Parts, Adjustment and Maintenance Manual

Air-cooled, Prepackaged Automatic Standby Generators

Models:
ASPAS1CCA007 (6 kW NG, 7 kW LP)
ASPAS1CCA012 (12 kW NG, 12 kW LP)
ASPAS1CCA015 (13 kW NG, 15 kW LP)

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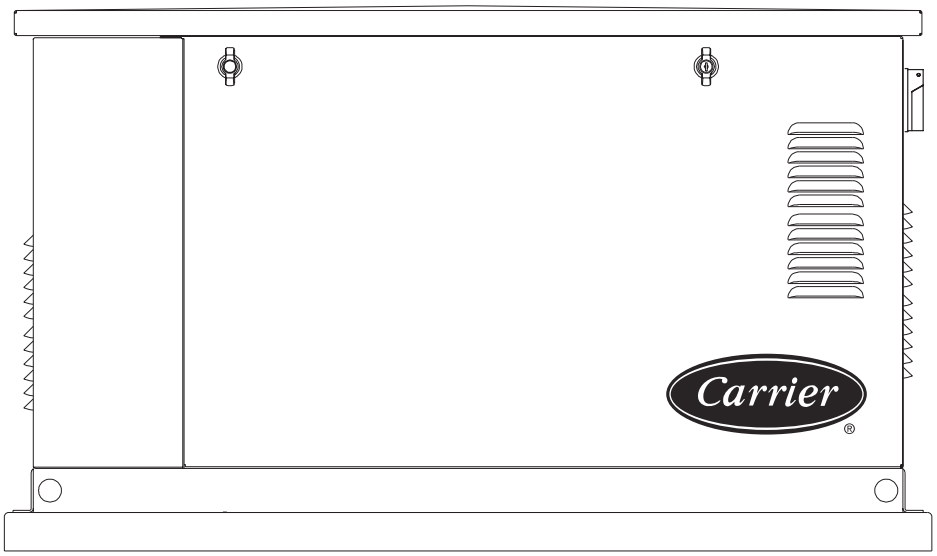

Not intended for use as Primary Power in place of utility or in life-support applications.

DANGER

DEADLY EXHAUST FUMES. OUTDOOR INSTALLATION ONLY!!

INTRODUCTION

This Carrier model is a compact, high performance, air-cooled, engine-driven generator designed to automatically supply electrical power to operate critical loads during a utility power failure.

This unit is factory installed in an all-weather, metal enclosure that is intended exclusively for outdoor installation. This generator will operate using either vapor withdrawn liquid propane (LP) or natural gas (NG).

◆ READ THIS MANUAL THOROUGHLY

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 operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully. Their definitions are as follows:

⚠ DANGER ⚠

After this heading, read instructions that, if not strictly complied with, will result in serious personal injury, including death, in addition to property damage.

⚠ WARNING ⚠

After this heading, read instructions that, if not strictly complied with, may result in serious personal injury or property damage.

⚠ CAUTION ⚠

After this heading, read instructions that, if not strictly complied with, could result in damage to equipment and/or property.

NOTE:

After this heading, read explanatory statements that require special emphasis.

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

Four commonly used safety symbols accompany the DANGER, WARNING and CAUTION blocks. The type of information each indicates 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. Carrier strongly recommends that the dealer read this *Parts, Adjustment and Maintenance Manual* and thoroughly understand all instructions before using this equipment. Carrier also strongly recommends instructing other users to properly start and operate the unit. This prepares them if they need to operate the equipment in an emergency.

◆ CONTENTS

This manual contains pertinent information for three different Carrier models:

- ASPAS1CCA007 – 6 kW NG, 7 kW LP, single-cylinder GH-410 Engine
- ASPAS1CCA012 – 12 kW NG, 12 kW LP, V-twin GT-990 Engine
- ASPAS1CCA015 – 13 kW NG, 15 kW LP, V-twin GT-990 Engine

◆ OPERATION AND MAINTENANCE

It is the operator's responsibility to perform all safety checks, to make sure that all maintenance for safe operation is performed promptly, and to have the equipment checked periodically by a Carrier 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 ensures a minimum number of problems and keep operating expenses at a minimum. See a Carrier Dealer for service aids and accessories.

◆ HOW TO OBTAIN SERVICE

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

When inquiring about parts or service, always supply the complete model number and serial number of the unit as given on its data decal, which is located on the generator. See Figure 1.1 or Figure 1.2 in Section 1.4 of the *Owner's Manual* for decal location.

Model No. _____ **Serial No.** _____

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Read This Manual Thoroughly .....IFC
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SAVE THESE INSTRUCTIONS – The manufacturer suggests that these rules for safe operation be copied and posted near the unit's installation site. Safety should be stressed to all operators and potential operators of this equipment.

WARNING:

The engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

WARNING:

This product contains or emits chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Study these SAFETY RULES carefully before installing, operating or servicing this equipment. Become familiar with this *Parts, Adjustment and Maintenance 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.

Carrier cannot possibly anticipate every possible circumstance that might involve a hazard. The warning 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 Carrier does not specifically recommend, satisfy yourself that it is safe for others. Also make sure the procedure, work method or operating technique chosen 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, Carrier recommends that this equipment be installed, serviced and repaired by a Carrier Dealer.
- The engine exhaust fumes contain carbon monoxide gas, which can be DEADLY. This dangerous gas, if breathed in sufficient concentrations, can cause unconsciousness or even death. For that reason, adequate ventilation must be provided. This exhaust system must be installed properly, in strict compliance with applicable codes and standards. Following installation, do nothing that might render the system unsafe or in noncompliance with such 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 to 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. The generator must be installed outdoors.
- 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 contact the nearest Carrier Dealer for parts needing repair or replacement.
- Before performing any maintenance on the generator, disconnect its battery 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 standby 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 National Electrical Code (NEC) requires the frame and external electrically conductive parts of the generator to be connected to an approved earth ground. This grounding will help prevent dangerous electrical shock that might be caused by a ground fault condition in the generator set or by static electricity. Never disconnect the ground wire. Local electrical codes also may require proper grounding of the generator electrical system.
- After installing this home standby electrical system, the generator may crank and start at any time without warning. When this occurs, load circuits are transferred to the STANDBY (generator) power source. To prevent possible injury if such a start and transfer occur, always set the generator's Auto/Off/Manual switch to its OFF position before working on equipment and remove the 7.5A and 15A fuses from the generator control panel.
- 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. Consult the local fire department for any questions pertaining to fire extinguishers.

⚠ EXPLOSION HAZARDS ⚠

- 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.
- Fuels such as natural gas and LP gas are extremely EXPLOSIVE. Install the fuel supply system according to applicable fuel-gas codes. Before placing the home standby electric system into service, fuel system lines must be properly purged and leak tested according to applicable code. After installation, inspect the fuel system periodically for leaks. No leakage is permitted.

◆ STANDARDS INDEX

In the absence of pertinent standards, codes, regulations and laws, the published information listed below may be used as installation guide for this equipment.

1. NFPA No. 37, STATIONARY COMBUSTION ENGINES AND GAS TURBINES, available from the National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210.
2. NFPA No. 76A, ESSENTIAL ELECTRICAL SYSTEMS FOR HEALTH CARE FACILITIES, available same as Item 1.
3. NFPA No. 54, NATIONAL FUEL GAS CODE, available same as Item 1.
4. NFPA No. 58, AMERICAN NATIONAL STANDARD FOR STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GAS, available same as Item 1.
5. NFPA No. 70, NFPA HANDBOOK OF NATIONAL ELECTRIC CODE, available same as Item 1.
6. Article X, NATIONAL BUILDING CODE, available from the American Insurance Association, 85 John Street, New York, N.Y. 10038.
7. AGRICULTURAL WIRING HANDBOOK, available from the Food and Energy Council, 909 University Avenue, Columbia, MO 65201.
8. ASAE EP-3634, INSTALLATION AND MAINTENANCE OF FARM STANDBY ELECTRICAL SYSTEMS, available from the American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MI 49085.
9. NFPA No. 30, FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE, available same as Item 1.

1.1 BEFORE INITIAL START-UP

Before starting, complete the following:

1. Set the generator's main circuit breaker to its OFF (or open) position.
2. Set the generator's AUTO/OFF/MANUAL switch to the OFF position.
3. Turn OFF the utility power supply to the transfer switch using the means provided (such as the utility main line circuit breaker).
4. Turn OFF all loads connected to the transfer switch terminals T1 and T2.
5. Check the engine crankcase oil level and, if necessary, fill to the dipstick FULL mark with the recommended oil. Do not fill above the FULL mark.
6. Check the fuel supply. Gaseous fuel lines must have been properly purged and leak tested in accordance with applicable fuel-gas codes. All fuel shutoff valves in the fuel supply lines must be open.

⚠ CAUTION ⚠

Never operate the engine with the oil level below the "Add" mark on the dipstick. Doing this could damage the engine.

1.2 CHECK TRANSFER SWITCH OPERATION

Refer to Section 3.5, of the owner's manual for manual operation procedures.

⚠ DANGER ⚠

Do not attempt manual transfer switch operation until all power voltage supplies to the transfer switch have been positively turned off. Failure to turn off all power voltage supplies will result in extremely hazardous and possibly fatal electrical shock.

1.3 ELECTRICAL CHECKS

Complete electrical checks as follows:

1. Set the generator's main circuit breaker to its OFF (or open) position.
2. Set the generator's Auto/Off/Manual switch to the OFF position.
3. Turn OFF all loads connected to the transfer switch terminals T1 and T2.
4. Turn on the utility power supply to the transfer switch using the means provided (such as a utility main line circuit breaker).

⚠ DANGER ⚠

The transfer switch is now electrically "hot." Contact with "hot" parts will result in extremely hazardous and possibly fatal electrical shock. Proceed with caution.

5. Use an accurate AC voltmeter to check utility power source voltage across transfer switch terminals N1 and N2. Nominal line-to-line voltage should be 240 volts AC.
6. Check utility power source voltage across terminals N1 and the transfer switch neutral lug; then across terminal N2 and neutral. Nominal line-to-neutral voltage should be 120 volts AC.
7. When certain that utility supply voltage is compatible with transfer switch and load circuit ratings, turn OFF the utility power supply to the transfer switch.
8. On the generator panel, set the AUTO/OFF/MANUAL switch to MANUAL. The engine should crank and start.
9. Let the engine warm up for about five minutes to allow internal temperatures to stabilize. Then, set the generator's main circuit breaker to its ON (or CLOSED) position.

⚠ DANGER ⚠

Proceed with caution! Generator power voltage is now supplied to the transfer switch. Contact with live transfer switch parts will result in dangerous and possibly fatal electrical shock.

10. Connect an accurate AC voltmeter and a frequency meter across transfer switch terminal lugs E1 and E2. Voltage should be 242-252 volts; frequency should read about 61-63 Hertz.
11. Connect the AC voltmeter test leads across terminal lug E1 and neutral; then across E2 and neutral. In both cases, voltage reading should be 121-126 volts AC.
12. Set the generator's main circuit breaker to its OFF (or open) position. Let the engine run at no-load for a few minutes to stabilize internal engine generator temperatures.
13. Set the generator's AUTO/OFF/MANUAL switch to OFF. The engine should shut down.

NOTE:

It is important not to proceed until certain that generator AC voltage and frequency are correct and within the stated limits. Generally, if both AC frequency and voltage are high or low, the engine governor requires adjustment. If frequency is correct, but voltage is high or low, the generator's voltage regulator requires adjustment.

1.4 GENERATOR TESTS UNDER LOAD

To test the generator set with electrical loads applied, proceed as follows:

1. Set generator's main circuit breaker to its OFF (or OPEN) position.
2. Turn OFF all loads connected to the transfer switch terminals T1 and T2.
3. Set the generator's AUTO/OFF/MANUAL switch to OFF.
4. Turn OFF the utility power supply to the transfer switch, using the means provided (such as a utility main line circuit breaker).

⚠ WARNING ⚠

Do not attempt manual transfer switch operation until all power voltage supplies to the transfer switch have been positively turned off. Failure to turn off all power voltage supplies will result in extremely hazardous and possibly fatal electrical shock.

5. Manually set the transfer switch to the STANDBY position, i.e., load terminals connected to the generator's E1/E2 terminals. The transfer switch operating lever should be down.
6. Set the generator's AUTO/OFF/MANUAL switch to MANUAL. The engine should crank and start immediately.
7. Let the engine stabilize and warm up for a few minutes.
8. Set the generator's main circuit breaker to its ON (or closed) position. Loads are now powered by the standby generator.
9. Turn ON electrical loads connected to transfer switch T1 and T2. Apply an electrical load equal to the full rated wattage/amperage capacity of the installed generator.
10. Connect an accurate AC voltmeter and a frequency meter across terminal lugs E1 and E2. Voltage should be greater than 230 volts; frequency should be greater than 58 Hertz.
11. Let the generator run at full rated load for 20-30 minutes. Listen for unusual noises, vibration or other indications of abnormal operation. Check for oil leaks, evidence of overheating, etc.
12. When testing under load is complete, turn OFF electrical loads.
13. Set the generator's main circuit breaker to its OFF (or OPEN) position.
14. Let the engine run at no-load for a few minutes.
15. Set the AUTO/OFF/MANUAL switch to OFF. The engine should shut down.

1.5 CHECKING AUTOMATIC OPERATION

To check the system for proper automatic operation, proceed as follows:

1. Set generator's main circuit breaker to its OFF (or OPEN) position.
2. Check that the AUTO/OFF/MANUAL switch is set to OFF.
3. Turn OFF the utility power supply to the transfer switch, using means provided (such as a utility main line circuit breaker).
4. Manually set the transfer switch to the UTILITY position, i.e., load terminals connected to the utility power source side.
5. Turn ON the utility power supply to the transfer switch, using the means provided (such as a utility main line circuit breaker).
6. Set the AUTO/OFF/MANUAL switch to AUTO. The system is now ready for automatic operation.
7. Turn OFF the utility power supply to the transfer switch.

With the AUTO/OFF/MANUAL switch at AUTO, the engine should crank and start when the utility source power is turned OFF. After starting, the transfer switch should connect load circuits to the standby side. Let the system go through its entire automatic sequence of operation.

With the generator running and loads powered by generator AC output, turn ON the utility power supply to the transfer switch. The following should occur:

- After about six seconds, the switch should transfer loads back to the utility power source.
- About one minute after retransfer, the engine should shut down.

1.6 ADJUSTING THE REGULATOR (NATURAL GAS ONLY)

Although the generator has been factory set to provide maximum power, it may be necessary in some areas to adjust this setting. Because natural gas has different BTU or power content across the country the engine may not perform as designed.

If experiencing engine problems at high or full load conditions follow these steps. It will require a frequency meter to perform this procedure.

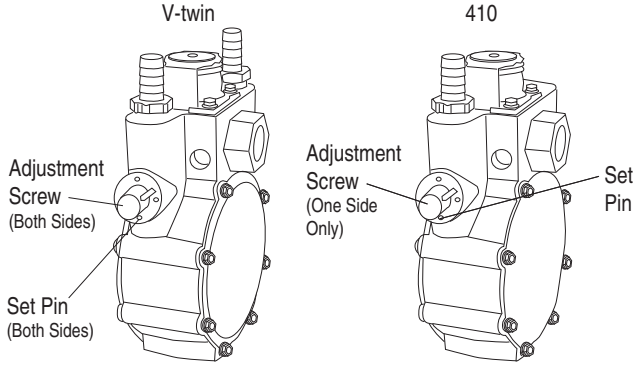
1. Turn off utility power to the main distribution panel in the house. This can be done by switching the service main breaker to the off or open position.
2. Allow the generator to start. Before loading the generator, confirm that the No Load Frequency, with the top open and front panel off, is set to 63-63.5 Hz. Transfer load to emergency circuits.

3. Turn on appliances, lights, pumps, etc., that are on the emergency circuits in an attempt to fully load the generator. Be cautious not to overload the generator. Use the following chart as a guide:

Unit	120 Volts	240 Volts
7 kW	50.0 amps	25.0 amps
12 kW	100.0 amps	50.0 amps
13 kW	108.3 amps	54.1 amps

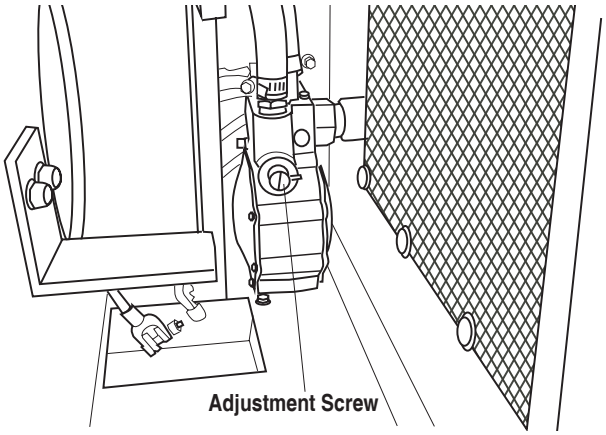
4. When full load has been achieved. Connect a frequency meter to the output lugs of the generator's main line circuit breaker.
5. The fuel regulator is fitted with one (7 kW), or two (12 & 15 kW) adjustment screws. While watching the frequency meter, slowly turn the adjustment screws clockwise or counterclockwise one at a time until the highest frequency is read on the meter. Only limited adjustment is available because of the set pin. Under no circumstances should any of the pins be removed (Figures 1.1 and 1.2).

Figure 1.1 — Dual Fuel Regulators



6. When the highest frequency is reached maximum power has been set. From this point turn both adjustment screws 1/4 turn counterclockwise. The regulator is now set.

Figure 1.2 — Placement of Regulator



7. Turn utility power to the main distribution panel back on. This can be done by switching the service main breaker to the on or closed position. Allow the generator to shut down.

⚠ WARNING ⚠

⚠ Do not make any unnecessary adjustments. Factory settings are correct for most applications. However, when making adjustments, be careful to avoid overspeeding the engine.

1.7 RECONFIGURING THE FUEL SYSTEM

◆ 1.7.1 7 KW, 410CC ENGINE

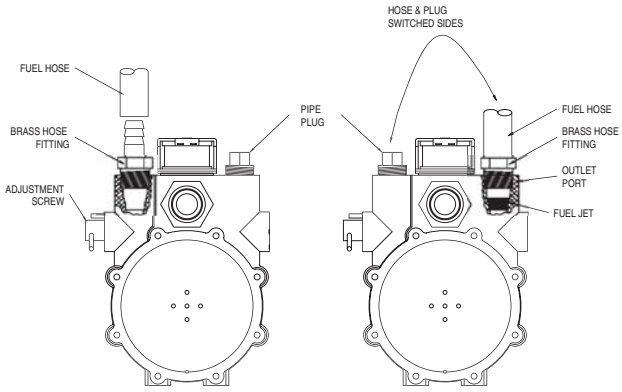
To reconfigure the fuel system from NG to LP, follow these steps (Figure 1.3):

NOTE:

The primary regulator for the propane supply is NOT INCLUDED with the generator. A fuel pressure of 11 to 14 inches of water column (0.4 to 0.5 psi) to the fuel inlet of the generator MUST BE SUPPLIED.

1. Turn off the main gas supply (if connected).
2. Open the top and remove the front panel.
3. Remove the battery (if installed).
4. Disconnect wire #0 and wire #14 from the gas solenoid on top of the demand regulator.
5. Remove the carburetor fuel hose from the outlet port of the demand regulator.
6. Remove the demand regulator by removing the fastener that retains the regulator mounting bracket.
7. Remove the square headed steel pipe plug from outlet port #1 and the brass hose barb fitting from outlet port #2.
8. Refit the brass hose barb fitting to outlet port #1 and the square headed steel pipe plug to outlet port #2.

Figure 1.3 – Demand Regulator



9. Reverse procedure steps 1-5 to reinstall demand regulator.
10. Reverse the procedure to convert back to natural gas.

◆ 1.7.2 12KW AND 15KW, V-TWIN ENGINES

To reconfigure the fuel system from NG to LP, follow these steps:

NOTE:

The primary regulator for the propane supply is NOT INCLUDED with the generator. A fuel pressure of 11 to 14 inches of water column (0.4 to 0.5 psi) to the fuel inlet of the generator MUST BE SUPPLIED.

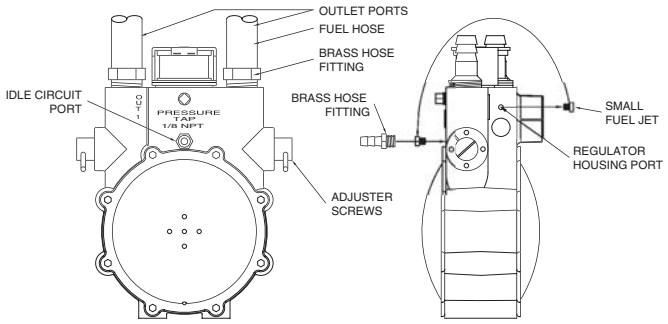
1. Turn off the gas supply. (if connected)
2. Open the top and remove the front panel.
3. Remove the battery. (if installed)
4. Remove the engine air in baffle located on the left-hand side of the battery compartment. Two M6 screws are located on top of the baffle and two M6 screws are located on the inside of the baffle towards the back.
5. Remove the small hose clamp and hose from the fuel regulator. It may be necessary to pry the hose off of the brass fitting using a screwdriver to gently lift up the hose edge.
6. Remove the small brass hose fitting from the regulator casting.
7. Place the small fuel jet, thread side first, into the threaded hole originally occupied by the brass hose fitting (Figure 1.4).
8. Using a short No. 2 Phillips screw driver, thread the small fuel jet into the regulator casting. Do not over tighten.
9. Apply thread sealant to the threads of the hose fitting and replace it into the regulator body.
10. Re-attach the small hose and hose clamp and tighten as necessary.
11. Replace the engine air in baffle using the four M6 screws.
12. Identify both brass adjustment screws on the regulator.

NOTE:

One adjustment screw can be accessed from the front of the unit and the second can be accessed from the back of the unit enclosure by removing the plastic hole plug. The screw can be turned with a long flat blade screwdriver.

13. To adjust the system to run on LP fuel, turn BOTH adjuster screws 1/2 TURN CLOCKWISE. The system should now be set for maximum power and best performance. **DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE THE SET PINS FROM THE REGULATOR HOUSING. THIS WILL VOID THE WARRANTY.**
14. It may be necessary to make minor adjustments to the preset adjustment screw settings to achieve maximum power, particularly at higher altitudes. If experiencing problems with the unit producing maximum power, follow the procedure in Section 1.6 (Adjusting the Fuel Regulator).

Figure 1.4 - Demand Regulator



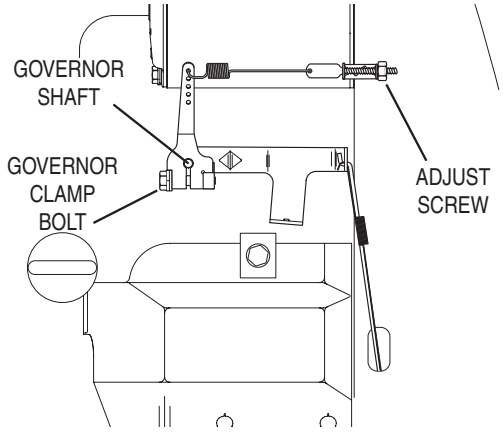
1.8 ENGINE GOVERNOR ADJUSTMENT

If both AC frequency and voltage are correspondingly high or low, adjust the engine governor as follows:

◆ 1.8.1 7 KW UNITS

1. Loosen the governor clamp bolt (Figures 1.5).
2. Hold the governor lever at its wide open throttle position, and rotate the governor shaft clockwise as far as it will go. Then, tighten the governor lever clamp bolt to 70 inch-pounds (8 N-m).
3. Start the generator; let it stabilize and warm up at no-load.
4. Connect a frequency meter (or high quality multi-meter set to the frequency mode) across the generators AC output leads.
5. Turn the speed adjust nut to obtain a frequency reading of 63 Hertz.

Figure 1.5 — Engine Governor Adjustment Single Cylinder Engines



6. When frequency is correct at no load, check the AC voltage reading. If voltage is incorrect, the voltage regulator may require adjustment.

◆ 1.8.2 12 KW AND 15 KW UNITS

1. Loosen governor clamp bolt (See Figure 1.6).
2. Completely remove the idle spring.
3. With governor arm at wide open throttle position (rotated fully clockwise), rotate governor shaft fully clockwise. Tighten clamp bolt to 84 inch-pounds.
4. Start unit and apply full load. Use full load speed adjust screw (Figure 1.7) to adjust frequency to 58 Hz.
5. Remove load, stop engine, loosen the idle adjust screw and reconnect the idle spring.
6. Push the governor arm to the closed throttle position. Make sure the idle spring does not stretch at all.

Figure 1.6 — Engine Governor Adjustment V-twin Engines

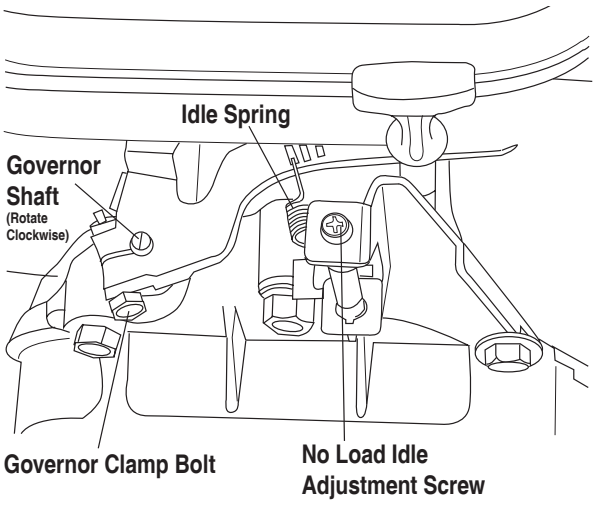
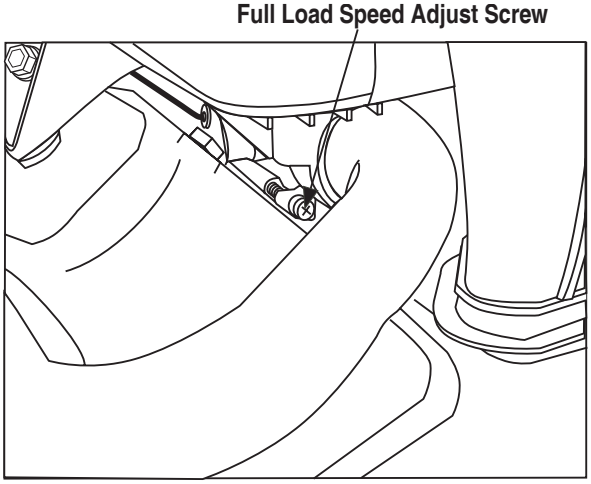


Figure 1.7 — Full Load Speed Adjust Screw V-Twin Engines

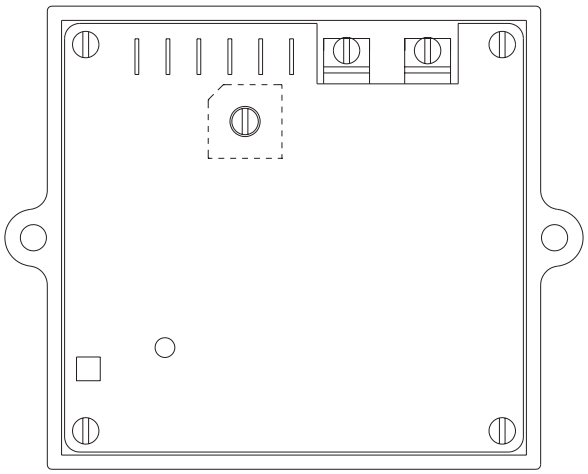


7. Restart the unit.
8. Slowly turn the idle adjust screw to adjust the no-load idle frequency to 63-63.5 Hz (with top open).
9. The governor is now set.

1.9 VOLTAGE REGULATOR ADJUSTMENT

With the frequency between 62-63 Hertz, slowly turn the slotted potentiometer (Figure 1.8) until line voltage reads 247-252 volts.

Figure 1.8 – Voltage Adjustment Potentiometer



NOTE:

The access panel on top of the control panel must be removed to adjust the voltage regulator.

NOTE:

The voltage regulator is housed above the generator's control panel. The regulator maintains a voltage in direct proportion to frequency at a 2-to-1 ratio. For example, at 62 Hertz, line-to-neutral voltage will be 124 volts.

1.10 ADJUSTING GH-410/GT-990 VALVE CLEARANCE

After the first 6 months of operation, adjust the valve clearance in the engine.

Important: If feeling uncomfortable about doing this procedure or the proper tools are not available, please contact a Carrier dealer for service assistance. This step necessary to insure the longest life for the engine.

To adjust valve clearance:

- Make sure the engine is at room temperature.
- Make sure that the spark plug wire is removed from the spark plug and out of the way.

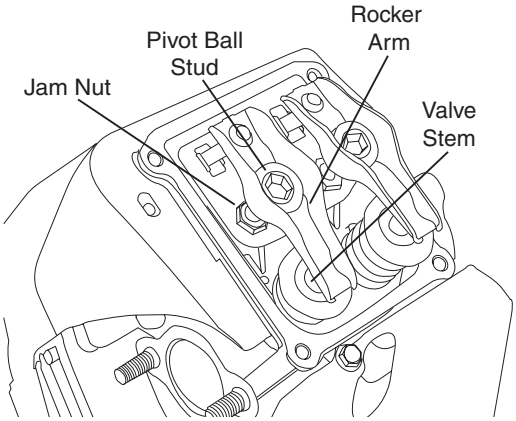
- Remove the four screws attaching the valve cover with a #2 or #3 phillips screwdriver.
- Make sure the piston is at Top Dead Center (TDC) of its compression stroke (both valves closed). To get the piston at TDC, remove the intake screen at the front of the engine to gain access to the flywheel nut. Use a large socket and socket wrench to rotate the nut and hence the engine. While watching the piston through the spark plug hole. The piston should move up and down. The piston is at TDC when it is up as high as it can go.
- Loosen the rocker jam nut. Use an 10mm allen wrench to turn the pivot ball stud while checking clearance between the rocker arm and the valve stem with a feeler gauge. Correct clearance is 0.002-0.004 inch (0.05-0.1 mm).

NOTE:

Hold the rocker arm jam nut in place as the pivot ball stud is turned.

When valve clearance is correct, hold the pivot ball stud in place with the allen wrench and tighten the rocker arm jam nut. Tighten the jam nut to 174 in/lbs. torque. After tightening the jam nut, recheck valve clearance to make sure it did not change.

Figure 1.9 - Valve Clearance Adjustment



- Install new valve cover gasket.
- Re-attach the valve cover.

NOTE:

Start all four screws before tightening or it will not be possible to get all the screws in place. Make sure the valve cover gasket is in place.

- Re-attach the spark plug wire to the spark plug.
- On GT-990, Repeat the process for the other cylinder.

NOTES:

2.1 TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CORRECTION
The engine will not crank.	1. Fuse blown.	1. Replace 15A fuse in generator control panel.
	2. Loose, corroded or defective battery cables.	2. Tighten, clean or replace as necessary.
	3. Defective starter contactor. (7 kW)	3. *
	4. Defective starter motor.	4. *
	5. Dead Battery.	5. Charge or replace battery.
The engine cranks but will not start.	1. Out of fuel.	1. Replenish fuel.
	2. Defective fuel solenoid (FS).	2. *
	3. Open #14 wire from engine control board.	3. *
	4. Defective spark plug(s).	4. Clean, re-gap or replace plug(s).
	5. Valve lash out of adjustment.	5. *
The engine starts hard and runs rough.	1. Air cleaner plugged or damaged.	1. Check, replace air cleaner.
	2. Defective spark plug(s).	2. Clean, re-gap or replace plug(s).
	3. Fuel Regulator not set.	3. Set Fuel Regulator.
	4. Fuel Pressure incorrect.	4. Confirm fuel pressure to regulator is 11-14” water column (0.4-0.5 psi) for LP, and 5-7” water column (0.18-0.25 psi) for natural gas.
The Auto/Off/Manual switch is set to OFF, but the engine continues to run.	1. Defective switch.	1. *
	2. Auto/Off/Manual switch wired incorrectly.	2. *
	3. Defective control board.	3. *
There is no AC output from the generator.	1. Main line circuit breaker open.	1. Reset circuit breaker to ON (or closed).
	2. Generator internal failure.	2. *
There is no transfer to standby after utility source failure.	1. Defective transfer switch coil.	1. *
	2. Defective transfer relay.	2. *
	3. Transfer relay circuit open.	3. *
	4. Defective control logic board.	4. *
Unit consumes large amounts of oil.	Break-in procedure not followed (see Section 3.1).	*

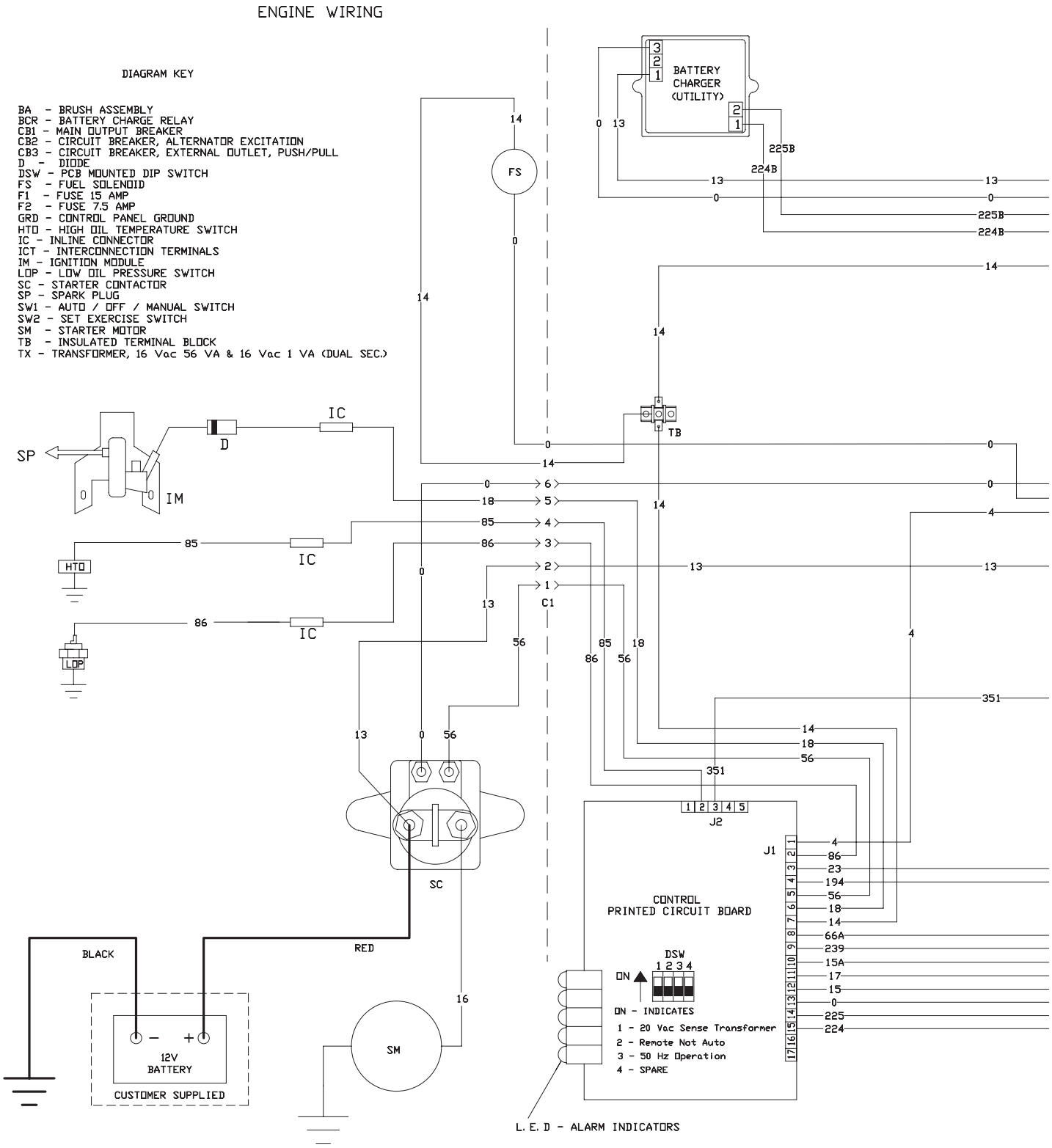
***Contact the nearest Carrier Dealer for assistance.**

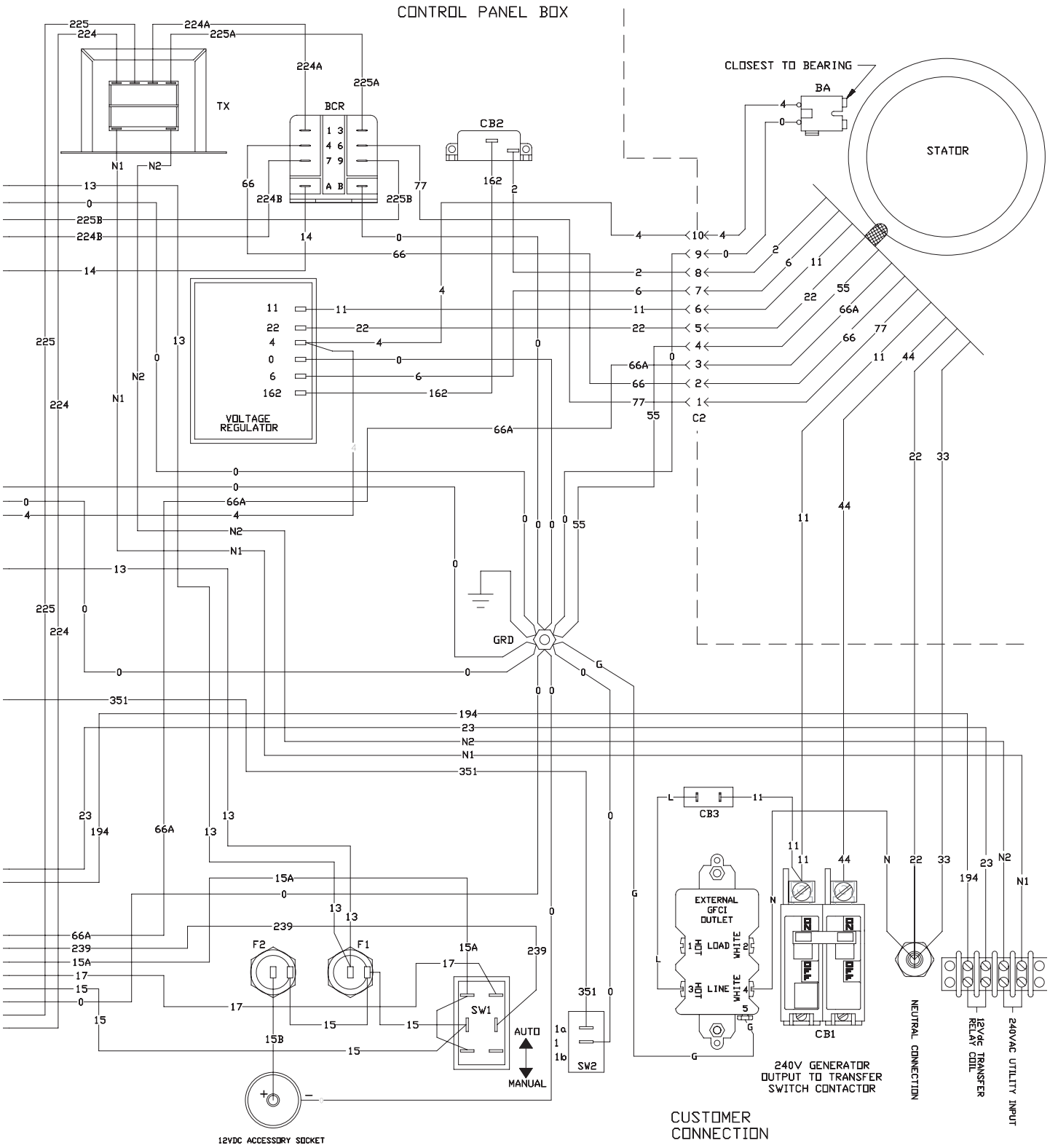
3.1 SERVICE SCHEDULE

ATTENTION: It is recommended that all service work be performed by the nearest Carrier Dealer.

SYSTEM/COMPONENT	PROCEDURE			FREQUENCY
X = Action R = Replace as Necessary * = Notify Dealer if Repair is Needed.	Inspect	Change	Clean	W = Weekly M = Monthly Y = Yearly
FUEL				
Fuel lines and connections*	X			M
LUBRICATION				
Oil level	X			M
Oil		X		AFTER BREAK-IN, AND Y
Oil filter		X		AFTER BREAK-IN, AND Y
COOLING				
Enclosure louvers	X		X	W
BATTERY				
Remove corrosion, ensure dryness	X		X	M
Clean and tighten battery terminals	X		X	M
Check charge state	X	R		EVERY 6 M
Electrolyte level (unsealed batteries only)*	X	R		EVERY 6 M
ENGINE AND MOUNTING				
Air cleaner	X	R		Y
Spark plug(s)	X	R		Y
GENERAL CONDITION				
Vibration, Noise, Leakage, Temperature*	X			M
COMPLETE TUNE-UP*	TO BE COMPLETED BY A CARRIER DEALER			Y

Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
Wiring Diagram — Single Cylinder — Drawing No. 0E9014




CONTROL PANEL BOX
CLOSEST TO BEARING
BA
STATOR
TX
BCR
CB2
VOLTAGE REGULATOR
C2
GRD
SW1
SW2
AUTO
MANUAL
F1
F2
15A
CB3
CB1
EXTERNAL GFCI OUTLET
HOT LOAD
HOT LINE
WHITE
240V GENERATOR OUTPUT TO TRANSFER SWITCH CONTACTOR
NEUTRAL CONNECTION
12VAC TRANSFER RELAY COIL
240VAC UTILITY INPUT
12VDC ACCESSORY SOCKET
CUSTOMER CONNECTION

Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
Electrical Schematic — Single Cylinder — Drawing No. 0E9015

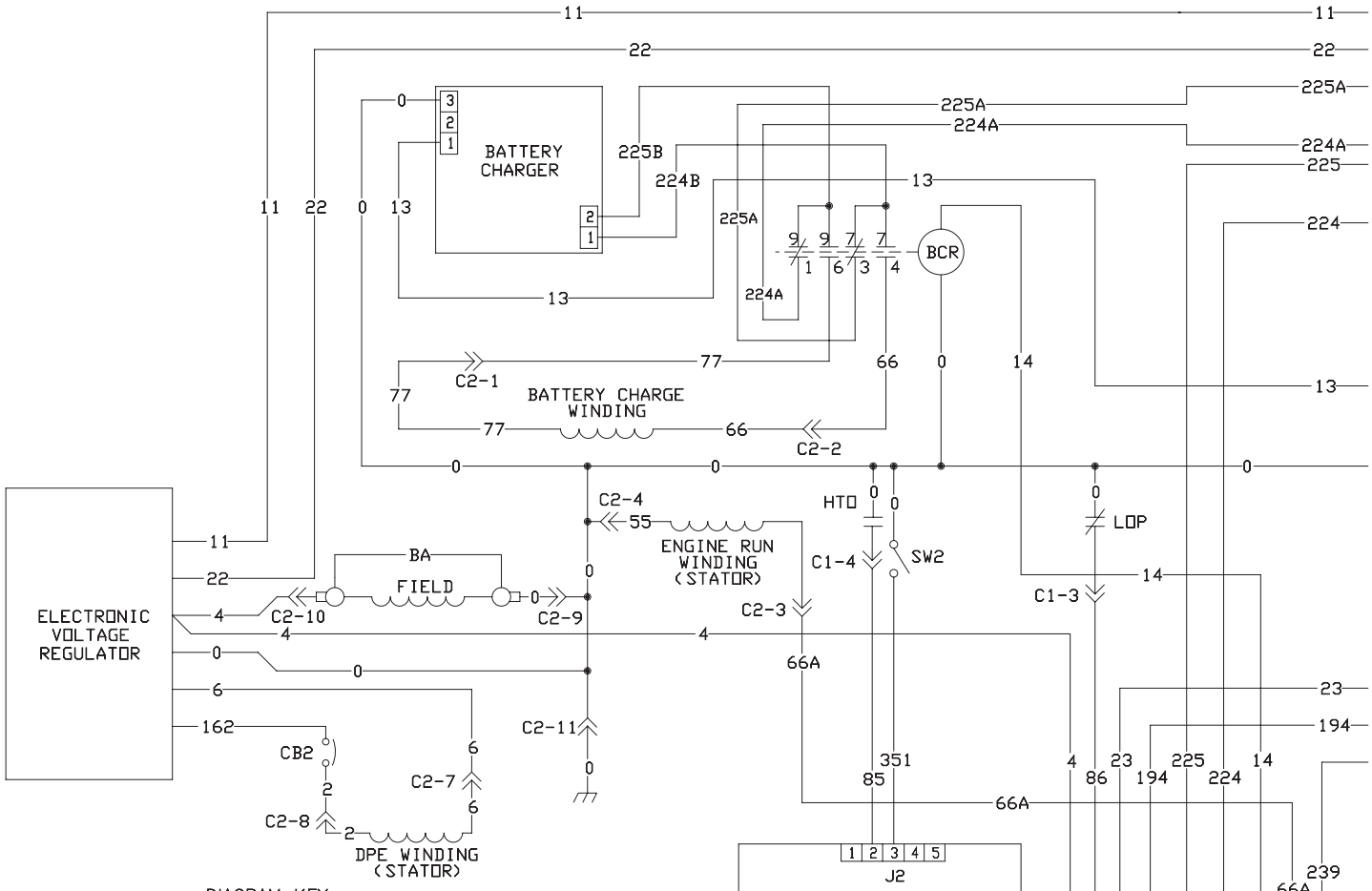
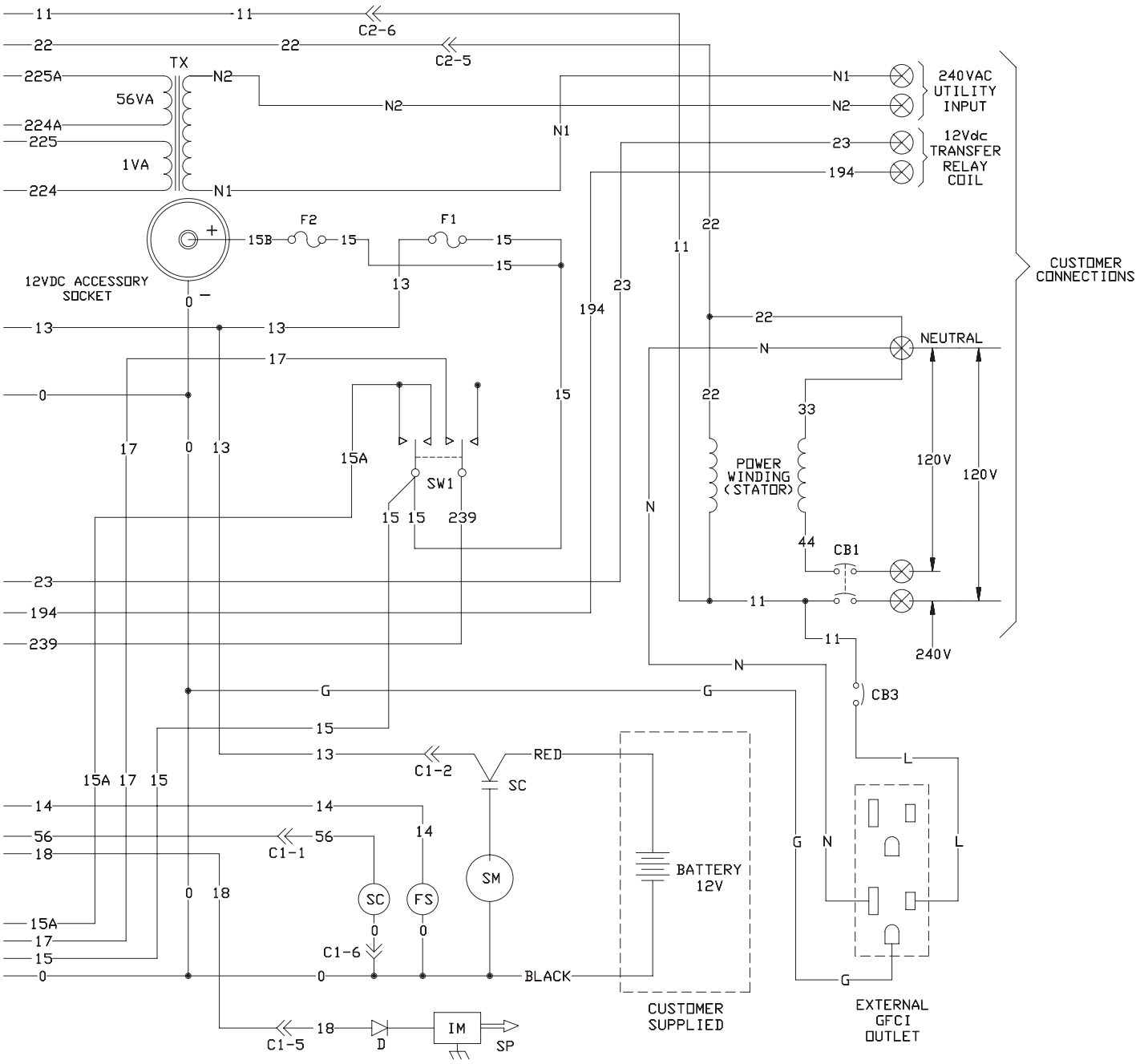
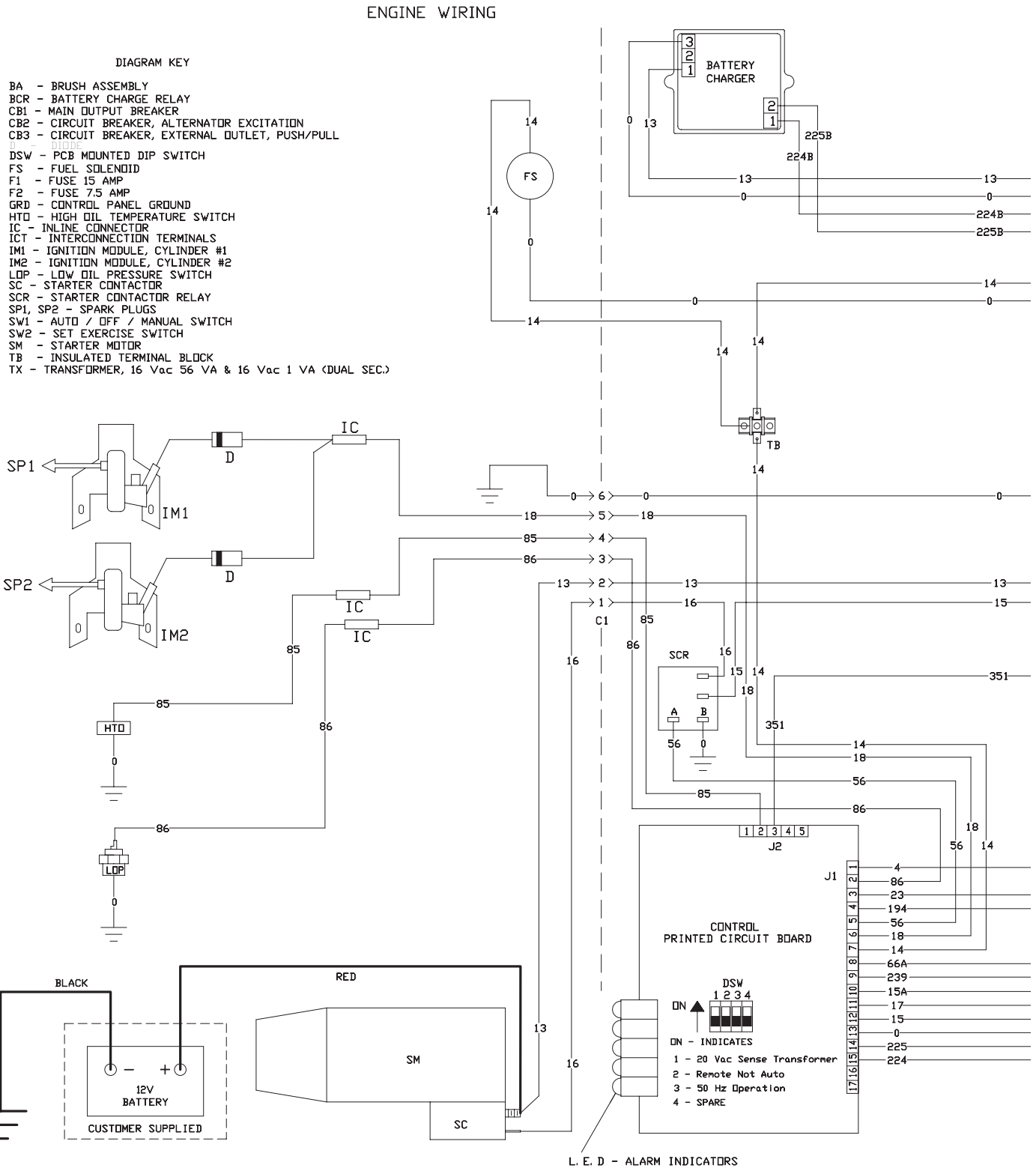


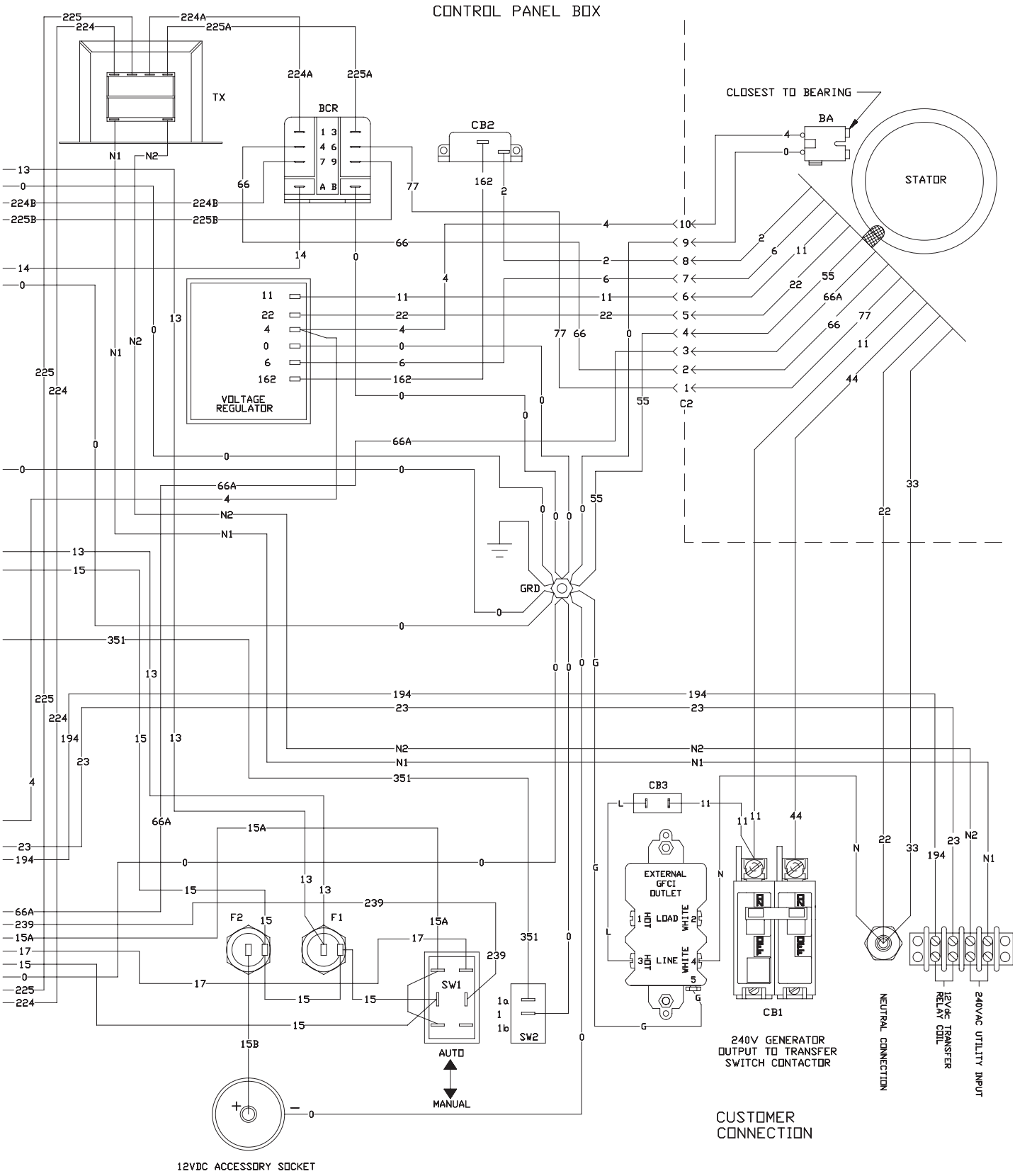
DIAGRAM KEY

BA — BRUSH ASSEMBLY
BCR — BATTERY CHARGE RELAY
CB1 — CIRCUIT BREAKER, MAIN OUTPUT
CB2 — CIRCUIT BREAKER, ALT. EXCITATION
CB3 — CIRCUIT BREAKER, EXTERNAL OUTLET, PUSH/PULL
D — DIODE
FS — FUEL SOLENOID
F1 — FUSE 15 AMP
F2 — FUSE 7.5 AMP
HTO — HIGH OIL TEMPERATURE SWITCH
HM — HOUR RUN METER
IM — IGNITION MODULE
LOP — LOW OIL PRESSURE SWITCH
SC — STARTER CONTACTOR
SP — SPARK PLUG
SW1 — AUTO / OFF / MANUAL SWITCH
SW2 — SET EXERCISE SWITCH
SM — STARTER MOTOR
TX — TRANSFORMER, 16 Vac 56 VA & 16 Vac 1 VA (DUAL SEC.)


TX
56VA
1VA
225A
224A
225
224
N1
N2
240VAC UTILITY INPUT
12Vdc TRANSFER RELAY COIL
194
23
12VDC ACCESSORY SOCKET
F2
F1
15B
CUSTOMER CONNECTIONS
NEUTRAL
POWER WINDING (STATOR)
120V
240V
CB1
CB3
SW1
15A
239
C2-6
C2-5
C1-2
C1-1
C1-6
C1-5
RED
BLACK
SC
SM
FS
IM
D
SP
BATTERY 12V
CUSTOMER SUPPLIED
EXTERNAL GFCI OUTLET

Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
Wiring Diagram — V-Twin — Drawing No. 0E9016




CONTROL PANEL BOX
TX
BCR
CB2
BA
CLOSEST TO BEARING
STATOR
VOLTAGE REGULATOR
GRD
CB3
EXTERNAL GFCI OUTLET
LOAD
LINE
CB1
240V GENERATOR OUTPUT TO TRANSFER SWITCH CONTACTOR
NEUTRAL CONNECTION
12VDC TRANSFER RELAY COIL
240VAC UTILITY INPUT
F1
F2
SW1
SW2
AUTO
MANUAL
12VDC ACCESSORY SOCKET
CUSTOMER CONNECTION

Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
Electrical Schematic — V-Twin — Drawing No. 0E9017

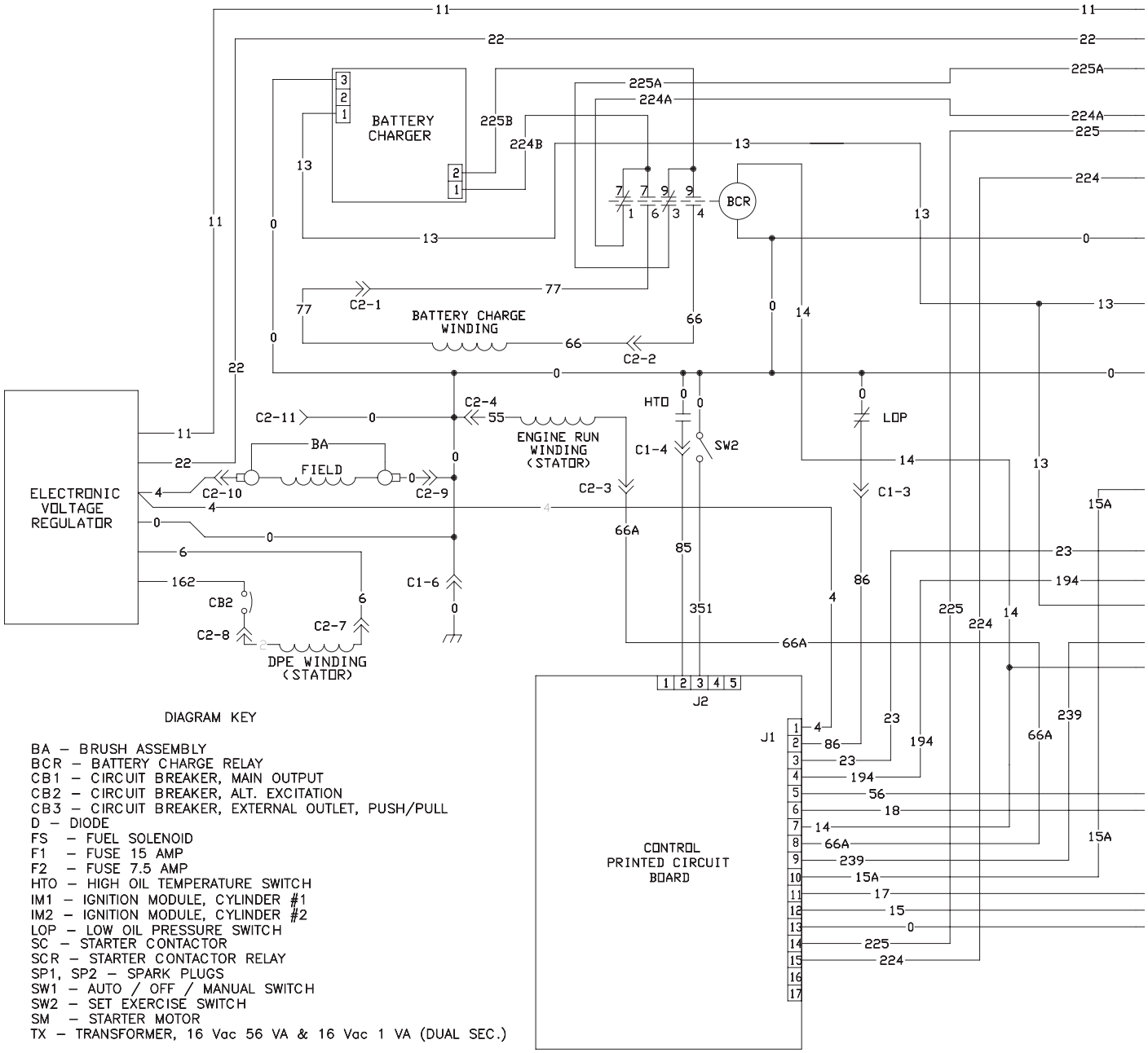
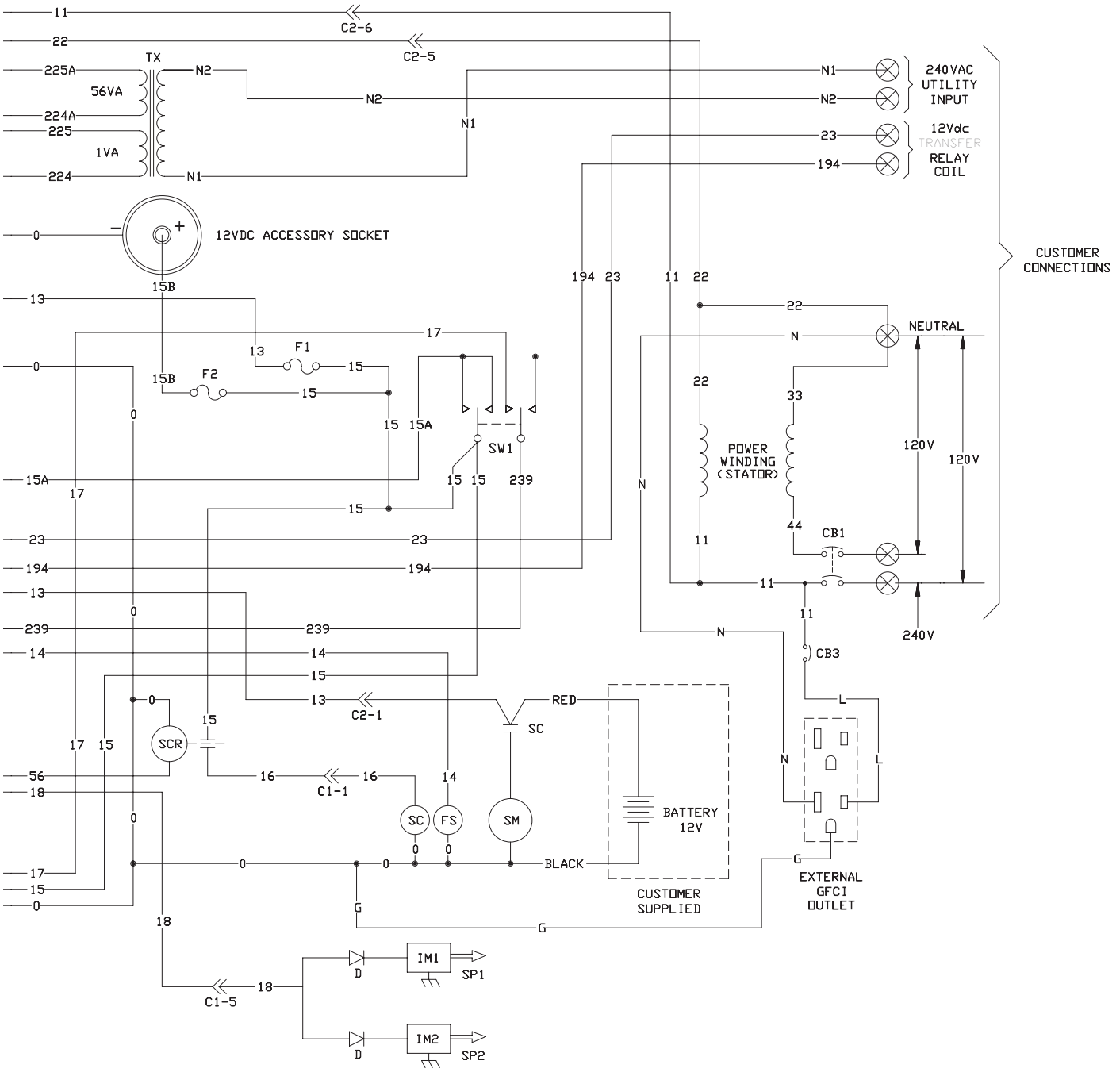
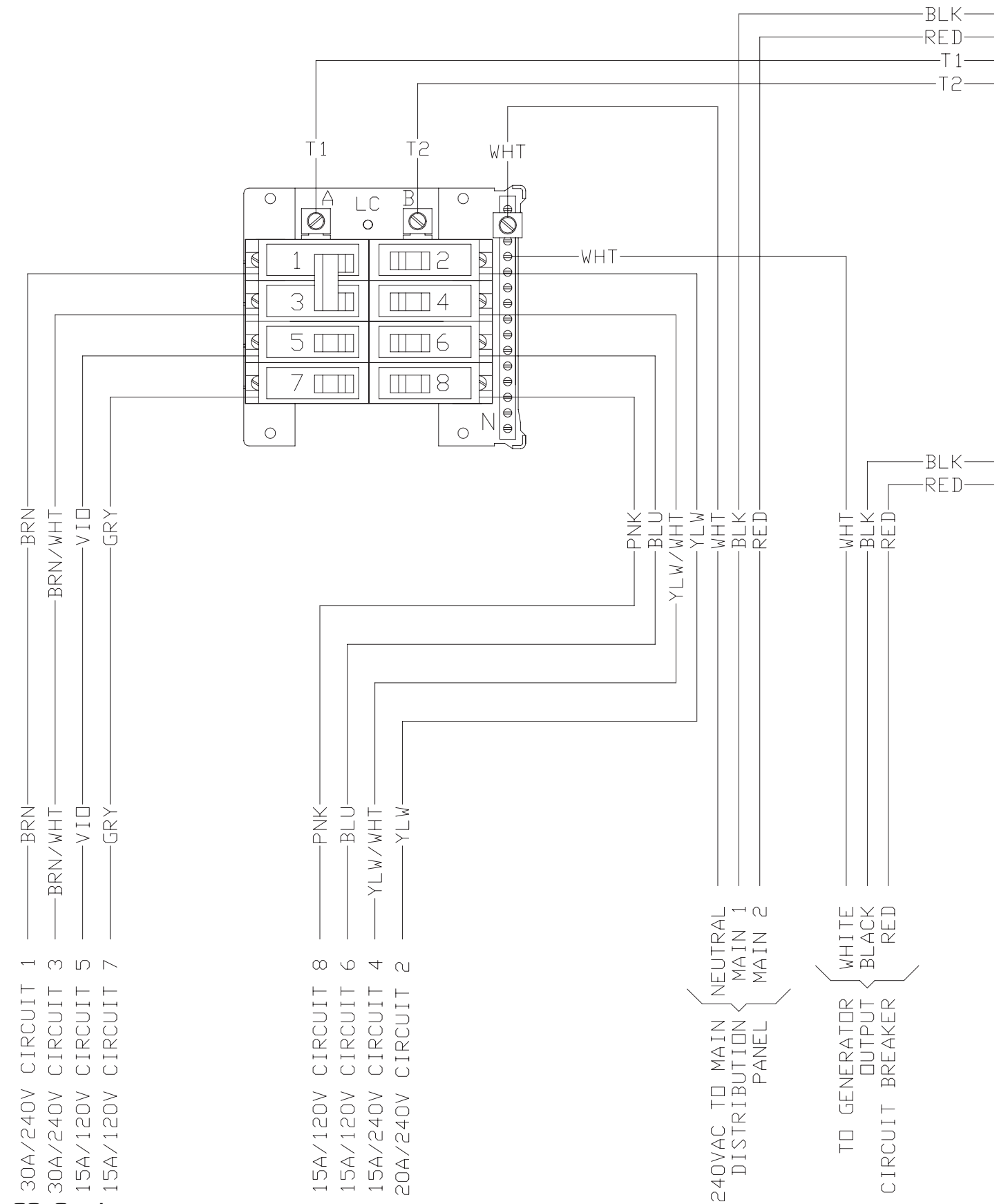


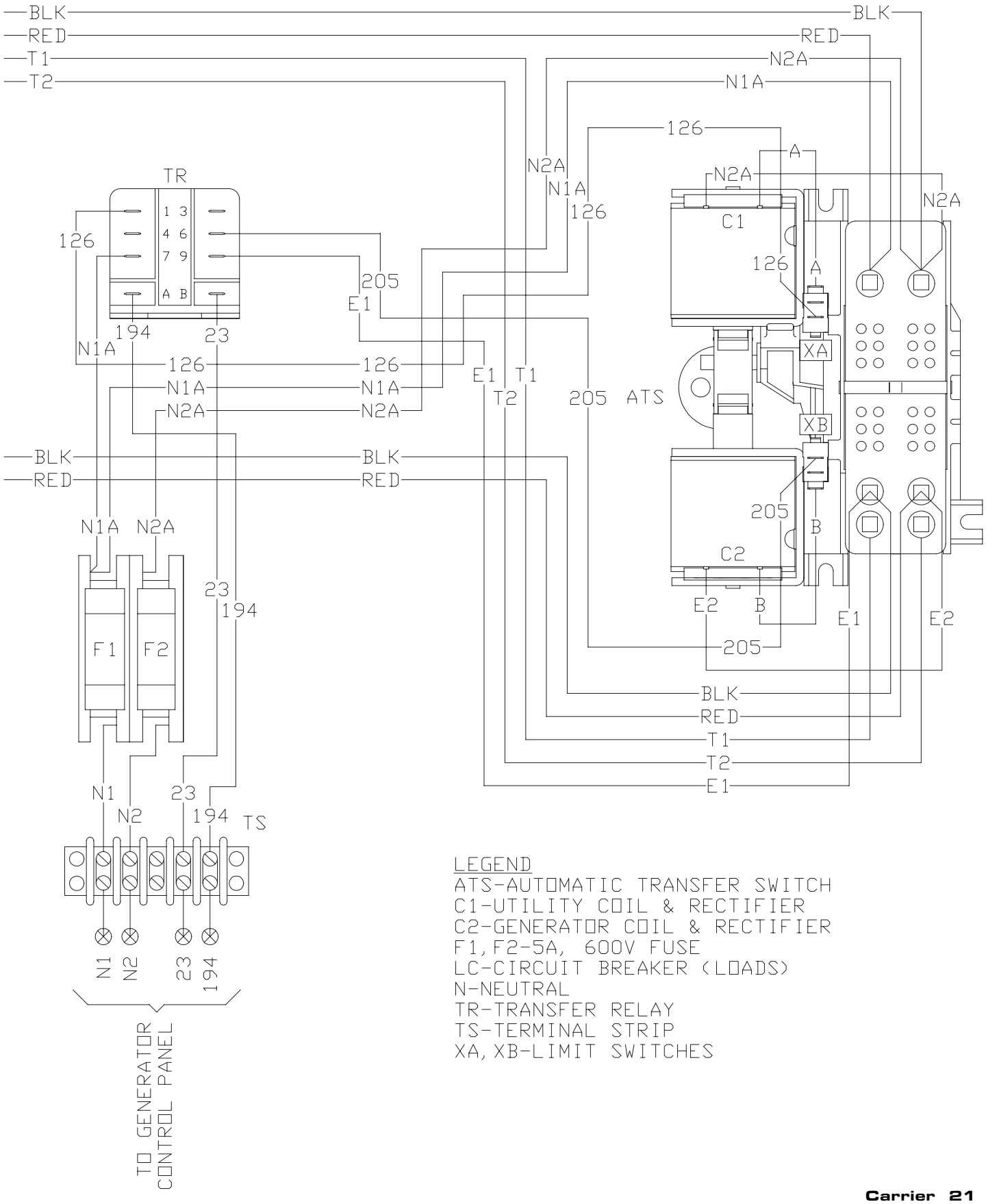
DIAGRAM KEY

BA – BRUSH ASSEMBLY
BCR – BATTERY CHARGE RELAY
CB1 – CIRCUIT BREAKER, MAIN OUTPUT
CB2 – CIRCUIT BREAKER, ALT. EXCITATION
CB3 – CIRCUIT BREAKER, EXTERNAL OUTLET, PUSH/PULL
D – DIODE
FS – FUEL SOLENOID
F1 – FUSE 15 AMP
F2 – FUSE 7.5 AMP
HTO – HIGH OIL TEMPERATURE SWITCH
IM1 – IGNITION MODULE, CYLINDER #1
IM2 – IGNITION MODULE, CYLINDER #2
LOP – LOW OIL PRESSURE SWITCH
SC – STARTER CONTACTOR
SCR – STARTER CONTACTOR RELAY
SP1, SP2 – SPARK PLUGS
SW1 – AUTO / OFF / MANUAL SWITCH
SW2 – SET EXERCISE SWITCH
SM – STARTER MOTOR
TX – TRANSFORMER, 16 Vac 56 VA & 16 Vac 1 VA (DUAL SEC.)


11
22
C2-6
C2-5
TX
225A
56VA
224A
225
1VA
224
N2
N1
240VAC UTILITY INPUT
12Vdc TRANSFER RELAY COIL
23
194
12VDC ACCESSORY SOCKET
CUSTOMER CONNECTIONS
15B
F1
F2
SW1
15A
NEUTRAL
POWER WINDING (STATOR)
33
44
CB1
CB3
120V
240V
C2-1
C1-1
C1-5
SCR
SC
FS
SM
RED
BLACK
BATTERY 12V
CUSTOMER SUPPLIED
EXTERNAL GFCI OUTLET
IM1
IM2
SP1
SP2
D
G
L
N

Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
Wiring Diagram — 8 Circuit Load Center — Drawing No. 0E7687A

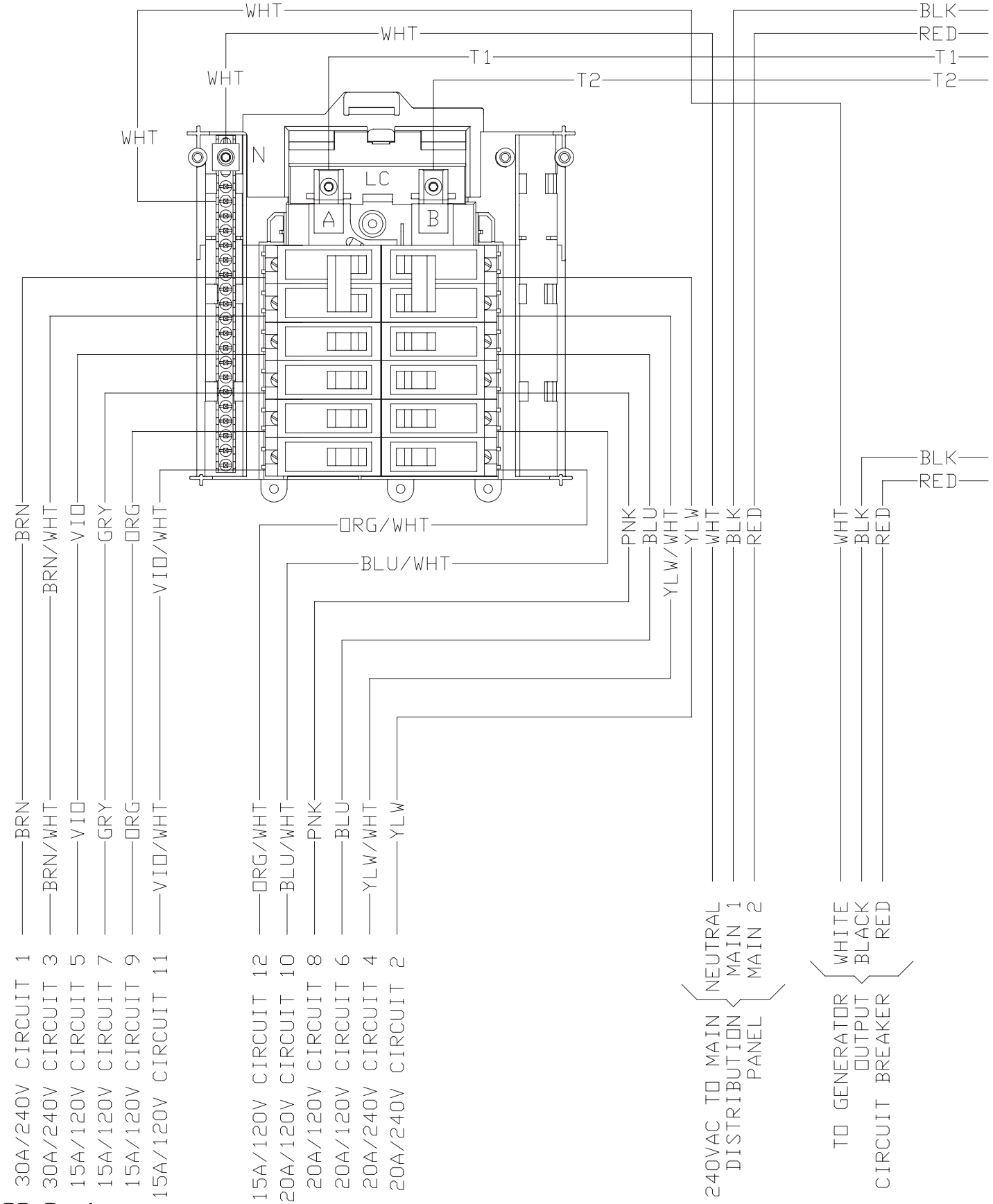


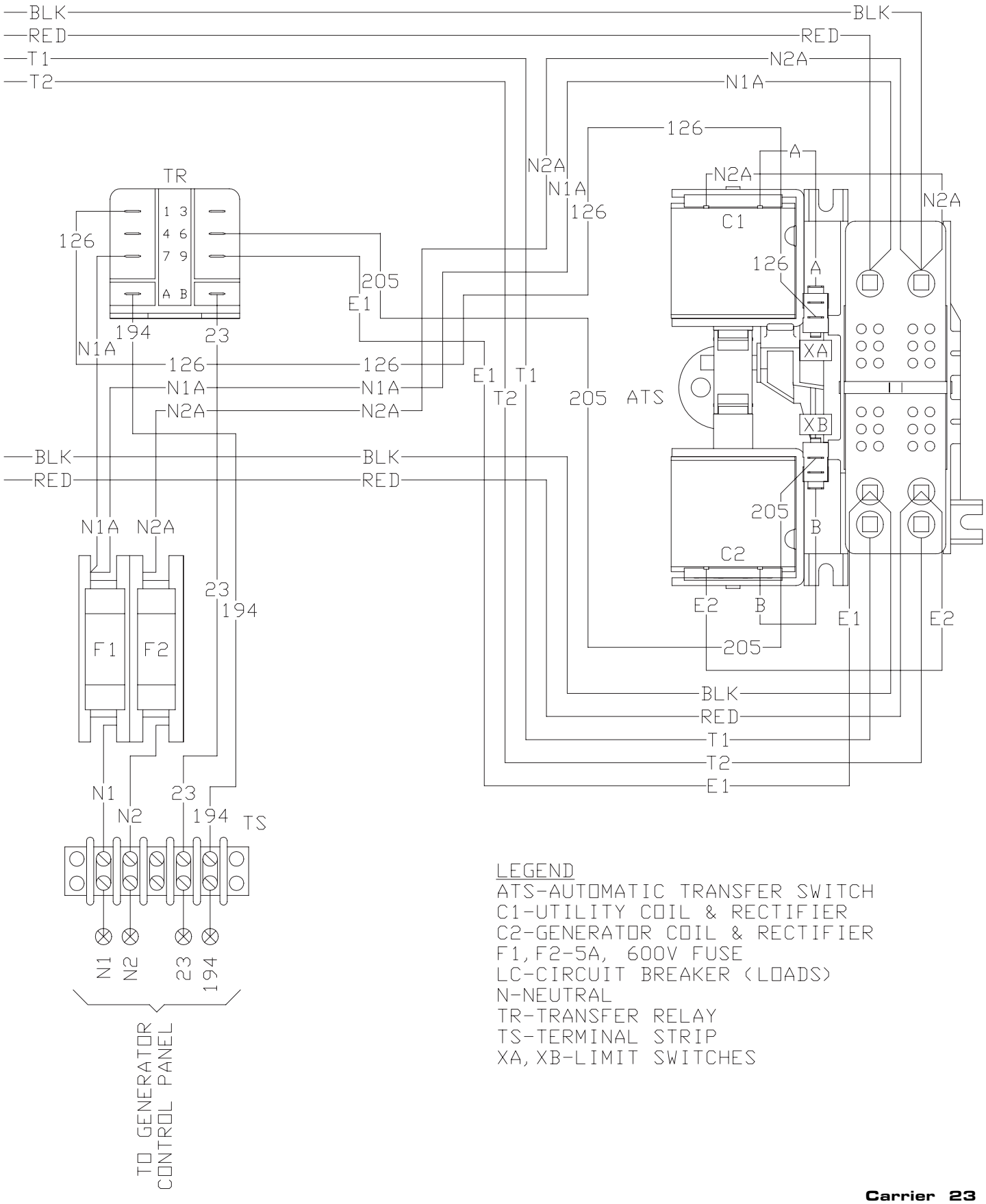


LEGEND
ATS-AUTOMATIC TRANSFER SWITCH
C1-UTILITY COIL & RECTIFIER
C2-GENERATOR COIL & RECTIFIER
F1, F2-5A, 600V FUSE
LC-CIRCUIT BREAKER (LOADS)
N-NEUTRAL
TR-TRANSFER RELAY
TS-TERMINAL STRIP
XA, XB-LIMIT SWITCHES

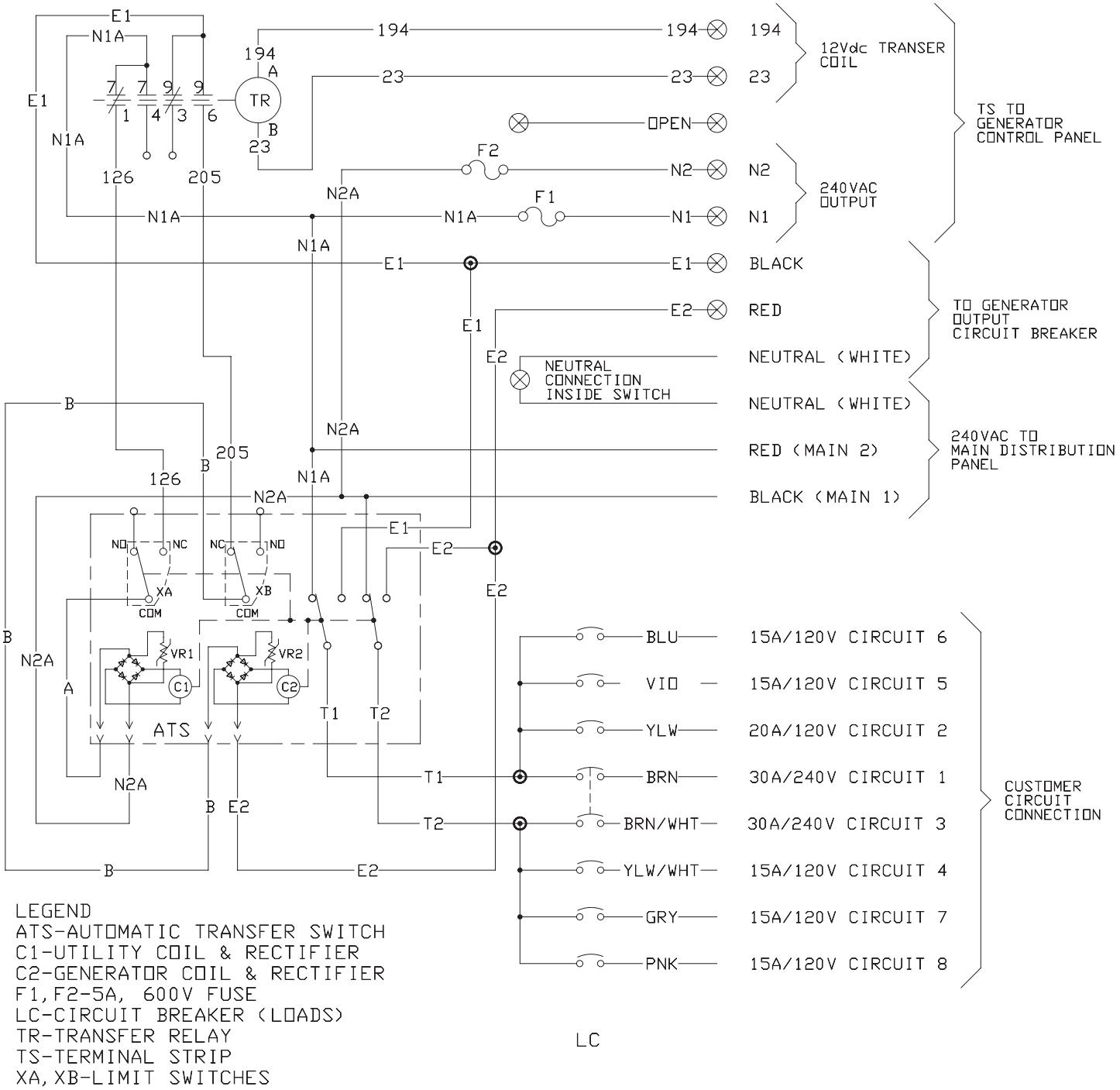
Section 4 - Electrical Data

Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
Wiring Diagram — 10 and 12 Circuit Load Center — Drawing No. 0E7687

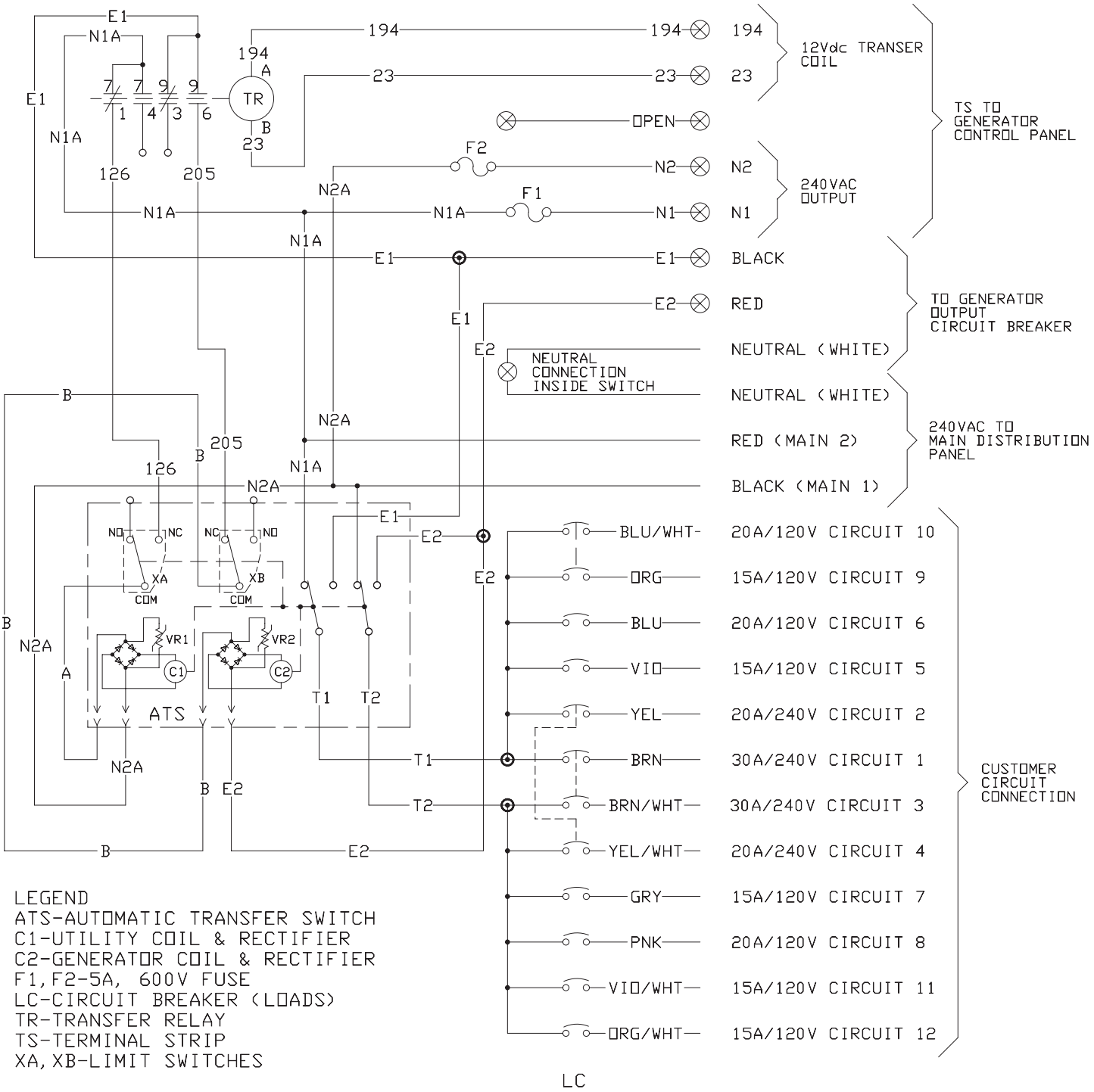




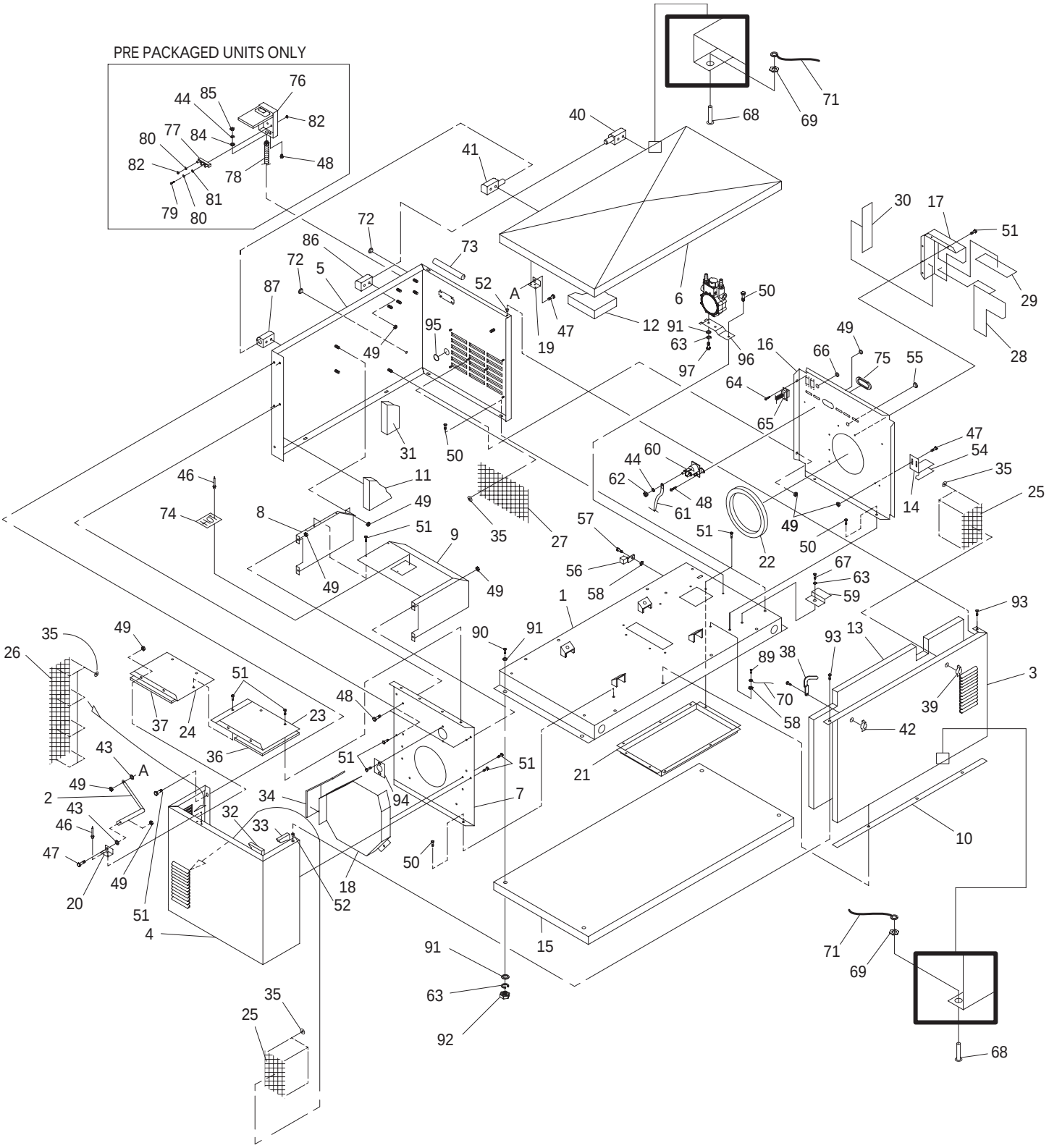
LEGEND
ATS-AUTOMATIC TRANSFER SWITCH
C1-UTILITY COIL & RECTIFIER
C2-GENERATOR COIL & RECTIFIER
F1, F2-5A, 600V FUSE
LC-CIRCUIT BREAKER (LOADS)
N-NEUTRAL
TR-TRANSFER RELAY
TS-TERMINAL STRIP
XA, XB-LIMIT SWITCHES

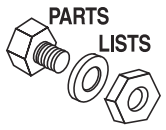


LEGEND
ATS-AUTOMATIC TRANSFER SWITCH
C1-UTILITY COIL & RECTIFIER
C2-GENERATOR COIL & RECTIFIER
F1, F2-5A, 600V FUSE
LC-CIRCUIT BREAKER (LOADS)
TR-TRANSFER RELAY
TS-TERMINAL STRIP
XA, XB-LIMIT SWITCHES


E1
N1A
194
194
A
TR
B
23
23
7
1
7
4
9
3
9
6
126
205
F2
N2A
N1A
F1
N1A
E1
E1
E2
E1
E2
NEUTRAL CONNECTION INSIDE SWITCH
B
205
B
126
N2A
N1A
N2A
NO
NC
NC
NO
XA
XB
COM
COM
E1
E2
E2
B
N2A
A
VR1
VR2
C1
C2
ATS
T1
T2
N2A
T1
B
E2
T2
B
E2
194
23
OPEN
N2
N1
BLU/WHT
ORG
BLU
VIO
YEL
BRN
BRN/WHT
YEL/WHT
GRY
PNK
VIO/WHT
ORG/WHT
194
23
N2
N1
BLACK
RED
NEUTRAL (WHITE)
NEUTRAL (WHITE)
RED (MAIN 2)
BLACK (MAIN 1)
20A/120V CIRCUIT 10
15A/120V CIRCUIT 9
20A/120V CIRCUIT 6
15A/120V CIRCUIT 5
20A/240V CIRCUIT 2
30A/240V CIRCUIT 1
30A/240V CIRCUIT 3
20A/240V CIRCUIT 4
15A/120V CIRCUIT 7
20A/120V CIRCUIT 8
15A/120V CIRCUIT 11
15A/120V CIRCUIT 12
12Vdc TRANSER COIL
240VAC OUTPUT
TS TO GENERATOR CONTROL PANEL
TO GENERATOR OUTPUT CIRCUIT BREAKER
240VAC TO MAIN DISTRIBUTION PANEL
CUSTOMER CIRCUIT CONNECTION
LEGEND
ATS-AUTOMATIC TRANSFER SWITCH
C1-UTILITY COIL & RECTIFIER
C2-GENERATOR COIL & RECTIFIER
F1,F2-5A, 600V FUSE
LC-CIRCUIT BREAKER (LOADS)
TR-TRANSFER RELAY
TS-TERMINAL STRIP
XA,XB-LIMIT SWITCHES
LC

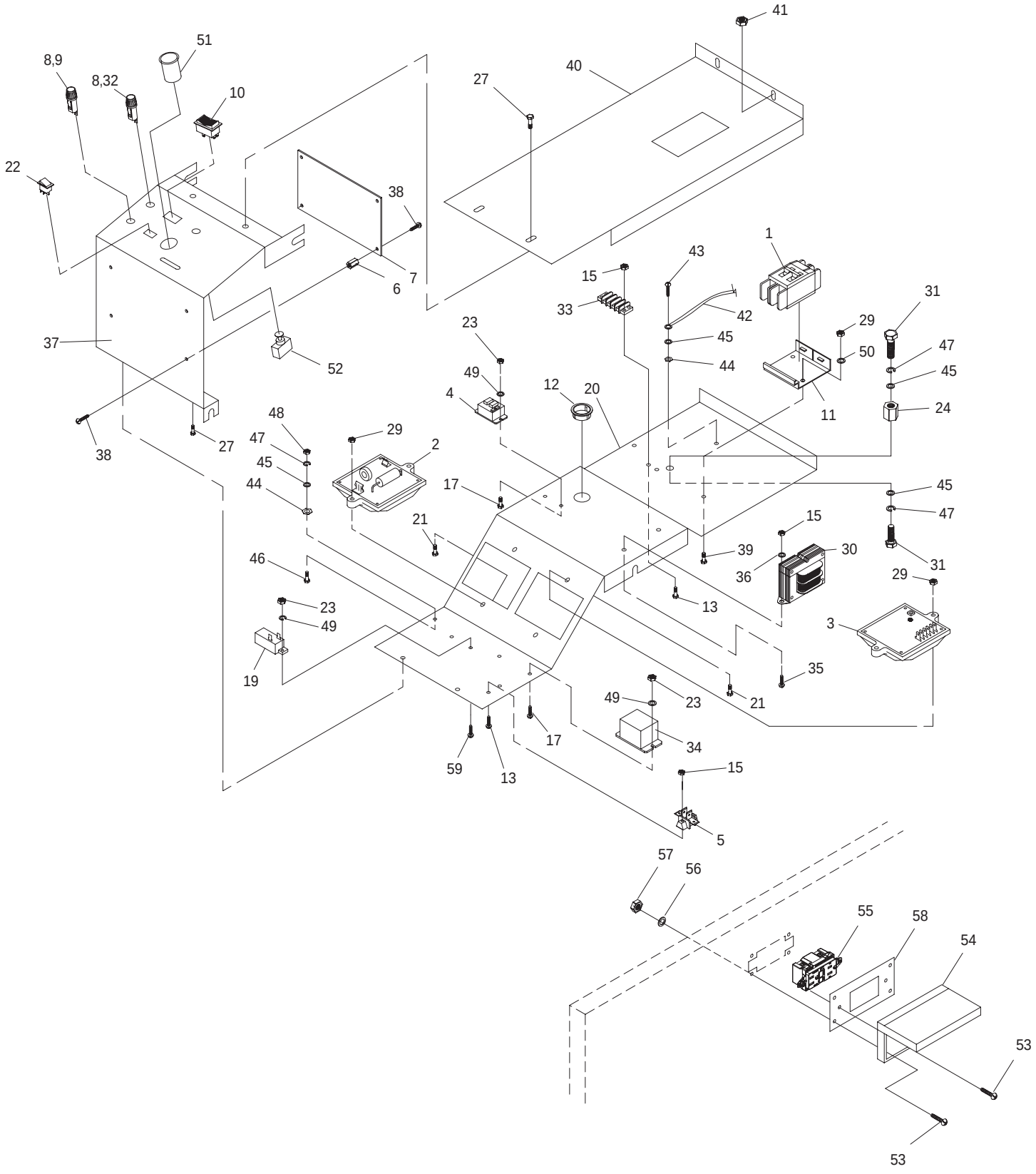
Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
Enclosure — Drawing No. 0E9161-D

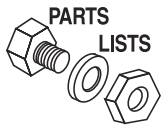




ITEM	PART NO.	QTY.	DESCRIPTION
1	0C6140	1	ASSEMBLY, ENCLOSURE BASE
	0D1901	1	ASSEMBLY, ENCLOSURE BASE (7KW)
2	0C6735	2	SUPPORT, ROOF FOLDING
3	0F0063	1	ENCLOSURE, FRONT
4	0C7062	1	ENCLOSURE, EXHAUST SIDE
	0C7062A	1	ENCLOSURE, EXHAUST SIDE (7KW)
5	0E8811	1	ENCLOSURE, SIDE & BACK
	0E8811A	1	ENCLOSURE, SIDE & BACK (7KW)
6	0E9873	1	ENCLOSURE, ROOF
7	0C7065	1	PANEL, ALTERNATOR DIVIDER
	0C7065A	1	PANEL, ALTERNATOR DIVIDER (7KW)
8	0C8101A	1	PANEL, MUFFLER BOX SIDE
	0C8861	1	PANEL, MUFFLER BOX SIDE (7KW)
9	0C8101B	1	COVER, MUFFLER BOX
	0C8862	1	COVER, MUFFLER BOX (7KW)
10	0C8283	1	GASKET, DOOR SEAL
11	0C8284A	1	FOAM, BACK ENCLOSURE
12	0C8284B	1	FOAM, ROOF ENCLOSURE
13	0C8284C	1	FOAM, FRONT ENCLOSURE
14	0C8285	1	BRACKET, BATTERY SUPPORT
15	0C8899A	1	PAD, 24"X48" W/ MOUNTING HOLES
16	0D1128	1	PANEL, ENGINE DIVIDER
	0D1128A	1	PANEL, ENGINE DIVIDER (7KW)
17	0E4244	1	BAFFLE, INTAKE
	0D1605A	1	BAFFLE, INTAKE (7KW)
18	0D1606	1	HOUSING, FAN
	0D5264	1	BAFFLE, EXHAUST (7KW)
19	0D1839	2	BRACKET, TOP SUPPORT
20	0D1840	2	BRACKET, BOTTOM SUPPORT
21	0D2425	1	DUCT, BASE AIR
22	0D2588	1	GASKET, FRONT DIVIDER
	0D2588A	1	GASKET, FRONT DIVIDER (7KW)
23	0D2676	1	COVER, FRONT EXHAUST ENCL.
24	0D2677	1	COVER, BACK EXHAUST ENCL.
25	0D2979B	2	CLOTH, HRDWRE 266.7mm x 146mm
	0D2979B	3	CLOTH, HRDWRE 266.7mm x 146mm (7KW)
26	0D2979C	1	CLOTH, HRDWRE 543mm x 146mm
27	0D2979D	1	CLOTH, HRDWRE 266.7mm x 387.4mm
	0D2979E	1	CLOTH, HARDWARE (7KW)
28	0E4245	1	FOAM, FRONT INTAKE BAFFLE
	0D3058A	1	FOAM, FRONT INTAKE BAFFLE (7KW)
29	0E4245A	1	FOAM, TOP INTAKE BAFFLE
30	0E4245B	1	FOAM, BACK INTAKE BAFFLE
	0D3058C	1	FOAM, BACK INTAKE BAFFLE (7KW)
31	0D3057D	1	FOAM, BACK ENCL. STRIP
32	0D3059A	1	FOAM, EXHAUST SIDE ENCL END
33	0D3059B	1	FOAM, EXHAUST SIDE ENCL FRONT
34	0D3059C	1	FOAM, EXHAUST FAN HOUSING
35	0D7176	24	WASHER, SELF LOCKING
		22	WASHER, SELF LOCKING (7KW)
36	0D3059D	1	FOAM, FRONT EXHAUST ENCLOSURE COVER
37	0D3059E	1	FOAM, BACK EXHAUST ENCLOSURE COVER
38	0C7781A	2	DOOR, PAWL
39	0D3037	1	LATCH, QUARTER TURN LOCKING
40	0F0164	1	HINGE TYPE A WITH STUDS, PIN
41	0F0165	1	HINGE TYPE B WITH STUDS, PIN
42	0D3037A	1	LATCH, QUARTER TURN NON-LOCKING
43	0A2115	4	WASHER NYLON .250"
44	022097	1	WASHER LOCK M6-1/4"
46	0F0710	14	RIVET POP 0.125" X 0.337"
47	047411	6	SCREW HHC M6-1.0 X 16 G8.8
	047411	4	SCREW HHC M6-1.0 X 16 G8.8 (7KW)
48	043116	5	SCREW HHC M6-1.0 X 12 G8.8
	043116	6	SCREW HHC M6-1.0 X 12 G8.8 (7KW)
49	0D3700	26	NUT, LOCKING FLANGE M6-1.0
	0D3700	24	NUT, LOCKING FLANGE M6-1.0 (7KW)
50	0D4662	11	SCREW HHTT M8-1.2 X 20 BP
51	090388	36	SCREW TAPTITE M6-1.0 X 12 BP
		24	SCREW TAPTITE M6-1.0 X 12 BP (7KW)
52	092120	2	NUT LOCK TRIC M6 X 1.0 Y/ZNC
54	0D3167	1	GASKET, BATTERY SUPPORT BRACKET
55	0A3328	1	PLUG, PLASTIC 0.593
56	055414	1	LUG SLDLSS #2-#8X17/64 CU
57	092079	1	SCREW TAPTITE M6-1.0X25 BP
58	0A1658	2	L/WASH SPECIAL ¼
59	0C2937	1	BRACKET, BATTERY HOLD DOWN (7KW)
60	086729	1	CONTACTOR, STARTER (7KW)
61	0388040AJ0	1	CABLE, #6 RED BATTERY 38.5"
62	022127	2	NUT HEX 1/4-20 STEEL (7KW)
63	022129	6	WASHER LOCK 5/16
	022129	7	WASHER LOCK 5/16 (7KW)
64	074908	8	SCREW TAPTITE M5-0.8 X 10 BP
65	0D2346	1	HARNESS, ENGINE
	0D2345	1	HARNESS, ENGINE (7KW)
66	023484F	1	BUSHING, SNAP SB-1000-12
67	022142	1	SCREW HHC 5/16-18 X 3/4 G5 (7KW)
68	0A7836	2	RIVET,1/8" X 0.126" - 0.375" LSH POP
69	0A8475	2	L/WASH SPECIAL #10
70	0912970069	1	ASSEMBLY, ROOF / DOOR GROUND WIRE
71	0912970070	2	ASSEMBLY, ROOF / DOOR GROUND WIRE
72	055450	2	PLUG PLASTIC 1.375
	025034	1	PLUG, STEEL 1.0625 (15KW)
73	0E5968	11	GASKET, EXTRUDED TRIM
74	0D3701	1	PLATE, "HOT"
75	0D3472	1	GROMMET 2.75 X 1/16
76	0C8742	1	EXTERNAL CONNECTION BOX
77	0C8911	1	POWER BLOCK
78	0D8651	1	HARNESS GENERATOR TO EXTERNAL CONNECTION BOX (15KW)
	0D8442	1	HARNESS GENERATOR TO EXTERNAL CONNECTION BOX
	0D8652	1	HARNESS GENERATOR TO EXTERNAL CONNECTION BOX (7KW)
79	036937	2	SCREW PPHM #10-32 X 1
80	022152	5	WASHER LOCK #10
81	051713	2	WASHER FLAT M5
82	022158	5	NUT HEX #10-32 STEEL
83	0D3031	1	FUEL LINE, 3/4"OUTDOOR (NOT SHOWN)
84	026850	1	WASHER SHAKEPROOF EXT 1/4 STEEL
85	049813	1	NUT HEX M6-1.0 G8 YELLOW CHROME
86	0F0164A	1	HINGE TYPE A WITH STUDS, SOCKET
87	0F0165A	1	HINGE TYPE B WITH STUDS, SOCKET
89	0E2874	1	SCREW HHTR 1/4-20 X 3/4
90	043107	4	SCREW HHC M8-1.25 X 25
91	022145	10	WASHER FLAT 5/16
92	045771	4	NUT HEX M8-1.25
93	0C3906	2	SELF-ALIGN SCREW M6 HH
94	0E4321	1	PANEL, EXHAUST ALIGNMENT
95	0E1330A	1	GROMMET, 38.1 CROSS SLIT WITH HOLE
96	0E9692	1	BRACKET, REGULATOR MOUNTING
97	042907	2	SCREW HHC M8-1.25 X 16mm

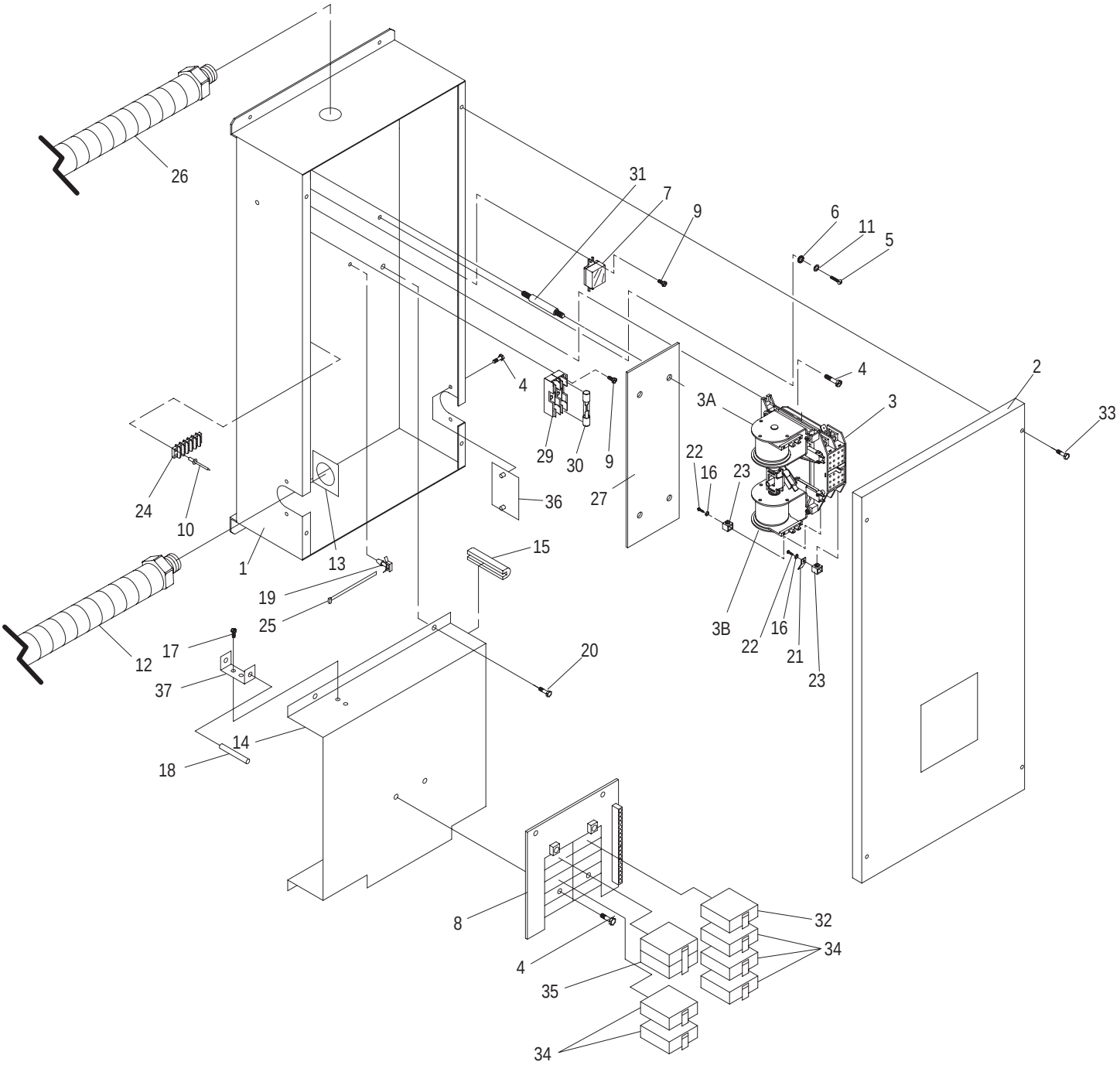
Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
Control Panel — Drawing No. 0E9162-H

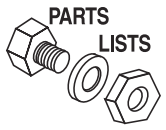




ITEM	PART NO.	QTY.	DESCRIPTION
1	0E7886A	1	CIRCUIT BREAKER 30A X 2P 240V (7KW)
	0E7886E	1	CIRCUIT BREAKER 50A X 2P 240V (12KW)
	0E7886F	1	CIRCUIT BREAKER 60A X 2P 240V (13KW)
	0E7886G	1	CIRCUIT BREAKER 70A X 2P 240V (15KW LP)
2	0A1801	1	ASSEMBLY, BATTERY CHARGER ENGINE
3	083049	1	ASSEMBLY, POTTED REGULATOR
4	0C2174	1	RELAY, 12V 25A SPST
5	075210A	1	BLOCK 1 POSITION
6	0D3062	4	HEX STAND-OFF #6-32 x 3/8"
7	0D8615	1	ASSEMBLY, HOME STANDBY CONTROLLER
	0D8615A	1	ASSEMBLY, HOME STANDBY CONTROLLER (7KW)
8	032300	2	HOLDER, FUSE
9	022676	1	FUSE, 15AMP X AGC15
10	0E4494	1	SWITCH, ROCKER DPDT ON-OFF-ON
11	0E7890	1	CIRCUIT BREAKER MOUNTING BRACKET
12	023484E	1	SNAP BUSHING
13	075476	4	SCREW PPHM M4-0.7 x 16mm
15	0E6480	6	NUT HEX LOCK M4-0.7 NYLON INSERT
17	0C1085	6	SCREW PPHM M3-0.5 x 8mm
	0C1085	4	SCREW PPHM M3-0.5 x 8mm (7KW)
19	054502	1	CIRCUIT BREAKER 3 X 1 ETA 46-500-P
	053623	1	CIRCUIT BREAKER 2.5 X 1 ETA 46-500-P (7KW)
20	0E7870	1	CONTROL, PANEL BOTTOM
	0E7871	1	CONTROL, PANEL BOTTOM (7KW)
21	075235	4	SCREW HHC M5-0.8 x 30mm
22	0D5240	1	SWITCH, SPST (ON)-ON N/O
23	0D9784	6	NUT HEX LOCK M3-0.5 NYLON INSERT
	0D9784	4	NUT HEX LOCK M3-0.5 NYLON INSERT (7KW)
24	0D8502	1	NEUTRAL CONNECTOR
26	0E8956	1	HARNESS, CONTROL PANEL (NOT SHOWN)
	0E8957	1	HARNESS, CONTROL PANEL WIRE (NOT SHOWN) (7KW)
27	074908	4	SCREW TAPTITE, M5-0.8 x 10 BP
29	082025	6	NUT HEX LOCK M5-0.8 NYLON INSERT
30	0C3910	1	TRANSFORMER
31	022507	2	SCREW HHC 1/4"-20 x 1/2"
32	0A9611	1	FUSE 7.55A X AGC5
33	046689	1	BLOCK TERMINAL STRIP 20A 4 X 6 X 1100V
34	063617	1	RELAY PANEL 12VDC DPDT 10A 240VAC
35	075475	4	SCREW PPHM M4-0.7 x 10mm
36	043180	2	WASHER FLAT M4
37	0E8812	1	COVER, CONTROL PANEL COMPONENT
	0E8895	1	COVER, CONTROL PANEL COMPONENT (7KW)
38	092036	8	SCREW PPHMS/LW #6-32 x 1/4"
39	045770	2	SCREW HHC M5-0.8 x10mm
40	0E7866	1	COVER, CONTROL PANEL
	0E7867	1	COVER, CONTROL PANEL (7KW)
41	0D3700	8	NUT FLANGE M6-1.0 NYLOK
42	0912970069	1	ASSEMBLY, ROOF/DOOR GROUND WIRE
43	0E2874	1	SCREW HHTR 1/4"-20 X 3/4"
44	0A1658	2	WASHER LOCK SPECIAL 1/4"
45	022473	3	WASHER FLAT 1/4"-M6
46	038750	1	SCREW HHC M6-1.0 x 30mm
47	022097	3	WASHER LOCK M6-1/4"
48	049813	1	NUT HEX M6-1.0
49	031879	6	WASHER FLAT #4
	031879	4	WASHER FLAT #4 (7KW)
50	023897	2	WASHER FLAT #10
51	0E9056	1	SOCKET, 12VDC ACCESSORY
52	0E5840	1	CIRCUIT BREAKER 15A PUSH / PULL MAIN RESET
53	036903	6	SCREW PPHM #6-32 X 5/8"
54	0E7833	1	PLATE, WEATHERPROOF GFCI
55	0E4261	1	OUTLET, 15A GFCI DUPLEX
56	022985	4	WASHER FLAT #6
57	082625	4	NUT LOCK HEX #6-32 NYL INSERT
58	0E9171	1	GASKET, WEATHERPROOF GFCI
59	04793	2	SCREW PPHM, M3-0.5 X 10MM

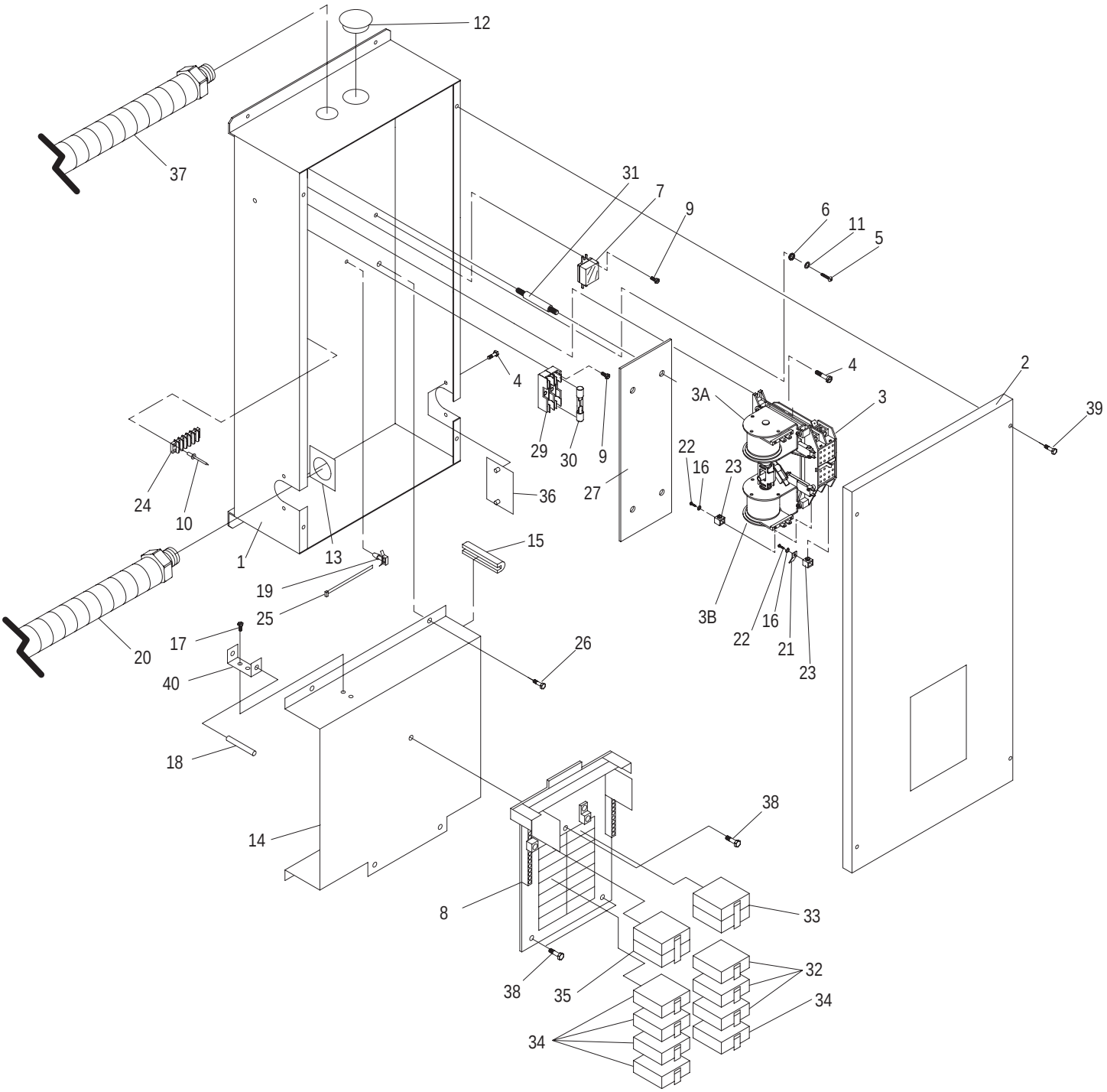
Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
7kW, 8 Circuit Load Center Assembly — Drawing No. 0E7975-B





ITEM	PART NO.	QTY.	DESCRIPTION
1	0D4801	1	BOX GTS LOAD CENTER
2	0D4800	1	COVER, 8 POSITION GTS LOAD CENTER
3	0C2237	1	TRANSFER SWITCH HOME STANDBY 100A 2P 250V
3A	077220	1	COIL UTILITY
3B	077220A	1	COIL STANDBY
3C	082574	1	INSULATOR-SIDEWALL (NOT SHOWN)
3D	084464	1	LIMIT SWITCH OPERATION (NOT SHOWN)
4	074908	8	SCREW TAPTITE M5-0.8 X 10 BP
5	024912	1	SCREW TAPTITE 1/4-20 X 5/8 BP
6	0A1658	1	LOCK WASHER, SPECIAL-1/4"
7	063617	1	RELAY PANEL 12VDC DPDT 10A@240VAC
8	0E7889A	1	8 CIRCUIT LOAD CENTER 125A/240V
9	0A1495	4	SCREW HHTT M4-0.7 X 10
10	0A1661	2	RIVET POP 0.156" X 0.675"
11	022473	1	WASHER FLAT 1/4-M6
12	0D3094	1	HARNESS,GTS TO MAIN PANEL
13	0D4684A	1	PLATE HARNESS ADAPTER
14	0E7900	1	SUBPLATE, LOAD CENTER
15	0F4790	10.5"	U-CHANNEL
16	022152	6	WASHER LOCK #10
17	064526	2	SCREW HWHS #6-25 X 3/8
18	0E6155	1	ARM EXTENDER PIN
19	063378	4	HOLDER CABLE TIE
20	0A2110	4	SCREW SWAGE 1/4-20 X 1/2 ZINC
21	074138	2	LUG QUICK DISCONNECT NI-S 10X45 DEG BRASS / TIN
22	036933	6	SCREW PPHM #10-32 X 3/8"
23	077033	6	LUG SLDLSS 1/0-#14X9/16 AL/CU
24	048850	1	BLOCK TERMINAL 20A 5 X 6 X 1100V
25	028739	4	TIE WRAP UL 3.9" X .10" NAT'L
26	0D4802	1	HARNESS, GTS TO EXTERNAL CONNECTION BOX
27	0D3191	1	COVER, RELAY & TERM BLOCK
28	0D3088	1	WIRE HARNESS,GTS LOAD CENTER (NOT SHOWN FOR CLARITY)
29	073591	2	FUSE HOLDER
30	073590A	2	FUSE 5A X BUSS
31	040213B	4	PCB SUPPORT SNAP-IN 1-3/8"
32	0E7888C	1	CIRCUIT BREAKER 20A X 1P
33	0A7215	4	SCREW SW 1/4-20X5/8 WITH WASHER
34	0E7888B	5	CIRCUIT BREAKER 15A X 1P
35	0E7888A	1	CIRCUIT BREAKER 30A X 2P
36	0D3320	1	COVER - HARNESS ENTRY
37	0E6193	1	BRACKET, ARM EXTENDER

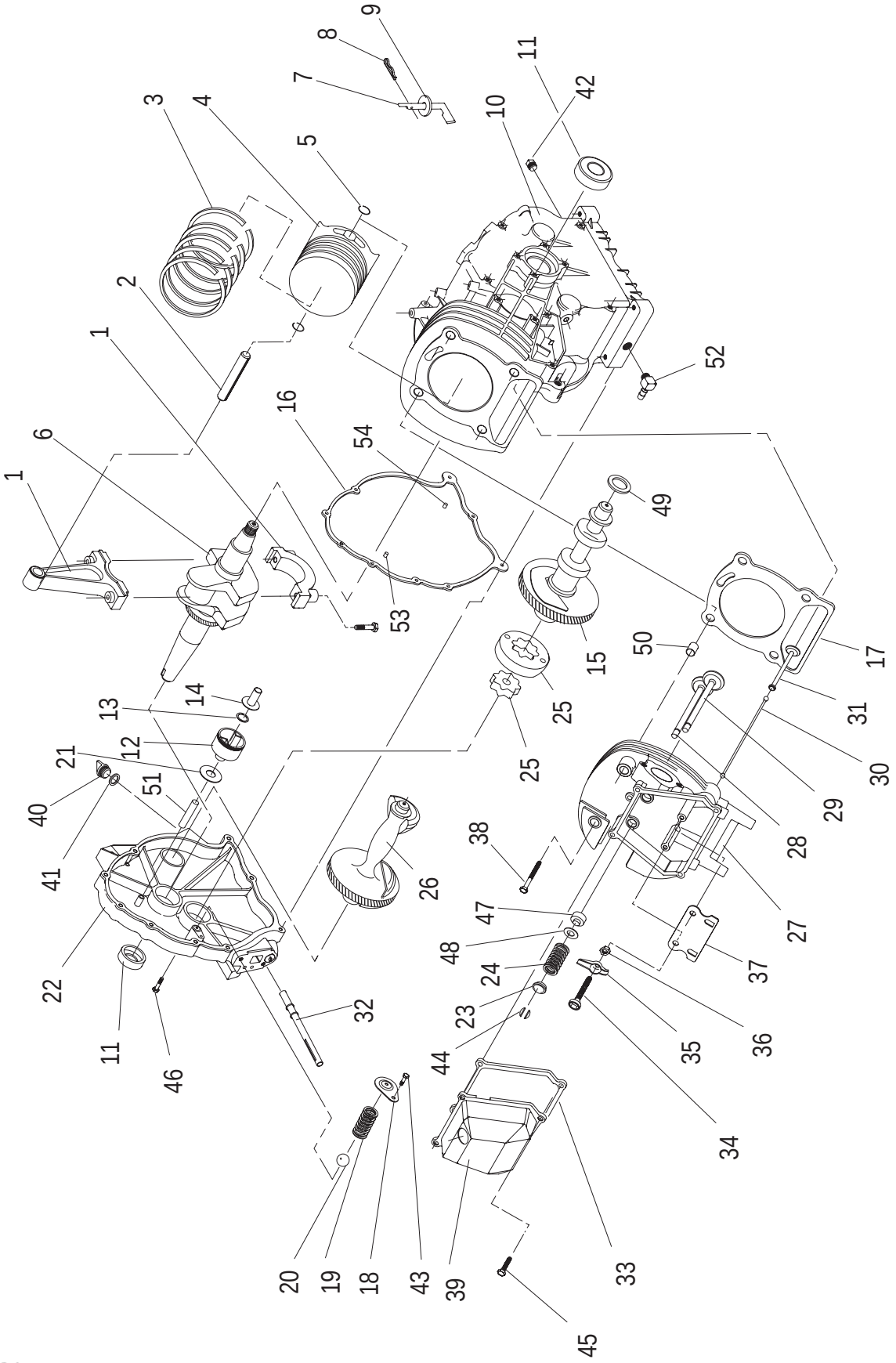
Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
12 kW (10 Circuit) and 15 kW (12 Circuit) Load Center Assembly — Drawing No. 0E7973-E

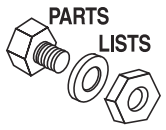


12 kW (10 Circuit) and 15 kW (12 Circuit) Load Center Assembly — Drawing No. 0E7973-E

ITEM	PART NO.	QTY.	DESCRIPTION
1	0D3086	1	BOX GTS LOAD CENTER
2	0D3092	1	COVER, 12 POSITION GTS LOAD CENTER
	0F5211	1	COVER, 10 POSITION GTS LOAD CENTER
3	0C2237	1	TRANSFER SWITCH HOME STANDBY 100A 2P 250V
3A	077220	1	COIL UTILITY
3B	077220A	1	COIL STANDBY
3C	082574	1	INSULATOR-SIDEWALL (NOT SHOWN)
3D	084464	1	LIMIT SWITCH OPERATION (NOT SHOWN)
4	074908	6	SCREW HHTT M5-0.8 X 10
5	024912	1	SCREW HHTT 1/4-20 X 5/8
6	0A1658	1	LOCK WASHER, SPECIAL-1/4"
7	063617	1	RELAY PANEL 12VDC DPDT 10A@240VAC
8	0E7889	1	12 CIRCUIT LOAD CENTER 125A/240V
9	0A1495	4	SCREW HHTT M4-0.7 X 10
10	0A1661	2	RIVET POP .156" X .675"
11	022473	1	WASHER FLAT 1/4-M6 ZINC
12	055450	1	PLUG PLASTIC 1.375
	025034	1	PLUG STEEL 1.0625 (15KW)
13	0D4684	1	HARNESS ADAPTER PLATE
14	0E7900	1	SUBPLATE, LOAD CENTER
15	056326	10.5"	TRIM VINYL BLACK 1/8"GP
16	022152	6	WASHER LOCK #10
17	064526	2	SCREW HWHS #6-25 X 3/8"
18	0E6155	1	ARM EXTENDER PIN
19	063378	4	HOLDER CABLE TIE
20	0D3094	1	HARNESS,GTS TO MAIN PANEL
21	074138	2	LUG QUICK DISCONNECT NI-S 10X45 DEG BRASS / TIN
22	036933	6	SCREW PPHM #10-32 X 3/8"
23	077033	6	LUG SLDLSS 1/0-#14X9/16 AL/CU
24	048850	1	BLOCK TERMINAL 20A 5 X 6 X 1100V
25	028739	4	TIE WRAP 3.9" X .10"
26	0A2110	4	SCREW SWAGE 1/4-20 X 1/2" ZINC
27	0D3191	1	COVER, RELAY & TERMINAL BLOCK
28	0D3088	1	WIRE HARNESS,GTS LOAD CENTER (NOT SHOWN FOR CLARITY)
29	073591	2	FUSE HOLDER
30	073590A	2	FUSE 5A X BUSS
31	040213B	4	PCB SUPPORT SNAP-IN 1-3/8"
32	0E7888C	3	CIRCUIT BREAKER 20A 1P
33	0E7888	1	CIRCUIT BREAKER 20A 2P
34	0E7888B	5	CIRCUIT BREAKER 15A 1P (12 POSITION LOAD CENTER)
	0E7888B	3	CIRCUIT BREAKER 15A 1P (10 POSITION LOAD CENTER)
35	0E7888A	1	CIRCUIT BREAKER 30A 2P
36	0D3320	1	COVER - HARNESS ENTRY
37	0D3093	1	HARNESS, GTS TO EXT CONN BOX
	0D8597	1	HARNESS, GTS TO EXT CONN BOX (8.5KW)
	0D3926	1	HARNESS, GTS TO EXT CONN BOX (15KW)
38	075475	2	SCREW PPHM M4-0.7 X 10
39	0A7215	4	SCREW SW 1/4"-20 X 5/8" WITH WASHER
40	0E6193	1	BRACKET, ARM EXTENDER

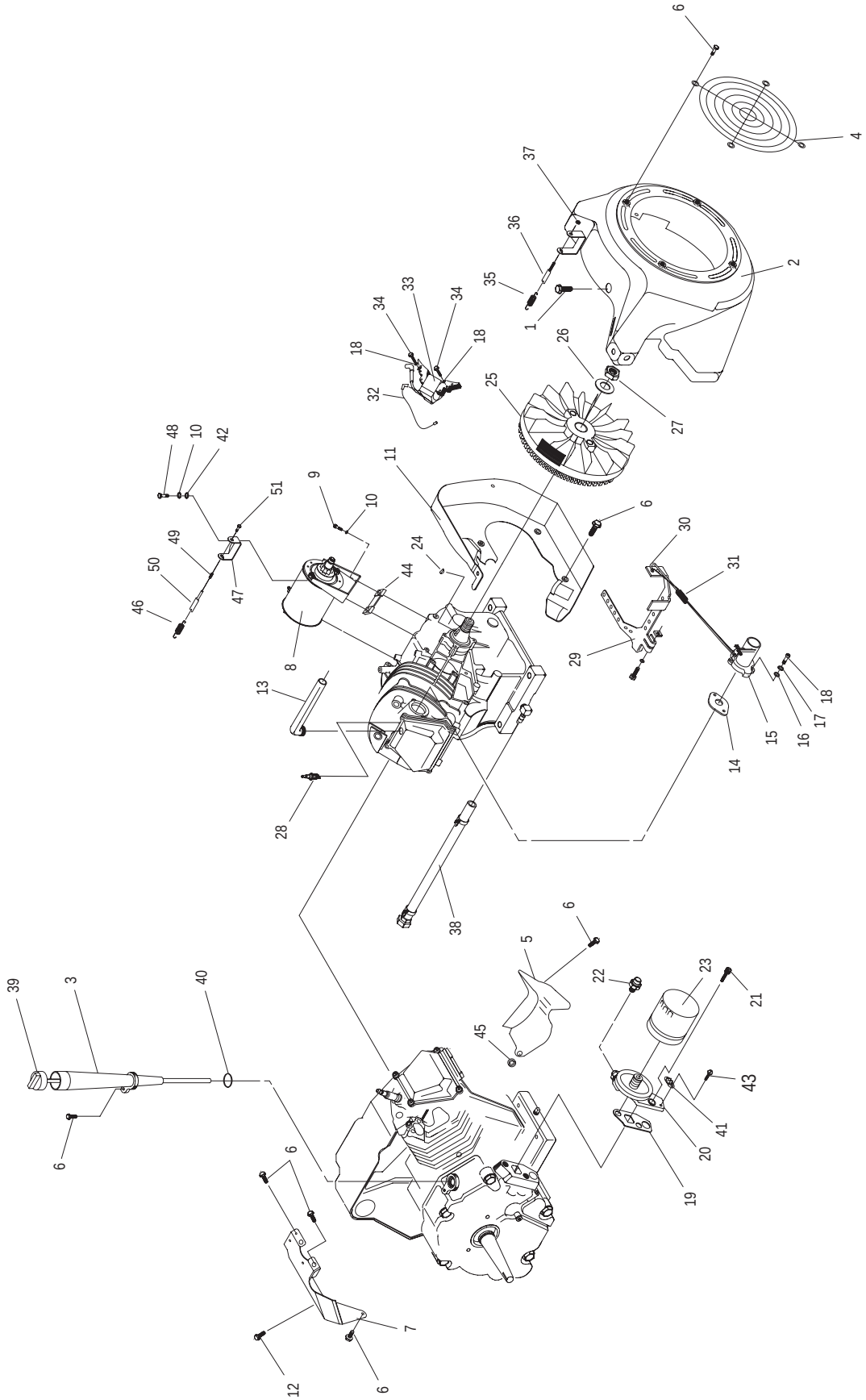
Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
GN410 Engine — Drawing No. 0F4716 Page 1

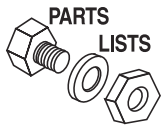




ITEM	PART NO.	QTY.	DESCRIPTION
1	0E3221	1	ASSEMBLY, CONNECTING ROD
2	0E1466	1	PIN, PISTON D20
3	021533	1	SET, PISTON RING 90MM
4	0E2985	1	PISTON, HC
5	071983	2	RETAINER, PISTON PIN 20
6	0E8440	1	ASSEMBLY, CRANKSHAFT GH410 SMALL TAPER
7	0A7628	1	ARM, GOVERNOR RC45
8	078658	1	PIN, "R" GOVERNOR ARM
9	078659	2	WASHER, GOVERNOR ARM THRUST
10	088261E	1	CRANKCASE, SUBASSEMBLY WITH PLUGS GH410
11	0E3812	2	SEAL, 35 I.D. CRANKSHAFT
12	0E6519	1	ASSEMBLY, GOVERNOR GEAR
13	078645	1	C-RING, GOVERNOR GEAR RETAINER
14	0A7811	1	SPOOL, GOVERNOR- MACHINE
15	0A9877	1	ASSEMBLY, CAMSHAFT & GEAR
16	076701	1	GASKET , CRANKCASE
17	021713B	1	GASKET, HEAD 410
18	078691	1	COVER, OIL PRESSURE RELIEF
19	0A5771	1	SPRING, OIL RELIEF 360
20	0A5776	1	BALL, DIA 11/32 PRESSURE RELIEF
21	076361	1	WASHER, THRUST GOVERNOR GEAR
22	0A8898D	1	ASSEMBLY, COVER, GEAR TOP CHECK / FILL
23	0D2274	2	RETAINER, VALVE SPRING
24	0C4391	2	VALVE SPRING LF
25	086025	1	SET,GEROTOR 12 THK
26	0E3341	1	BALANCER
27	021714	1	ASSEMBLY,CYLINDER HEAD SEATS & GUIDES
28	086516	1	VALVE, EXHAUST
29	086517	1	VALVE, INTAKE
30	0D9853B	2	PUSH ROD 174.9
31	083897	2	TAPPET
32	077158	1	ASSEMBLY, SCREEN OIL PICK-UP
33	0C3150	1	GASKET, ROCKER COVER 410
34	072694	2	STUD, D20 PIVOT BALL
35	083907	2	ROCKER ARM
36	072696	2	NUT, JAM (ROCKER ARM)
37	078694	1	PLATE, PUSH ROD GUIDE
38	021742	4	SCREW, HHFL M10-1.5 X 105
39	0D6094	1	ASSEMBLY, ROCKER COVER BREATHER
40	076329	1	PLUG, OIL FILL PLASTIC
41	0E0057	1	O-RING 17.8 I.D. x 2.4
42	0D4788	1	PLUG, STANDARD PIPE 3/8 STEEL SQUARE HEAD
43	074908	1	SCREW, TAPTITE M5-0.8 X 10 BP
44	086515	4	KEEPER, VALVE SPRING
45	078606	4	SCREW & LOCKWASHER M6-1 X 12
46	0A1442	8	SCREW, HHFC M8-1.25 X 42
47	078672	1	SEAL, VALVE STEM D7
48	089673	2	WASHER, VALVE SPRING
49	0B2104	1	WASHER, LARGE SPRING
50	078699C	2	DOWEL, SEAMED SLEEVE
51	0A7627	1	SHAFT, GOVERNOR RC55
52	043790A	1	BARBED ELBOW 90 3/8NPT X 3/8 LOCKTITE
53	088590	1	DOWEL DIA 12 X 18L
54	078699B	1	DOWEL, SLEEVE SEAMED 12 DIA.

Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
GN410 Engine — Drawing No. 0F4716 Page 2

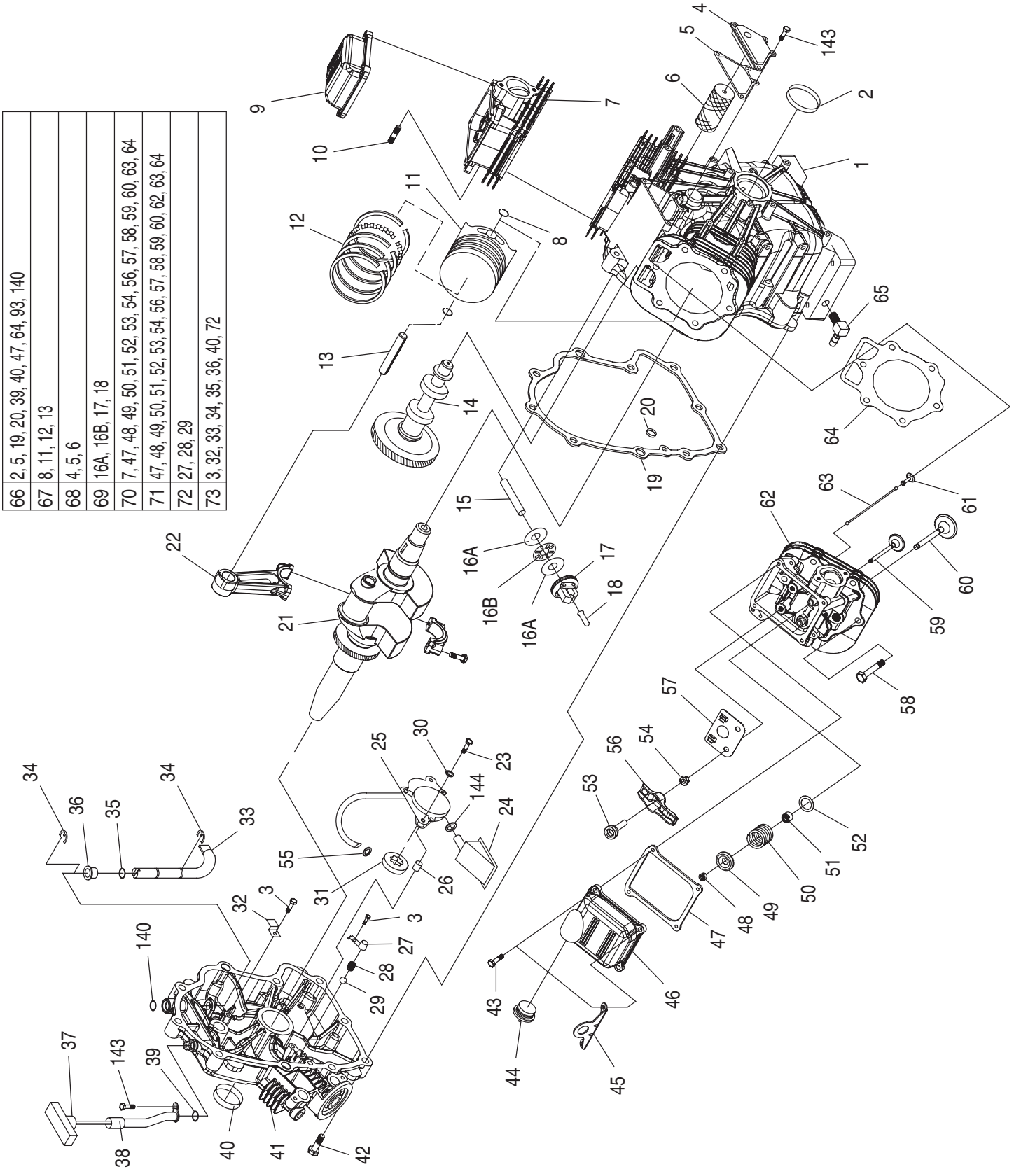


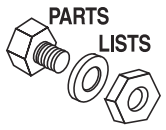


ITEM	PART NO.	QTY.	DESCRIPTION
1	0C1069	5	SCREW, TAPTITE M6-1.0X8 YELLOW CHROME
2	0D2922	1	HOUSING, BLOWER
3	0C8435	1	TUBE, DIPSTICK
4	0C9997	1	GUARD, FAN
5	088434	1	WRAPPER, BOTTOM
6	045756	11	SCREW, TAPTITE M6-1X10 YELLOW CHROME
7	0C4176A	1	WRAPPER, TOP
8	0D9004A	1	ASSY, STARTER
9	059985	2	SCREW, SHC M8-1.25 X 45 G12.9
10	022129	3	WASHER, LOCK M8-5/16
11	0C2458A	1	BACKPLATE, L/F D/F
12	083512	1	SCREW, TAPTITE M8-1.25 X 16 BP
13	0D1401A	1	BREATHER TUBE
14	091039	1	GASKET, INTAKE ADAPTER
15	0C9619	1	ASSEMBLY, PLASTIC CARB
16	049811	2	WASHER, FLAT M6
17	022097	4	WASHER, LOCK M6-1/4
18	040945	2	SCREW, SHC M6-1.0 X 20 G12.9
19	086999	1	GASKET,OIL FILTR ADAPTER
20	0D5667A	1	ADAPTER, OIL FILTER
21	049821	2	SCREW, SHC M8-1.25 X 30 G12.9
22	099236	1	SWITCH, OIL 8.0 PSI
23	070185D	1	OIL FILTER
24	082774	1	KEY, WOODRFF 4 X 19D
25	091222E	1	FLYWHEEL WITH RING GEAR 32DEG.
26	067198N	1	WASHER,BELV-20 X 2.2
27	067890	1	NUT, HEX - FLYWHEEL
28	0E7585	1	SPARKPLUG
29	072734	1	ASSEMBLY,GOVERNOR LEVER 12 HP
30	072735	1	ROD,GOVERNOR CONTROL.
31	0C3978	1	SPRING, ANTI-LASH
32	0C6040	1	ASSEMBLY, WIRE
33	0D9760	1	ASSEMBLY, IGNITION COIL
34	092079	2	SCREW, TAPTITE M6-1.0 X 25 BP
35	0F3800	1	SPRING GOVERNOR
36	083502	1	BOLT, GOVERNOR ADJUST M5
37	082025	1	NUT HEX LOCK M5-0.8 NYINS ZINC
38	0D3083	1	ASSEMBLY, OIL DRAIN HOSE
39	0E7887C	1	ASSEMBLY, CAP & DIPSTICK
40	090072	1	O-RING 9/16 X 3/4 X 3/32
41	075281	1	SWITCH, THERMAL
42	022145	1	WASHER FLAT 5/16 - M8
43	0F2094	2	SCREW, M3-0.5 X 6 SEMS
44	0C4373	1	SPACER, ENDFRAME
45	022717B	1	GOMMET
46	0F3865	1	SPRING SECONDARY
47	0F3855	1	BRACKET SECONDARY GOVERNOR SPRING
48	042907	1	SCREW HHC M8-1.25 x 16
49	0D3751	1	SPRING, IDLE RETURNING
50	0F3921	1	BARREL GOVERNOR ADJUSTMENT
51	0C8493	1	SCREW SHC M5-0.8 x 30

Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
GT-990 Engine - Drawing No. F4715 Page 1

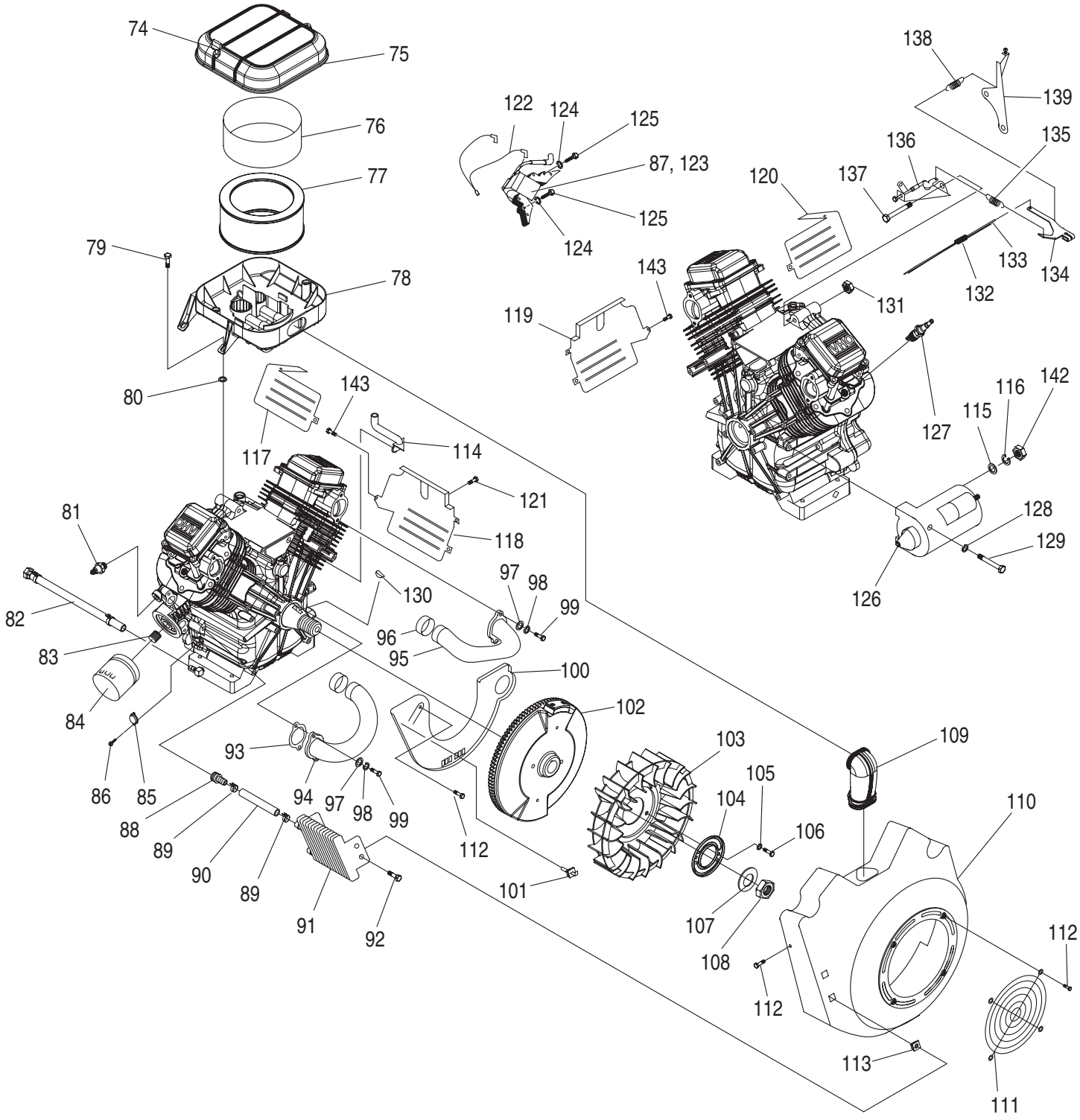
66	2, 5, 19, 20, 39, 40, 47, 64, 93, 140
67	8, 11, 12, 13
68	4, 5, 6
69	16A, 16B, 17, 18
70	7, 47, 48, 49, 50, 51, 52, 53, 54, 56, 57, 58, 59, 60, 63, 64
71	47, 48, 49, 50, 51, 52, 53, 54, 56, 57, 58, 59, 60, 62, 63, 64
72	27, 28, 29
73	3, 32, 33, 34, 35, 36, 40, 72

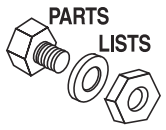




ITEM	PART NO.	QTY.	DESCRIPTION
1	0C5729	1	ASSEMBLY, CRANKCASE HOUSING WITH SLEEVE
2	0E9843	1	SEAL, 38 I.D. CRANKSHAFT
3	090388	3	SCREW, TAPTITE M6-1.0 X 12 YC
4	0C5372	1	ASSEMBLY, BREATHER
5	0C3005	1	GASKET, BREATHER COVER
6	0E3372B	1	SEPARATOR, OIL BREATHER
7	0D8067A	1	ASSEMBLY, HEAD #1 G&S
8	071983	4	RETAINER, PISTON PIN 20
9	0C2981C	1	ROCKER, COVER NO OIL FILL
10	045761A	4	STUD M8-1.25/10MM X 30 G5 ZINC
11	0E2985	2	PISTON, HC
12	021533	2	SET, PISTON RING 90MM
13	0E1466	2	PIN PISTON
14	0D4041	1	ASSEMBLY, CAMSHAFT & GEAR
15	0C2983	1	SHAFT, GOVERNOR
16 A	0C2985A	2	ROLLER BEARING, GOVERNOR PLATE
16 B	0C2985B	1	ROLLER BEARING, GOVERNOR
17	0D4042	1	ASSEMBLY,GOVERNOR GEAR
18	0A7811	1	SPOOL, GOVERNOR MACHINED
19	0C2977	1	GASKET, CRANK CASE
20	0C5943	1	SEAL, OIL PASSAGE
21	0E4357E	1	ASSEMBLY, CRANKSHAFT HORIZONTAL DIRECT DRIVE
22	0E3223	2	ASSEMBLY, CONNECTING ROD
23	0D2157	2	SCREW SHC M6-1.0 X 50 G8.8
24	0E6098	1	SCREEN, OIL PICKUP
25	0D4123A	1	ASSEMBLY, OIL PUMP
26	078699E	2	SLEEVE, SEAMED DOWEL 10 DIA.
27	0C3011	2	COVER, OIL RELIEF
28	0C3009	2	SPRING, OIL RELIEF
29	0C3010	2	BALL, 1/2D OIL RELIEF
30	093873	2	WASHER, LOCK RIB M6
31	0C5315	1	GEROTOR, OUTER
32	0C5998	1	CLAMP, OIL TUBE
33	0D1667	1	ARM, GOVERNOR
34	0C2991	2	E-RING, GOVERNOR ARM
35	0C2988	1	THRUST WASHER, GOVERNOR
36	0C2992	1	BUSHING, GOVERNOR LOWER
37	0C3971C	1	ASSEMBLY, DIPSTICK WITH HANDLE
38	0C5305	1	TUBE, DIPSTICK
39	0C3027	1	O-RING, OIL CLR 3/8 X 1/2
40	0E9842	1	SEAL, 42 I.D. CRANKSHAFT
41	0C5731	1	ASSEMBLY, HOUSING COVER WITH SLEEVE
42	0C3006	9	SCREW, HHFC M10-1.5 X 55
43	080318	8	SCREW HHFC M6-1.0 X 25
44	093064	1	ASSEMBLY, OIL FILL CAP
45	0C8808	2	HOOK, LIFTING
46	0D2723B	1	ROCKER, COVER WITH OIL FILL
47	0C2979	2	GASKET, VALVE COVER
48	086515	8	KEEPER, VALVE SPRING
49	0D2274	4	RETAINER, VALVE SPRING
50	0D3867	4	SPRING, VALVE
51	078672	2	SEAL, VALVE STEM D7
52	0C5371	4	WASHER, VALVE SPRING
53	072694	4	STUD, ROCKER ARM PIVOT
54	0D3998	4	NUT HEX M8-1.0 G8 YEL CHR
55	0C3027	2	O-RING, 3/8" X 1/2"
56	0D5313	4	ROCKER ARM
57	0D6024	2	PLATE, PUSH ROD GUIDE
58	0C2976	12	SCREW HHFC M8-1.25 X 65
59	086516	2	VALVE, EXHAUST
60	0C2229	2	VALVE, INTAKE
61	083897	4	TAPPET, SOLID
62	0D8067B	1	ASSEMBLY, HEAD #2 G&S
63	0D9853D	4	PUSHROD, 147
64	0C2978	2	GASKET, HEAD
65	043790A	1	BARBED ELBOW 90 3/8NPT X 3/8 L0CKTITE
66	0D4010	1	KIT GASKET
67	0D4011	1	KIT PISTON & RINGS
68	0D4012	1	KIT BREATHER ASSEMBLY
69	0D4013	1	KIT GOVERNOR ASSEMBLY
70	0D8675A	1	KIT HEAD ASSEMBLY CYLINDER 1
71	0D8675B	1	KIT HEAD ASSEMBLY CYLINDER 2
72	0D4015	1	KIT OIL RELIEF
73	0D4016	1	KIT GEAR COVER

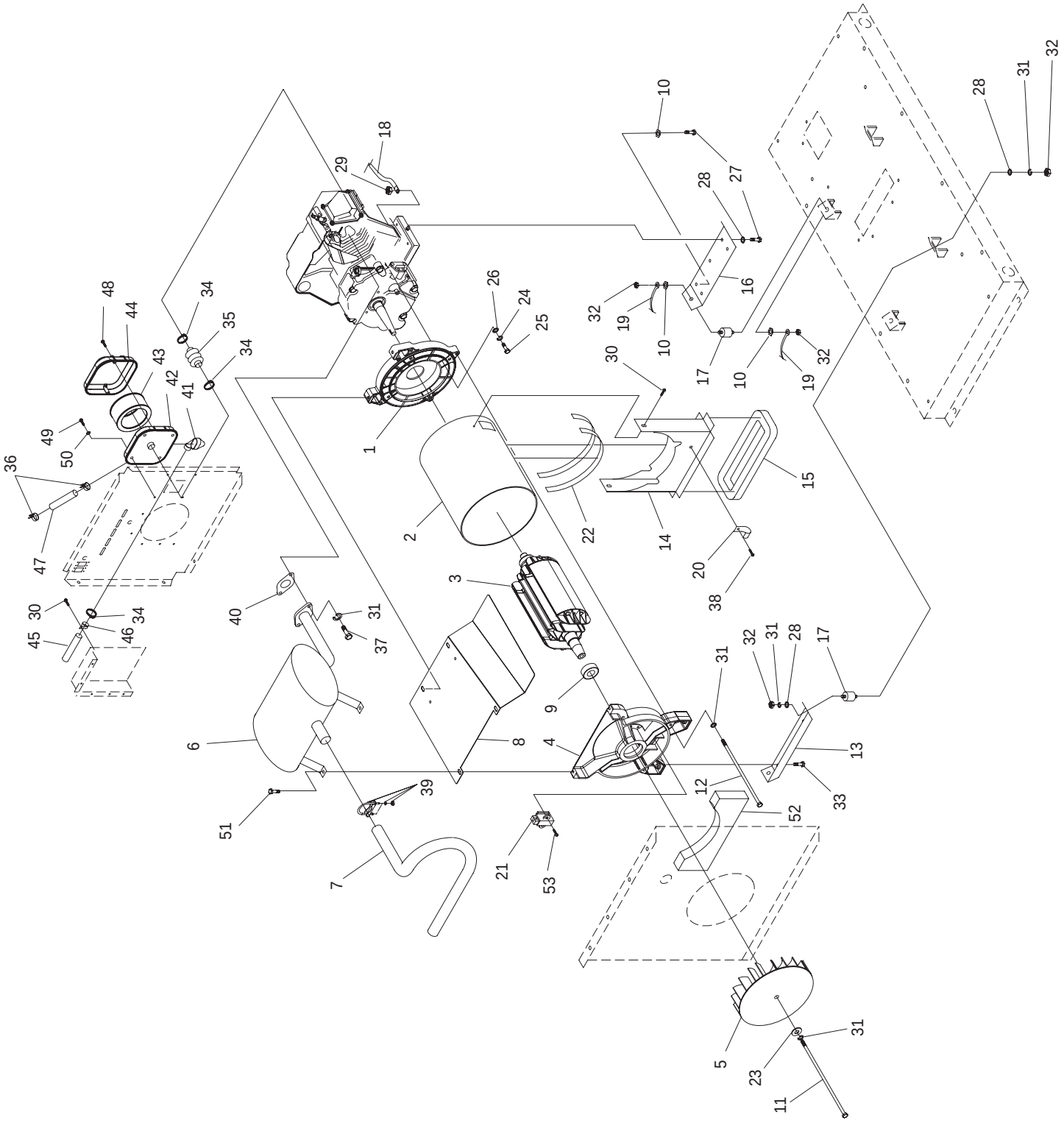
Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
GT-990/760 Engine - Drawing No. F4715 Page 2

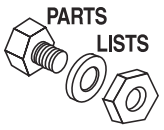




ITEM	PART NO.	QTY.	DESCRIPTION
74	0C5136A	2	KNOB, AIR CLEANER
75	0C3024	1	COVER, AIRBOX NG/LP
76	0C3040	1	PRE-CLEANER,
77	0C8127	1	ELEMENT, AIR CLEANER
78	0D8564A	1	ASSEMBLY, MIXER/AIRBOX 990
	0D8564B	1	ASSEMBLY, MIXER/AIRBOX 760
79	0D2595	4	SCREW SHOULDER (8MM) M6-1.0 X 18
80	0D4417	4	WASHER,RUBBER 1/4" X 1/8" THICK
81	0C3025	1	SWITCH, OIL PRESS
82	0D3083	1	ASSEMBLY, OIL DRAIN HOSE
83	0C7292	1	NIPPLE, 3/4"-16 UNF
84	070185D	1	OIL FILTER
85	075281	1	SWITCH, THERMAL 284F
86	0F2094	2	SCREW M3-0.5 X 6 SEMS
87	0F1338A	1	ASSY, IGN COIL W/DIODE NO ADV
88	035461A	2	BARBED STR 1/4NPT X 3/8 WITH VIBRA SEAL
89	0C7649	4	CLAMP HOSE .38-.87
90	0C9806	2	HOSE, 3/8" I.D. X 6" LONG
91	0C3026	1	COOLER, OIL
92	0C9764	4	PLASTITE,1/4-15 X 3/4
93	0C3043	2	GASKET, MANIFOLD / PORT
94	0C7694	1	MANIFOLD CYLINDER 2
95	0C7693	1	MANIFOLD CYLINDER 1
96	0C3041A	2	SLEEVE, RUBBER
97	070008	4	WASHER FLAT M8 SS
98	070006	4	WASHER LOCK M8 SSTL
99	040976	4	SCREW SHC M8-1.25 X 20 G12.9
100	0F1170A	1	PLATE, BACKING WITH OIL COOLER
101	0E4997	1	GROUND WIRE CONNECTOR
102	0C3725B	1	FLYWHEEL ASSEMBLY
103	0C3031	1	FAN, NYLON
104	0C3032	1	PLATE, FAN
105	0A5992	2	WASHER SHAKEPROOF INT M8 SS
106	051754	2	SCREW HHC M8-1.25 X 12 G8.8
107	0C3033	1	WASHER, 25mm I.D.
108	0C3034	1	NUT,HEX M24
109	0C8549A	1	SNORKEL, AIR INTAKE
110	0F1169A	1	HOUSING, BLOWER NG COOLER
111	0D1131	1	GUARD, FAN
112	045756	25	SCREW TAPTITE M6-1X10 YELLOW CHROME
113	0C9763	4	NUT, GROMMET 1/4 PLUG
114	0C3036A	1	HOSE, BREATHER
115	022145	1	WASHER FLAT 5/16-M8 ZINC
116	022129	1	WASHER LOCK M8-5/16
117	0C3018	1	WRAPPER, UPPER CYLINDER 1
118	0C3019	1	WRAPPER, LOWER CYLINDER 1
119	0D1142A	1	WRAPPER, LOWER CYLINDER 2
120	0D1143	1	WRAPPER, UPPER CYLINDER 2
121	0E6043	2	SCREW TAPTITE M5-0.8 X 8 ZP
122	0F1177	1	ASSEMBLY, GROUND WIRE
123	0F1338B	1	ASSY, IGN COIL W/DIODE NO ADV
124	022097	4	WASHER LOCK M6-1/4
125	092079	4	SCREW TAPTITE M6-1.0 X 25 BP
126	0E4271	1	STARTER
127	0D4529	2	SPARKPLUG
128	022129	2	WASHER LOCK M8-5/16
129	061906	2	SCREW HHC M8-1.25 X 85 G8.8
130	082774	1	KEY, WOODRUFF 4 X 19D
131	0E5343	1	NUT HEX LOCK M10-1.50
132	0C8468	1	SPRING, ANTI-LASH
133	0C3048	1	ROD, GOVERNOR CONTROL
134	0D3754	1	ASSEMBLY, GOVERNOR LEVER
135	0D3742	1	SPRING, GOVERNOR
136	0C8482	1	ASSEMBLY, GOVERNOR ADJUSTER
137	0E0486	1	SCREW SHC M10-1.5 X 75 G10.9
138	0D3743	1	SPRING, GOVERNOR IDLE
139	0D3705	1	ASSEMBLY, GOVERNOR ADJUSTER BRACKET
140	0C2993	1	SEAL, GOVERNOR SHAFT
142	045771	1	NUT HEX M8-1.25 G8
143	0D6147	7	SCREW HHFC M6-1.0 X 10mm
144	0E8152	1	O-RING 0.49" I.D. X 0.07" THICK

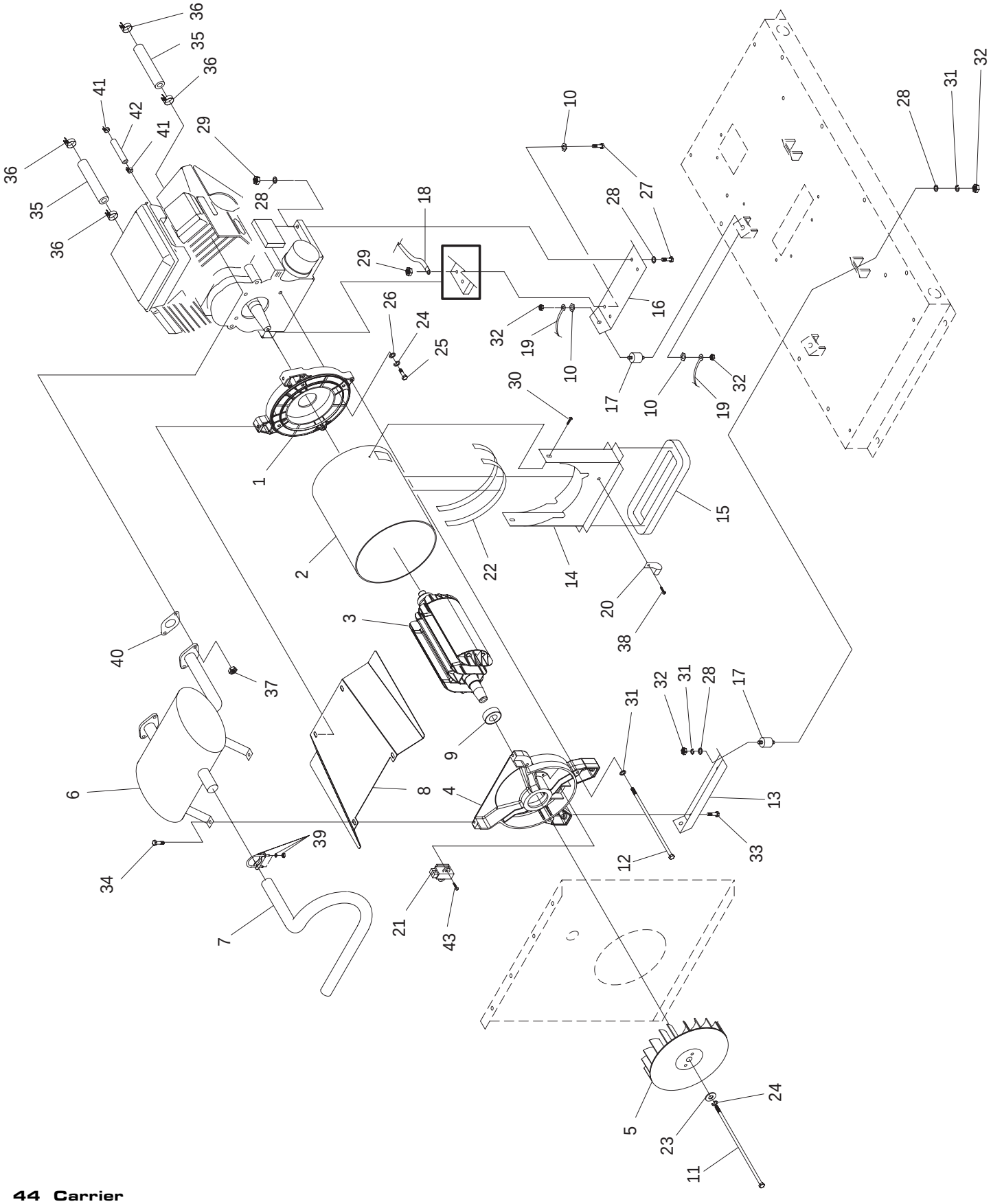
Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
7 kW Generator - Drawing No. 0D3504-D

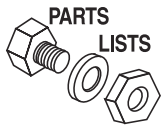




ITEM	PART NO.	QTY.	DESCRIPTION
1	0C6934	1	ADAPTER, ENGINE
2	0C9935H	1	STATOR
3	0C9934H	1	ROTOR
4	0C6043A	1	CARRIER, REAR BEARING
5	0C8096	1	FAN, 8" CURVED BLADE
6	0C9593	1	MUFFLER
7	0D3220	1	TAIL PIPE, MUFFLER
8	0C8860	1	PANEL, MUFFLER BASE
9	031971	1	BEARING #6205-2RS-C3
10	0C3168	3	5/16 SPECIAL L/WASH
11	056147	1	BOLT ROTOR HHCS 5/16"-24 X 13-1/2" G5
12	0D1847	4	BOLT STATOR HHCS M8-1.25 x 305mm
13	0C7038C	1	BRACKET, ALTERNATOR MOUNTING
14	0D1647	1	DUCT, ALTERNATOR AIR
15	0D2558	1	GASKET, ALTERNATOR AIR DUCT
16	0C7038B	1	BRACKET, ENGINE MOUNTING
17	0C7758	4	RUBBER MOUNT
18	0388050AE0	1	CABLE, #6 40" BLACK BATTERY
19	0C2417A	1	EARTH STRAP 3/8X 3/8
20	082121C	1	CLIP-J VINYL COAT .625 ID
21	066386	1	ASSEMBLY BRUSH HOLDER
22	029451	1.8 FT	TAPE ELEC UL FOAM 1/8 X 1/2
23	049451	1	WASHER FLAT .406ID X 1.62OD
24	022237	4	WASHER LOCK 3/8
25	022511	4	BOLT HHC 3/8-16 X 1-1/4 G5
26	022131	4	WASHER FLAT 3/8 ZINC
27	039287	4	SCREW HHC M8-1.25 X 45 G8.8
28	022145	12	WASHER FLAT 5/16 ZINC
29	049820	4	NUT LOCK HEX M8-1.25 NYL INSRT
30	090388	3	SCREW TAP M6-1.0X12 BP
31	022129	13	WASHER LOCK M8-5/16
32	022259	8	NUT HEX 5/16-18 STEEL
33	059637	2	SCREW TAPTITE 3/8-16X 3/4" BP
34	048031K	3	BAND, HOSE CLAMP 35.05 DIA.
35	0C9592	1	BELLOWS
36	057822	2	CLAMP HOSE #8 .53 - 1.00
37	040976	2	SCREW SHC M8-1.25 X 20 G12.9
38	0C2824	1	SCREW TAPR #10-32 X 9/16
39	025145	1	U-BOLT 5/16"-18 X 1.25" W/ SADDLE
40	090239	1	GASKET, EXHAUST
41	0C6989	1	STINGER, ENGINE AIR IN
42	0D1214	1	BASE, AIR CLEANER
43	0C8127	1	ELEMENT, AIR CLEANER
44	0C3024	1	COVER, AIR CLEANER NG/LP
45	0D2273	1	TUBE, 1.25"O.D. x 20Ga. x 12.125" LONG
46	055934N	1	CLAMP VINYL 1.31 X .281 Z
47	074994	1.25 FT	HOSE 1\2ID PETROLEUM
48	0C5136A	2	KNOB, AIR CLEANER
49	074906	4	SCREW TAPTITE M6-1 X 20 BP
50	022473	4	WASHER FLAT 1/4 ZINC
51	0D4662	6	SCREW HHTT M8-1.2 X 20 BP
52	0C8290	1	GASKET, PANEL
53	066849	2	SCREW HHTT M5-0.8 X 16

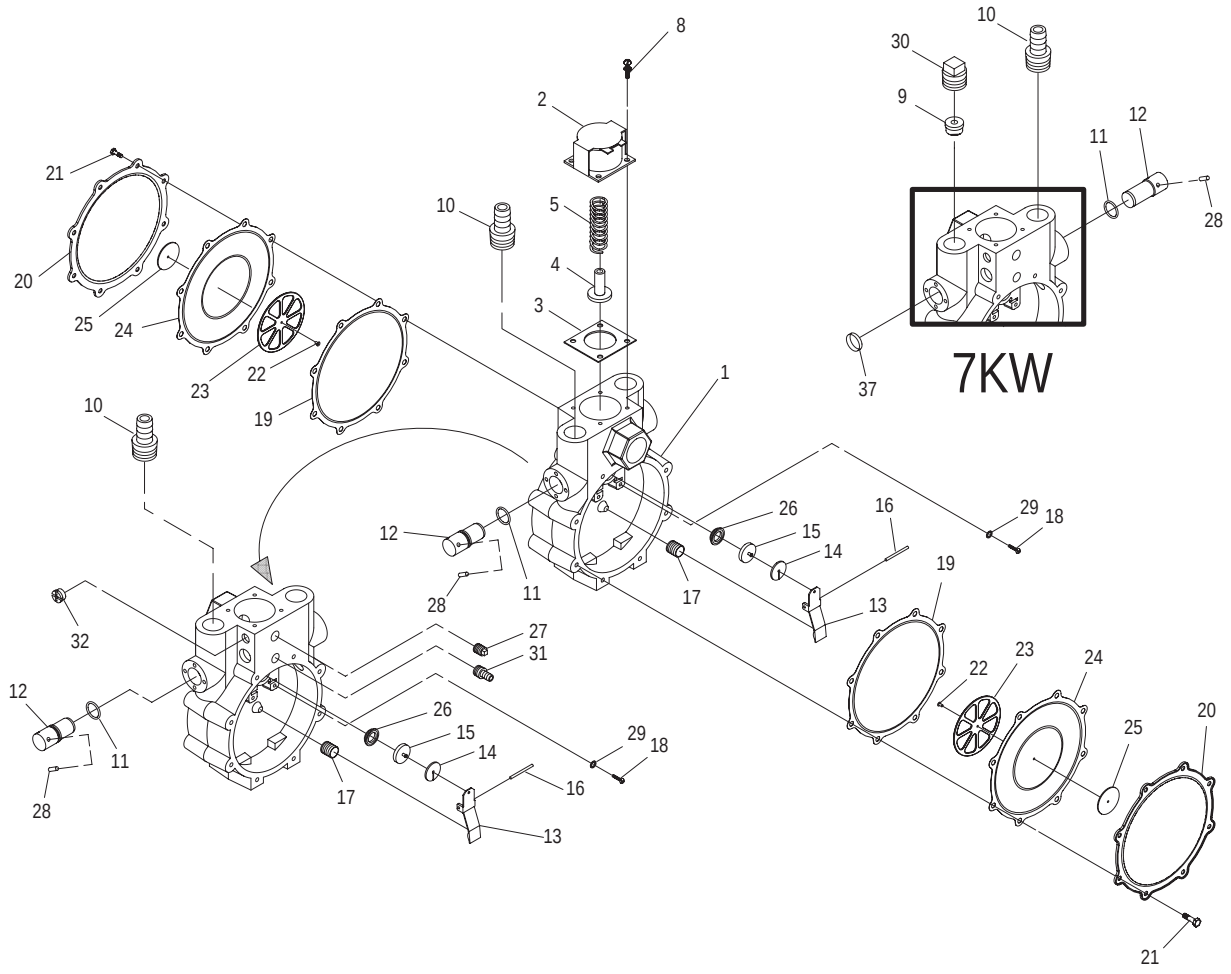
Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
12 kW and 15 kW Generator - Drawing No. 0D3417-J





ITEM	PART NO.	QTY.	DESCRIPTION
1	0C6934	1	ADAPTER, ENGINE
2	0C7930	1	STATOR 12KW
0	D2359		STATOR 13KW / 15KW
3	0C7944	1	ROTOR 12KW
	0D2356		ROTOR 13KW / 15KW
4	0C6043	1	CARRIER, REAR BEARING
5	0D2336	1	FAN, 12" CURVED BLADE
6	0D6634	1	MUFFLER
7	0D3220	1	TAIL PIPE, MUFFLER
8	0C8101	1	PANEL, MUFFLER BASE
9	056482	1	BEARING 1.1811-2.8346
10	0C3168	3	5/16 SPECIAL LOCK WASHER
11	0D1838	1	BOLT, HHCS 3/8"-24 x 15.50"
12	0D1846	4	BOLT, HHCS M8-1.25 x 345mm
13	0C7038	1	BRACKET, ALTERNATOR MOUNTING
14	0D1609	1	DUCT, ALTERNATOR AIR
15	0D2559	1	GASKET, ALTERNATOR AIR DUCT
16	0C7038A	1	BRACKET, ENGINE MOUNTING
17	0C7758	4	RUBBER MOUNT
18	0388050AD0	1	CABLE, #6 48" BLACK BATTERY
19	0C2417A	1	EARTH STRAP 3/8X 3/8
20	082121C	1	CLIP-J, VYNL COAT 0.625" ID
21	066386	1	ASSEMBLY BRUSH HOLDER
22	029451	2.6 FT	TAPE ELEC UL FOAM 1/8 X 1/2
23	049451	1	WASHER FLAT .406ID X 1.62OD
24	022237	5	WASHER LOCK 3/8
25	022511	4	SCREW HHC 3/8-16 X 1-1/4 G5
26	022131	4	WASHER FLAT 3/8 ZINC
27	051731	4	SCREW HHC M8-1.25 X 50 G8.8
28	022145	12	WASHER FLAT 5/16 ZINC
29	049820	4	NUT LOCK HEX M8-1.25 NYL INSERT
30	045756	2	SCREW TAPTITE M6-1.0X10 BP
31	022129	10	WASHER LOCK M8-5/16
32	022259	8	NUT HEX 5/16-18 STEEL
33	059637	2	SCREW TAPTITE 3/8-16 X 3/4 BP
34	0D4662	4	SCREW 5/16-18X3/4" HH THD ROLL
35	074994	3 FT	HOSE RES 1/2 LP GAS
36	057822	4	CLAMP HOSE #8 .53 - 1.00
37	0F0462	4	NUT HEX W/TOOTH WSHR M8-1.25
38	0C2824	1	SCREW TAP-R #10-32 x 9/16
39	025145	1	U-BOLT 5/16"-18 X 1.25" WITH SADDLE
40	0C4138	2	GASKET, EXHAUST PORT
41	048031C	2	CLAMP HOSE BAND ¼"
42	030340	1.33 FT	HOSE 1/4 ID SAE 30R7
43	066849	2	SCREW HHTT M5-0.8 X 16

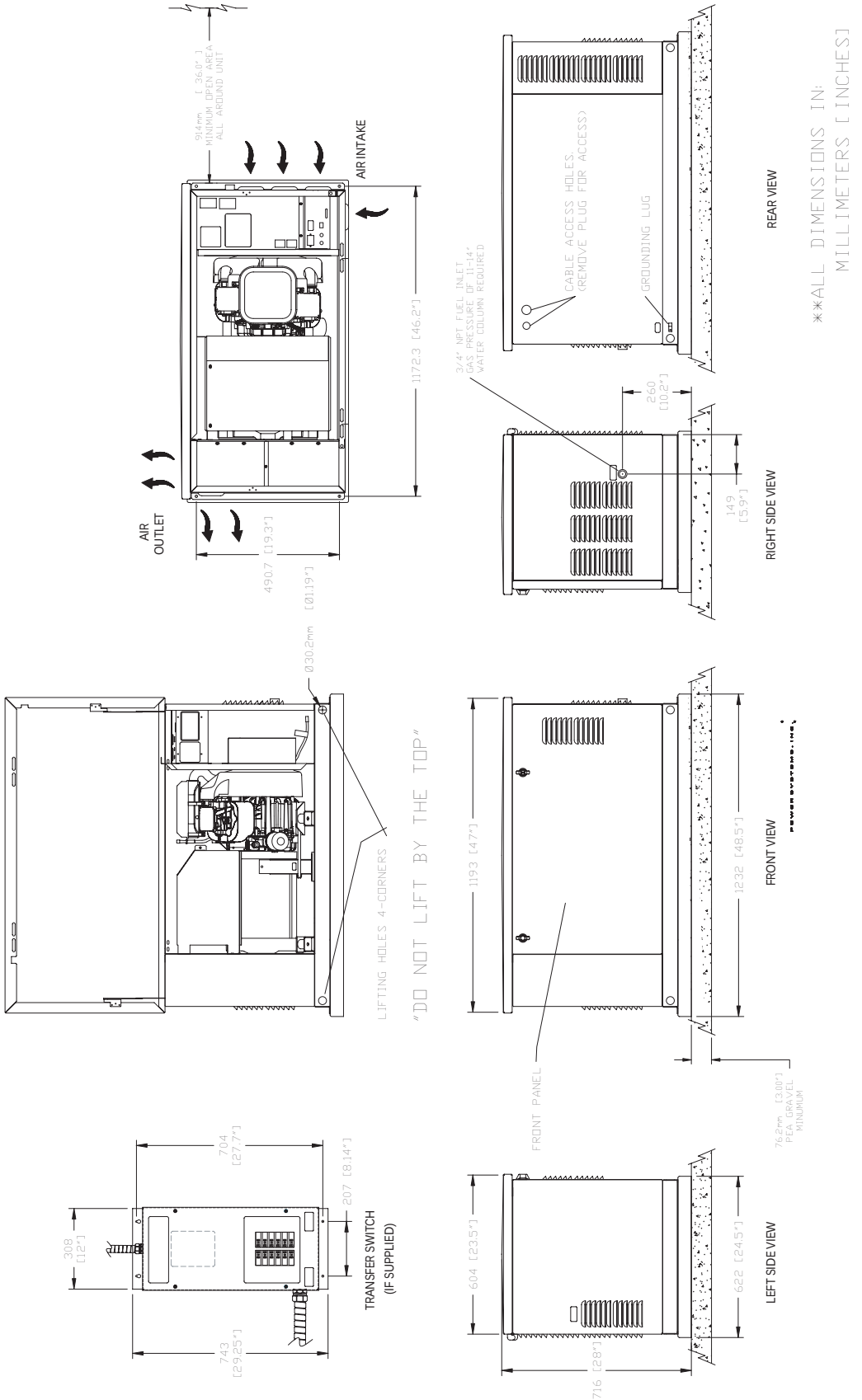
Carrier Air-cooled 7 kW, 12 kW and 15 kW Generators
Gas Regulator - Drawing No. 0D8720-E



ITEM	PART NO.	QTY.	DESCRIPTION
1	0D5694	1	CASTING, TWIN REGULATOR HOUSING
2	0F3154	1	SOLENOID COIL, 12VDC
3	0C4647	1	GASKET , SOLENOID
4	0D4166	1	PLUNGER, LP REGULATOR ASSEMBLY
5	0C6070	1	SPRING-SOLENOID, PLUNGER
8	0F4795	4	SCREW PPHM SEMS M4-0.7 X 10
9	0C5760E	1	JET, GN 410 ENGINE LP (7KW)
10	0C6606	2*	BARBED STRAIGHT 1/2NPT x 1/2
11	097934	2*	O-RING, CHECK VALVE
12	0C4645	2*	ADJUSTER SCREW, TWIN REGULATOR
13	0C5761	2	LEVER, REGULATOR
14	0C5968	2	SUPPORT, INLET SEAL
15	0C6066	2	SEAL, INLET
16	0C5759	2	PIN, PIVOT ARM
17	0C5764	2	SPRING, REGULATOR
	0C5764A	2	SPRING, REGULATOR (7KW)
18	070728	4	SCREW, PFHMS M3-0.5 x 5
19	0C6069	2	GASKET, DIAPHRAGM

ITEM	PART NO.	QTY.	DESCRIPTION
20	0C5762	2	COVER, TWIN REGULATOR
21	045764	16	SCREW, TAPTITE M4X8 BP
22	0C6731	2	RIVET, POP .118 X .125
23	0C6067	2	SUPPORT, DIAPHRAGM
24	0C4706	2	DIAPHRAGM, TWIN REGULATOR
25	0C6068	2	CAP, DIAPHRAGM SUPPORT
26	0C4643A	2	INLET, TWIN REGULATOR 11.11 DIA.
27	026073	1	PLUG, STANDARD PIPE 1/8" STEEL SQUARE HEAD
	026073	2	PLUG, STANDARD PIPE 1/8" STEEL SQUARE HEAD (7KW)
28	0A4032	2*	PIN, LIMITED ADJUSTMENT
29	0D3308	4	WASHER, FLAT M3 X 10mm O.D.
30	024310	1	PLUG, STANDARD PIPE 1/2" STEEL SQUARE HEAD (7KW)
31	028414A	1	BARBED STRAIGHT 1/8"NPT X 1/4"
32	0D5698A	1	JET IDLE PRIMER PHILLIPS HD (V-TWIN ONLY)
37	0D3973	1	PLUG, EXPANSION 16mm

* A QUANTITY OF 1 IS TO BE USED ON 7KW HOME STANDBY


914mm [36.0"] MINIMUM OPEN AREA ALL AROUND UNIT
AIR INTAKE
AIR OUTLET
1172.3 [46.2"]
490.7 [19.3"]
[0119"]
Ø30.2mm
LIFTING HOLES 4-CORNERS
"DO NOT LIFT BY THE TOP"
CABLE ACCESS HOLES (REMOVE PLUG FOR ACCESS)
GROUNDING LUG
3/4" NPT FUEL INLET GAS PRESSURE OF 11-14" WATER COLUMN REQUIRED
REAR VIEW
260 [10.2"]
149 [5.9"]
RIGHT SIDE VIEW
**ALL DIMENSIONS IN: MILLIMETERS [INCHES]
1193 [47"]
1232 [48.5"]
FRONT VIEW
FRONT PANEL
76.2mm [3.00"] PEA GRAVEL MINIMUM
604 [23.5"]
622 [24.5"]
LEFT SIDE VIEW
716 [28"]
704 [27.7"]
207 [8.14"]
308 [12"]
743 [29.25"]
TRANSFER SWITCH (IF SUPPLIED)

NOTES

PART NO. 0F4709 REV.A (01/12/05) CATALOG NO. 02AS-PA0 FORM ASPAS07-1PD PRINTED IN U.S.A.