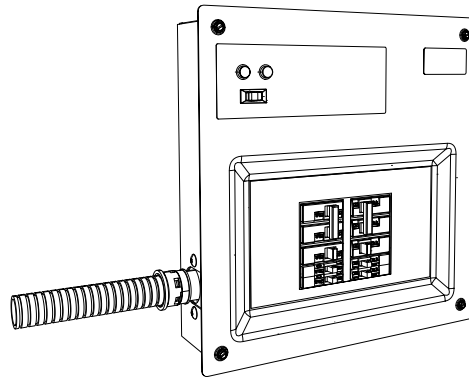


Owner's Manual

Homelink Upgradeable Manual Transfer Switch



MODEL NUMBER: _____

SERIAL NUMBER: _____

DATE PURCHASED: _____



WARNING

Loss of life. This product is not intended to be used in a critical life support application. Failure to adhere to this warning could result in death or serious injury. (000209b)

Register your Generac product at:
WWW.GENERAC.COM
1-888-GENERAC
(888-436-3722)

Para español , visita: <http://www.generac.com/service-support/product-support-lookup>

Pour le français, visiter : <http://www.generac.com/service-support/product-support-lookup>

SAVE THIS MANUAL FOR FUTURE REFERENCE

Models:

6852 MTS 30A 8-10 CKT Pre-Wired Switch

**6853 Kit, MTS 30A 8-10 CKT Pre-Wired Switch, 30A Cord
and Resin Power Inlet Box**

**6854 Kit, MTS 30A 8-10 CKT Pre-Wired Switch, 30A Cord
and Aluminum Power Inlet Box**

9854 MTS 50A 10-16 CKT Pre-Wired Switch

**9855 Kit, MTS 50A 10-16 CKT Pre-Wired Switch, 50A Cord
and Aluminum Power Inlet Box**

6869 Manual to Automatic Upgrade Kit

⚠ WARNING

California Proposition 65. Engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm. (000004)

⚠ WARNING

California Proposition 65. This product contains or emits chemicals known to the state of California to cause cancer, birth defects, and other reproductive harm. (000005)

Table of Contents

Section 1: Introduction and Safety

Introduction	1
Safety Rules	1
Safety Messages	1
Safety Symbols and Meanings	2

Section 2: General Information

Unpacking	3
Equipment Description	3
Transfer Switch Mechanism	3
Transfer Switch Data Decal	3
Transfer Switch Enclosure	3
Power Inlet Box (if equipped)	4
Safe Use of Transfer Switch	4
Load Management Options	4

Section 3: Installation

Mounting the Transfer Switch	5
Mounting the Power Inlet Box	5
Connecting Power Source and Load Lines	6
Connecting Front Panel Wiring	6
Installing Branch Circuit Conductors – USA Installations	6
Installing Branch Circuit Conductors – Canadian Installations	7
Installing Breakers	7
Breakers Listed for Use	7
Portable Generator Grounding Requirements ..	7
Automatic Upgrade Kit Installation	8

Section 4: Operation

Functional Tests	9
Manual Operation	9
Transfer Mechanism Manual Operation	9
Close to Generator Source Side	9
Return to Utility Source Side	10
Voltage Checks	10
Utility Voltage Checks	10
Generator Voltage Checks	10
Generator Tests Under Load	10
Checking Electric Operation (Portable Generator Only)	10
Checking Automatic Operation (Automatic HSB Generator Only)	11
Installation Summary	11
Shutting Generator Down While Under Load	12

Section 5: Drawings and Diagrams

Installation Drawing No. 0K8843-B	13
Interconnection Drawing No. 0K8845-A (Manual Transfer Connections)	14
Interconnection Drawing No. 0K8844-C (Automatic Transfer Connections)	15

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Section 1: Introduction and Safety

Introduction

Thank you for purchasing a Generac Power Systems Inc. product. This unit has been designed to provide high-performance, efficient operation, and years of use when maintained properly.

Read this manual thoroughly and understand all of the instructions, cautions, and warnings before using this equipment. If any section of the manual is not understood, contact your nearest Independent Authorized Service Dealer (IASD) or contact Generac Customer Service at 1-888-436-3722, or www.generac.com with any questions or concerns.

The owner is responsible for proper maintenance and safe use of the equipment. Before operating or servicing this transfer switch:

- Study all safety information in this manual and on the product carefully.
- Become familiar with this manual and the unit before use.
- Refer to *Installation* for instructions on final assembly procedures. Follow the instructions completely.

Save these instructions for future reference. ALWAYS supply this manual to any individual that will use this machine.

The information in this manual is accurate based on products produced at the time of publication. The manufacturer reserves the right to make technical updates, corrections, and product revisions at any time without notice.

Safety Rules

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

Safety Messages

Throughout this publication, and on tags and decals affixed to the transfer switch, DANGER, WARNING, and CAUTION 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

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

(000001)

WARNING

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

(000002)

CAUTION

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

(000003)

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

These safety alerts 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.

Safety Symbols and Meanings



⚠ DANGER

Electrocution. High voltage is present at transfer switch and terminals. Contact with live terminals will result in death or serious injury.

(000129)



⚠ DANGER

Electrocution. Water contact with a power source, if not avoided, will result in death or serious injury.

(000104)



⚠ DANGER

Electrocution. In the event of electrical accident, immediately shut power OFF. Use non-conductive implements to free victim from live conductor. Apply first aid and get medical help. Failure to do so will result in death or serious injury.

(000145)

⚠ DANGER

Electrical backfeed. Use only approved switchgear to isolate generator from the normal power source. Failure to do so will result in death, serious injury, and equipment damage.

(000237)



⚠ DANGER

Electrocution, equipment and property damage. Handle transfer switches carefully when installing. Never install a damaged transfer switch. Doing so could result in death or serious injury, equipment and property damage.

(000195)



⚠ DANGER

Electrocution. Turn utility supply OFF before working on utility connections of the transfer switch. Failure to do so will result in death or serious injury.

(000123)



⚠ DANGER

Electrocution. Do not disable or modify the connection box door safety switch. Doing so will result in death or serious injury.

(000157)

⚠ DANGER

Automatic start-up. Disconnect utility power and render unit inoperable before working on unit. Failure to do so will result in death or serious injury.

(000191)

⚠ WARNING

Electric shock. Only a trained and licensed electrician should perform wiring and connections to unit. Failure to follow proper installation requirements could result in death, serious injury, and equipment or property damage.

(000155a)



⚠ WARNING

Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury.

(000100a)

- Any voltage measurements should be performed with a meter that meets UL3111 safety standards, and meets or exceeds overvoltage class CAT III.

Section 2: General Information

Unpacking

Carefully unpack the transfer switch. Inspect closely for any damage that might have occurred during shipment. The purchaser must file with the carrier any claims for loss or damage incurred while in transit.

Check that all packing material is completely removed from the switch prior to installation.

Equipment Description

The transfer switch is used for transferring critical electrical load from a UTILITY (NORMAL) power source to a GENERATOR (STANDBY) power source. The transfer switch prevents electrical feedback between two different power sources (such as the UTILITY and GENERATOR sources) and, for that reason, codes require it in all standby electric system installations.

The transfer switch consists of a transfer mechanism, a control switch, and indicator lights.

This UL listed transfer switch is for use in optional standby systems only (NEC article 702).

NOTE: Generator output voltage must be 240VAC. This switch is not compatible with 120VAC generator output voltage.

Transfer Switch Mechanism

These switches ([Figure 2-1](#)) are used with a single-phase system, when the single-phase NEUTRAL line is to be connected to a neutral lug and is to be switched. The switched neutral provides compatibility with GFCI equipped generators.

Solderless, screw-type terminal lugs are standard.

The conductor size range is as follows:

Switch Rating	Wire Range	Conductor Tightening Torque	Lug Temp. Rating
30A 50A	1/0 - 14 AWG Cu/Al	50 in-lbs (5.6 Nm)	167°F (75°C)

This transfer switch is suitable for control of motors, electric discharge lamps, tungsten filament and electric heating equipment where the sum of motor full load ampere ratings and the ampere ratings of other loads do not exceed the ampere rating of the switch and the tungsten load does not exceed 30 percent of the switch rating.

A 50A rated switch is suitable for use on circuits capable of delivering not more than 10,000 RMS symmetrical amperes, 250 VAC maximum, when protected by a 50A maximum circuit breaker (Square D HOM, General Electric THQL, or Eaton Cutler Hammer BR).

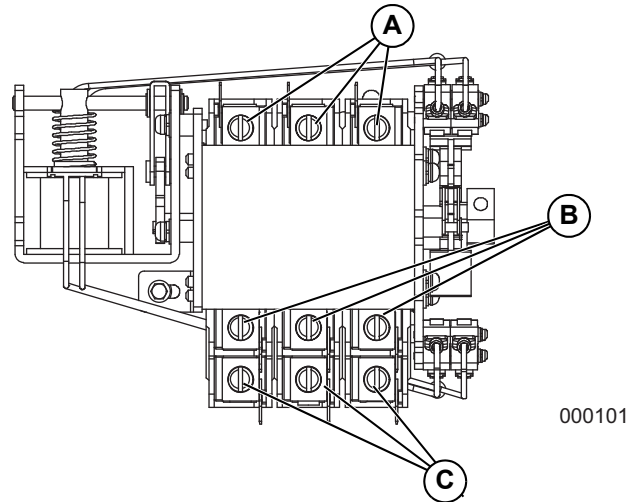


Figure 2-1. Typical 3-Pole Transfer Mechanism

A	Utility Lugs (N1, N2 & N3)
B	Generator Lugs (E1, E2 & E3)
C	Load Lugs (T1, T2 & T3)

Transfer Switch Data Decal

A data decal is permanently affixed to the transfer switch enclosure. Use this transfer switch only with the specific limits shown on the data decal and on other decals and labels that may be affixed to the switch. This will prevent damage to equipment and property.

When requesting information or ordering parts for this equipment, make sure to include all information from the data decal.

For future reference, record the Model and Serial numbers in the space provided on the front cover of this manual.

Transfer Switch Enclosure

The standard switch enclosure is a National Electrical Manufacturer's Association (NEMA) UL Type 1 indoor enclosure.

Power Inlet Box (if equipped)

The Power Inlet Box (PIB) safely connects a portable generator to the manual transfer switch.

Two types of enclosure are available:

- Corrosion-resistant aluminum
- Non-metallic resin

The conductor size range is as follows:

PIB Rating	Wire Range	Conductor Tightening Torque	Lug Temp. Rating
30A 50A	8 - 14 AWG	50 in-lbs (5.6 Nm)	167°F (75°C)

Safe Use of Transfer Switch



⚠ WARNING

Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury. (000100a)

Before installing, operating or servicing this equipment, read the **Safety Rules** carefully. Comply strictly with all **Safety Rules** to prevent accidents and/or damage to the equipment. The manufacturer recommends that a copy of the **Safety Rules** be posted near the transfer switch. Also, be sure to read all instructions and information found on tags, labels and decals affixed to the equipment.

Publications that outline the safe installation and manufacturing of transfer switches are the following:

- NFPA 70; National Electrical Code
- UL 1008, STANDARD FOR SAFETY-AUTOMATIC TRANSFER SWITCHES
- UL67 Panel boards

NOTE: To ensure code compliance, it is essential to use the latest version of any standard that has been adapted by your local municipality.

Load Management Options

Loads can be managed using a smart power management system. The system can accommodate up to eight individual Smart Management Modules (SMM).*

NOTE: SMMSs are self-contained and have individual built-in controllers.

*See SMM Module (available separately)

Section 3: Installation

Mounting the Transfer Switch



⚠ DANGER

Electrocution. Turn utility supply OFF before working on utility connections of the transfer switch. Failure to do so will result in death or serious injury. (000123)

⚠ DANGER

Equipment malfunction. Installing a dirty or damaged transfer switch will cause equipment malfunction and will result in death or serious injury. (000119)

⚠ WARNING

Equipment damage. Only qualified service personnel may install, operate, and maintain this equipment. Failure to follow proper installation requirements could result in death, serious injury, and equipment or property damage. (000182a)

Mounting dimensions for the transfer switch enclosure are at the back of this manual. Enclosures are typically wall-mounted. See [Drawings and Diagrams](#).

This transfer switch is mounted in a NEMA 1 enclosure. It can be mounted indoors only and should be based on the layout of installation, convenience and proximity to the utility supply and load center.

IMPORTANT NOTE: Always adhere to local electrical codes during installation.

1. Locate transfer switch where proper equipment and clear working space can be maintained.
2. Hold transfer switch against the mounting surface.

IMPORTANT NOTE: To eliminate the possibility of debris contamination, never drill inside the enclosure.

3. Drill the appropriate size holes for mounting hardware at marked hole locations.
4. Mount transfer switch to mounting surface with appropriate fasteners.

NOTE: The one foot (30.5 cm) conduit can be installed on either side of the box through a removable plate.

NOTE: Transfer switch must be mounted vertically as shown in [Figure 3-1](#).

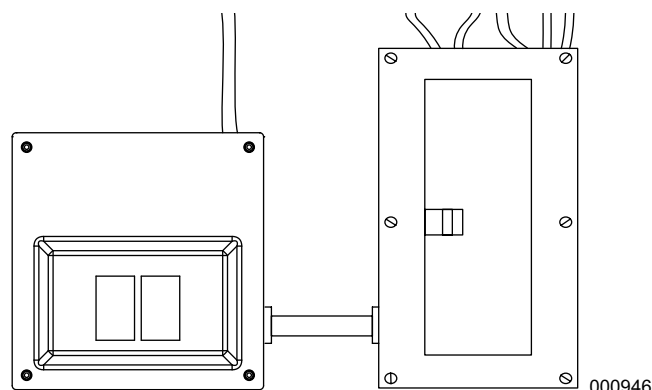


Figure 3-1. Transfer Switch Mounting

Mounting the Power Inlet Box

Install the Power Inlet Box (PIB) in a location that ensures generator is at least 5 feet (1.52 m) away from windows, doors or other openings such as dryer vents, or air conditioning units.

1. Remove front cover.
 - For installations where side clearance is less than 12 inches (30.5 cm) on either side, remove three (3) screws securing inlet to bottom plate.
 - For installations where side clearance exceeds 12 inches (30.5 cm) on both sides, remove screw securing bottom plate to box.
 - For wiring entry into the back of the PIB, install wiring through one of the provided knockouts, or drill an appropriate sized entry into the PIB.
 - For wiring entry into the sides or top of the PIB, install wiring through one of the provided knockouts, or drill an appropriate sized entry into the PIB. Caulk around the top and sides of the enclosure, as well as around the cable entrance.

NOTE: To maintain NEMA 3R rating if entry is above the level of uninsulated live parts, use fittings listed for use in wet locations.

2. Mount PIB on building exterior in a convenient location (minimum 24 inches [61 cm] above grade), using the four holes provided on cabinet back.
3. Extend wiring inside PIB approximately eight inches (20.3 cm) from point of entrance.
4. Attach equipment grounding conductor to green lead provided in PIB with wire nut (provided by installer).

NOTE: If used as a grounding conductor, the ground stud/pigtail in the non-metallic units is provided to ground metallic conduit when connecting to the non-metallic PIB.

5. Strip and insert incoming leads into terminals on power inlet. Insert white wire (neutral) into nickel plated screw terminal or white marking on the inlet.
6. Carefully fold wires into enclosure and reattach the bottom assembly or inlet onto box with screw removed earlier.

Connecting Power Source and Load Lines



⚠ DANGER

Electrocution. Turn utility and emergency power supplies to OFF before connecting power source and load lines. Failure to do so will result in death or serious injury. (000116)

Installation and interconnection diagrams are provided in the [Drawings and Diagrams](#) section of this manual.

NOTE: All installations must comply with national, state and local codes. It is the responsibility of the installer to perform an installation that will pass the final electrical inspection.

Utility supply, generator, and customer load connections are made at the transfer switch mechanism, inside the switch enclosure.

Conductor sizes must be adequate to handle the maximum current to which they will be subjected, based on the 75°C column of tables, charts, etc. used to size conductors. The installation must comply fully with all applicable codes, standards and regulations.

NOTE: If aluminum conductors are used, apply corrosion inhibitor to conductors. After tightening terminal lugs, carefully wipe away any excess corrosion inhibitor.

Tighten terminal lugs to the torque values as noted on the inside of the door.

⚠ CAUTION

Equipment damage. Verify all conductors are tightened to the factory specified torque value. Failure to do so could result in damage to the switch base.

(000120)

Connect power source and load conductors to clearly marked terminal lugs on transfer mechanism as follows:

1. Install a 2-pole, 50 Amp breaker in the main distribution panel. This will be the utility (normal) power source for transfer switch.
2. Customer LOAD leads are pre-wired at the factory.

NOTE: Conductors must be properly supported, of approved insulative qualities, protected by approved conduit, and of the correct wire gauge size in accordance with applicable codes.

Connecting Front Panel Wiring

Use quick disconnect connector in wiring harness to remove front panel during service or installation. Verify power and load lines are disconnected any time the front panel is removed.

Installing Branch Circuit Conductors – USA Installations

1. Select which branch circuits will be protected by the generator in the normal power panelboard.
2. Turn OFF circuit breaker in the normal power panelboard.
3. Remove ungrounded (hot) conductor from circuit breaker and neutral conductor from the neutral terminal bar in the normal power panelboard.

NOTE: Multi-wire branch circuits must be connected to circuit breakers adjacent to each other. If the circuit to be protected is part of a multi-wire branch circuit, the entire multi-wire branch circuit must be relocated to the transfer switch panelboard (See NEC 210.4). Branch circuit wiring can be removed from the normal power panelboard and installed in the transfer switch panelboard, or spliced onto new branch circuit wiring originating from the transfer switch panelboard.

4. If the normal power panelboard is being used as a junction box for the protected branch circuit conductors, install the 12 inch (30.5 cm) conduit, raceway(s), or other approved wiring method between the transfer switch panelboard and normal power panelboard.
5. Install properly sized branch circuit conductors between the transfer switch panelboard to the branch circuit conductors to be protected by the transfer switch, if not using factory supplied wiring.
6. Use listed wire nuts or any other approved termination device to connect the branch circuit conductors.
7. Install provided label on the existing panelboard indicating location of the disconnecting means for the pass-through conductors.
8. If the generator protected branch circuit conductors are being re-installed into the transfer switch panelboard, punch the required sized hole(s) for the cable, conduit, or raceway.
9. Route branch circuit conductors into transfer switch and terminate the equipment ground conductor on the equipment ground terminal bar, the neutral on

the neutral terminal bar, and the ungrounded (hot) on the circuit breaker terminal.

10. Size all conductors, raceways, conduits, and junction boxes, if required, to the applicable NEC code articles and follow the NEC installation requirements for the wiring method(s) selected.

NOTE: The 12 inch (30.5 cm) pre-wired whip can be shortened if needed or removed and replaced with field wiring. Factory-installed branch circuits and circuit breakers can also be modified if needed. Follow all applicable electrical codes for any field modification.

Installing Branch Circuit Conductors – Canadian Installations

1. Select which branch circuits will be protected by the generator in the normal power panelboard. Turn the circuit breaker in the normal power panelboard to the off position.
2. Remove the ungrounded (hot) conductor from the circuit breaker and neutral conductor from the neutral terminal bar in the normal power panelboard.

NOTE: If the circuit to be protected is part of a multi-wire branch circuit, the entire multi-wire branch circuit must be relocated to the transfer switch panelboard.

3. The Canadian Electric Code prohibits the use of the normal power panelboard as a junction box. The generator protected branch circuit wiring must be relocated to a properly sized junction box, or reinstalled into the transfer switch panelboard.
4. Punch required sized hole(s) for the cable, conduit, or raceway into the transfer switch.
5. Route the branch circuit conductors into the transfer switch and terminate the equipment ground conductor on the equipment ground terminal bar, the neutral on the neutral terminal bar, and the ungrounded (hot) on the circuit breaker terminal.
6. Size all conductors, raceways, conduits, and junction boxes, if required, to the applicable CEC code articles and follow the CEC installation requirements for the wiring method(s) selected.

NOTE: The 12 inch (30.5 cm) pre-wired whip can be shortened if needed or removed and replaced with field wiring. Factory-installed branch circuits and circuit breakers can also be modified if needed. Follow all applicable electrical codes for any field modification.

Installing Breakers

IMPORTANT NOTE: AFCI and GFCI circuit breakers are not provided by the factory. If the circuits to be protected require AFCI or GFCI protection, or both, then listed protection shall be provided by the installer.

Factory-supplied breakers can be changed by the installer. Install listed and labeled circuit breakers compatible with the transfer switch (See [Breakers Listed for Use](#)). Follow all applicable NEC and CEC code articles for any field modifications.

Breakers Listed for Use

Multi listed for use with one inch (2.54 cm) standard, tandem, GFCI and AFCI breakers from Siemens/Murray type QP, Eaton type BR, and Square D type HOM. The breakers shall not exceed 50 Amperes rating.

See [Figure 3-2](#). Insert tab on the breaker (A) into hook on bus (B). Push breaker into bus until it snaps into place.

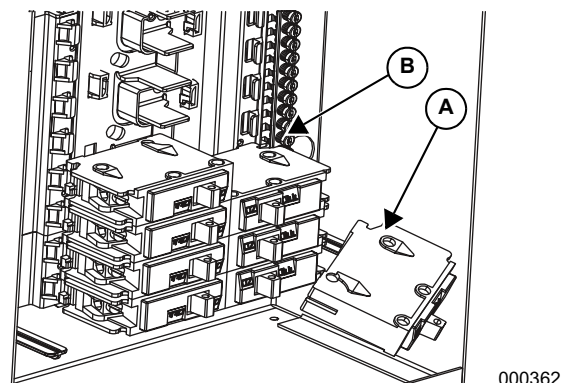


Figure 3-2. Installing Breakers

Portable Generator Grounding Requirements

The Upgradeable Manual Transfer Switch is designed for use with portable generators with a bonded neutral, and used as a separately derived system. A grounding system and a grounding electrode system shall be connected to the ground terminal on the portable generator. See NEC Article 250.30(A)(4) and (5) for code compliance.

Automatic Upgrade Kit Installation

1. Turn transfer switch normal power supply circuit breaker OFF (open).
2. Remove transfer switch cover, disconnect control wiring to cover, and verify electrical power has been turned off.
3. Disconnect normal power feeder conductors, the generator feeder conductors, and panelboard conductors from transfer mechanism.
4. See [Figure 3-3](#). Remove screw (A) that holds the transfer mechanism in place, and remove transfer mechanism from the transfer switch.

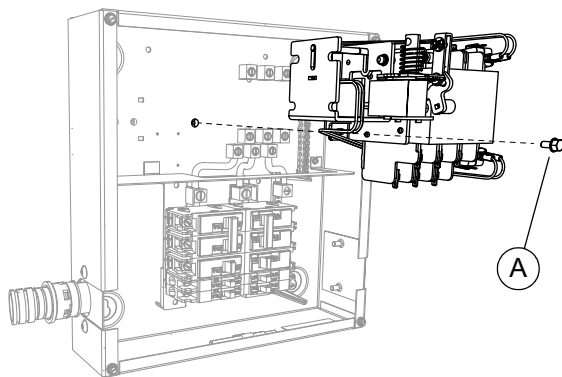


Figure 3-3. Remove Transfer Mechanism

5. See [Figure 3-4](#). Remove lower left screw (B) securing divider plate in the transfer switch.

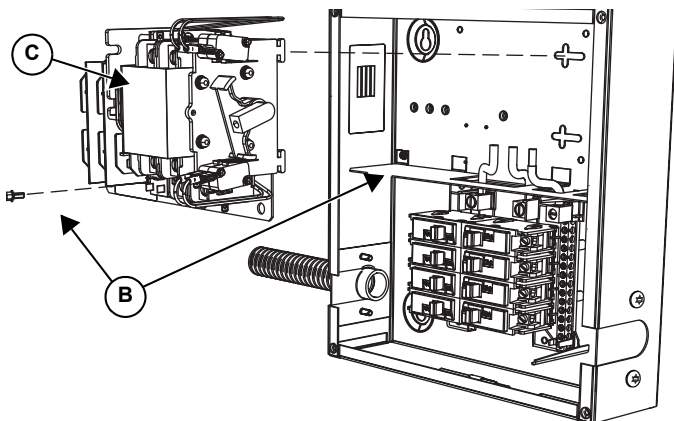


Figure 3-4. Install Automatic Back Plate

6. Install new automatic back plate (C) in transfer switch and secure to transfer switch enclosure.
7. Remove neutral conductor from main lug on neutral bar.

8. See [Figure 9](#). Terminate normal power neutral to main lug (D) on neutral bar.

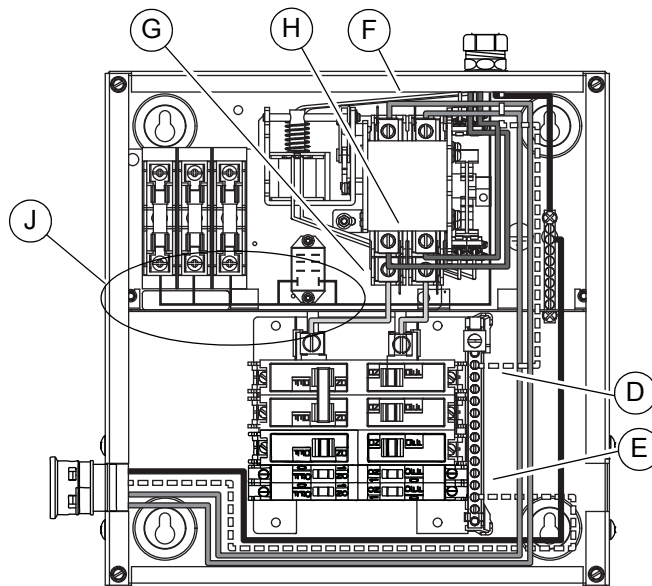


Figure 3-5. Connection Details

9. Terminate neutral conductor from generator power feeder on neutral terminal bar (E) in transfer switch.
10. Terminate normal power feeder conductors to N1 and N2 (F) on transfer mechanism.
11. Terminate panelboard feeder conductors to T1 and T2 (G) on transfer mechanism.
12. Terminate generator feeder conductors to E1 and E2 (H) on transfer mechanism.
13. Terminate generator control wiring to N1, N2, T1, 23 and 194 terminals (J) in transfer switch.
14. Install new panelboard cover and properly label all branch circuits.
15. See Section 4 [Checking Automatic Operation \(Automatic HSB Generator Only\)](#) to verify proper transfer switch and generator operation.

Section 4: Operation

Functional Tests

Following transfer switch installation and interconnection, inspect the entire installation carefully. A competent, qualified electrician should inspect it. The installation should comply strictly with all applicable codes, standards, and regulations. When absolutely certain the installation is proper and correct, complete a functional test of the system.

CAUTION

Equipment damage. Perform functional tests in the exact order they are presented in the manual. Failure to do so could result in equipment damage.

(000121)

IMPORTANT NOTE: Before proceeding with functional tests, read and make sure all instructions and information in this section is understood. Also read the information and instructions of labels and decals affixed to the switch. Note any options or accessories that might be installed and review their operation.

Manual Operation



DANGER

Electrocution. Do not manually transfer under load. Disconnect transfer switch from all power sources prior to manual transfer. Failure to do so will result in death or serious injury, and equipment damage.

(000132)

See [Figure 4-1](#). A manual handle is shipped with the transfer switch. Manual operation must be checked **BEFORE** the transfer switch is operated electrically. To check manual operation, proceed as follows:

1. Verify generator is OFF.
2. Turn OFF both UTILITY (service disconnect circuit breaker) and STANDBY (generator main line circuit breaker) power supplies to the transfer switch.
3. Note position of transfer mechanism main contacts by observing the movable contact carrier arm.
 - Manual operation handle in UP position (B)—LOAD terminals (T1, T2) are connected to STANDBY terminals (E1, E2).
 - Manual operation handle in DOWN position (A)—LOAD terminals (T1, T2) are connected to UTILITY terminals (N1, N2).

CAUTION

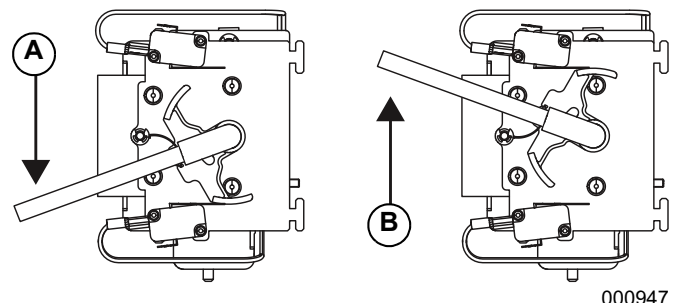
Equipment damage. Do not use excessive force while manually operating the transfer switch. Doing so could result in equipment damage.

(000122)

Transfer Mechanism Manual Operation

Before proceeding, verify switch position by observing manual operation handle in [Figure 4-1](#). If handle is DOWN, contacts are closed in the NORMAL (UTILITY) position and no further action is required. If handle is UP, proceed with Step 1.

1. With handle inserted into the movable contact carrier arm, move handle DOWN. Hold handle securely, as it will move quickly past center of travel.
2. Remove manual operating handle from movable contact carrier arm. Return handle to storage bracket.



000947

Figure 4-1. Transfer Mechanism Manual Operation

A	Utility Position
B	Generator Position

Close to Generator Source Side

Before proceeding, verify switch position by observing manual operation handle in [Figure 4-1](#). If handle is UP, contacts are closed in GENERATOR (STANDBY) position and no further action is required. If the handle is DOWN, proceed with Step 1.

1. With handle inserted into the movable contact carrier arm, move the handle UP. Hold handle securely, as it will move quickly past center of travel.
2. Remove manual operating handle from movable contact carrier arm. Return handle to storage bracket.

Return to Utility Source Side

1. Manually actuate switch by moving manual operating handle DOWN.
2. Remove manual operating handle from movable contact carrier arm. Return handle to storage bracket.

Voltage Checks



⚠ DANGER

Electrocution. Turn utility supply OFF before working on utility connections of the transfer switch. Failure to do so will result in death or serious injury. (000123)



⚠ DANGER

Electrocution. High voltage is present at transfer switch and terminals. Contact with live terminals will result in death or serious injury. (000129)

NOTE: Use the Digital Multimeter (DMM) LowZ low input impedance setting to collect accurate voltage measurements. LowZ eliminates the possibility of inaccurate ghost voltage readings, also known as phantom voltage or stray voltage readings. Refer to the DMM manufacturer’s literature for additional information.

Utility Voltage Checks

1. Turn on UTILITY power supply to the transfer switch using breaker in main distribution panel.
2. With an accurate AC voltmeter, check for correct voltage.
3. Measure across MTS terminal lugs N1 and N2 (approximately 240 VAC).
4. Measure across MTS terminal lugs N1 to N3 and N2 to N3 (approximately 120 VAC).
5. Verify UTILITY supply voltage is correct and compatible with the transfer switch ratings.

Generator Voltage Checks

1. Connect generator to the transfer switch.
2. Start generator.
3. With an accurate AC voltmeter and frequency meter, check no-load, voltage and frequency. Measure across ATS terminal lugs E1 to E2; E1 to E3 and E2 to E3.

Frequency	58–63 Hz
Terminals E1 to E2	240–246 VAC
Terminals E1 to E3	120–123 VAC
Terminals E2 to E3	120–123 VAC

4. When certain that generator supply voltage is correct and compatible with the transfer switch ratings, turn OFF generator supply to transfer switch.
5. Set generator main circuit breaker (CB1) to OFF or OPEN.
6. Shut down the generator.

NOTE: Do NOT proceed until generator AC output voltage and frequency are correct and within stated limits.

Generator Tests Under Load

1. If so equipped, set generator main circuit breaker to OFF or OPEN.
2. Turn OFF or OPEN all load circuits.
3. Set utility service disconnect circuit breaker to OFF or OPEN.
4. Manually actuate transfer switch main contacts to Standby position. See [Manual Operation](#).
5. Start generator. When engine starts, allow it to run for a few minutes to stabilize engine speed.
6. Generator now powers all LOAD circuits. Check generator operation under load as follows:
 - a. Turn on electrical loads to full rated wattage/ amperage capacity of the generator. DO NOT OVERLOAD.
 - b. With maximum rated load applied, check voltage and frequency across transfer switch terminals E1 and E2. Voltage should be greater than 230 VAC (240 VAC system). Frequency should be greater than 58 Hz.
 - c. Allow generator to run under rated load for at least 30 minutes. With unit running, listen for unusual noises, vibration, overheating, etc., that might indicate a problem.
7. When generator tests under load are complete, turn OFF all load circuits.
8. Let generator run at no-load for several minutes. Then, shut down the generator.
9. Manually move main switch contacts back to UTILITY.
10. Place manual handle in its storage bracket.

Checking Electric Operation (Portable Generator Only)

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

1. Verify generator is OFF.
2. Connect the electrical harness six position quick connector (from the lights and rocker switch of the front panel) to transfer switch main harness.
3. See **Figure 3-2**. Install transfer switch front cover with four (4) screws provided.
4. Turn ON utility power supply to the transfer switch, using the means provided (such as utility main line circuit breaker). The Utility Light will illuminate only if the transfer switch is in the Generator position, and utility voltage is present.
5. Press rocker switch to select UTILITY. (The transfer switch will not operate without utility voltage present.) The Utility Light is now off and in normal operating condition; utility voltage is present and transfer switch is in normal utility mode. Any loads will be energized via the power panel of the transfer switch.
6. Verify generator Neutral and Ground are connected on the generator. The generator should be properly tied to earth ground according to local regulations.
7. Connect generator to the PIB using the Generac Portable Power Cord.
8. Turn generator ON. Amber indicator light for Generator Power will illuminate on the front panel of the transfer switch any time generator voltage is available. Generator is now electrically isolated from any electrical connections beyond the transfer switch.
9. Press rocker switch to select GENERATOR POWER. Utility light will illuminate to indicate utility voltage is available for transfer back to the utility. Generator light remains lit to indicate the presence of generator voltage. All loads through the transfer switch panel are now being supplied by the generator.
10. Turn OFF utility power supply to the transfer switch, using the means provided (such as utility main line circuit breaker). Utility light will no longer be illuminated, as utility voltage is no longer present.
11. Confirm any loads being supplied by the transfer switch panel are energized by the generator.
12. Turn ON utility power supply to the transfer switch, using the means provided (such as utility main line circuit breaker). The Utility light will again illuminate.

13. Press rocker switch to select UTILITY. Utility light will turn off. Transfer switch is now in normal operating mode. All loads from the transfer switch panel are provided by the utility.
14. Let generator run at no load for several minutes. Then, shut down the generator. Generator power light on the transfer switch will turn off.
15. Disconnect generator portable power cord.
16. Store generator as recommended by the manufacturer.
17. Transfer switch testing is complete and ready for use.

NOTE: Transfer switch requires 240V electric power to operate with the rocker switch. Transfer switch will not transfer to utility mode if Utility light is not illuminated prior to pressing rocker switch. Transfer switch will not transfer to generator mode if the Generator light is not illuminated. This safeguards against accidental transfer to the generator if generator power is not present.

Checking Automatic Operation (Automatic HSB Generator Only)

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

1. Verify generator is OFF.
2. Verify switch is de-energized.
3. Manually operate transfer switch twice to properly set mechanism toggle after installation.
4. Install transfer switch front cover.
5. Turn utility power supply to transfer switch ON, using utility main line circuit breaker.
6. Set generator main circuit breaker to ON.
7. On generator panel, select AUTO. System is now ready for automatic operation.
8. Turn utility power supply to the transfer switch OFF.

With generator ready for automatic operation, engine should crank and start when utility source power is turned OFF after a ten second delay (factory default setting). After starting, transfer switch should connect load circuits to the standby side after the engine warm-up delay. Let the system operate through its entire automatic sequence of operation.

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

- After approximately 15 seconds, the switch should transfer loads back to the utility power source.
- Approximately one minute after re-transfer, the engine should shut down.

With generator in AUTOMATIC mode, the system is now set for fully automatic operation.

Installation Summary

1. Verify installation has been properly performed as outlined by the manufacturer and meets all applicable laws and codes.
2. Verify proper operation of the system as outlined in the appropriate installation and owner's manuals.
3. Educate end user on proper operation, maintenance and service call procedures.

2. Turn main line circuit breaker (MLCB) on generator to OFF (OPEN).
3. Allow generator to run and cool down for approximately one minute.
4. Turn generator OFF.

NOTE: If turning the unit off longer than 24 hours, remove F1 fuse from generator controller.

To turn the generator ON:

1. Install F1 fuse if necessary.
2. Put the generator back into AUTO and allow to start and warm up for a few minutes.
3. Set MLCB on the generator to ON.

The system will now be operating in automatic mode. The main utility disconnect can be turned ON (CLOSED).

NOTE: To shut the unit off, this complete process must be repeated.

Shutting Generator Down While Under Load

(Automatic HSB Generator Only)

To turn the generator OFF during utility outages to perform maintenance, or conserve fuel, follow these important steps:

To turn the generator OFF (while running in AUTO and Online):

1. Turn main utility disconnect OFF.

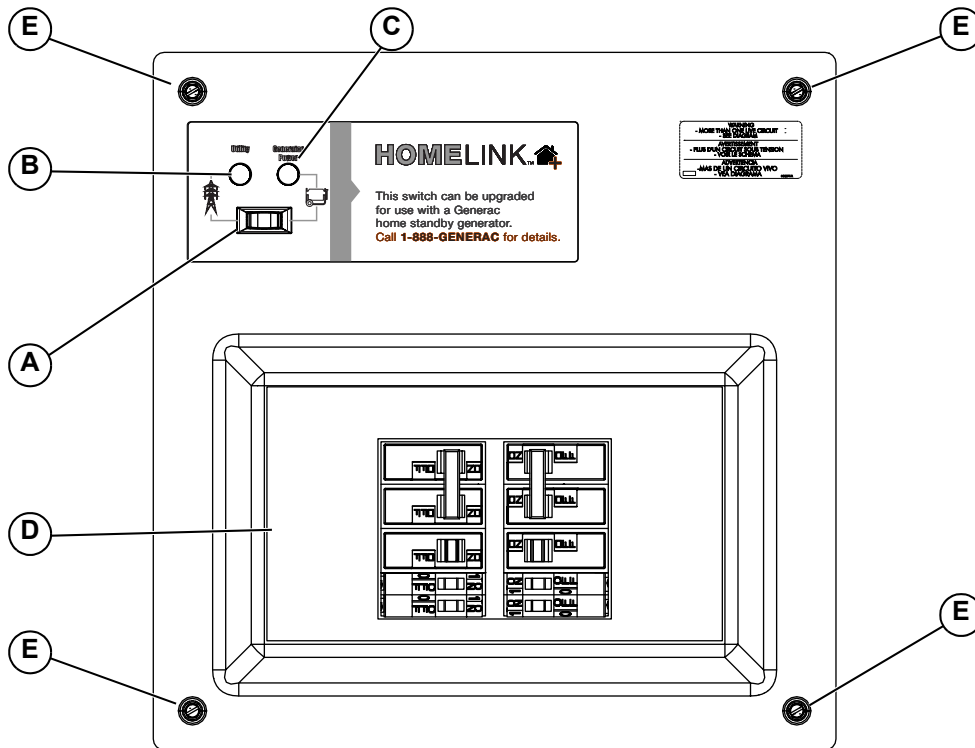
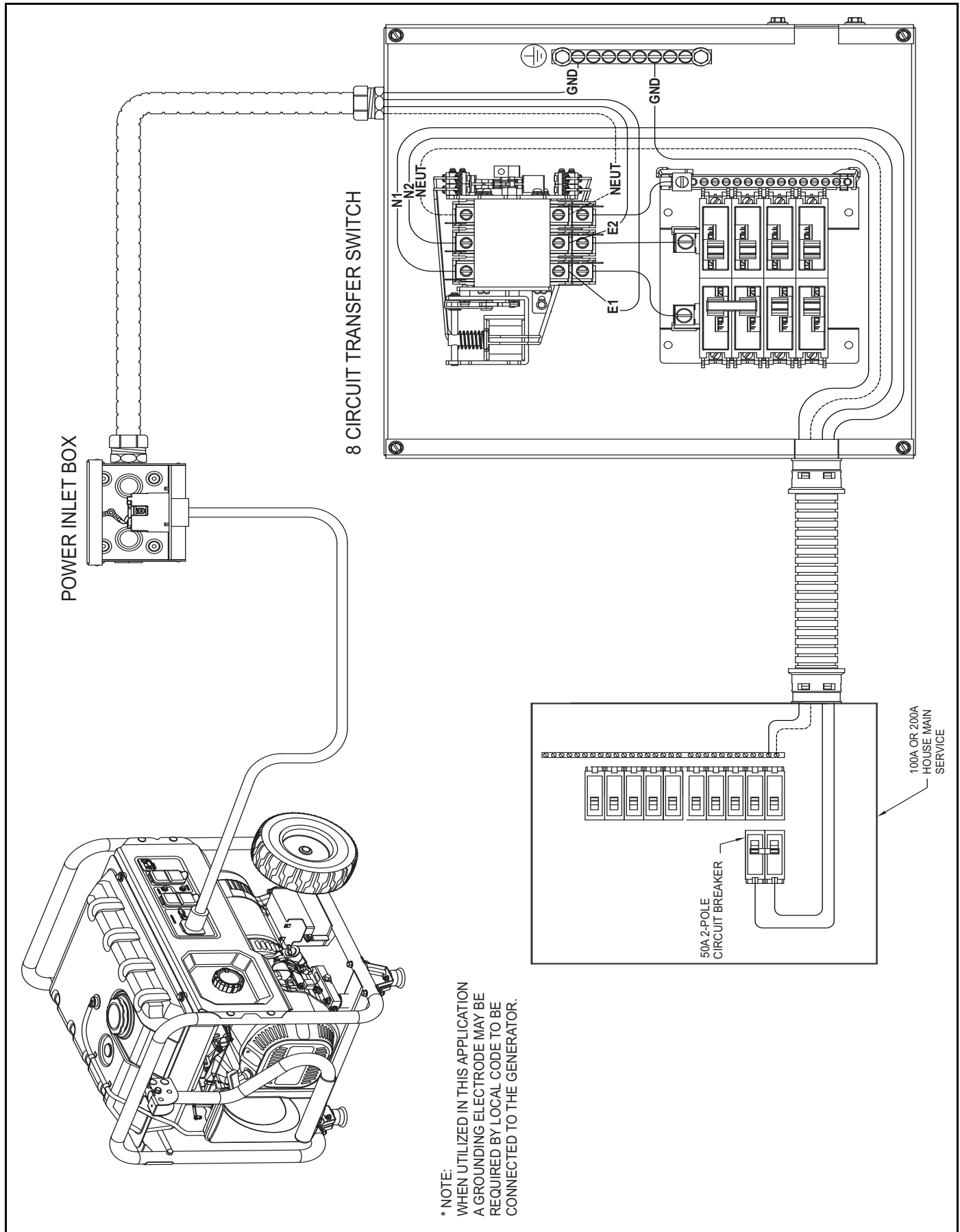


Figure 4-1. Homelink Features

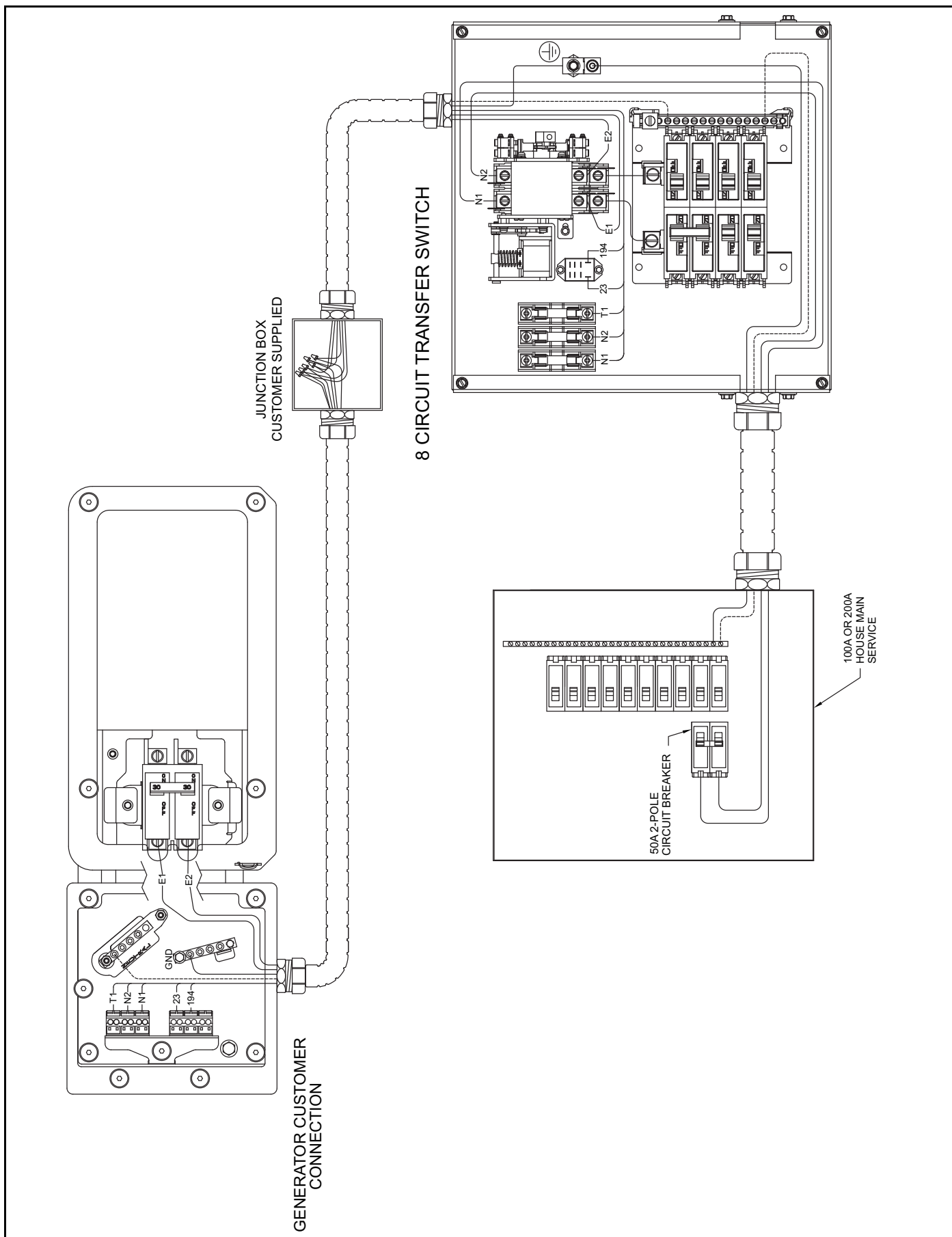
A.	Rocker Switch (Utility or Generator selector)
B.	Utility Light (loads are on generator, but utility is available)
C.	Generator Power Light (generator is on)
D.	Circuit Breakers
E.	Screws

Interconnection Drawing No. 0K8845-A (Manual Transfer Connections)



* NOTE:
 WHEN UTILIZED IN THIS APPLICATION
 A GROUNDING ELECTRODE MAY BE
 REQUIRED BY LOCAL CODE TO BE
 CONNECTED TO THE GENERATOR.

Interconnection Drawing No. 0K8844-C (Automatic Transfer Connections)



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Generac Power Systems, Inc.
S45 W29290 Hwy. 59
Waukesha, WI 53189
1-888-GENERAC (1-888-436-3722)
www.generac.com