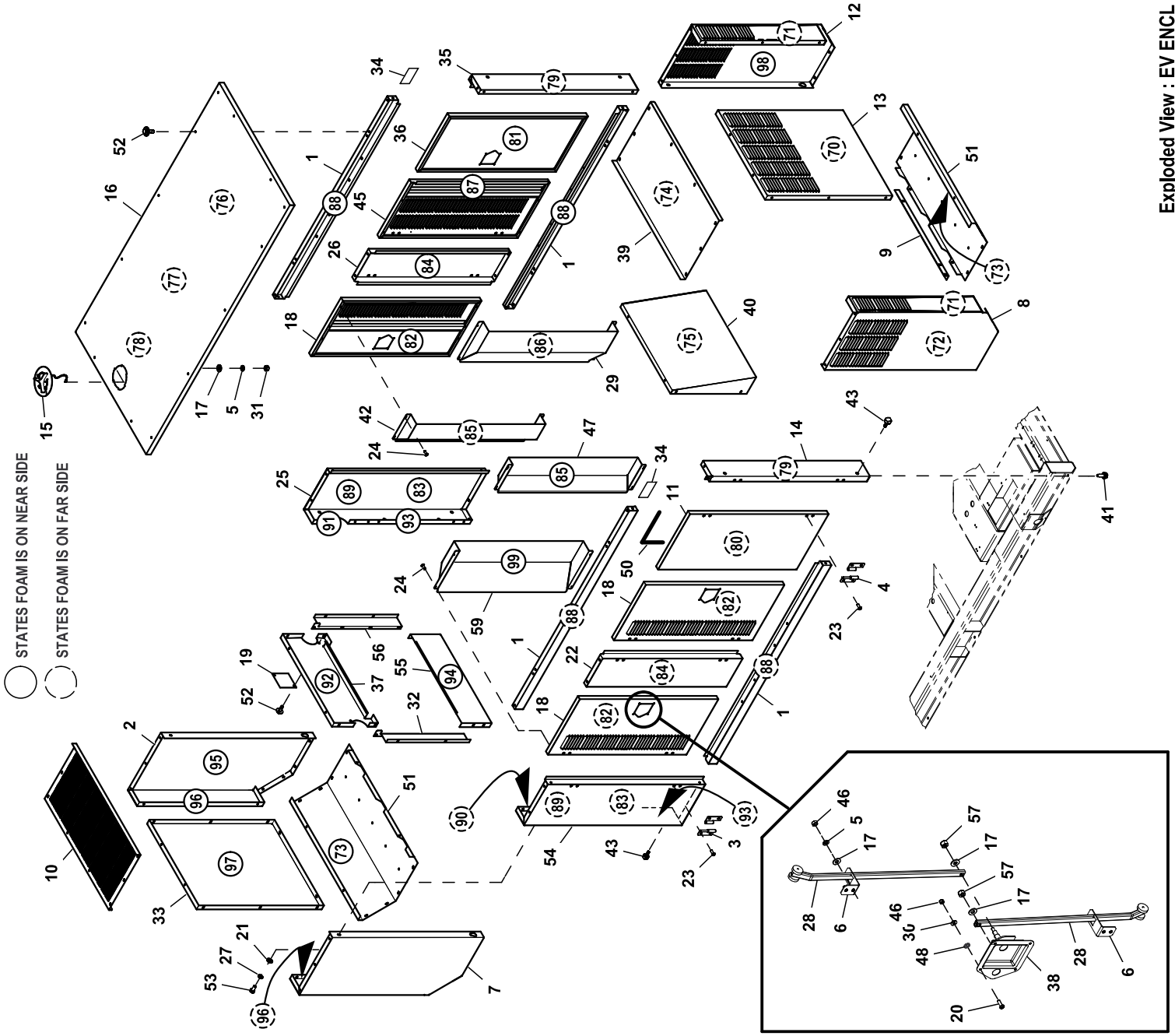
# GROUP F



**EXPLODED VIEW: EV EXHAUST 3.4L G16****DRAWING #: 0H8781****GROUP**

<b>ITEM</b>	<b>PART#</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	0H8779	1	ASSY, 3.4L G16 EXHAUST
2	022129	8	WASHER LOCK M8-5/16
3	042907	8	SCREW HHC M8-1.25 X 16 C8.8
4	051713	2	WASHER FLAT M5
5	0C4126	2	BRACKET, MUFFLER MTG
6	049226	2	WASHER LOCK M5
7	022145	8	WASHER FLAT 5/16-M8 ZINC
8	0G3770	1	EXHAUST BLANKET 737MM (NOT SHOWN)
9	052618	2	SCREW HHC M5-0.8 X 12 C8.8
10	0E8643	1	MUFFLER, A GRP W/ DRAIN
11	067989	3	NUT HEX FL WHIZ M8-1.25
12	0J7569	1	HEAT SHIELD 3.4L G16 TURBO
13	0C4114A	2	CLAMP MUFFLER BAND
14	0C3433	2	CLAMP BAND 2.0"
15	080762	2	BOLT U 3/8-16 X 2.62
16	0H8775A	1	EXHAUST TUBE 3.4L G16
17	0C3113A	1	TUBE ELBOW 90 2.5" FLARED
18	0A5215A	1	FLEX PIPE 2"
19	059902A	1	RAINCAP 2.50 / 2.69

# GROUP F



## EXPLODED VIEW: EV ENCL L1A A-GRP

DRAWING #: 0J0406

## GROUP F

ITEM	PART#	QTY.	DESCRIPTION
(1)1	0H98100ST0R	4	BRACE SIDE TOP & BOTTOM
(1)2	0J22810ST0R	1	DUCT FRONT RH
3	0C3594	8	ASSY M6 HINGE R/H
4	0C3594A	4	ASSY M6 HINGE L/H
5	022097	17	WASHER LOCK M6-1/4
(1)6	0J16010ST0R	8	BRACKET, ROD GUIDE
(1)7	0J22790ST0R	1	DUCT FRONT LH
(1)8	0J22920ST0R	1	DUCT REAR LH
(1)9	0C53560ST0R	1	VARMIT BLOCK OFF PLATE
(1)10	0F02950AL0R	1	DUCT TOP FRONT L2A
(1)11	0J15810ST0R	1	DOOR RH SOLID
(1)12	0J22930ST0R	1	DUCT REAR RH
(1)13	0J22910ST0R	1	DUCT REAR PANEL
(1)14	0H98070ST0R	1	CORNER POST LH REAR
15	0C2634A	1	ASSY ACCESS COVER
(1)16	0J16600AL0R	1	ASSY, ROOF A-GRP
17	022473	17	WASHER FLAT 1/4-M6 ZINC
(1)18	0J15820ST0R	3	DOOR LH LOUVERED
(1)19	0C34000ST0R	1	COVER EXHAUST RAW
20	0C6749	16	SCREW PPHM M4-0.7 X 12 SS
21	022145	4	WASHER FLAT 5/16-M8 ZINC
(1)22	0H9812AST0R	1	CENTER SUPPORT DOORS
23	0A3359	48	SCREW BHSC M6-1.0 X 16 SS
24	087233	16	RIVET POP .1875 X .450 SS
(1)25	0H98080ST0R	1	CORNER POST RH FRONT
(1)26	0H98120ST0R	1	CENTER SUPPORT DOORS
27	022129	4	WASHER LOCK M8-5/16
28	0J0993A	8	ROLLER ROD, T-HANDLE
(1)29	0J17870ST0R	1	DOOR BAFFLE, A-GRP
30	080490	16	WASHER FLAT #8 SS
31	022127	1	NUT HEX 1/4-20 STEEL
(1)32	0J2485AST0R	1	BLOCK OFF, 2.4L G16 RH RAD
(1)33	0J22820ST0R	1	DUCT FRONT PANEL
34	0E7222	2	RAIN SHIELD, DOOR JAMB
(1)35	0H98060ST0R	1	CORNER POST RH REAR
(1)36	0J15800ST0R	1	DOOR LH SOLID
(1)37	0J24840ST0R	1	BRACE, FRONT TOP 2.4L G16
38	0J0992	4	T-HANDLE, 2-POINT DBL DOOR
39	0C41150AL0R	1	DUCT REAR TOP ALUMINUM
40	0C42840ST0R	1	PANEL REAR SAE
41	0E3257	14	SCREW HWHTF M6-1.0 X 16
(1)42	0J18000ST0R	1	DOOR BAFFLE, A-GRP
43	0C3393	4	SCREW SHOULDER M8-1.25 X 20
44	0C6748	16	NUT HEX LOCK M4-0.7 SS NYL INS
(1)45	0J15830ST0R	1	DOOR RH LOUVERED
46	049813	16	NUT HEX M6-1.0 G8 CLEAR ZINC
(1)47	0J53360ST0R	1	DOOR BAFFLE
48	022769	4	WASHER LOCK INT #10
49	066760	1	STRIP SEALANT 1/8 X 1 (NOT SHOWN)
50	0A9881	1	TRIM VINYL SEAL
(1)51	0C40660ST0R	2	DUCT BOTTOM A-GRP RAW
52	0C2454	95	SCREW HWHT M6-1 X 16 N WA Z/JS
53	042907	4	SCREW HHC M8-1.25 X 16 C8.8
(1)54	0H98050ST0R	1	CORNER POST LH FRONT
(1)55	0J24860ST0R	1	BRACE, FRONT BOTTOM 2.4L G16
(1)56	0J24850ST0R	1	BLOCK OFF, 2.4L G16 LH RAD
57	027529	8	NUT HEX LOCK 1/4-20 NY INS
58	0C3948	6	SPACER DOOR (NOT SHOWN)
(1)59	0J91960ST0R	1	DOOR BAFFLE

**EXPLODED VIEW: EV ENCL L1A A-GRP****DRAWING #: 0J0406****GROUP F**

<b>ITEM</b>	<b>PART#</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
70	0J1765S	1	INSULATION REAR DUCT CENTER
71	0J1765R	2	INSULATION REAR DUCT SIDE
72	0J1765Q	1	INSULATION REAR DUCT LH SIDE
73	0J1765L	2	INSULATION FRONT DUCT BOTTOM
74	0J1765T	1	INSULATION REAR DUCT TOP
75	0J1765N	1	INSULATION REAR DUCT BAFFLE
76	0J1765F	1	INSULATION REAR ROOF
77	0J1765G	1	INSULATION MID ROOF
78	0J1806D	1	INSUL HIGH HEAT ROOF FRONT
79	0J1765	2	INSULATION REAR CORNER POST
80	0J1765W	1	INSULATION RH DOOR SOLID
81	0J1765V	1	INSULATION LH DOOR SOLID
82	0J1765U	3	INSULATION LH DOOR LOUVERED
83	0J1765D	2	INSULATION FRONT CORNER POST
84	0J1765B	2	INSULATION CTR DOOR SUPPORT
85	0J1765CG	2	INSULATION DOOR BAFFLE
86	0J1765CF	1	INSULATION DOOR BAFFLE
87	0J1765BX	1	INSULATION DOOR
88	0J1765A	4	INSULATION SIDE BRACE
89	0J1806B	2	INSUL HIGH HEAT FRNT CNR POST
90	0J1806	1	INSUL HIGH HEAT FRNT CNR POST
91	0J1806A	1	INSUL HIGH HEAT FRNT CNR POST
92	0J1806C	1	INSUL HIGH HEAT FRNT CTR PNL
93	0J1765C	2	INSULATION FRONT CORNER POST
94	0J1765E	1	INSULATION FRONT CENTER PANEL
95	0J1765I	1	INSULATION RH FRONT DUCT
96	0J1765K	2	INSULATION FRONT DUCT
97	0J1765M	1	INSULATION FRONT DUCT CENTER
98	0J1765P	1	INSULATION REAR DUCT RH SIDE
99	0J1765CV	1	INSULATION DOOR BAFFLE

## NOTES (UNLESS OTHERWISE SPECIFIED):

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- CUSTOMER: WHEN ORDERING REPLACEMENT PARTS ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR (FOR REFERENCE SEE GUIDELINE 0H7169).

**EXPLODED VIEW: EV ENCL L1A A-GRP**

**DRAWING #: 0J0406**

**GROUP F**

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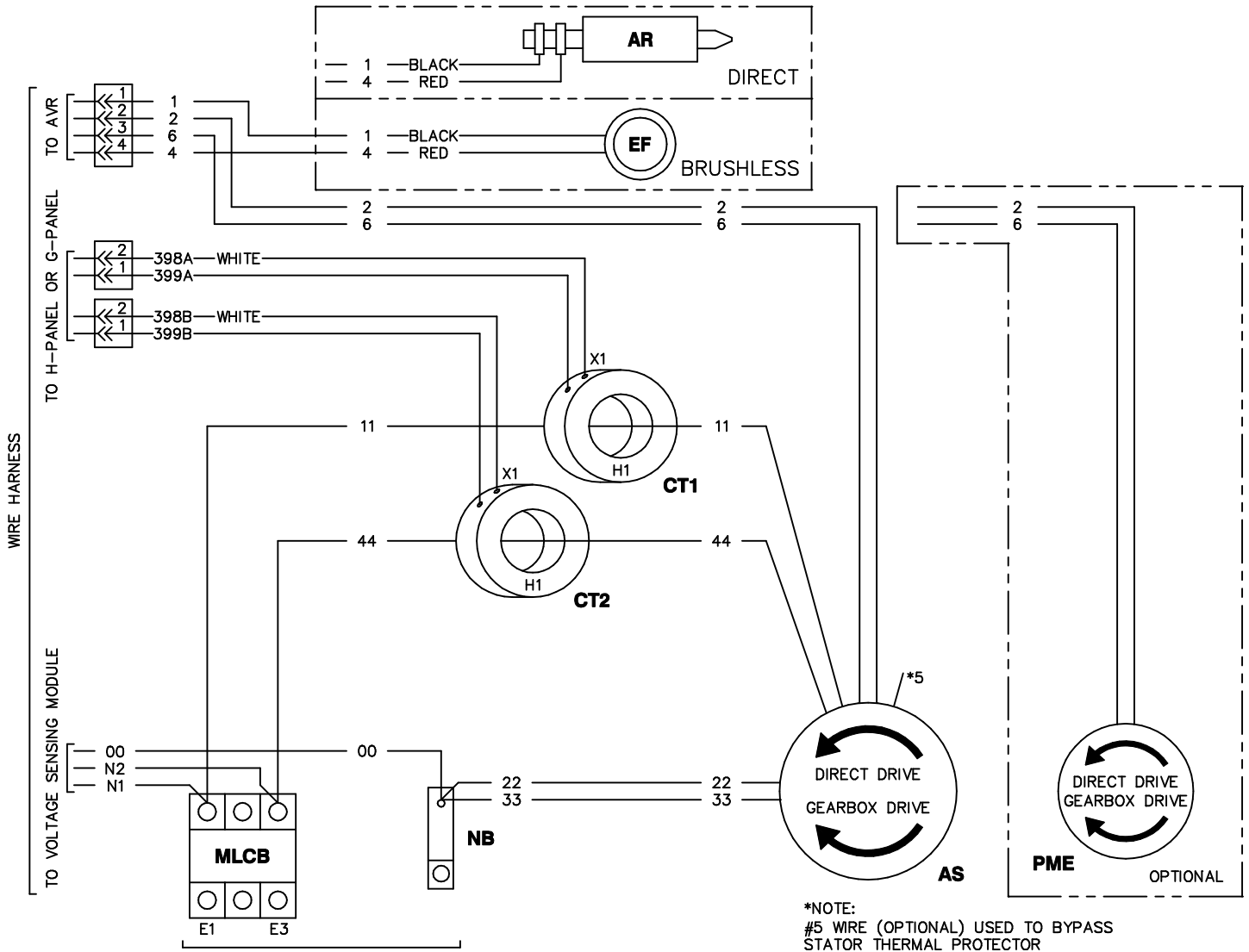
<b>ITEM</b>	<b>PART#</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
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OPTION 1 - SINGLE PHASE, H-PANEL OR G-PANEL CONTROL PANEL

LEGEND	
AR	- ALTERNATOR ROTOR
AS	- ALTERNATOR STATOR
AVR	- AUTOMATIC VOLTAGE REGULATOR
CT_	- CURRENT TRANSFORMER
EF	- EXCITER FIELD
MLCB	- MAIN CIRCUIT BREAKER
NB	- NEUTRAL BLOCK
PME	- PERMANENT MAGNET EXCITER



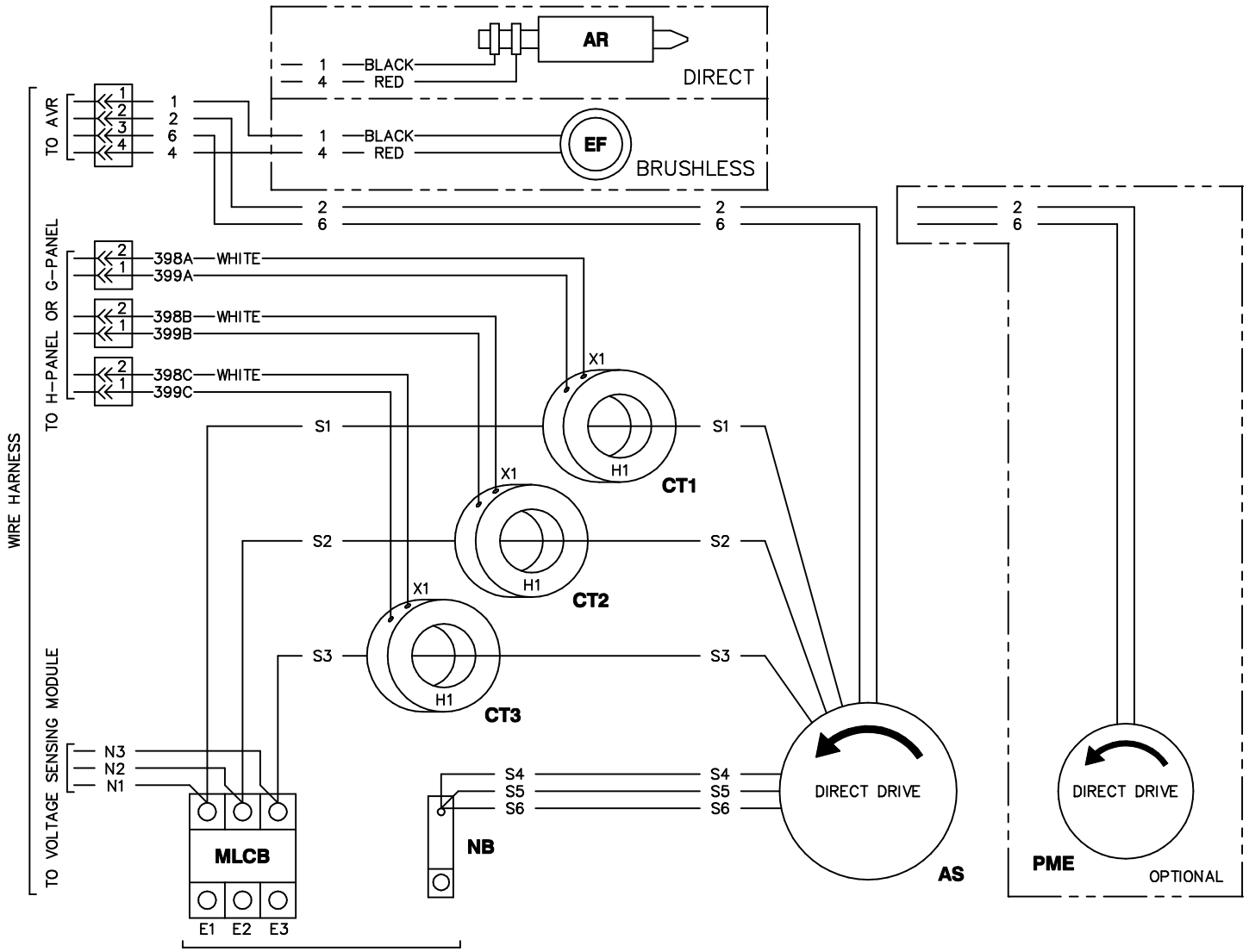
\*NOTE:  
#5 WIRE (OPTIONAL) USED TO BYPASS  
STATOR THERMAL PROTECTOR

GENERATOR OUTPUT  
CUSTOMER CONNECTION  
E1-E3 \*240VAC  
E1-N OR E3-N \*120VAC

\*NOTE: THE 8TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON  
UNITS BEFORE 2010  
THE 7TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS  
2010 TO PRESENT  
"A" = 120/240VAC 60HZ  
"M" = 110/220VAC 50HZ

OPTION 2 - THREE PHASE, H-PANEL OR G-PANEL CONTROL PANEL, DIRECT DRIVE, 6 LEAD

LEGEND	
AR	- ALTERNATOR ROTOR
AS	- ALTERNATOR STATOR
AVR	- AUTOMATIC VOLTAGE REGULATOR
CT_	- CURRENT TRANSFORMER
EF	- EXCITER FIELD
MLCB	- MAIN CIRCUIT BREAKER
NB	- NEUTRAL BLOCK
PME	- PERMANENT MAGNET EXCITER



GENERATOR OUTPUT  
CUSTOMER CONNECTION

E1 TO E2 ]  
E2 TO E3 ] \*208VAC OR \*480VAC  
E1 TO E3 ]

E1, E2 OR E3 TO NB = \*120VAC OR \*277VAC

\*NOTE: THE 8TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS BEFORE 2010

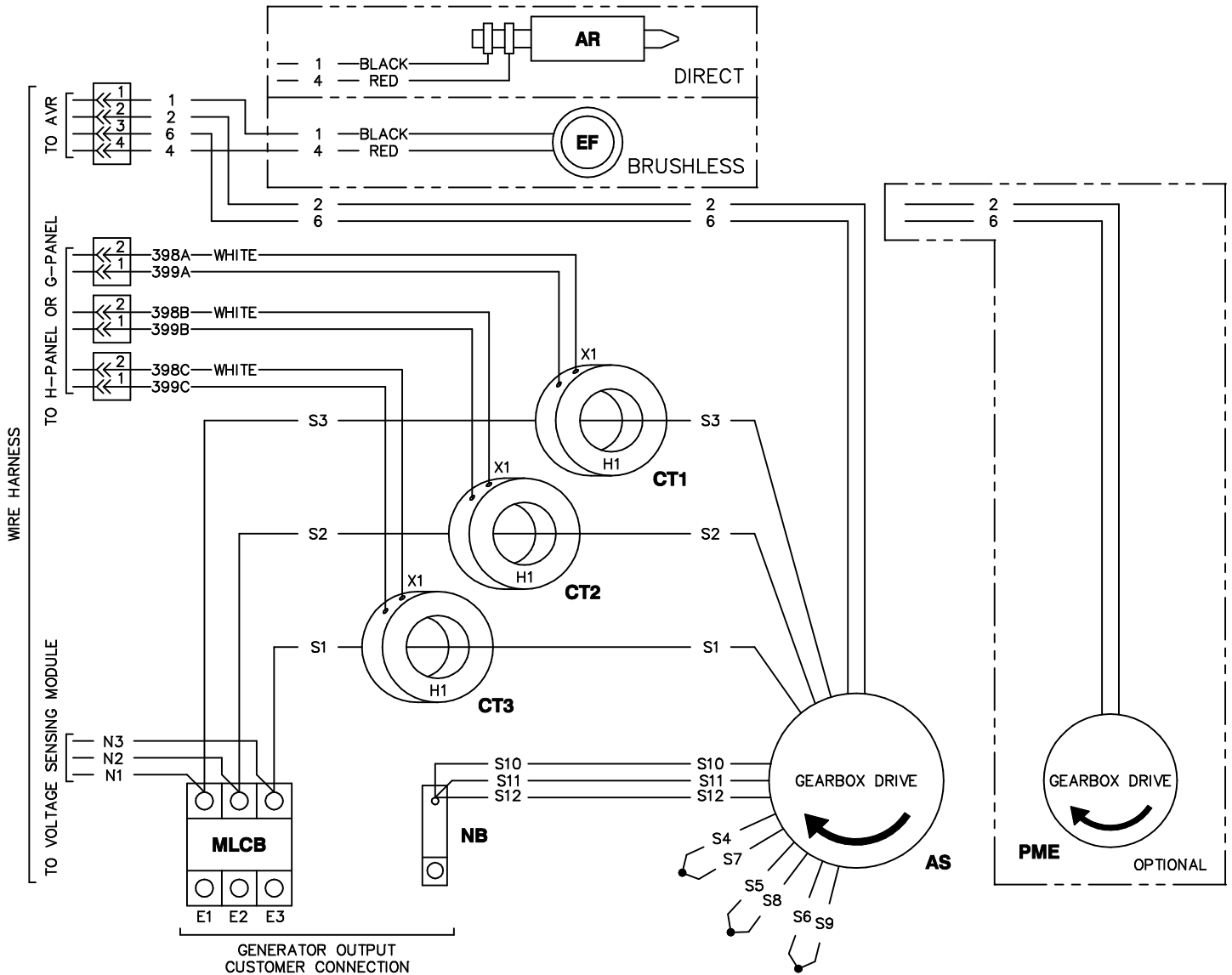
THE 7TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS 2010 TO PRESENT

"G" = 120/208VAC 60HZ

"K" = 277/480VAC 60HZ

## OPTION 3 - THREE PHASE, H-PANEL OR G-PANEL CONTROL PANEL, GEARBOX (REVERSE ROTATION)

LEGEND	
AR	- ALTERNATOR ROTOR
AS	- ALTERNATOR STATOR
AVR	- AUTOMATIC VOLTAGE REGULATOR
CT_	- CURRENT TRANSFORMER
EF	- EXCITER FIELD
MLCB	- MAIN CIRCUIT BREAKER
NB	- NEUTRAL BLOCK
PME	- PERMANENT MAGNET EXCITER



GENERATOR OUTPUT  
CUSTOMER CONNECTION

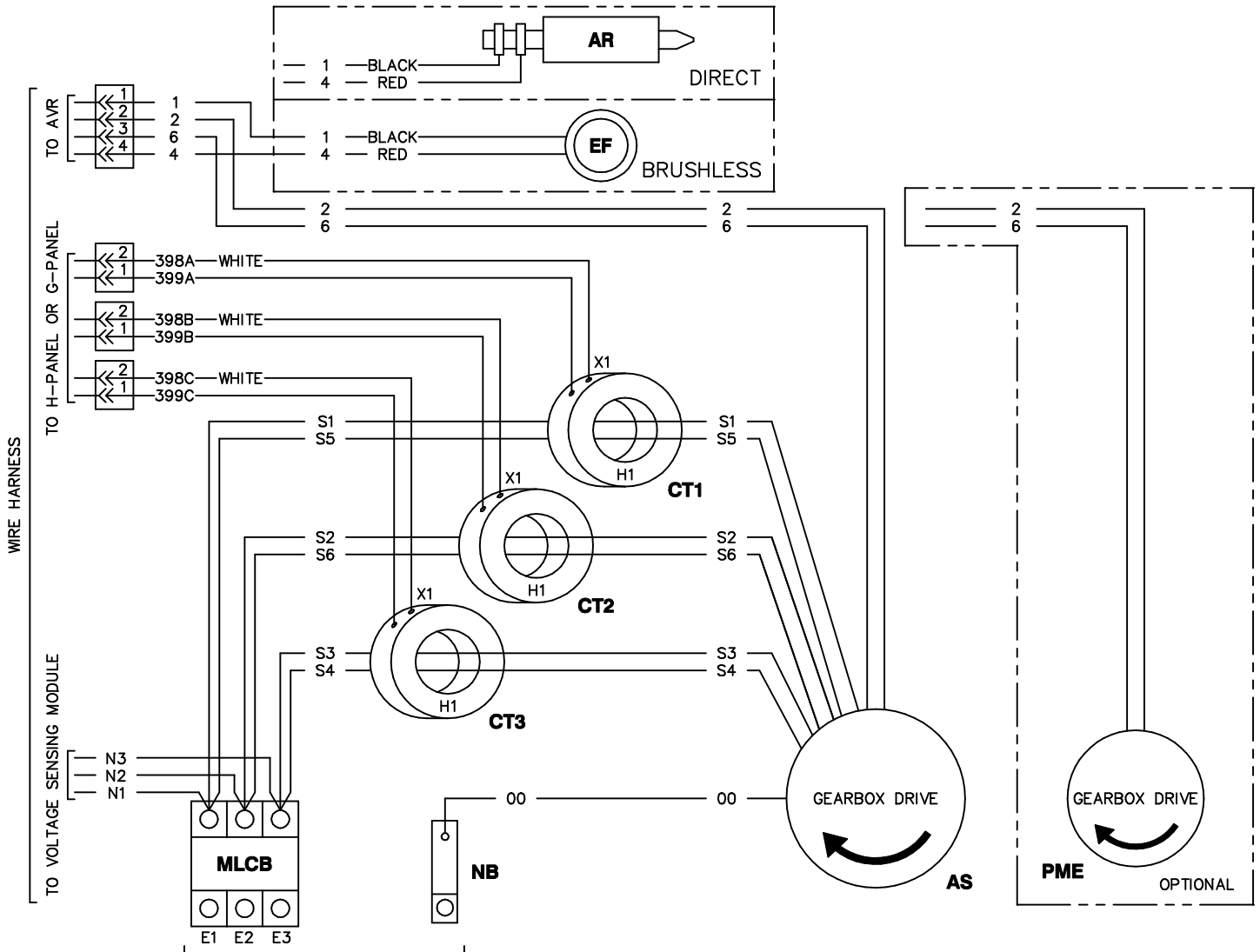
E1 TO E2 ]  
E2 TO E3 ] \*480VAC  
E1 TO E3 ]

E1, E2 OR E3 TO NB = \*277VAC

\*NOTE: THE 8TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS BEFORE 2010  
THE 7TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS 2010 TO PRESENT  
"K" = 277/480VAC 60HZ

OPTION 4 - THREE PHASE DELTA, H-PANEL OR G-PANEL CONTROL PANEL, DIRECT DRIVE, 7 LEAD

LEGEND	
AR	- ALTERNATOR ROTOR
AS	- ALTERNATOR STATOR
AVR	- AUTOMATIC VOLTAGE REGULATOR
CT_	- CURRENT TRANSFORMER
EF	- EXCITER FIELD
MLCB	- MAIN CIRCUIT BREAKER
NB	- NEUTRAL BLOCK
PME	- PERMANENT MAGNET EXCITER



GENERATOR OUTPUT  
CUSTOMER CONNECTION

E1 TO E2  
E2 TO E3 \*240VAC  
E1 TO E3

E1-N OR E3-N = \*120VAC

\*NOTE: THE 8TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS BEFORE 2010

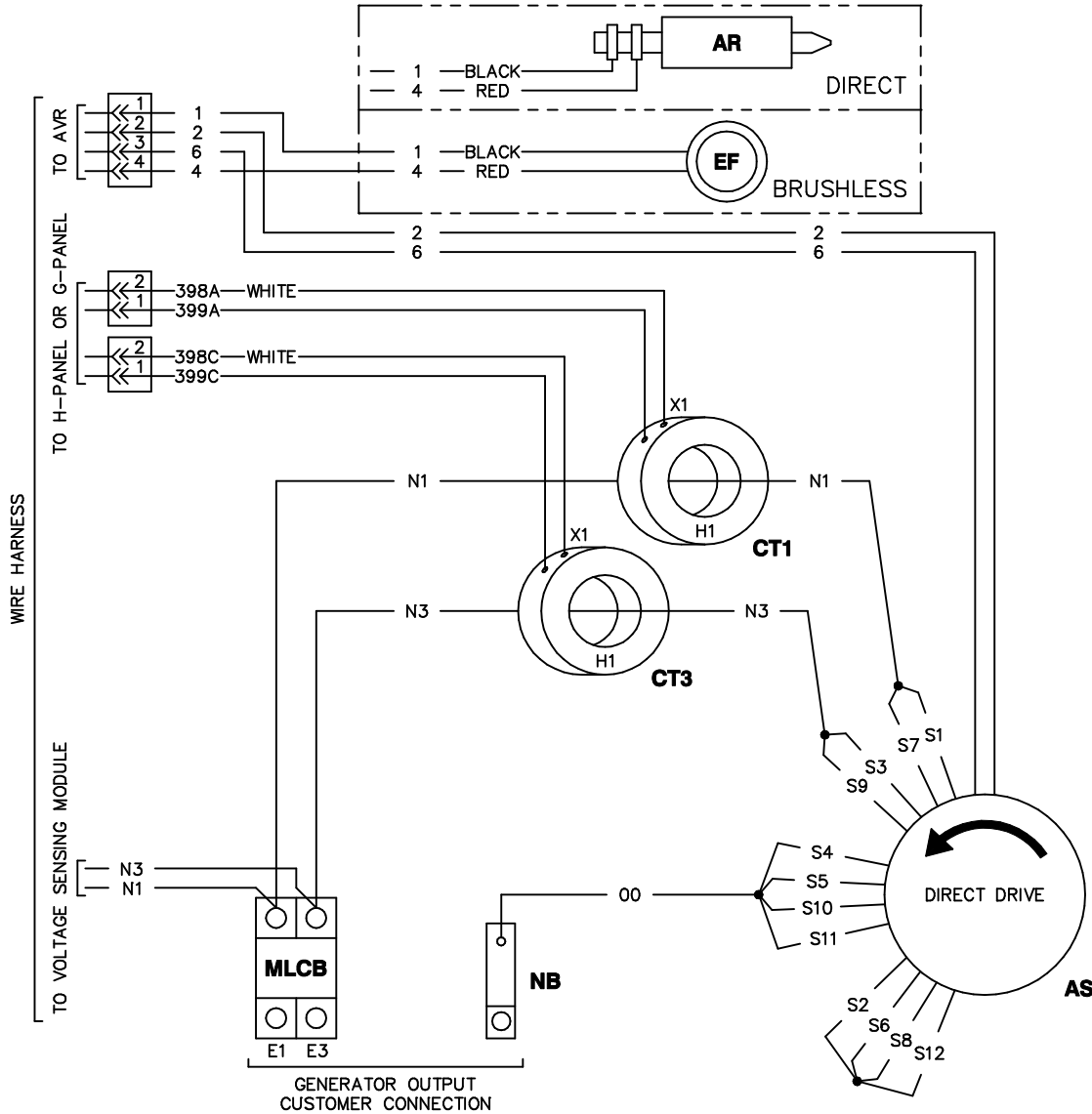
THE 7TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS 2010 TO PRESENT

"J" = 120/240VAC 60HZ



OPTION 6 - THREE PARALLEL ZIG ZAG, H-PANEL OR G-PANEL CONTROL PANEL, DIRECT DRIVE, 12 LEAD

LEGEND	
AR	- ALTERNATOR ROTOR
AS	- ALTERNATOR STATOR
AVR	- AUTOMATIC VOLTAGE REGULATOR
CT_	- CURRENT TRANSFORMER
EF	- EXCITER FIELD
MLCB	- MAIN CIRCUIT BREAKER
NB	- NEUTRAL BLOCK

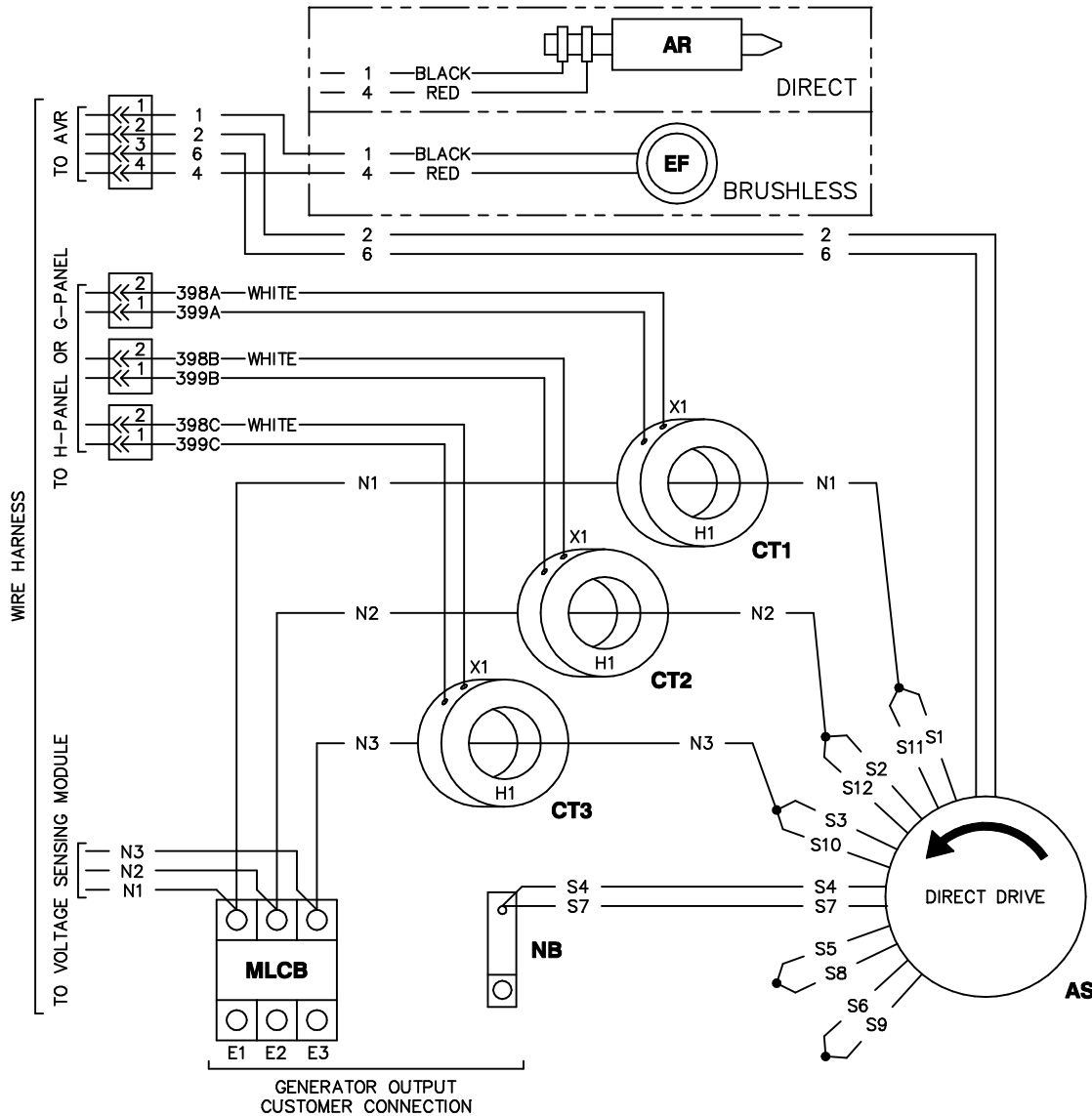


E1 TO 00] \*115VAC OR \*120VAC  
 E3 TO 00] \*115VAC OR \*120VAC  
 E1 TO E3] \*200VAC OR \*240VAC

\*NOTE: THE 8TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS BEFORE 2010  
 THE 7TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS 2010 TO PRESENT  
 "A" = 120/240VAC 60HZ  
 "N" = 115/200VAC 50HZ

OPTION 7 - THREE PHASE SERIES DELTA, H-PANEL OR G-PANEL CONTROL PANEL, DIRECT DRIVE, 12 LEAD

LEGEND	
AR	- ALTERNATOR ROTOR
AS	- ALTERNATOR STATOR
AVR	- AUTOMATIC VOLTAGE REGULATOR
CT_	- CURRENT TRANSFORMER
EF	- EXCITER FIELD
MLCB	- MAIN CIRCUIT BREAKER
NB	- NEUTRAL BLOCK



E1 TO E2	E1 TO E2
E2 TO E3	E2 TO E3
E1 TO E3	E1 TO E3

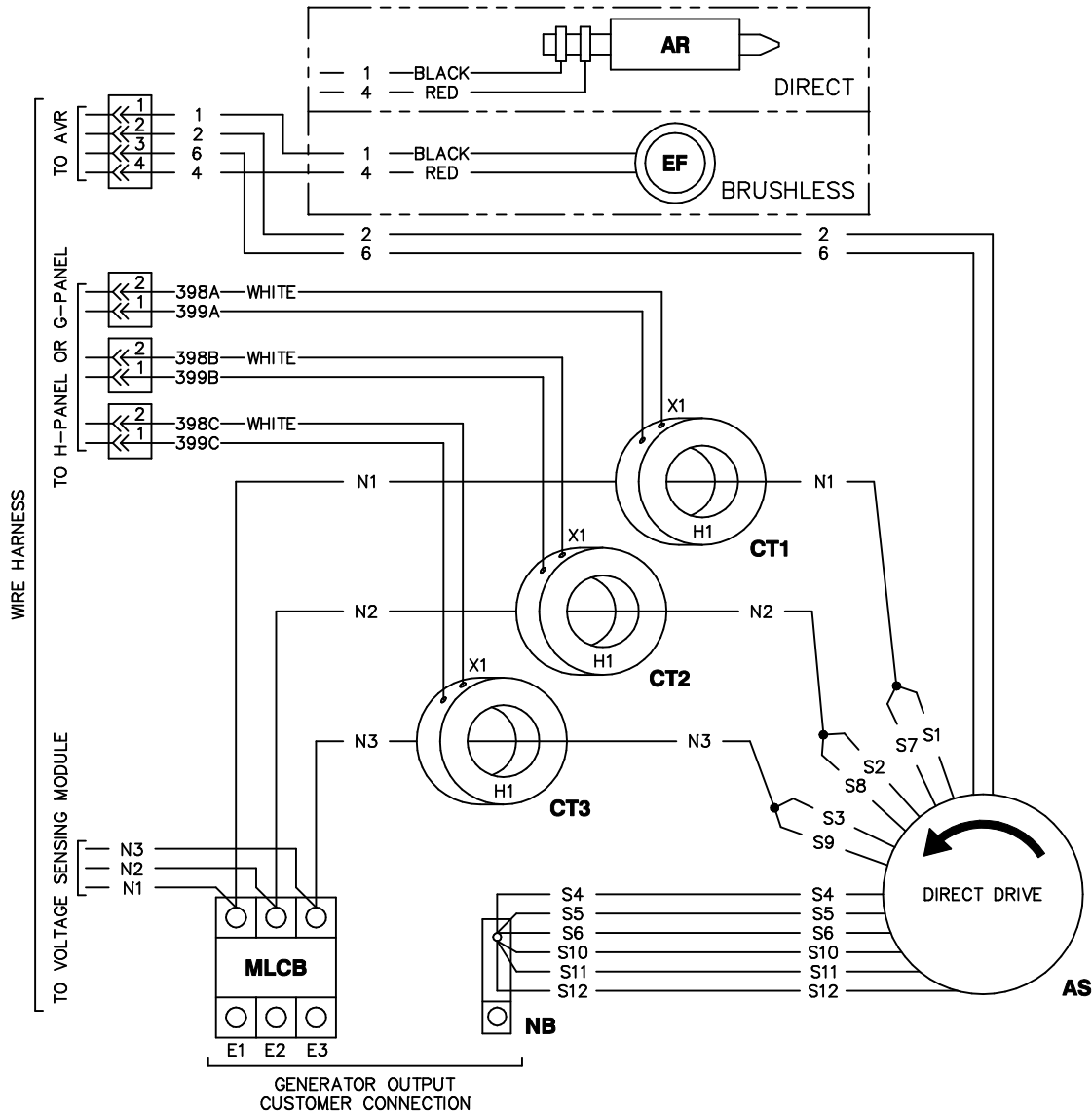
\*240VAC                      \*200VAC

E1-N OR E2-N OR E3-N = \*120VAC      E1-N OR E2-N OR E3-N = \*100VAC  
 \*NOTE: THE 8TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS BEFORE 2010  
 THE 7TH DIGIT ON THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS 2010 TO PRESENT

"D" = 120/240VAC 1 $\phi$ /3 $\phi$  60HZ  
 "J" = 120/240VAC 60HZ  
 "P" = 100/200VAC 50HZ

OPTION 8 - THREE PHASE PARALLEL WYE, H-PANEL OR G-PANEL CONTROL PANEL, DIRECT DRIVE, 12 LEAD

LEGEND	
AR	- ALTERNATOR ROTOR
AS	- ALTERNATOR STATOR
AVR	- AUTOMATIC VOLTAGE REGULATOR
CT_	- CURRENT TRANSFORMER
EF	- EXCITER FIELD
MLCB	- MAIN CIRCUIT BREAKER
NB	- NEUTRAL BLOCK



GENERATOR OUTPUT  
CUSTOMER CONNECTION

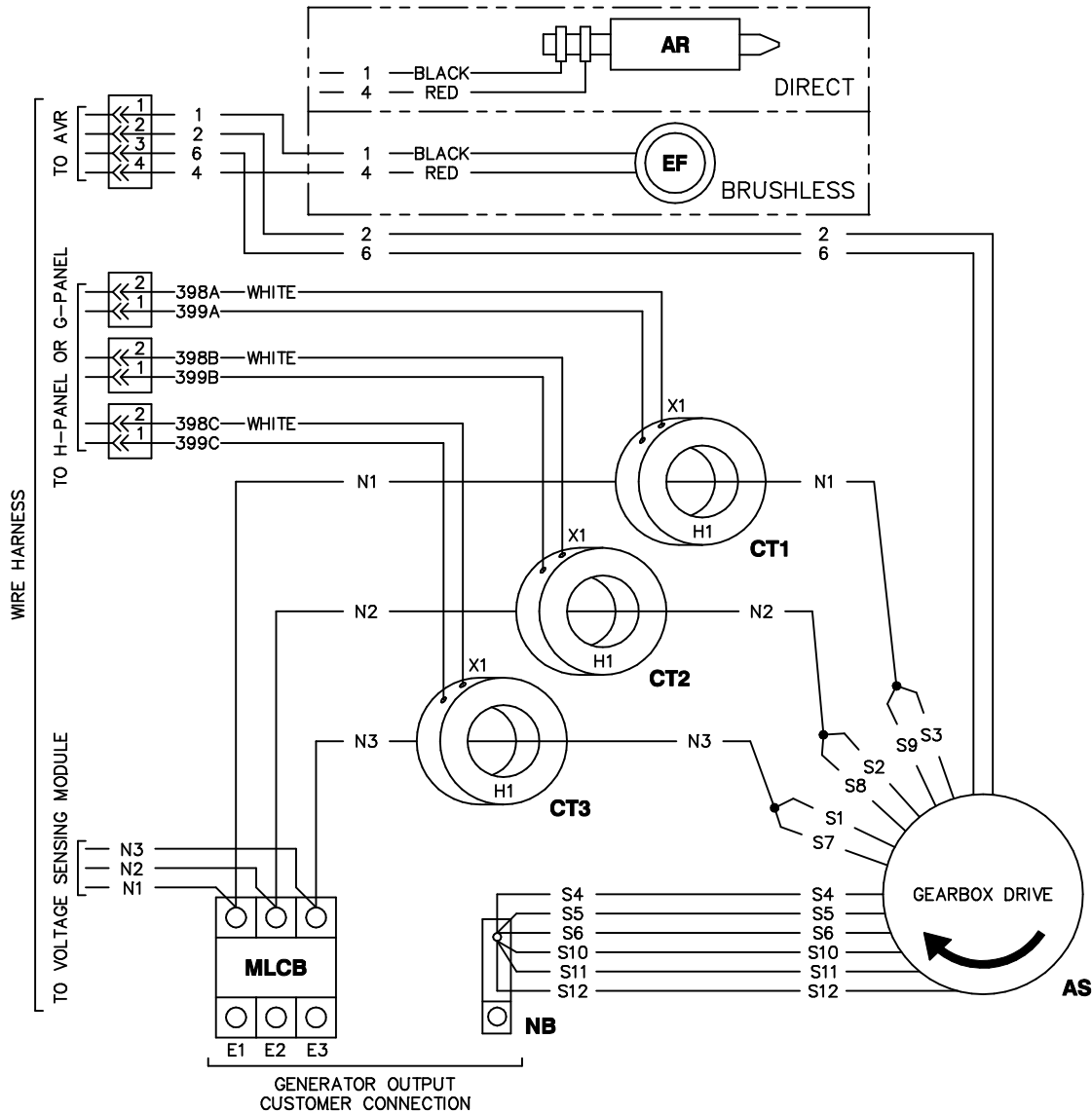
E1 TO E2  
E2 TO E3 \*208VAC  
E1 TO E3

E1-N OR E2-N OR E3-N = \*120VAC

\*NOTE: THE 8TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS BEFORE 2010  
THE 7TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS 2010 TO PRESENT  
\*G\* = 120/208VAC 60HZ

## OPTION 9 - THREE PHASE SERIES DELTA, H-PANEL OR G-PANEL CONTROL PANEL, GEARBOX (REVERSE ROTATION), 12 LEAD

LEGEND	
AR	- ALTERNATOR ROTOR
AS	- ALTERNATOR STATOR
AVR	- AUTOMATIC VOLTAGE REGULATOR
CT_	- CURRENT TRANSFORMER
EF	- EXCITER FIELD
MLCB	- MAIN CIRCUIT BREAKER
NB	- NEUTRAL BLOCK



GENERATOR OUTPUT  
CUSTOMER CONNECTION

E1 TO E2  
E2 TO E3 \*208VAC  
E1 TO E3

E1-N OR E2-N OR E3-N = \*120VAC

\*NOTE: THE 8TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS BEFORE 2010

THE 7TH DIGIT OF THE MODEL NUMBER SPECIFIES OUTPUT VOLTAGE ON UNITS 2010 TO PRESENT

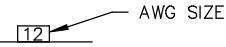
\*G\* = 120/208VAC 60HZ

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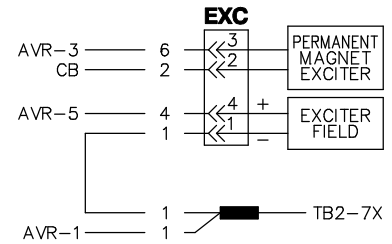
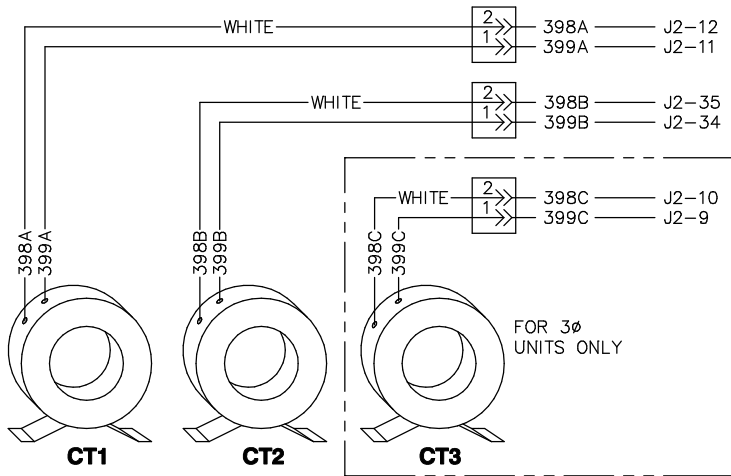
## LEGEND

AH1 - ALARM HORN	IFT - INTERFACE TRANSFORMER
AIH - AIR INTAKE HEATER	IP - INJECTOR PUMP
ALT - DC CHARGE ALTERNATOR	J_ - ENGINE CONTROL MODULE CONN.
AVR - AUTO VOLTAGE REGULATOR	LD - LEAK DETECTOR
BCC - BATTERY CHARGER CONNECTOR	MLCB - MAIN LINE CIRCUIT BREAKER
BCH - BATTERY CHARGER	MOD - MODEM CONNECTOR
CB - CIRCUIT BREAKER DPE	MPU1 - MAGNETIC PICKUP
CO - CROSSOVER CONNECTOR	NB - NEUTRAL BLOCK
COM - COMMUNICATION CONNECTOR	OPS1 - OIL PRESSURE SENDER
CT_ - CURRENT TRANSFORMER	OTS_ - OIL TEMPERATURE SENDER
DB - DIODE BRIDGE	PHC - PREHEAT CONTACTOR
ECM - ELECTRONIC CONTROL MODULE	R_ - RESISTOR
ES1 - EMERGENCY STOP SWITCH	RB_ - RELAY BOARD
EXC - EXCITER	RB_A - RELAY BOARD CONNECTOR
F_ - FUSE	SC - STARTER CONTACTOR
FLS_ - FUEL LEVEL SENDER	SM - STARTER MOTOR
GA_ - GOVERNOR ACTUATOR	SW1 - OFF/AUTO/MANUAL SWITCH
GD - GOVERNOR DRIVER	SWC - SWITCH CONNECTOR
GFCI - GROUND FAULT CIRCUIT INTERRUPT	TB_ - TERMINAL BLOCK
GND - GROUND BAR CONNECTION	WLS_ - COOLANT LEVEL SENDER
GP - GLOW PLUG	WTS_ - COOLANT TEMPERATURE SENDER

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



## COMPONENTS LOCATED IN ALTERNATOR CONNECTION BOX



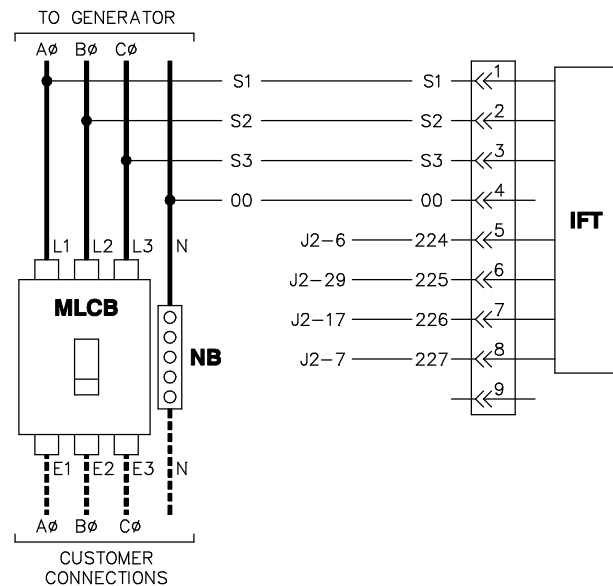
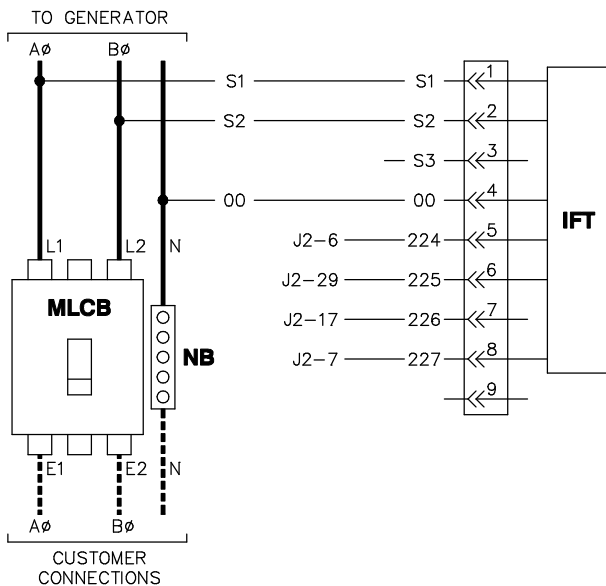
SEE DRAWING 0H9846 FOR CT WIRING.

## COMPONENTS LOCATED IN HIGH VOLTAGE CUSTOMER CONNECTION MODULE

### CONNECTIONS FOR 1Ø UNIT

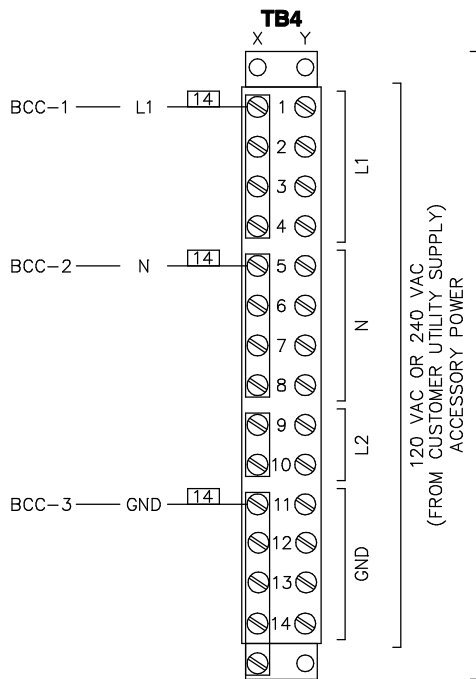
NOTE: ALL WIRES IN THIS SECTION ARE 600V RATED

### CONNECTIONS FOR 3Ø UNIT

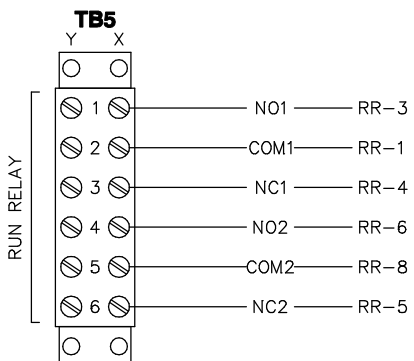
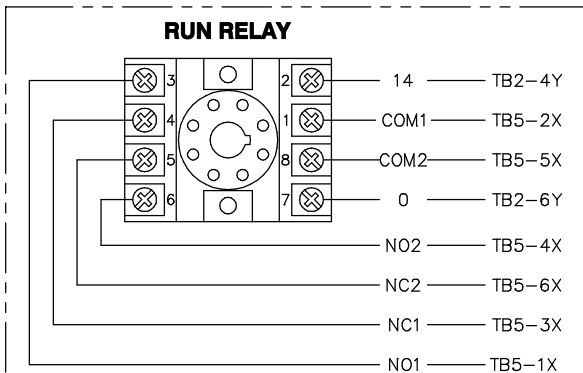
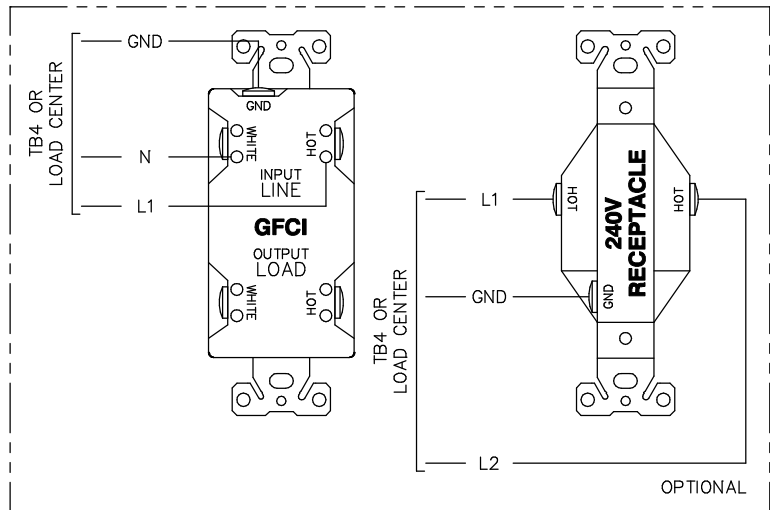
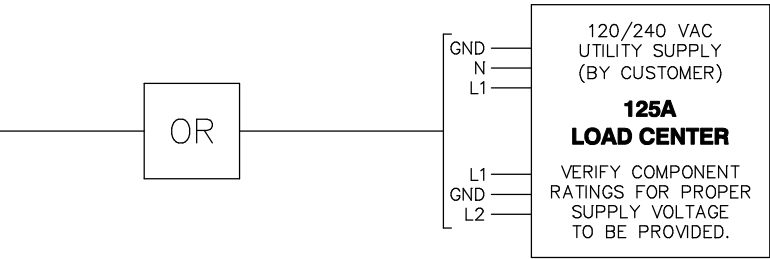


## COMPONENTS LOCATED IN HIGH VOLTAGE CUSTOMER CONNECTION MODULE

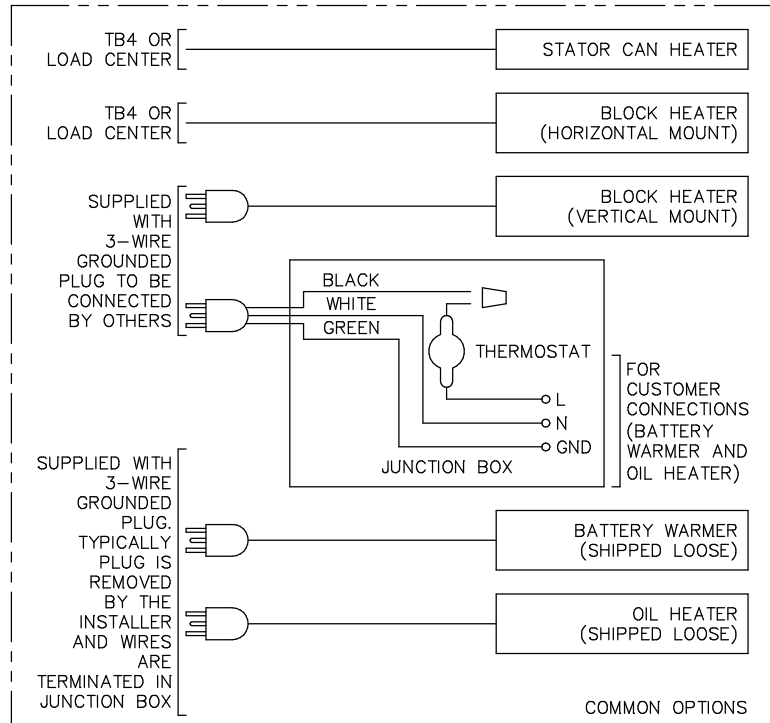
NOTE: ALL WIRES ON THIS PAGE ARE 600V RATED



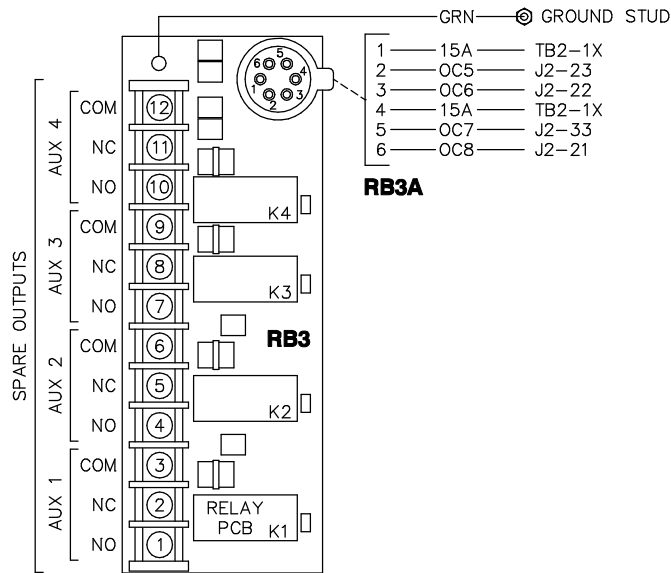
NOTE:  
FOR FIELD WIRING TO CUSTOMER CONNECTIONS  
(TERMINAL STRIP)  
MAXIMUM WIRE SIZE: #10 AWG  
RECOMMENDED TIGHTENING TORQUE: 14 LB-IN



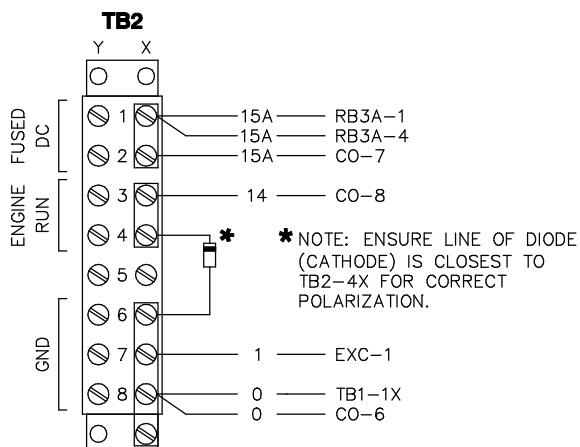
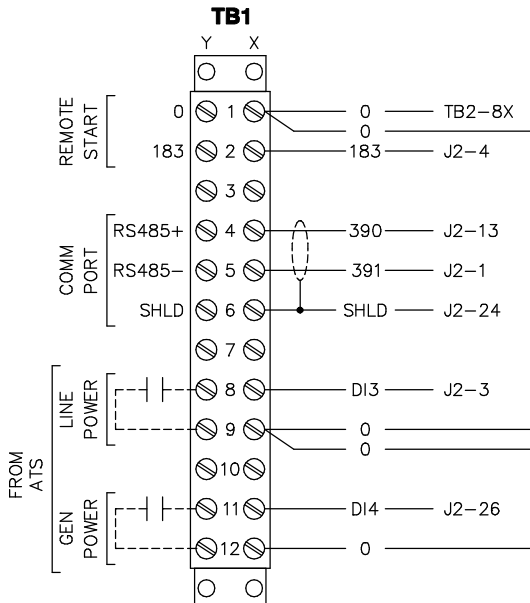
NOTE:  
FOR FIELD WIRING TO CUSTOMER CONNECTIONS  
(TERMINAL STRIPS AND RELAY BOARD)  
MAXIMUM WIRE SIZE: #14 AWG  
RECOMMENDED TIGHTENING TORQUE: 12 LB-IN



## COMPONENTS LOCATED ON LOW VOLTAGE CUSTOMER CONNECTION PANEL

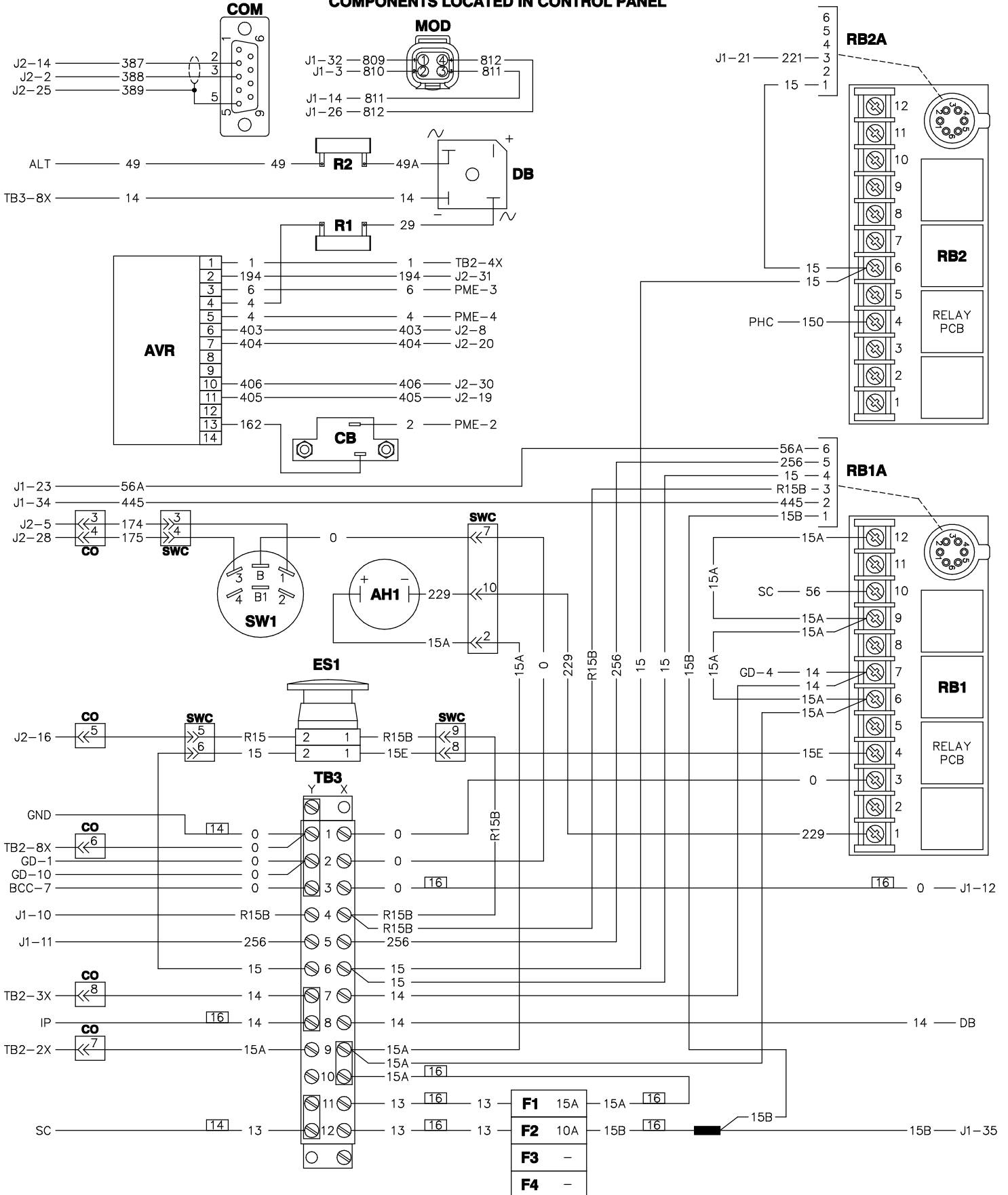


CUSTOMER CONNECTIONS

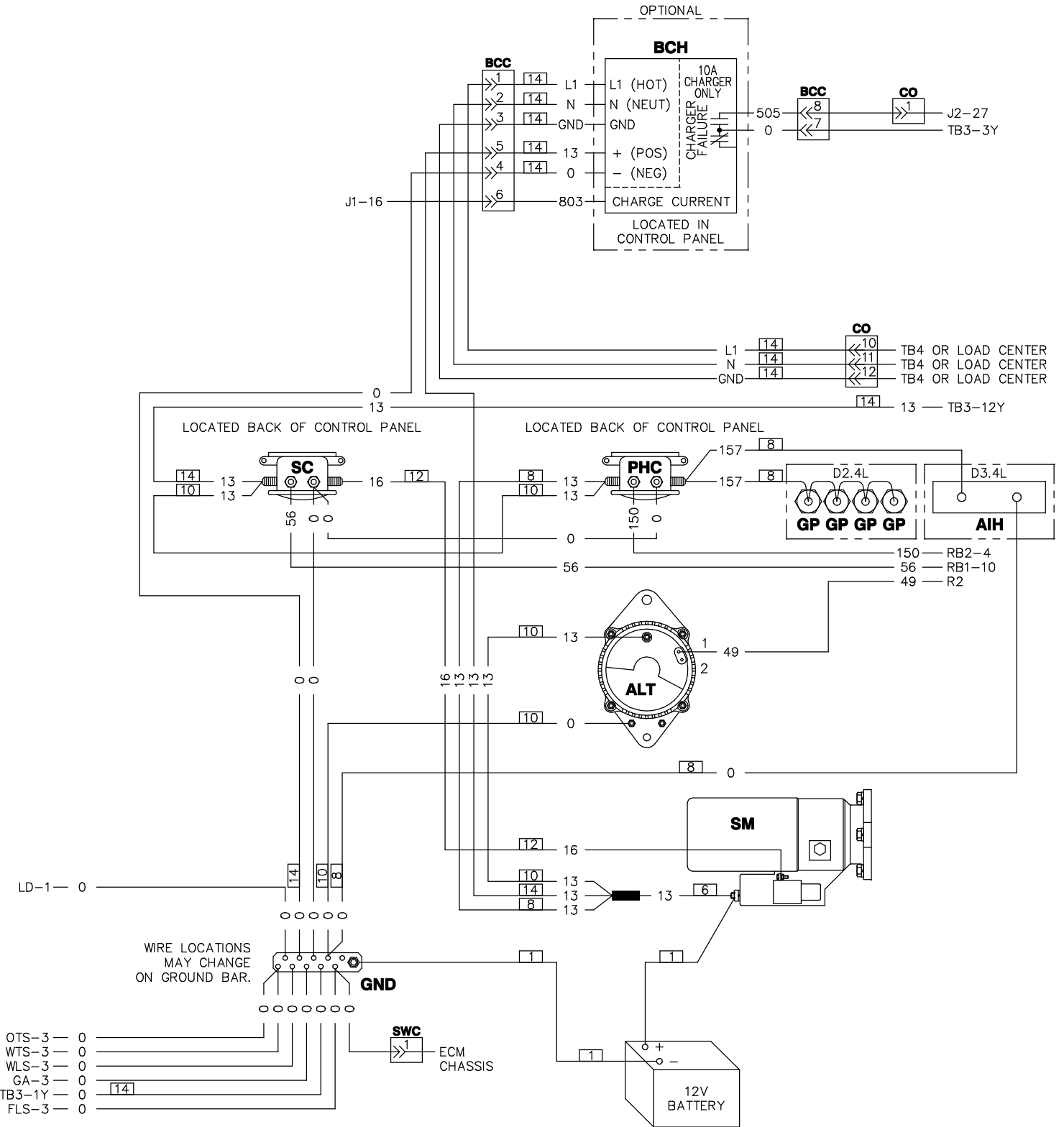


NOTE:  
FOR FIELD WIRING TO CUSTOMER CONNECTIONS (TERMINAL STRIPS AND RELAY BOARD)  
MAXIMUM WIRE SIZE: #14 AWG  
RECOMMENDED TIGHTENING TORQUE: 12 LB-IN

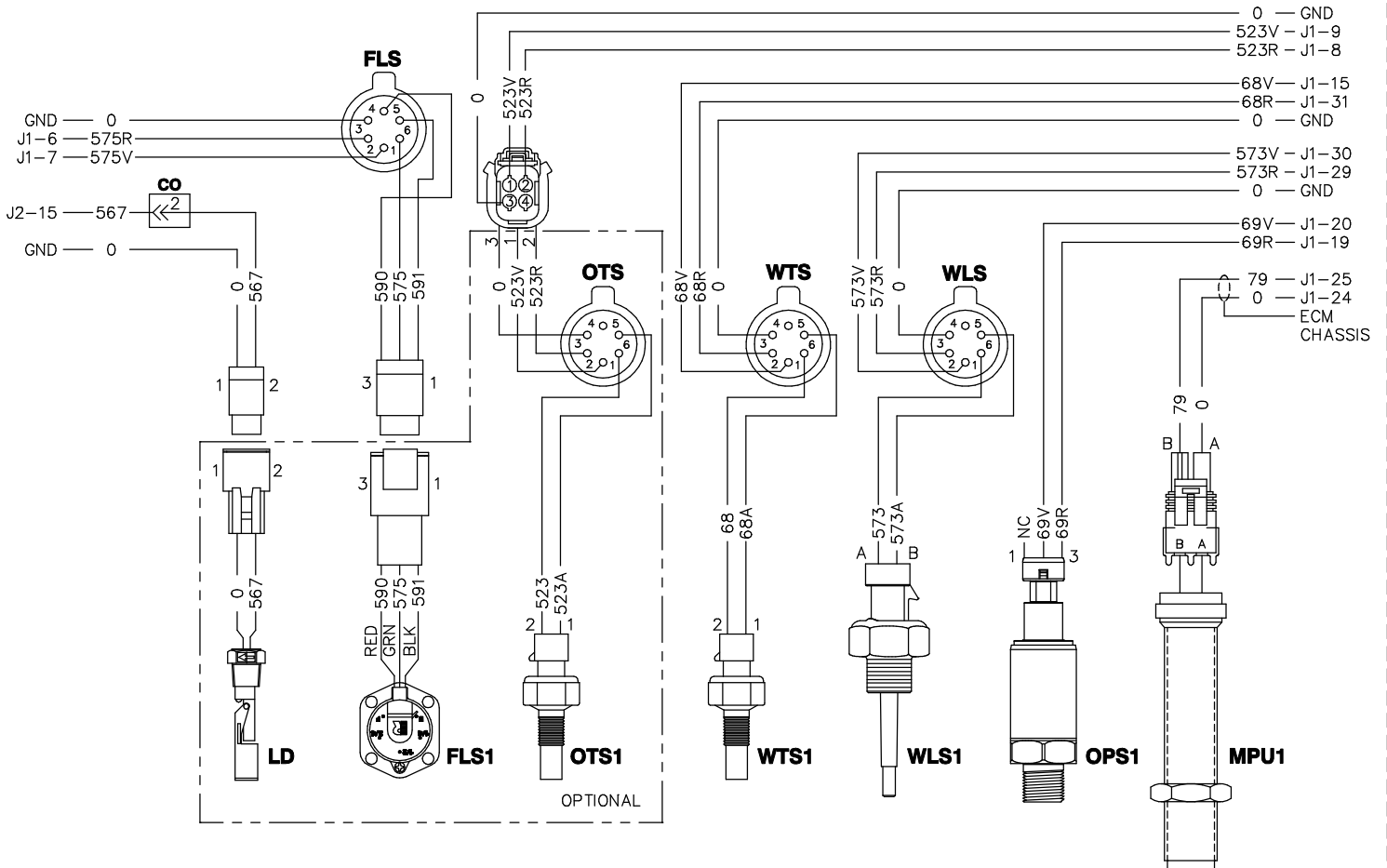
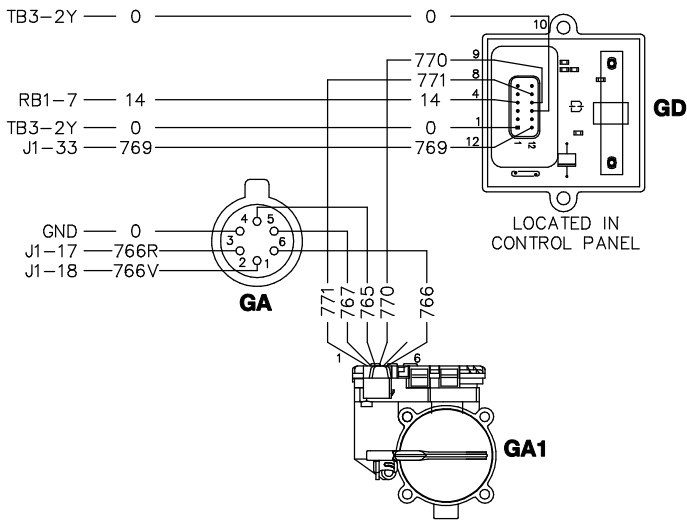
## COMPONENTS LOCATED IN CONTROL PANEL

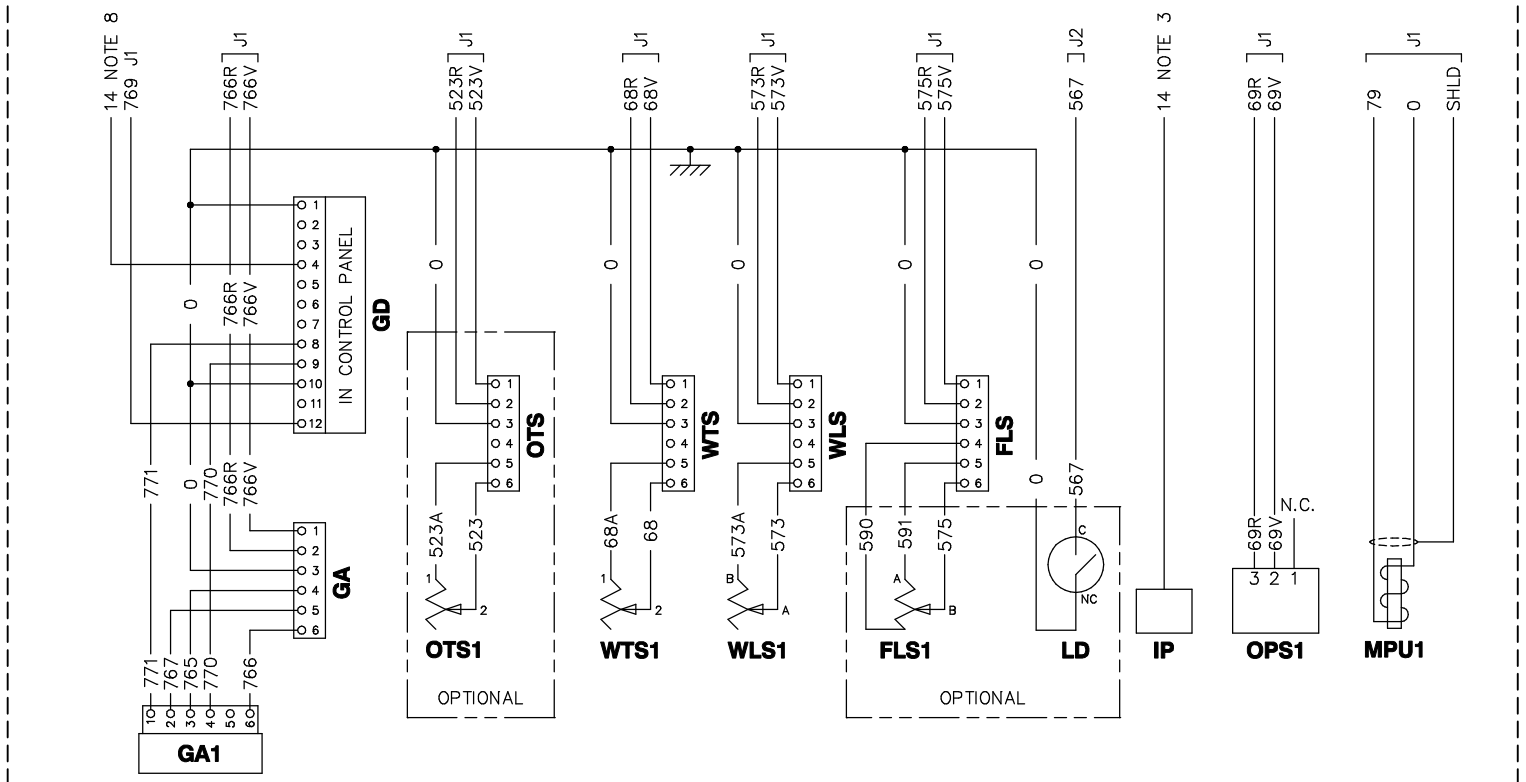
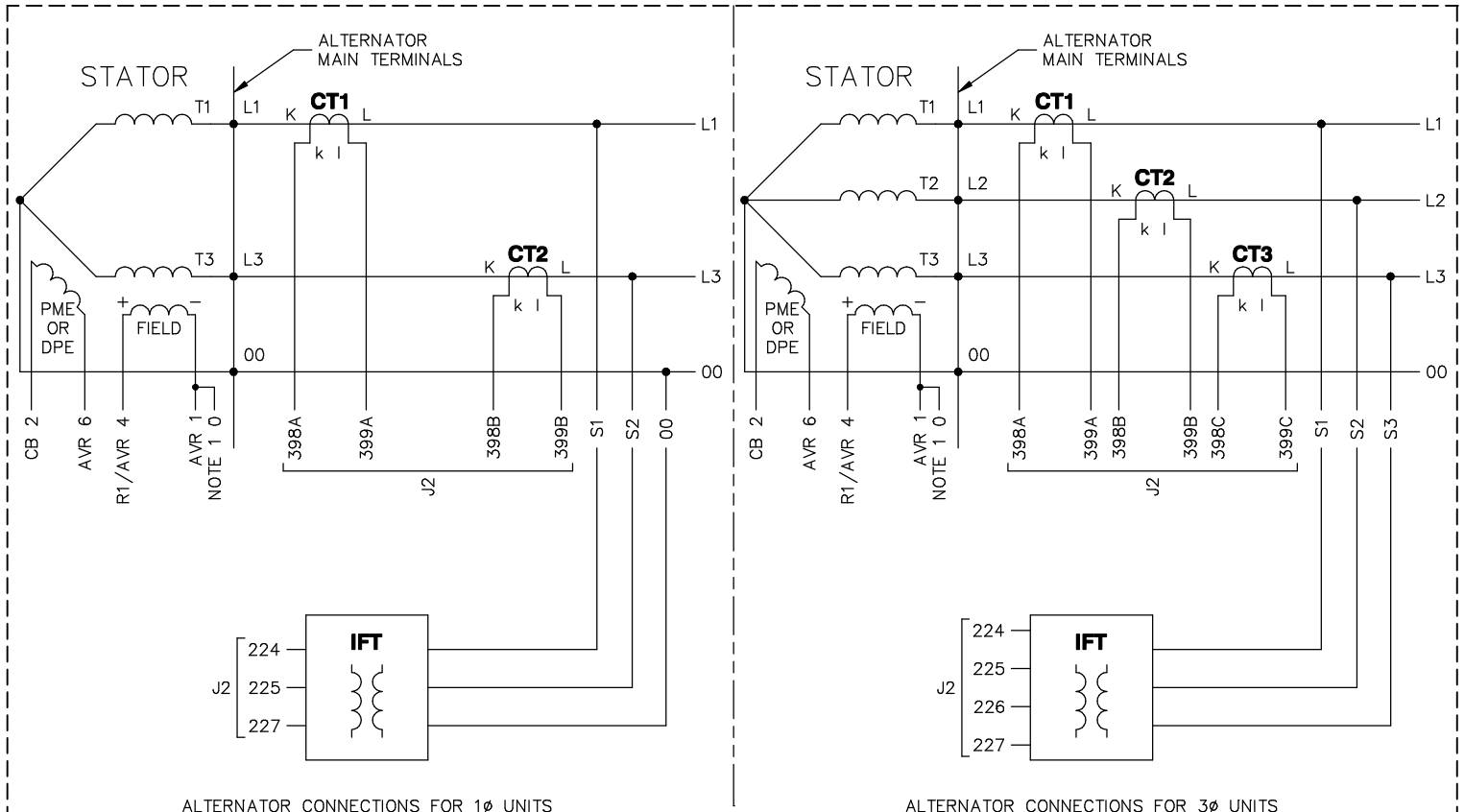


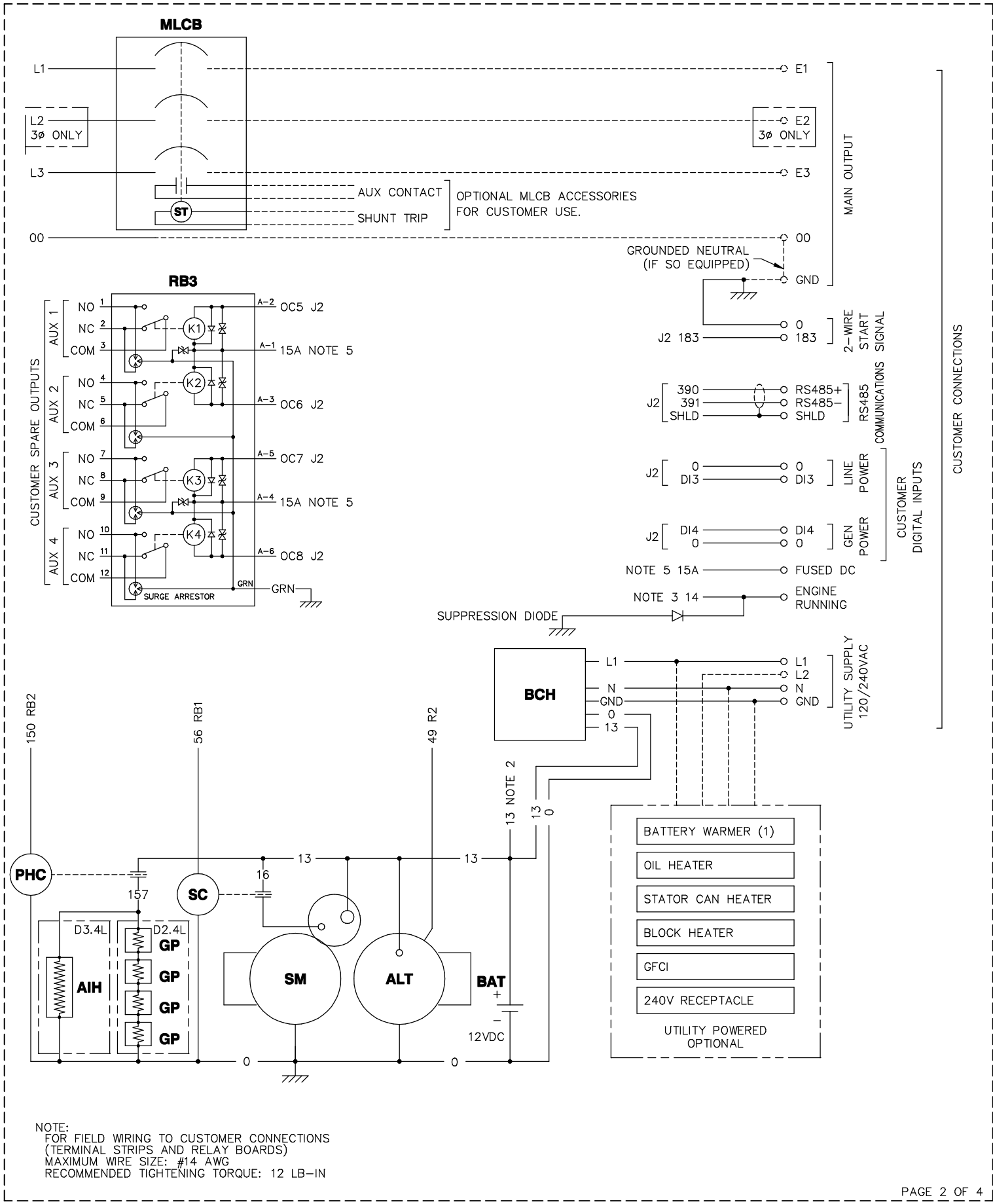
COMPONENTS LOCATED ON ENGINE



## COMPONENTS LOCATED ON ENGINE

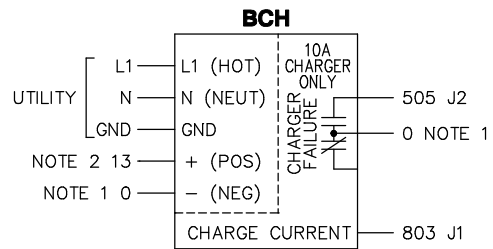
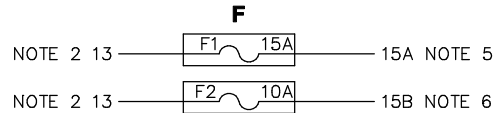
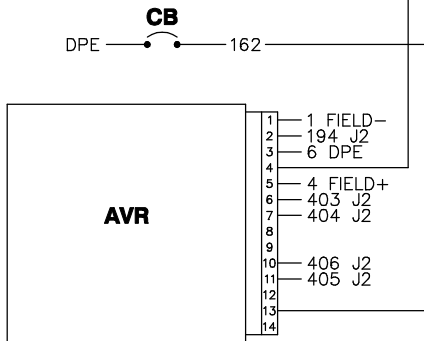
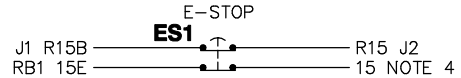
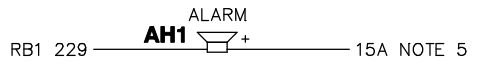
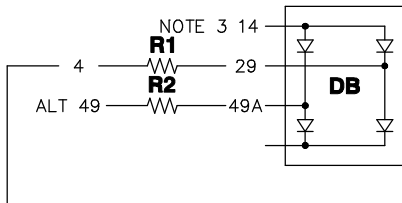
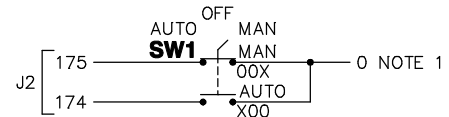
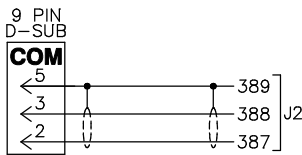
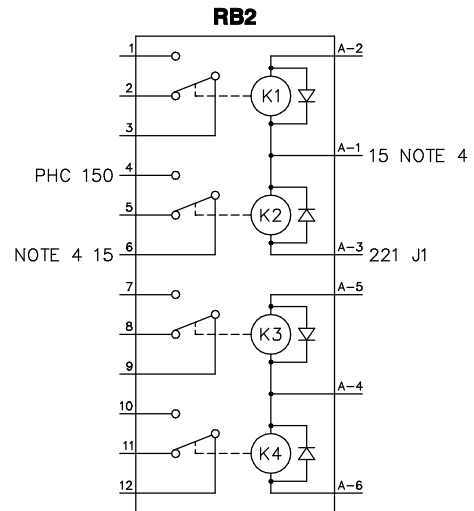
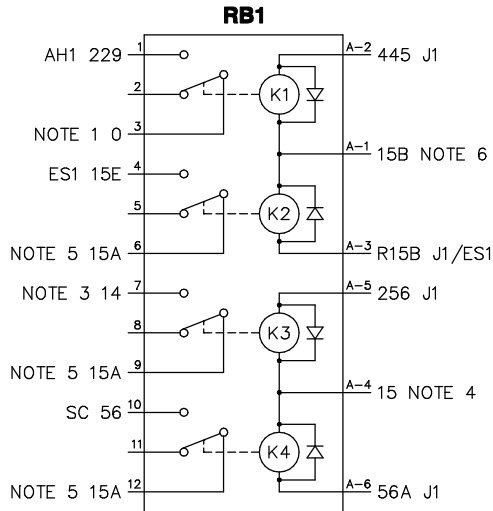






NOTE:  
FOR FIELD WIRING TO CUSTOMER CONNECTIONS  
(TERMINAL STRIPS AND RELAY BOARDS)  
MAXIMUM WIRE SIZE: #14 AWG  
RECOMMENDED TIGHTENING TORQUE: 12 LB-IN

## CONTROL PANEL



### LEGEND

00 - NEUTRAL	CT_ - CURRENT TRANSFORMER	GP - GLOW PLUG	PHC - PREHEAT CONTACTOR
AH1 - ALARM HORN	DB - DIODE BRIDGE	IFT - INTERFACE TRANSFORMER	PME - PERMANENT MAGNET EXCITER
AIH - AIR INTAKE HEATER	DPE - EXCITER	IP - INJECTION PUMP	R_ - RESISTOR
ALT - DC CHARGE ALTERNATOR	ES1 - EMERGENCY STOP SWITCH	J_ - ENGINE CONTROL MODULE CONN.	RB_ - RELAY BOARD
AVR - AUTO VOLTAGE REGULATOR	F_ - FUSE	LD - LEAK DETECTOR	SC - STARTER CONTACTOR
BAT - BATTERY	FLS_ - FUEL LEVEL SENDER	MLCB - MAIN LINE CIRCUIT BREAKER	SM - STARTER MOTOR
BCH - BATTERY CHARGER	GA_ - GOVERNOR ACTUATOR	MPU1 - MAGNETIC PICKUP	SW1 - OFF/AUTO/MANUAL SWITCH
CB - CIRCUIT BREAKER	GD - GOVERNOR DRIVER	OPS1 - OIL PRESSURE SENDER	WLS_ - COOLANT LEVEL SENSOR
COM - COMMUNICATION CONNECTOR	GFCI - GROUND FAULT CIRCUIT INTERRUPT	OTS_ - OIL TEMPERATURE SENDER	WTS_ - COOLANT TEMPERATURE SENDER

**AVR CONNECTOR**

PIN	WIRE	TO	FUNCTION
1	1	FIELD	- FIELD
2	194	J2-31	+12VDC
3	6	DPE	DPE OUTPUT
4	4	R1/FIELD	+ FIELD
5	4	R1/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 (ISO)
13	162	CB	DPE OUTPUT (AFTER CB)

**GD CONNECTOR**

PIN	WIRE	TO	FUNCTION
1	0	GND	NOTE 1
4	14	RB1-7	NOTE 3
8	771	GA1-1	THROTTLE DRIVE LO
9	770	GA1-4	THROTTLE DRIVE HI
10	0	GND	NOTE 1
12	769	J1-33	THROTTLE PWM

**ENGINE CONTROL MODULE CONNECTIONS**

**J1**

PIN	WIRE	TO	FUNCTION
3	810	MOD-2	MODEM SIGNAL RETURN
6	575R	FLS-2	FUEL LEVEL RTN
7	575V	FLS-1	FUEL LEVEL +
8	523R	OTS-2	OIL TEMPERATURE RTN
9	523V	OTS-1	OIL TEMPERATURE +
10	R15B	RB1A-3/ES1	OVERSPEED/WATCHDOG
11	256	RB1A-5	FUEL RELAY
12	0	GND	NOTE 1
14	811	MOD-3	MODEM DATA CARRIER DETECT
15	68V	WTS-1	COOLANT TEMP +
16	803	BCH	BAT CHARGER CURRENT
17	766R	GA-2	THROTTLE POS RTN
18	766V	GA-1	THROTTLE POS +
19	69R	OPS1-3	OIL PRESS RTN
20	69V	OPS1-2	OIL PRESS +
21	221	RB2A-3	PREHEAT
23	56A	RB1A-6	STARTER RELAY
24	0	MPU1-2	MPU1 SIGNAL (-)
25	79	MPU1-3	MPU1 SIGNAL (+)
26	812	MOD-4	MODEM ENABLE
29	573R	WLS-2	COOLANT LVL RTN
30	573V	WLS-1	COOLANT LVL +
31	68R	WTS-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

**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 ENGINE CONTROL MODULE.

**J2**

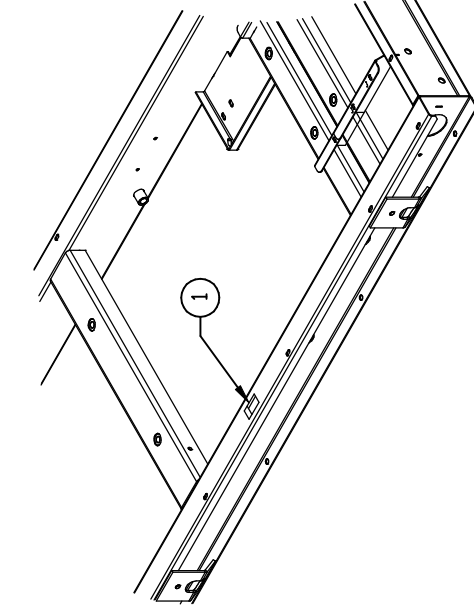
PIN	WIRE	TO	FUNCTION
1	391	CUST CON	RS485- (XFER SW)
2	388	COM-3	RS232 TX (GENLINK)
3	D13	CUST CON	SPARE IN 3/LINE PWR
4	183	CUST CON	REMOTE START
5	174	SW1	"AUTO" START
6	224	IFT	V SENSE GEN A PH
7	227	IFT	V SENSE RTN
8	403	AVR-6	AVR GATE TRIGGER B
9	399C	CT3	GEN C PH CURRENT -
10	398C	CT3	GEN C PH CURRENT +
11	399A	CT1	GEN A PH CURRENT -
12	398A	CT1	GEN A PH CURRENT +
13	390	CUST CON	RS485+ (XFER SW)
14	387	COM-2	RS232 RX (GENLINK)
15	567	LD	LEAK DETECTOR
16	R15	ES1	EMERGENCY STOP
17	226	IFT	V SENSE GEN C PH
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 (XFER SW)
25	389	COM-5	RS232 COM (GENLINK)
26	D14	CUST CON	SPARE IN 4/GEN PWR
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+

\* - CONNECTIONS NOT USED IN 1Ø UNITS.

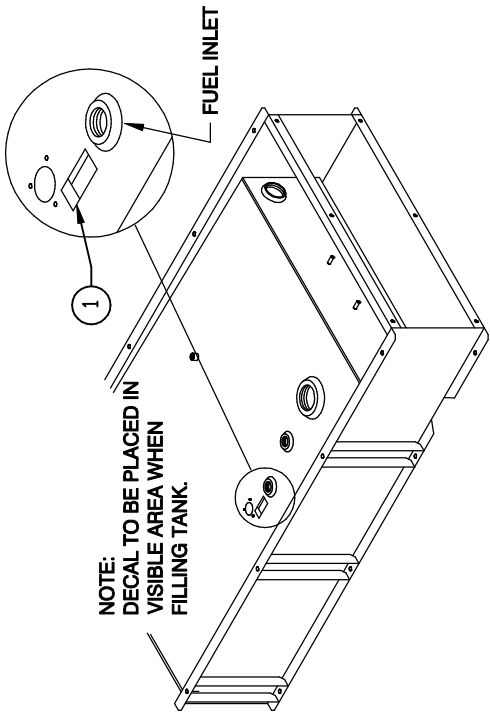
# GROUP H

I/N	PART NO.	QTY	DESCRIPTION
1	0H9028	2	DECAL ULTRA LOW SULFUR DSL

NOTE:  
WHEN USING EXTERNAL FUEL SOURCE  
DECAL MUST BE APPLIED IN VISIBLE  
AREA OF FUEL FILL.

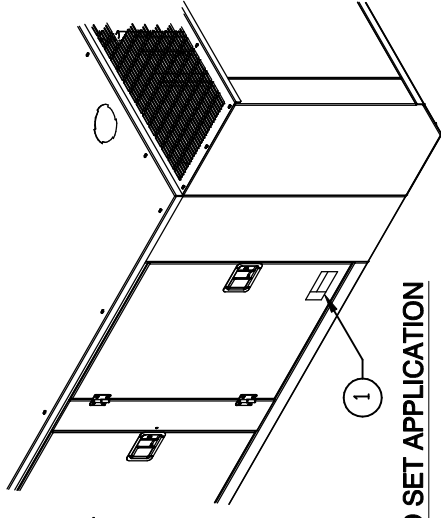


OPEN SET APPLICATION



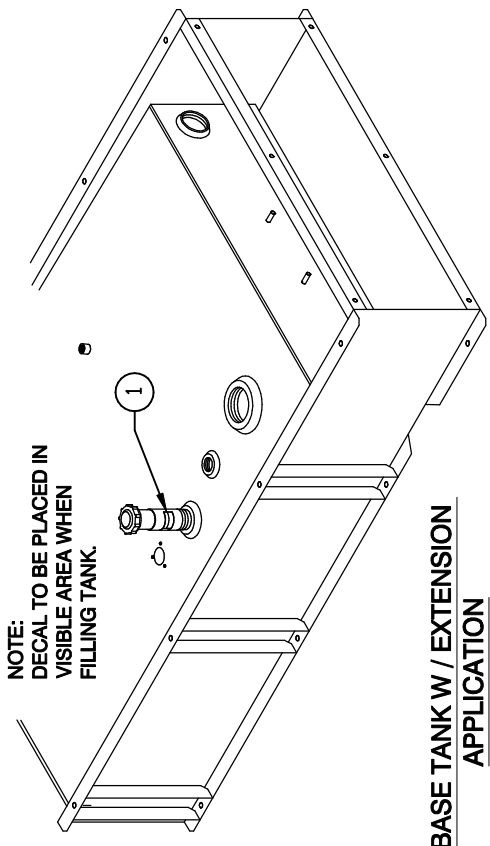
NOTE:  
DECAL TO BE PLACED IN  
VISIBLE AREA WHEN  
FILLING TANK.

BASE TANK APPLICATION



NOTE:  
DECAL TO BE PLACED  
ON DOOR USED TO FILL  
FUEL.

CLOSED SET APPLICATION



NOTE:  
DECAL TO BE PLACED IN  
VISIBLE AREA WHEN  
FILLING TANK.

BASE TANK W / EXTENSION  
APPLICATION

EXPLODED VIEW:  
LOW SULFUR FUEL  
DRAWING #: 0G8716

EXPLODED VIEW: LOW SULFUR FUEL

DRAWING #: 0G8716

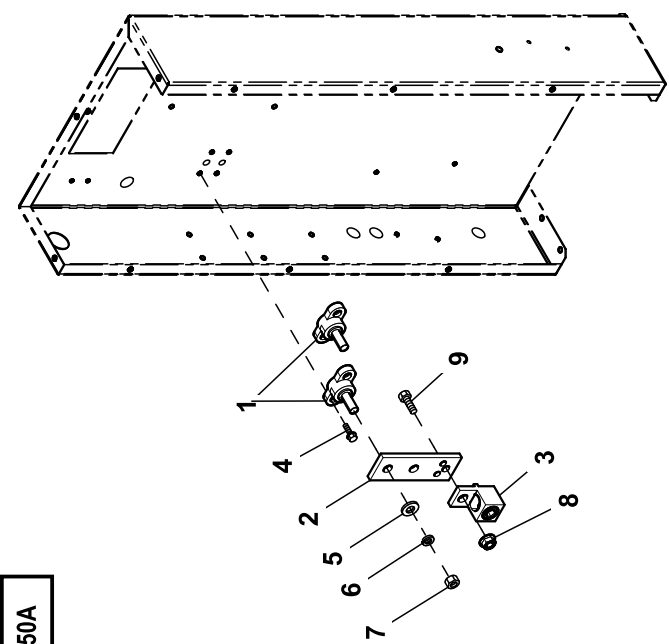
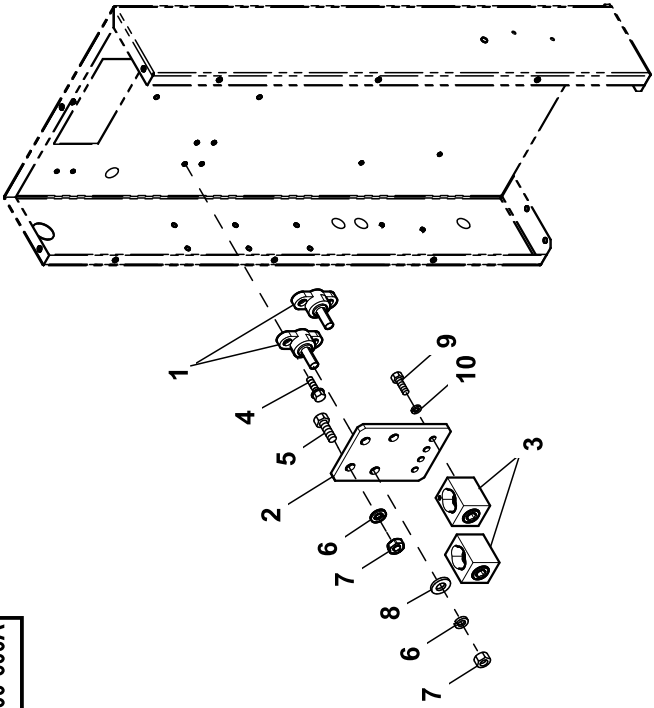
APPLICABLE TO:

GROUP H

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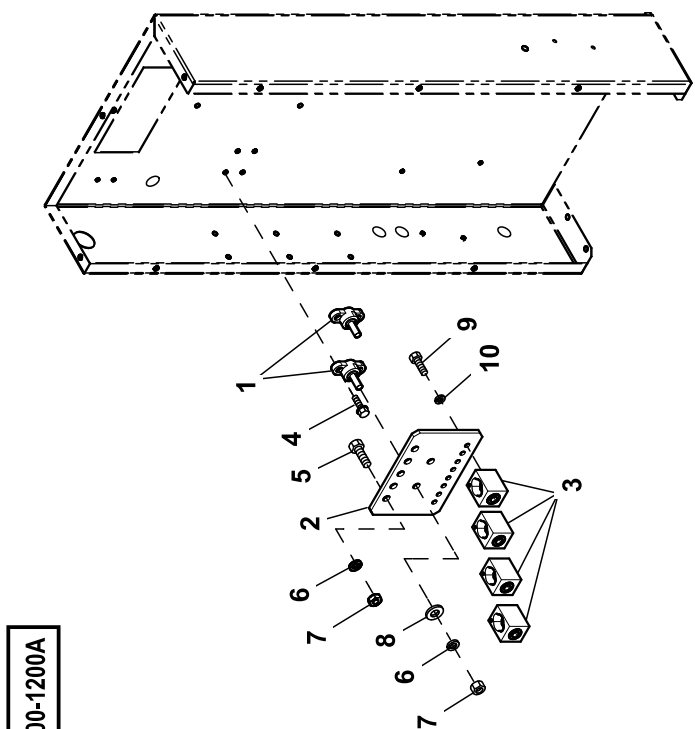
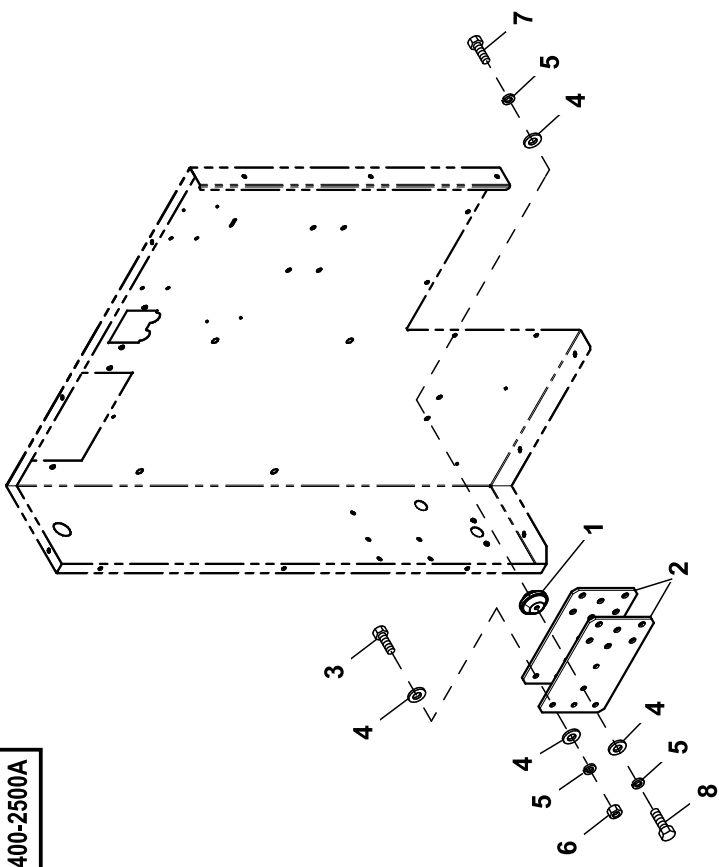
# GROUP H

300-600A



250A

1400-2500A



700-1200A

**EXPLODED VIEW: EV, NEUTRAL BLOCK 0-250A****DRAWING #: 0J1047****GROUP H****APPLICABLE TO:**

ITEM	PART#	QTY.	DESCRIPTION
NEUTRAL BLOCK (250A)			
1	057073	2	JUNCTION BLOCK 3/8-16
2	0H9690	1	NEUTRAL, BRACKET (60-100A)
3	0F8451	1	LUG SLDLSS 300 MCM-6 AL/CU
4	0C2266	4	SCREW PHTT M5-0.8 X 16 ZP
5	022131	2	WASHER FLAT 3/8-M10 ZINC
6	022237	2	WASHER LOCK 3/8
7	022241	2	NUT HEX 3/8-16 STEEL
8	067989	1	NUT HEX FL WHIZ M8-1.25
9	043107	1	SCREW HHC M8-1.25 X 25 C8.8
NEUTRAL BLOCK (300A - 600A)			
1	057073	2	JUNCTION BLOCK 3/8-16
2	0H9689A	1	BUS BAR, NTRL BLK 520 0-600A
3	0A7822	2	LUG SLDLSS 600/250-1/0X1/4-28
4	0C2266	4	SCREW PHTT M5-0.8 X 16 ZP
5	022511	2	SCREW HHC 3/8-16 X 1-1/4 G5
6	022237	4	WASHER LOCK 3/8
7	022241	4	NUT HEX 3/8-16 STEEL
8	022131	2	WASHER FLAT 3/8-M10 ZINC
9	045335	4	SCREW HHC 1/4-28 X 3/4 G5
10	022097	4	WASHER LOCK M6-1/4
NEUTRAL BLOCK (700A - 1200A)			
1	057073	2	JUNCTION BLOCK 3/8-16
2	0H9689	1	BUS BAR, NTRL BLK 520 600-1600
3	0A7822	4	LUG SLDLSS 600/250-1/0X1/4-28
4	0C2266	4	SCREW PHTT M5-0.8 X 16 ZP
5	022511	5	SCREW HHC 3/8-16 X 1-1/4 G5
6	022237	7	WASHER LOCK 3/8
7	022241	7	NUT HEX 3/8-16 STEEL
8	022131	2	WASHER FLAT 3/8-M10 ZINC
9	045335	8	SCREW HHC 1/4-28 X 3/4 G5
10	022097	8	WASHER LOCK M6-1/4
NEUTRAL BLOCK (1400A - 2500A)			
1	0C6937M	2	INSULATOR, STANDOFF 600V3/8-16
2	0J4583	2	BUS BAR, 1/4"X6"X10"
3	031578	3	SCREW HHC 3/8-16 X 1-1/2 G8
4	022131	10	WASHER FLAT 3/8-M10 ZINC
5	022237	7	WASHER LOCK 3/8
6	022241	3	NUT HEX 3/8-16 STEEL
7	023152	2	SCREW HHC 3/8-16 X 3/4 G5
8	029745	2	SCREW HHC 3/8-16 X 1 G5





**GENERAC® POWER SYSTEMS, INC.**  
211 MURPHY DR. • P.O. BOX 310  
EAGLE, WI 53119