# INSTALLATION GUIDE

## For 100 Amp Automatic Transfer Switch/Load Center Models: 10, 12, 14 and 16 Circuit. Installed with 8, 10, 12, 13, 14, 16 and 17kW Generators.

**This Automatic Transfer Switch with built-in Load Center includes an Express Install Kit.**

- **Saves on installation time and cost, in many cases up to 50% compared to traditional transfer switch installations.**

- **Automatically supplies electricity to selected critical circuits.**
- **Can be installed prior to, or along with generator installation.**



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

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## PLEASE NOTE:

**This installation guide should be used in conjunction with the "Installation and Owner's Manual" that is furnished with the Air-cooled Standby Generator. Please review both manuals prior to installation of the generator and transfer switch. This Automatic Transfer Switch/Load Center is not intended for use with the Liquid-cooled Generator product line. This unit is not compatible with other generator manufacturer's products.**

## INTRODUCTION

Thank you for purchasing this 100 Amp Automatic Transfer Switch/Load Center with Express Install Kit. The Express Install Kit includes:

- 30 foot, five foot, and two foot pre-wired conduits for making all required wiring runs.
- An outdoor junction box for making connections between outdoor and indoor pre-wired conduits.
- UL listed wire nuts for reconnecting emergency circuits within the main distribution panel.

The 100 Amp Automatic Transfer Switch/Load Center with Express Install Kit can be installed along with a 8, 10, 12, 14, 16 or 17kW Air-cooled Standby Generator, or can be used to pre-wire a home or small business in advance of generator installation. In either case, the Express Install Kit saves installation time and cost, since the majority of labor involved in installing a standby power system is in wiring the generator, automatic transfer switch and emergency circuit subpanel.

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

**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.**

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 the manufacturer does not specifically recommend, ensure that it is safe for all personnel. Also make sure the procedure, work method or operating technique chosen does not render the equipment unsafe.

## ELECTRICAL HAZARDS

- Utility power delivers extremely high and dangerous voltages to the transfer switch as does the standby generator when it is in operation.
- 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.**
- 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 non-conducting implement, such as a 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.

# *100 Amp Automatic Transfer Switch/Load Center with Express Install Kit*

## KIT INCLUDES:

**A B THE OUTDOOR CONNECTION BOX WITH FIVE FOOT PRE-WIRED LIQUID TIGHT CONDUIT**

Mounted outside the home or business nearest the planned generator location. This is for connection to generator controls and main line circuit breaker.

**C 30 FOOT FLEXIBLE CONDUIT**

Pre-wired from the automatic transfer switch with built-in emergency load center for connection to the outdoor connection box.

**D E PRE-WIRED AUTOMATIC TRANSFER SWITCH AND EMERGENCY LOAD CENTER**

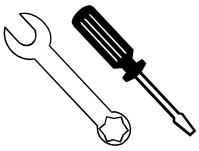
Installed within one (1) foot of the building's main distribution panel. This transfer switch provides smooth and safe transition between utility and generator power.

**F TWO FOOT PRE-WIRED CONDUIT FOR EASY CONNECTION TO THE BUILDING'S MAIN DISTRIBUTION PANEL**

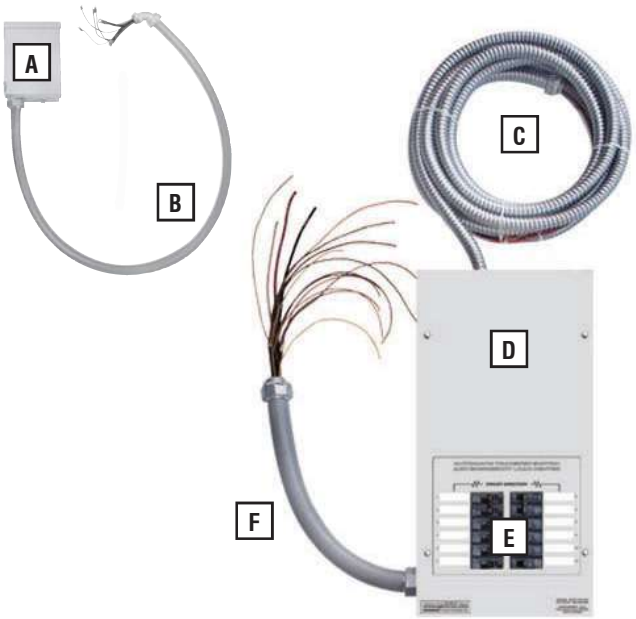
**G UL LISTED WIRE NUTS** *(not shown)*

## TOOLS REQUIRED:

Drill, drill bits, hole saw (type and length will be determined by the materials to be drilled and cut), open-end wrenches or adjustable wrenches, socket wrenches or nut drivers, standard and Phillips screwdrivers, sledge hammer, level, pencil, channel-lock pliers, spade shovel, rake and safety goggles.

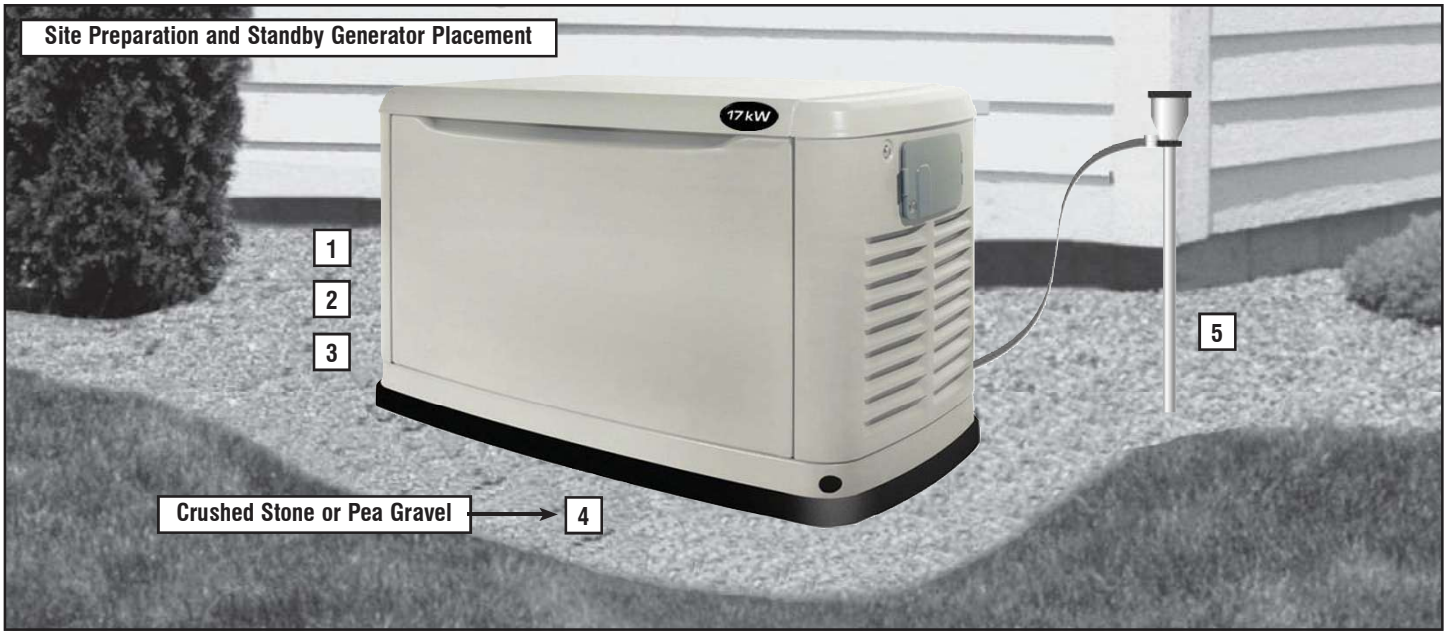


***Designed with installation cost savings in mind!***




### ITEMS TO BE PURCHASED OR SUPPLIED FOR COMPLETE INSTALLATION:

- ☑ 70 amp or 40 amp (8kW) double pole circuit breaker (must be the same type as in the main electrical distribution panel)
- ☑ Ground rod with grounding strap (for generator installation)
- ☑ Padlock to lock outdoor connection box
- ☑ Crushed stone or pea gravel (approximately 10-12 cubic feet) (for generator installation)
- ☑ Black poly-film or other vegetation blocking fabric (for generator installation)
- ☑ Silicone caulk
- ☑ Fasteners (to mount outdoor connection box and automatic transfer switch)
- ☑ Battery - 12V automotive type, group 26R, negative ground, 350 CCA (8kW), 525 CCA (10, 12, 13, 14, 16, 17 and 20kW) minimum capacity (required as part of generator installation).




**1. PLAN THE LOCATION OF THE GENERATOR.**

**NOTE:**

**Do not place the generator directly under a window, eves, deck or other structure.**

Select an area outside of the home or business nearest the incoming gas service. Determine where the generator will be placed outside of the building. Arrange for fuel piping with shut-off valve to be run to this location. Keep in mind that the manufacturer recommends placement no closer than **18 inches** to any structure. **Local codes may dictate placement farther from a structure.** If facing the unit from the front, the generator's fuel inlet is located at the rear lower right of the unit.

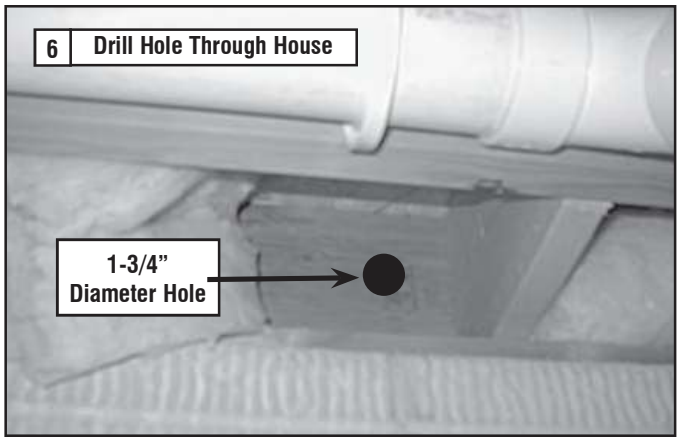
**2.** Clear an area **62 inches** by **50 inches** of grass and vegetation to a depth of **five** inches. This includes the distance the generator should be set away from a structure (**18 inches**) and **six** inches beyond the width and length of the generator mounting pad **(49" L x 25" W)**.

**3.** Lay black poly-film to cover the area.

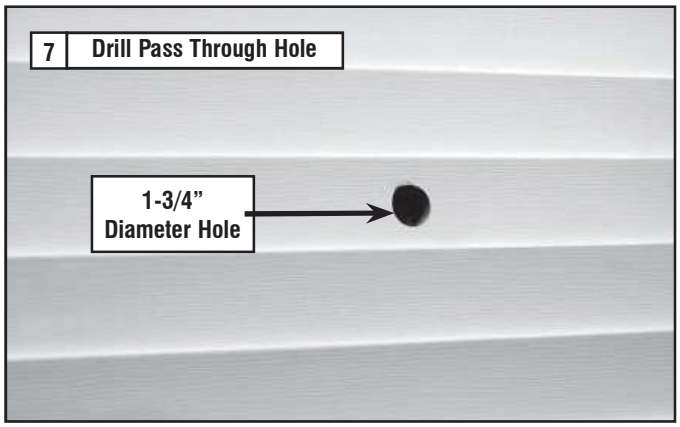
**4.** Fill the area to ground level with pea gravel or crushed stone.

**5.** Drive an eight foot grounding rod into the ground to grade. Make sure grounding rod and strap are not exposed above ground level. (NEC code applies to grounding method.)

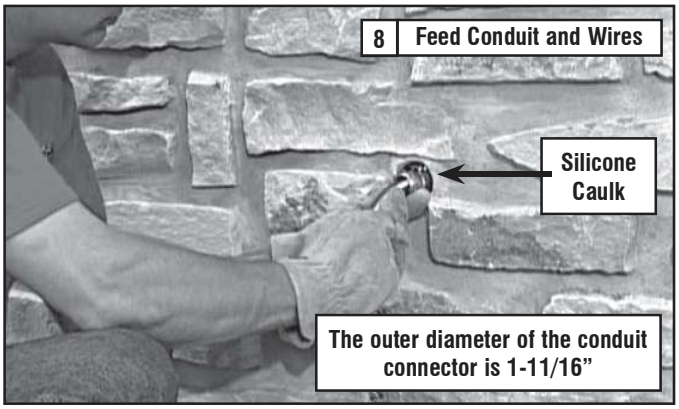
**6.** Determine where the flexible conduit will pass through the building from inside to outside. When certain there is clearance on each side of the wall, drill a small pilot hole through the wall to mark the location. Drill a 1-3/4" diameter hole through the sheathing and siding with hole saw.



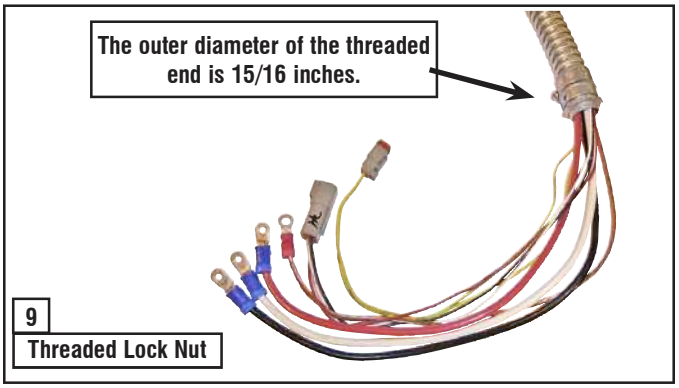

**7.** While adhering to all local electrical codes, route the 30 foot conduit along ceiling/floor joists and wall studs to the location where the conduit will pass through the wall to the exterior of the building.

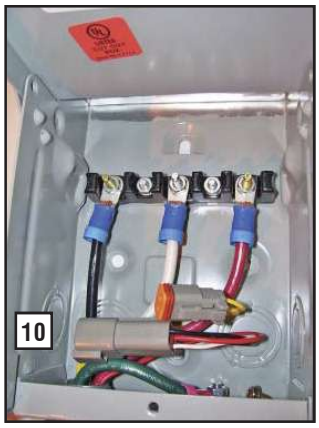


**8.** From inside the building, feed the end of the 30-foot conduit (INCLUDED and pre-wired from transfer switch) through the wall to the outside.




**9.** Remove the threaded lock nut from the conduit coupling.



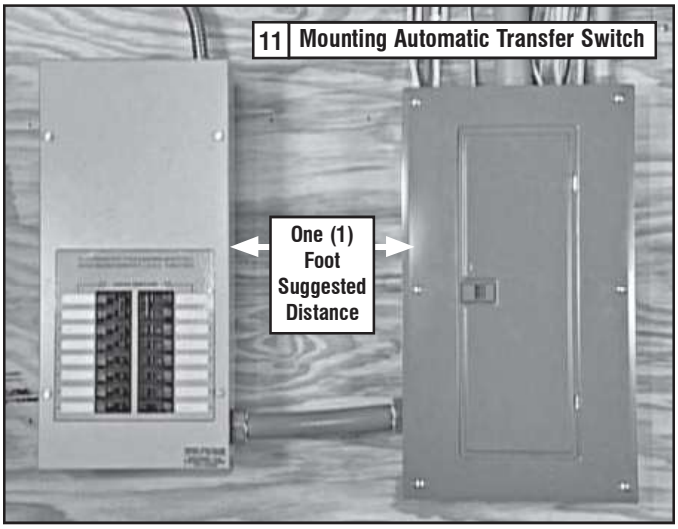




**10.** Lift cover. Remove internal cover plate screw and internal cover. Remove the knock out in the lower right corner of the external connection box. From the rear of the connection box, feed wires, 4-pin and 2-pin plugs into box. Slip the lock nut over wires and plugs and tighten securely onto conduit coupling. Using appropriate fasteners, mount external connection box over pre-drilled hole to fully conceal the hole. Seal around the hole and conduit with silicone caulk from both the inside and outside of the building. Also, caulk around the sides and top of the box to seal the edges to the siding or wall. Connect wires to lugs; black to black, white to white, and red to red. Torque nuts to 20 in/lbs. Snap together the 4-pin and 2-pin plug connector. Loosen nut from grounding lug and attach ground wire (green) from conduit. Reinstall nut and tighten to 45 in/lbs. Reinstall internal cover plate and screw. Close cover and install lock. This wiring is complete.

**⚠ WARNING!**

**The outdoor connection box must be locked to ensure safety and to discourage tampering.**

**11.** Locate automatic transfer switch with built-in emergency load center in close proximity to the main distribution panel. The transfer switch can be located to the left or right of the main distribution panel. One (1) foot is the suggested distance (see Figure 11). The transfer switch may be located a different distance from the main panel depending on available mounting area. Using the two (2) foot conduit connected straight across to the main panel is another option. Always adhere to local electrical codes during installation. Hold transfer switch against the mounting surface. Level the transfer switch and mark the mounting holes. Drill the appropriate size pilot holes. Mount transfer switch with built-in load center to mounting surface with appropriate fasteners.

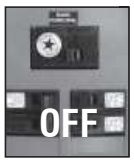



**⚠ WARNING!**

**The manufacturer recommends that a licensed electrician or an individual with complete knowledge of electricity perform the procedures in Sections 12 and 13.**

**⚠ WARNING!**

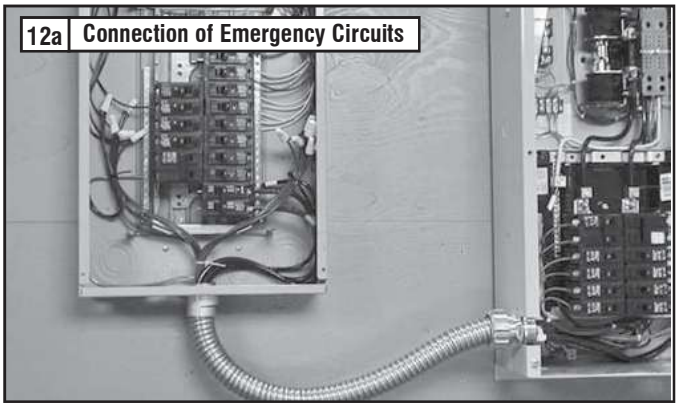
**Switch service main circuit breaker to the OFF (OPEN) position prior to removal of cover or removal of any wiring of the main electrical distribution panel. The wires connected to the service main circuit breaker remain LIVE or HOT. Avoid contact with these wires and the service main circuit breaker connection lugs.**



**NOTE:**

**Balance must be maintained when moving circuit locations from main electrical distribution panel to emergency load center. Circuit breaker positions alternate buss bars vertically. Circuits sharing a neutral wire should either be moved together to adjacent positions in emergency load center or not moved. If unsure of the proper procedure or if the installation differs from that described in this guide, consult a licensed professional at this time.**

**12a.** Remove the main electrical distribution panel cover. Remove appropriate size knockout from the bottom or side of the main panel. (A two foot flexible conduit is pre-wired from the transfer switch with built-in load center). Remove threaded lock nut from conduit coupling. Feed all wires through knockout into main panel. Slip lock nut over wires and tighten securely onto conduit coupling.


12a Connection of Emergency Circuits

**NOTE:**

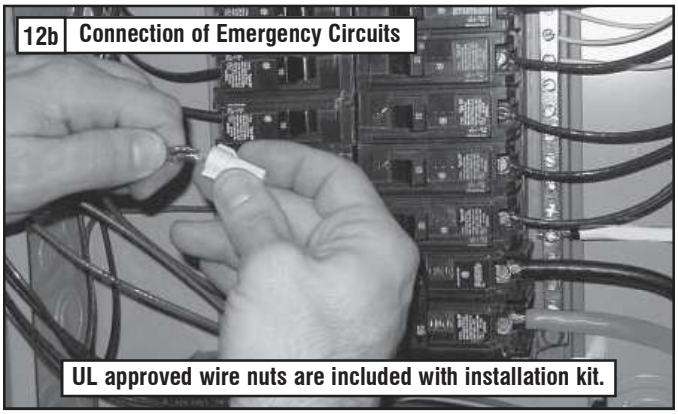
**Circuits to be moved must be protected by same size breaker. For example, a 15 amp 120 volt circuit in emergency load center will replace a 15 amp 120 volt circuit in main electrical distribution panel.**

**12b.** In the main panel, remove the black (hot) wire from the circuit breaker that protects a circuit to be powered in the event of a power failure. Wire nut the black wire to the matching circuit lead wire from the emergency circuit breaker in the load center in the transfer switch. (All circuit wires are color coded and labeled for easy identification). **UL listed wire locknuts are included in installation kit.** Trace each black (hot) wire connected and wire nut the white (neutral) wire from the same Romex cable (circuit) to the matching circuit number on the white (neutral) wire from the emergency load center. Repeat for each circuit. Repeat this process with the remaining circuits to be powered by the generator.

**NOTE:**

**Both grounded and ungrounded conductors must be moved to the emergency panel and connected to the new wiring from the emergency panel using supplied wire nuts.**

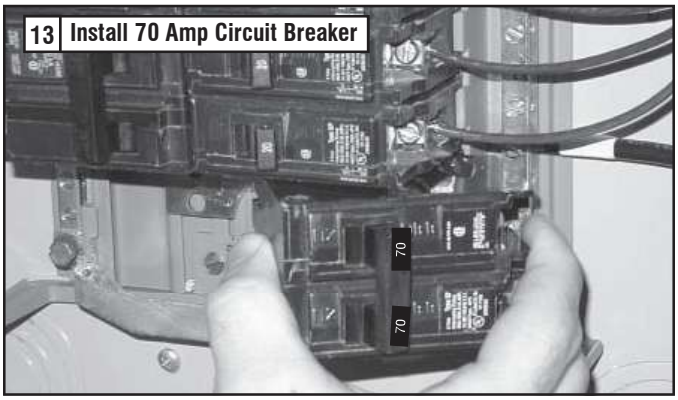
| Models | | 10 Circuit | 12 Circuit | 14 Circuit | 16 Circuit |
|---|---|---|---|---|---|
| Circuits | 50A, 240V | - | - | - | 1 |
| | 40A, 240V | - | 1 | 1 | 1 |
| | 30A, 240V | 1 | 1 | - | - |
| | 20A, 240V | 1 | - | 1 | 1 |
| | 20A, 120V | 3 | 3 | 6 | 5 |
| | 15A, 120V | 3 | 5 | 4 | 5 |


12b Connection of Emergency Circuits

UL approved wire nuts are included with installation kit.

**13.** Install the 70 amp double pole circuit breaker; **10, 13, 14, 16, and 17kW units** or the 40 amp double pole breaker; 8kW units (purchased or supplied separately), into main electrical distribution panel. This circuit breaker **must be compatible with the main electrical distribution panel.** It may be necessary to reposition remaining circuit breakers or remove circuit breakers that have been disconnected to accommodate the insertion of the 70 amp or 40 amp double pole circuit breaker. Connect white wire to the main distribution panel neutral bar. Connect solid green wire to main electrical panel ground bar. Connect the black and red wires to the 70 amp or 40 amp double pole circuit breaker. Reinstall the main distribution panel cover.

**If a generator is being installed at this time, proceed to step 19. If a generator will not be installed at this time, perform steps 14 through 17 to complete the pre-wiring project.**



13 Install 70 Amp Circuit Breaker

## THE AUTOMATIC TRANSFER SWITCH/LOAD CENTER IS NOW INSTALLED!

**14.** Open the outdoor connection box and unplug the 4-pin and 2-pin connector. Remove the black, white, red, and green wires that lead from the five foot pre-wired conduit. Make sure the mating wires from the 30 foot conduit are on the connection box terminal lugs (or ground screw), re-install all washers and nuts and secure them in place.

**15.** Remove the lock nut holding the five foot pre-wired conduit coupling to the outdoor connection box. Slip the lock nut over the wires and plug, then remove the conduit from the connection box. Use a knockout plug to close off the opening where the conduit was removed.

**⚠ WARNING!**

**The external connection box must be locked to ensure safety and to discourage tampering.**

**16.** For pre-existing buildings, switch the service main circuit breaker back on to provide utility power to the building.

**17.** Save the five foot pre-wired conduit for re-installation at time of generator installation. At that time, re-install the conduit by reversing steps 14 and 15. The grounding strap will also be installed with the generator. Save this guide for reference at time of generator installation.

**⚠ DANGER!**

**Be sure the service main circuit breaker is switched OFF at time of generator installation.**

This completes the pre-wiring portion of the 100 Amp Automatic Transfer Switch/Load Center Installation. Proceed with step 18 for generator installation.

**18.** Place the generator and mounting pad in the location prepared in steps one through five.


**19.** Attach one end of the grounding strap (No. 12 AWG stranded copper wire) to grounding rod, and the other end to the grounding lug (located at rear corner of unit). Make sure the grounding rod and strap are not exposed above ground level (NEC code applies to grounding method).

**NOTE:**

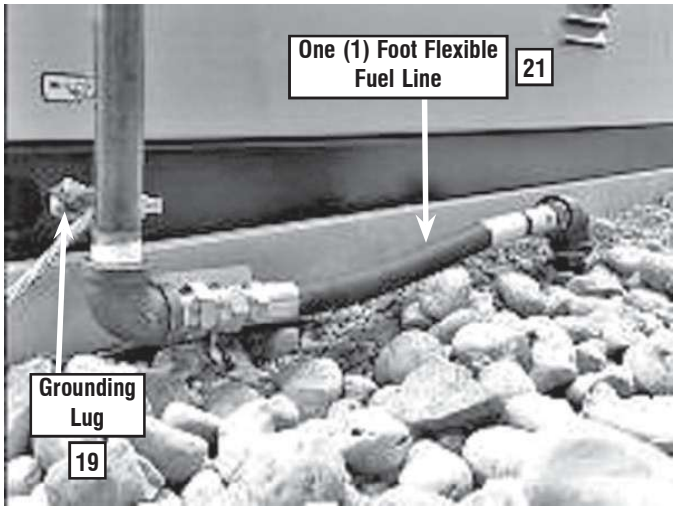
**The generator mode switch should be placed in the OFF position. Generator main line circuit breaker should be switched to the OFF or OPEN position.**

**20.** Access wiring connections for installation of five foot harness at the generator. To gain access to wiring connections and the circuit breaker you must remove the cover plate (black) over the control module. Remove the two screws retaining the cover plate. Lift the cover plate up and towards the front of the generator to remove.

Remove the small black cap (covering 1-1/16” diameter hole) from back of enclosure. Remove threaded lock nut from conduit coupling (with 90° elbow) and wires. Feed wires into 1-1/16” diameter hole. Place threaded lock nut over wires and onto conduit coupling. Tighten securely with screwdriver and hammer to ensure lock nut is tight. Connect power leads (red & black) to the circuit breaker lugs. Connect the neutral wire (white) to terminal bar labeled "NEUTRAL". Connect the ground wire (green) to terminal bar labeled "GROUND". Connect sensing wires to terminal strips as follows: Yellow - N1, Yellow - N2, Blue - T1 / White - 23, Red - 194.

## FUEL HOOKUP AND CHECK FOR LEAKS

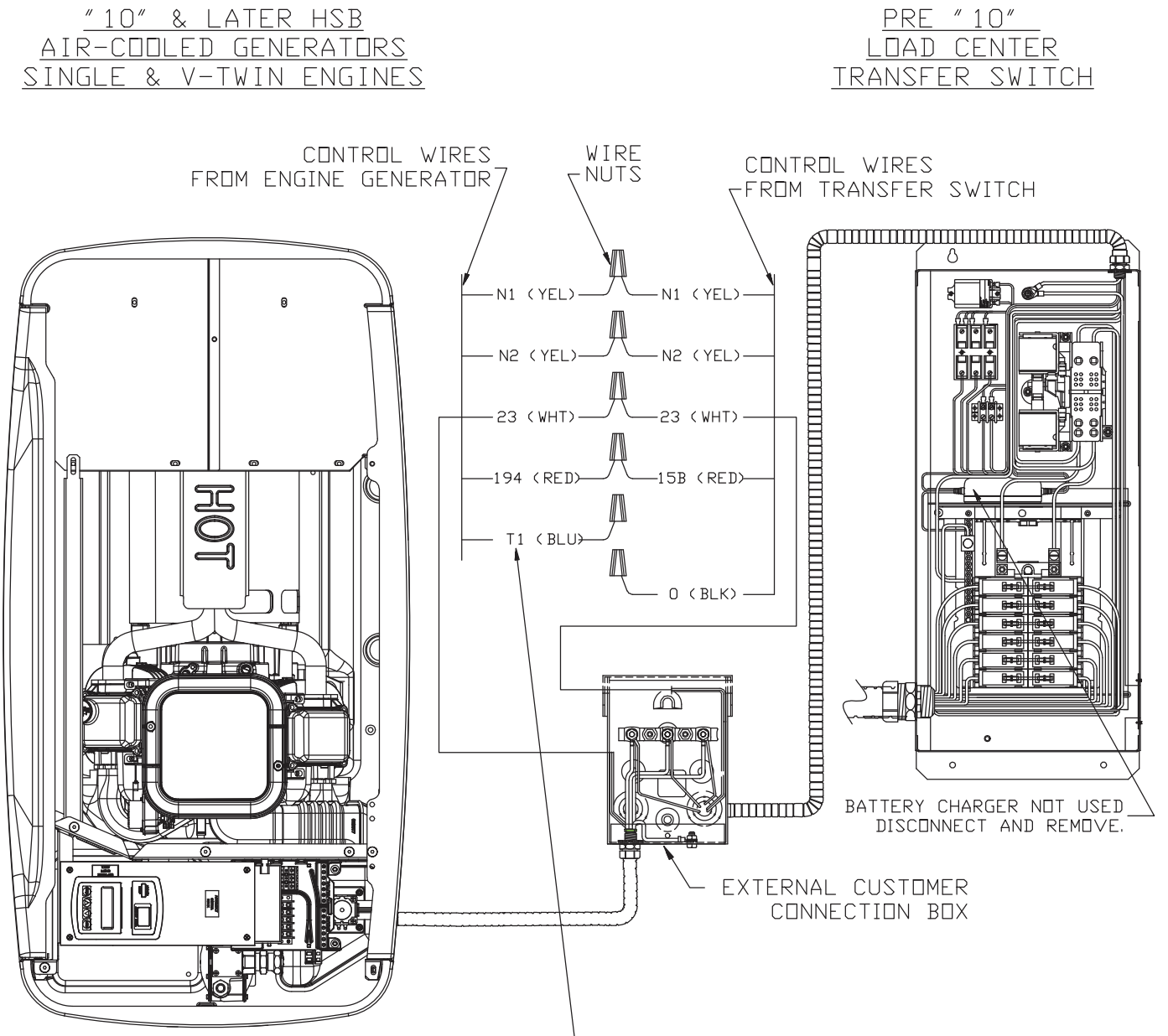
**21a.** Make the connection between the rigid fuel piping and the generator using the supplied threaded flexible fuel line. Use a pipe sealant suitable for gaseous fuel connections. Check connections for leaks by opening manual fuel shut-off valve and swab, or spray, connections with soapy water. If a leak exists, the area will bubble with the presence of the soapy water.




**21b.** If a leak is located, shut off fuel and disconnect flexible piping. Dry the threaded ends and reapply an adequate amount of pipe sealant. Reconnect flexible fuel line, open fuel supply and recheck for leaks. If leak still exists, repeat step 21b.

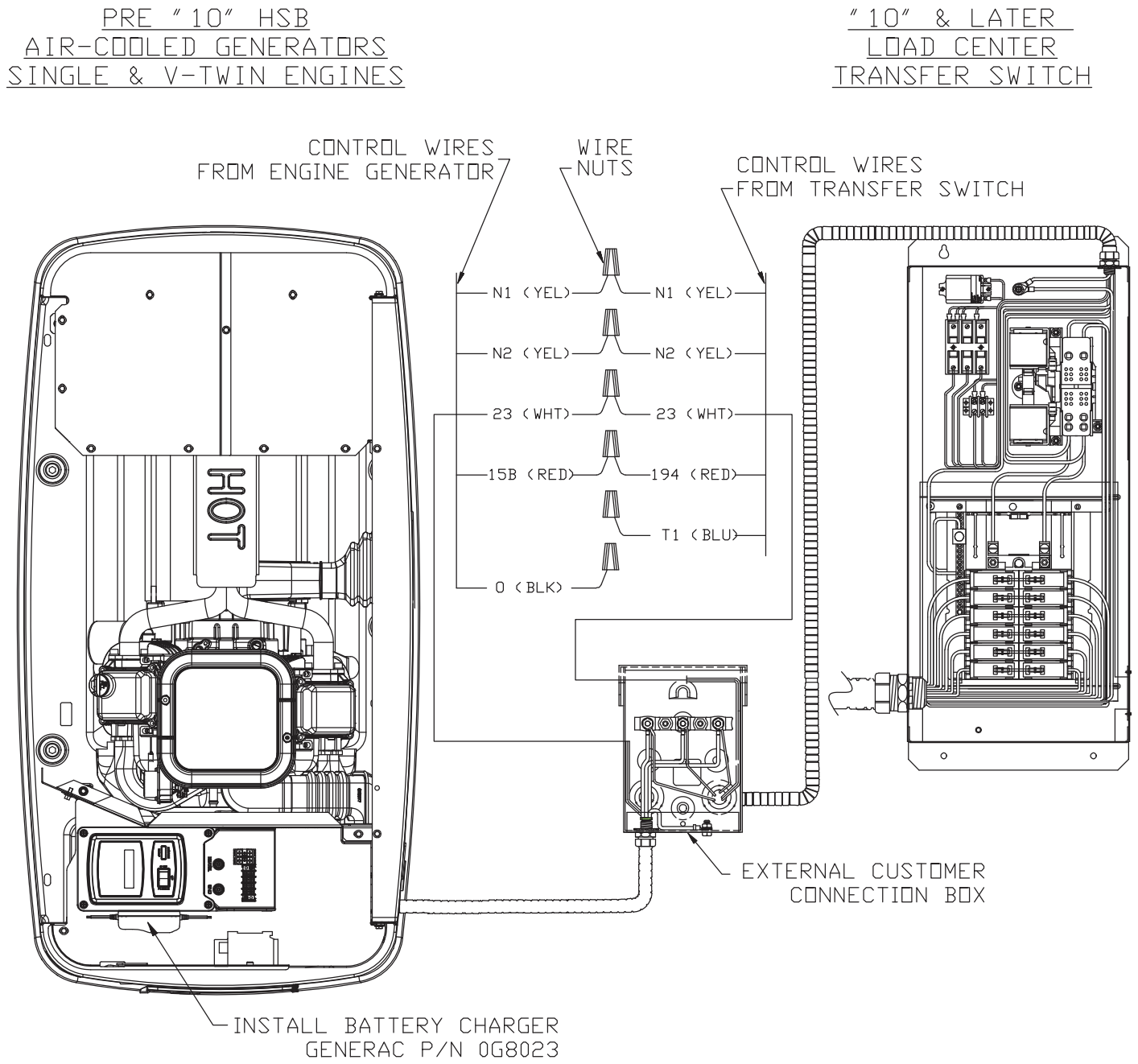
**22.** Follow all generator installation and setup instructions in the Installation and Owner's Manual provided with the generator. During testing performed in Section 2 of the generator Installation and Owner's Manual, utility power supply to the Automatic Transfer Switch/Load Center can be controlled using the 40 or 70 amp feeder circuit breaker located in the main distribution panel.

# Installation Drawing 0H6393-A

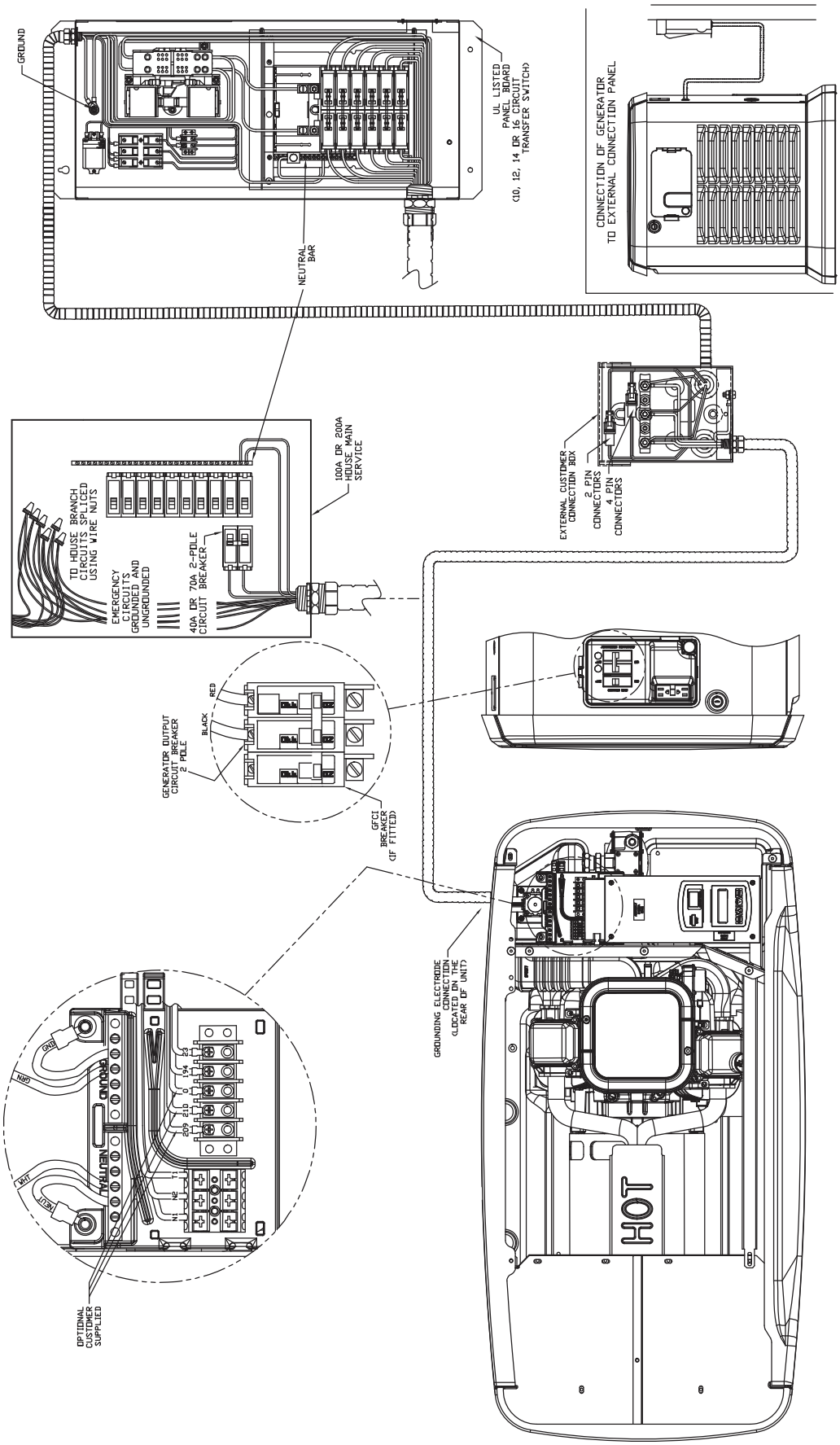


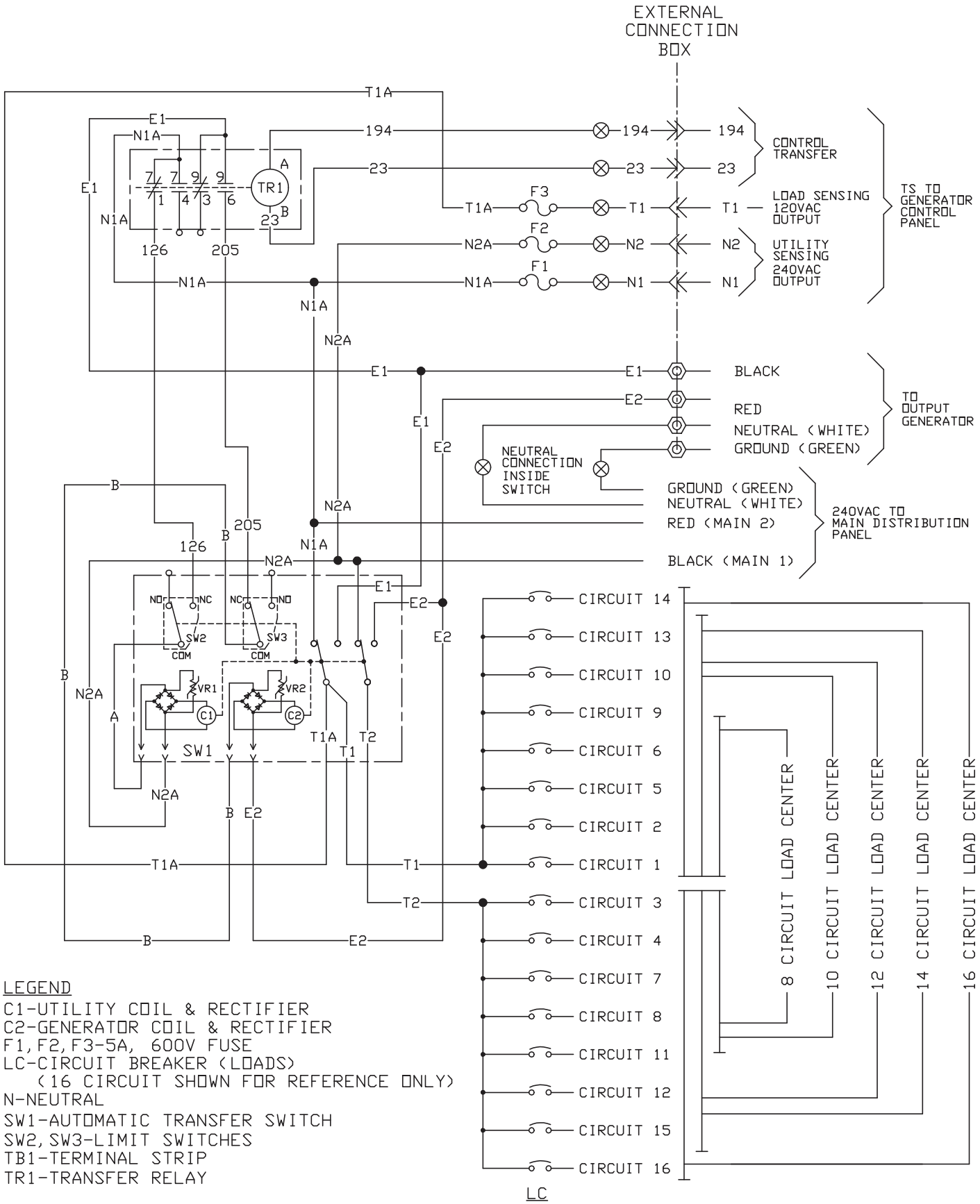

CONNECT WIRE #T1 FROM HSB
TO FUSED (5A) LOAD SOURCE.

1) INSTALL KIT PART NO. 0G9254 ON ATS.
ROUTE T1 WIRE (FUSED LOAD SUPPLY)
IN 30 FT. CONDUIT TO EXT. CONNECTION BOX.
CONNECT TO T1 WIRE FROM HSB OR,
2) ROUTE 120 VAC 15A CIRCUIT FROM
GENERATOR PROTECTED PANELBOARD
TO T1 IN THE GENERATOR CONTROL PANEL.
NEUTRAL TO NEUTRAL TERMINAL.


PRE "10" HSB
AIR-COOLED GENERATORS
SINGLE & V-TWIN ENGINES
"10" & LATER
LOAD CENTER
TRANSFER SWITCH
CONTROL WIRES
FROM ENGINE GENERATOR
WIRE
NUTS
CONTROL WIRES
FROM TRANSFER SWITCH
N1 (YEL)
N1 (YEL)
N2 (YEL)
N2 (YEL)
23 (WHT)
23 (WHT)
15B (RED)
194 (RED)
T1 (BLU)
0 (BLK)
HOT
EXTERNAL CUSTOMER
CONNECTION BOX
INSTALL BATTERY CHARGER
GENERAC P/N 0G8023

# Installation Drawing 0H6392-C

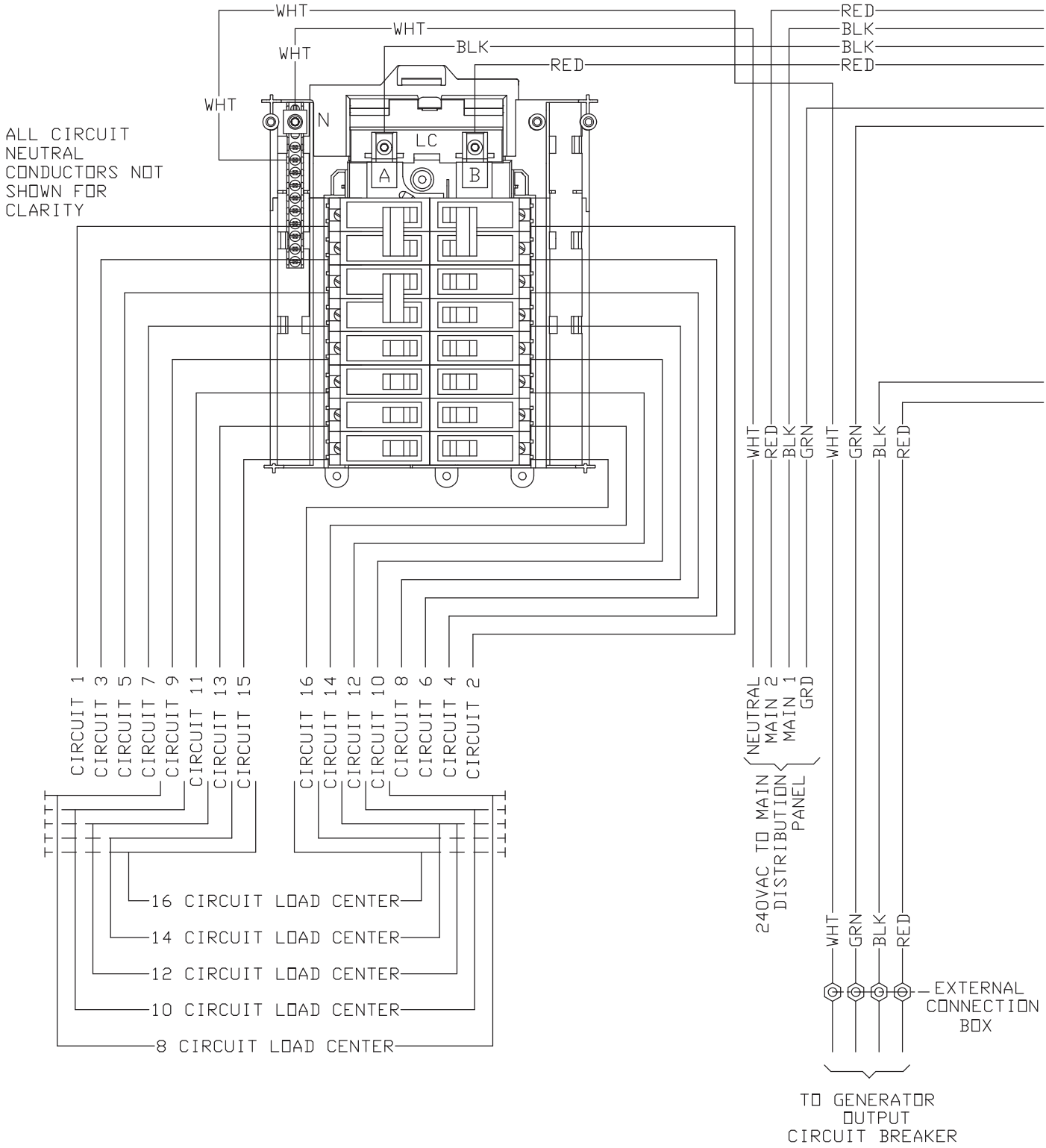


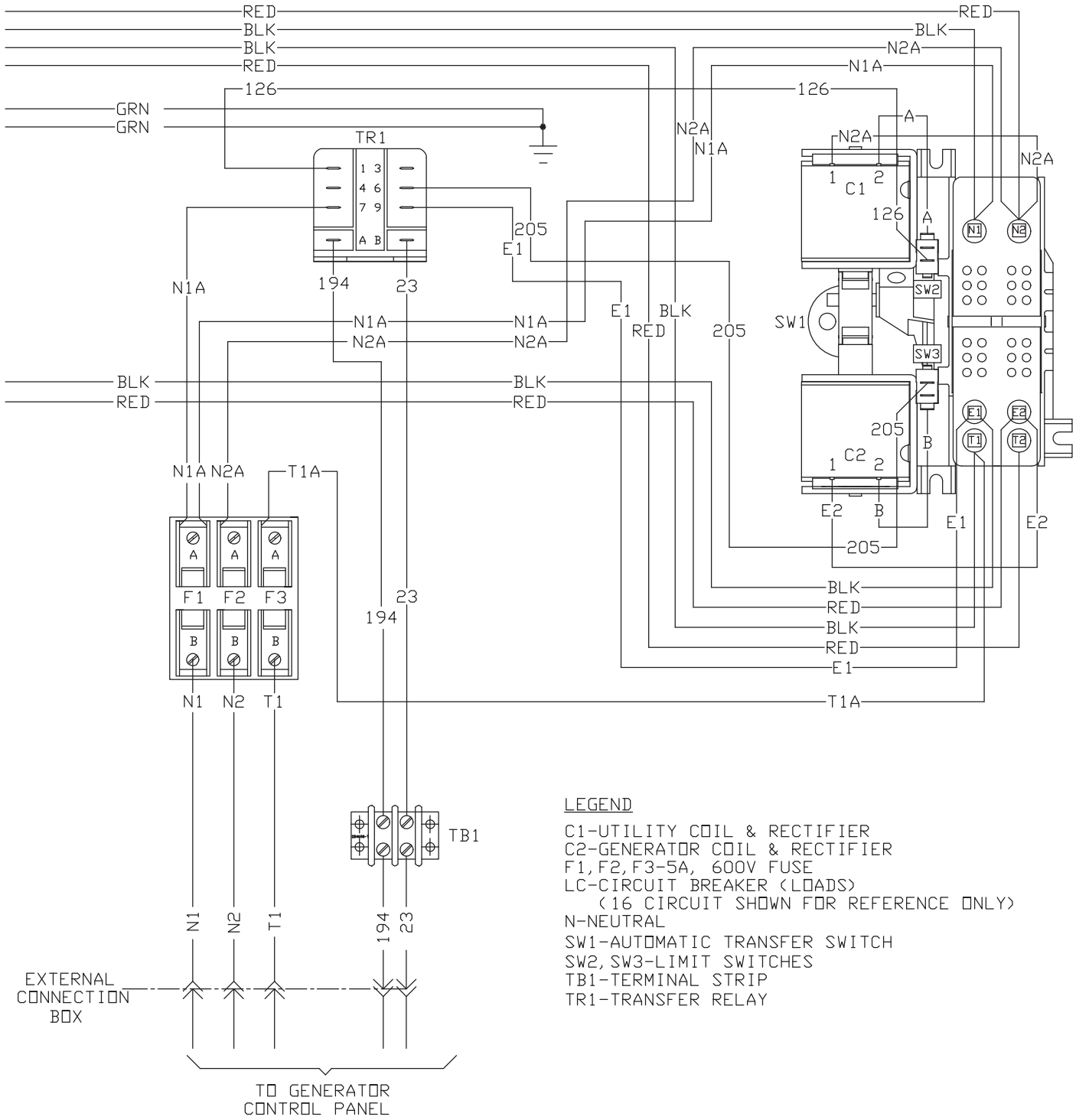



LEGEND

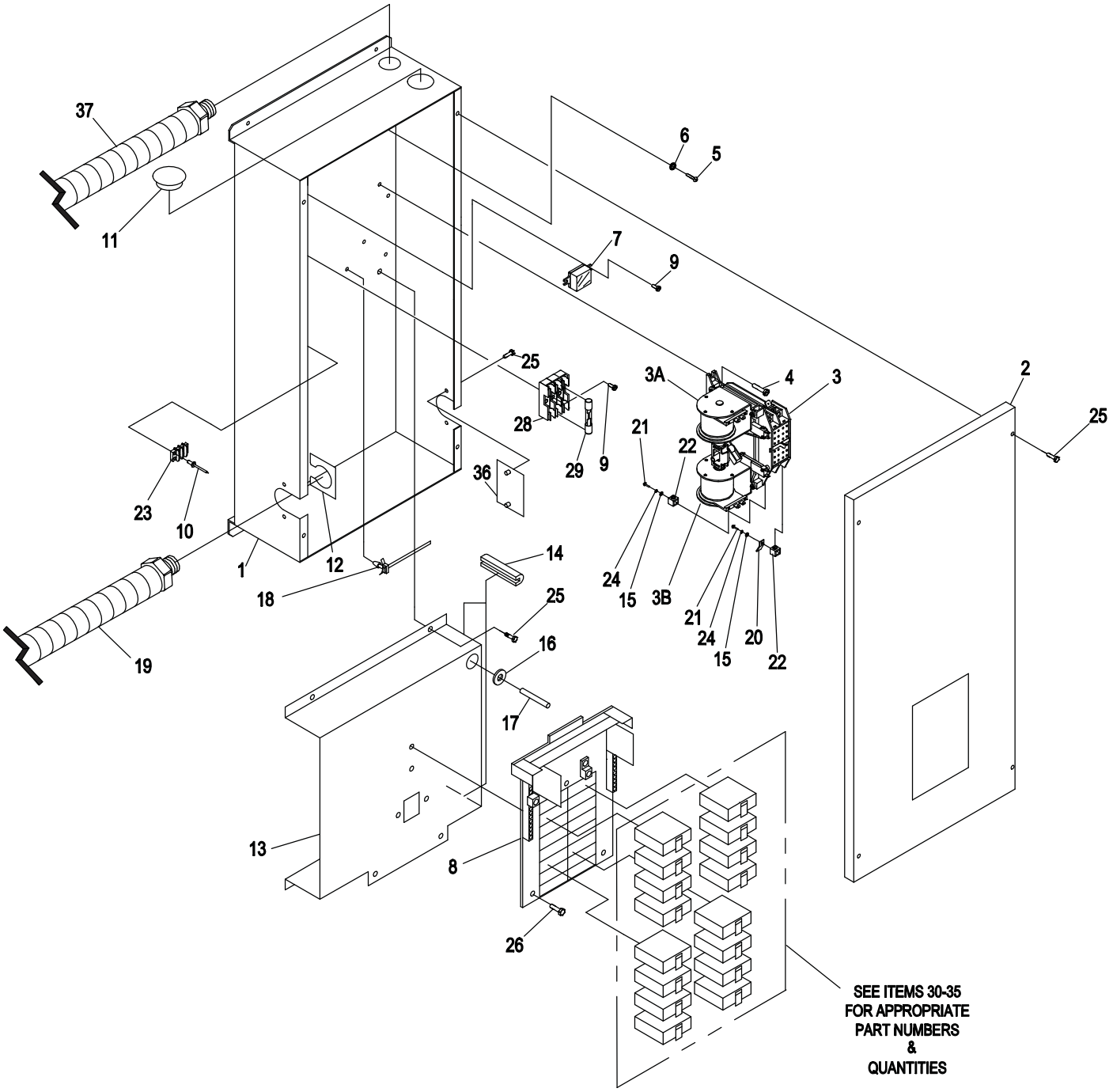
C1-UTILITY COIL & RECTIFIER
C2-GENERATOR COIL & RECTIFIER
F1,F2,F3-5A, 600V FUSE
LC-CIRCUIT BREAKER (LOADS)
(16 CIRCUIT SHOWN FOR REFERENCE ONLY)
N-NEUTRAL
SW1-AUTOMATIC TRANSFER SWITCH
SW2,SW3-LIMIT SWITCHES
TB1-TERMINAL STRIP
TR1-TRANSFER RELAY

# Wiring Diagram Drawing 0H6385-A




RED
BLK
BLK
RED
GRN
GRN
126
TR1
1 3
4 6
7 9
A B
194
23
205
E1
N1A
N2A
BLK
RED
N1A N2A
T1A
A
F1 F2 F3
B
N1 N2 T1
TB1
EXTERNAL CONNECTION BOX
TO GENERATOR CONTROL PANEL
C1
C2
SW1
SW2
SW3
N1
N2
E1
E2
T1
T2
LEGEND
C1-UTILITY COIL & RECTIFIER
C2-GENERATOR COIL & RECTIFIER
F1,F2,F3-5A, 600V FUSE
LC-CIRCUIT BREAKER (LOADS)
(16 CIRCUIT SHOWN FOR REFERENCE ONLY)
N-NEUTRAL
SW1-AUTOMATIC TRANSFER SWITCH
SW2,SW3-LIMIT SWITCHES
TB1-TERMINAL STRIP
TR1-TRANSFER RELAY

# Load Center Exploded View Drawing 0H6388-A



# Load Center Exploded View Drawing 0H6388-A

| ITEM | PART NO. | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 0G80700ST14 | 1 | GTS LOAD CENTER ENCLOSURE GRAY |
| 2 | 0G81020ST14 | 1 | COVER 10 POS.GTS LOAD CTR GRAY |
| | 0G81030ST14 | 1 | COVER 12 POS.GTS LOAD CTR GRAY |
| | 0G81040ST14 | 1 | COVER 14 POS.GTS LOAD CTR GRAY |
| | 0G81060ST14 | 1 | COVER 16 POS.GTS LOAD CTR GRAY |
| 3 | 0C2237 | 1 | TRANSFER SWITCH HOME STANDBY 100A 2P 250V |
| 3A | 077220 | 1 | COIL UTILITY |
| 3B | 077220A | 1 | COIL STANDBY |
| 4 | 074908 | 4 | SCREW HHTT M5-0.8 X 10 |
| 5 | 024912 | 1 | SCREW TAPTITE 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 | 12CIR L/CENTR 125A/240V (ALSO USED FOR 10 CIRCUIT) |
| | 0F9213 | 1 | 16CIR L/CENTR 125A/240V (ALSO USED FOR 14 CIRCUIT) |
| 9 | 0A1495 | 4 | SCREW HHTT M4-0.7 X 10 |
| 10 | 0A1661 | 2 | RIVET POP .156” X .675” |
| 11 | 081108 | 1 | PLUG PLASTIC |
| 12 | 0G8095AST14 | 1 | HARNESS ADAPTER PLATE GRAY |
| 13 | 0G81300ST14 | 1 | SUBPLATE GTS LOAD CENTER GRAY |
| 14 | 0F4790 | 5.28” | U-CHANNEL |
| 15 | 023897 | 6 | WASHER FLAT #10 ZINC |
| 16 | 022717A | 1 | GROMMET 3/8 X 1/16 X 1/4 |
| 17 | 0E6155 | 1 | ARM EXTENDER PIN |
| 18 | 0G8233A | 4 | CABLE TIE SELF MOUNTING 4.3LG |
| 19 | 0G8139 | 1 | HARN GTS-MAIN PNL 10CIR W/NEUT |
| | 0G8140 | 1 | HARN GTS-MAIN PNL 12CIR W/NEUT |
| | 0H6394 | 1 | HARN GTS-MAIN PNL 14CIR W/NEUT |
| | 0G8141 | 1 | HARN GTS-MAIN PNL 16CIR W/NEUT |
| 20 | 074138 | 3 | LUG QUICK DISCONNECT NI-S 10X45 DEG BRASS / TIN |
| 21 | 036933 | 6 | SCREW PPHM #10-32X3/8 |
| 22 | 077033 | 6 | LUG SLDLSS 1/0-#14X9/16 AL/CU |
| 23 | 048766 | 1 | BLOCK TERM 20A 2 X 6 X 1100V |
| 24 | 022152 | 6 | WASHER LOCK #10 |
| 25 | 0A7215 | 10 | SCREW SW 1/4"-20 X 5/8” WITH WASHER |
| 26 | 066849 | 2 | SCREW HHTT M5-0.8 X 16 (10, 12, 14, 16 CIRCUIT) |
| 27 | 0H6399A | 1 | HARNESS LOAD CTR INT.CONN 10-16 (NOT SHOWN) |
| | 0H6399B | 1 | HARNESS LOAD CTR INT.CONN T1 (NOT SHOWN) |
| | 0H6399C | 1 | HARNESS LOAD CTR INT.CONN T2 (NOT SHOWN) |
| 28 | 0D2572 | 1 | FUSEBLOCK 30A 600V 3POS W/SQ |
| 29 | 073590A | 3 | FUSE 5A |

| | | | | 10 | 12 | 14 | 16 CIRCUIT |
|---|---|---|---|---|---|---|---|
| 30 | 0E7888 | A/R | CIRCUIT BREAKER 20A 2P | 1 | | 1 | 1 |
| 31 | 0E7888A | A/R | CIRCUIT BREAKER 30A 2P | 1 | 1 | | |
| 32 | 0E7888B | A/R | CIRCUIT BREAKER 15A 1P | 3 | 5 | 4 | 5 |
| 33 | 0E7888C | A/R | CIRCUIT BREAKER 20A 1P | 3 | 3 | 6 | 5 |
| 34 | 0E7888D | A/R | CIRCUIT BREAKER 40A 2P | | 1 | 1 | 1 |
| 35 | 0E7888E | A/R | CIRCUIT BREAKER 50A 2P | | | | 1 |

| | | | |
|---|---|---|---|
| 36 | 0G80860ST14 | 1 | HARNESS ENTRY COVER GRAY |
| 37 | 0H6395 | 1 | HARN GTS-EXT CONN BOX 8KW |
| | 0H6396 | 1 | HARN GTS-EXT CONN BOX 10KW |
| | 0H6397 | 1 | HARN GTS-EXT CONN BOX 14/17KW |
| | 0E7889 | 1 | 12CIR L/CENTR 125A/240V (ALSO USED FOR 10 CIRCUIT) |

# Notes

# Notes

Part No. 0H6391 Revision E (01/31/12) Catalog No. KGATX0316100-1SI Printed in U.S.A.