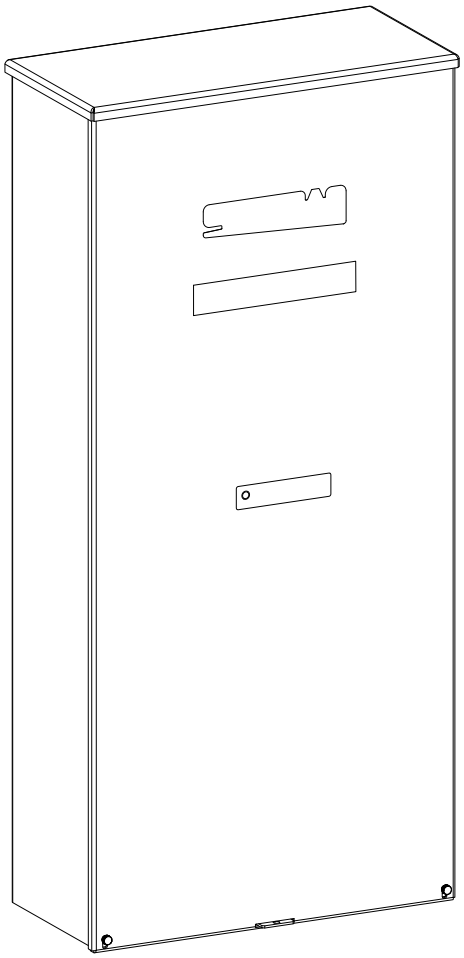
Owner's Manual

Automatic Transfer Switch

300-400 Amp, Service Entrance with Surge Protection Device (SPD)



Register your Generac product at:
WWW.REGISTER.GENERAC.COM
1–888–9ACTIVATE
(1–888–922–8482)

SAVE THIS MANUAL FOR FUTURE REFERENCE

Model:	
Serial:	
Date Purchased:	

Model Number

G0099780 - 300A Service Entrance

G0099790 - 400A Service Entrance

⚠ CALIFORNIA WARNING

This product can expose you to chemicals including cadmium, a carcinogen and reproductive toxicant, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to: www.p65warnings.ca.gov

(P000810)

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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. This transfer switch is listed with ETL under the UL1008 standard.

Read This Manual Thoroughly



⚠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.

(W000100)

If any section of this manual is not understood, contact the nearest Independent Authorized Service Dealer (IASD) or Generac Customer Service at 1-888-436-3722 (1-888-GENERAC), or visit ***www. generac. com*** for starting, operating, and servicing procedures. The owner is responsible for proper maintenance and safe use of the unit.

SAVE THESE INSTRUCTIONS for future reference. This manual contains important instructions that must be followed during placement, operation, and maintenance of the unit and its components. Always supply this manual to any individual that will use this unit, and instruct them on how to correctly start, operate, and stop the unit in case of emergency.

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 alerts in this manual, and on tags and decals affixed to the unit, are 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 and does not render the equipment unsafe.

Throughout this publication, and on tags and decals affixed to the unit, 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. Alert definitions are as follows:

⚠DANGER

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

(D000001)

⚠WARNING

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

(W000002)

⚠CAUTION

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

(C000003)

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.

Electrical Hazards



⚠DANGER

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

(D000129)



⚠DANGER

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

(D000104)



⚠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.

(D000145)



⚠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.

(D000237)



⚠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.

(D000195)



⚠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.

(D000123)



⚠DANGER

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

(D000157)

⚠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.

(D000191)

⚠DANGER

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

(D000119)

⚠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.

(W000155)



⚠WARNING

Electrocution. Refer to NFPA 70E for PPE and safety equipment before work.

(W000221)

⚠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.

(C000120)

⚠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.

(C000121)

⚠CAUTION

Equipment damage. Verify that voltage and current are within specification before energizing this equipment. Exceeding rated voltage and current will damage the auxiliary contacts.

(C000134)

General Hazards



⚠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.

(D000237)



⚠DANGER

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

(D000129)



⚠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.

(D000123)



⚠DANGER

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

(D000104)



⚠DANGER

Electrocution. Do not wear jewelry while working on this equipment. Doing so will result in death or serious injury.

(D000188)



⚠DANGER

Electrocution. Only authorized personnel should access transfer switch interior. Transfer switch doors should be kept closed and locked. Failure to do so will result in death or serious injury.

(D000213)

⚠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.

(D000191)



⚠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.

(W000209)



⚠WARNING

Hearing loss. Hearing protection is recommended when transferring load. Failure to wear hearing protection could result in permanent hearing loss.

(W000766)

- Competent, qualified personnel should install, operate and service this equipment. Adhere strictly to local, state and national electrical and building codes. When using this equipment, comply with regulations established by the National Electrical Code (NEC), CSA Standard; the Occupational Safety and Health Administration (OSHA), or the local agency for workplace health and safety.
- If working on this equipment while standing on metal or concrete, place insulative mats over a dry wood platform. Work on this equipment only while standing on such insulative mats.
- Never work on this equipment while physically or mentally fatigued.
- Any voltage measurements should be performed with a meter that meets UL3111 safety standards, and meets or exceeds overvoltage class CAT III.

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Section 2: General Information

Introduction

Thank you for purchasing a Generac transfer switch. This manual has been prepared especially for the purpose of familiarizing personnel with the design, application, installation, operation and servicing of the applicable equipment. Read this manual carefully and comply with all instructions. This will help to prevent accidents or damage to equipment that might otherwise be caused by carelessness, incorrect application, or improper procedures.

Every effort has been expended to make sure that the contents of this manual are both accurate and current. The manufacturer, however, reserves the right to change, alter or otherwise improve the product or manual at any time without prior notice.

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.

Non–Generac Parts and Equipment

Generac products obtain listings and certifications through an evaluation of the original design and configuration of the product. Any modification to this product, including the incorporation of non-Generac parts or equipment, may void this product's listing or certification. Damage or failures caused by any modification to the product are not covered by the product's warranty. See limited warranty for more information.

Contents in Loose Parts Bag

- Owner's manual
- Warranty statement
- Fault current label

Equipment Description

This automatic transfer switch is used for transferring electrical load from a utility (normal) power source to a generator (standby) power source. Transfer of electrical loads occurs automatically when the utility power source has failed or is substantially reduced and the generator source voltage and frequency have reached an acceptable level. 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, utility service disconnect circuit breaker, and a fused control module (FCM) incorporating fuses and terminal blocks for transfer switch connections.

Transfer Switch Mechanism

See ***Figure 2-1***. These switches are used with a single-phase system, when the single-phase NEUTRAL line is to be connected to a neutral lug and is not to be switched.

Solderless, screw-type terminal lugs are standard.

The conductor size range is as follows:

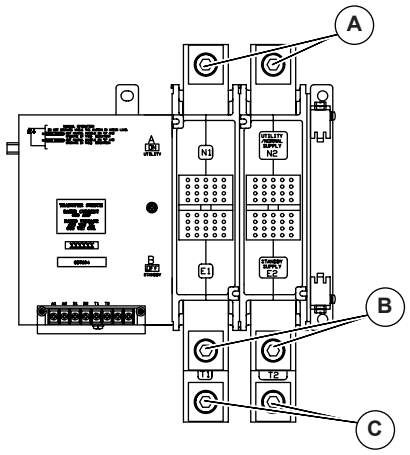
Switch Rating	Wire Range	Conductor Torque Specification
300A 400A	(1) #4-600 MCM (Cu/Al) or (2) 1/0-250 MCM (Cu/Al)	375 **in-lbs**(42.4 Nm)

The transfer switch load side lugs are listed for 1 to 2 conductors. When supplying 1 to 2 downstream panels from the transfer switch main breaker, the downstream panels conductors must be sized correctly to match the downstream panels main breaker.

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% of the switch rating.

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

This transfer switch is suitable for use on a circuit capable of 22,000 rms symmetrical amperes, 240 VAC maximum.



000218

Figure 2-1. Typical Single-Phase ATS Transfer Mechanism

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

Utility Service Circuit Breaker

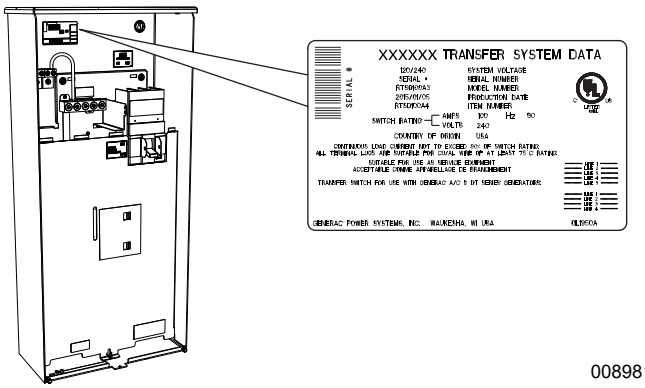
The utility service circuit breaker is:

Generac, 300/400AF

- 120/240VAC, 300/400A
- 50/60 Hertz
- Wire range: (1) #4-600 MCM or (2) 1/0-250 MCM (Cu/Al)
- The conductor torque specification is 375 in-lbs. (42.4 Nm).

Transfer Switch Data Decal

See ***Figure 2-2***. 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.



008981

Figure 2-2. Data Decal Location

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

For future reference, record the serial number in the space provided on the front cover of this manual.

Transfer Switch Enclosure

The standard switch enclosure is a National Electrical Manufacturers Association (NEMA) and UL 3R type. UL and NEMA 3R (indoor/outdoor rated) type enclosures primarily provide a degree of protection against falling rain and sleet; are undamaged by the formation of ice on the enclosure.

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.

(W000100)

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 which outline the safe use of transfer switches are the following:

- NFPA 70 – National Electrical Code
- NFPA 70E – STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE

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

Load Management Options

Optional Load management systems are designed to work with the automatic transfer switch to prevent a generator from being overloaded by large appliance loads. Contact the nearest IASD for more information to determine if a load management device is required for your system configuration.

Surge Protection Device

Equipment Description

The included Surge Protection Device (SPD) is designed to be installed on service entrance, branch panels, and/or individual equipment disconnects, and functions to protect sensitive electronic equipment from damaging

voltage transients. The connecting wires do not carry supply current. Instead, they carry only short-duration currents associated with a transient event.

Contact an IASD for information regarding a particular application or installation not covered in this manual.

NOTE: SPD is only included in specific models.

Specifications

Description	Rating
Surge Current Capacity Per Phase	50 kA
Nominal Discharge Current (In)	20 kA
Short Circuit Current Rating (SCCR)	200 kA
SPD Type	Rated Type 1 or Type 2
System Voltages Available: • Single Split-phase	120/240 VAC
Protection Modes: • Single Split-phase	L-N, L-L
Maximum Continuous Operating Voltage (MCOV)	150 L-N, 300 L-L
Input Power Frequency	50/60 Hz
Enclosure Rating	NEMA 4
Operating Temperature	-4°F through 122 °F (-40 °C through 70 °C)
Operating Humidity	5% through 95%, non-condensing
Operating Altitude	Up to 16,000 ft (5,000 m)
Agency Certification and Approvals	ETL per UL1449 5th Edition
Listed Device Warranty	Refer to Generac Residential Whole House Surge Protector Warranty Statement

Auxiliary Contact

⚠CAUTION

Equipment damage. Verify that voltage and current are within specification before energizing this equipment. Exceeding rated voltage and current will damage the auxiliary contacts.

(C000134)

An optional, purchased separately, auxiliary contact kit G0099860 is designed to work with the automatic transfer switch to lock out a single large electrical load from generator operation. If home is equipped with electrical heat or multiple central air conditioning units, this device allows the automatic transfer switch to interrupt the control wire, breaking the signal needed for appliance to turn on.

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Section 3: Installation

Introduction

This equipment has been wired and tested at the factory. Installing the switch includes the following procedures:

- Mounting the enclosure.
- Connecting power source and load leads.
- Connecting the generator start and sensing circuit.
- Manually operating switch to set operator toggle.
- Testing functions.

Mounting

⚠DANGER

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

(D000119)

⚠CAUTION

Equipment Damage. Mount transfer switch to a strong, stable surface. Never mount to drywall, plaster, or other non-structural wall treatments.Failure to mount transfer switch to a strong, stable surface could result in equipment or property damage.

(C000814)

Mounting dimensions for the transfer switch enclosure are in this manual. Enclosures are typically wall-mounted. See ***Drawings and Diagrams***.

This transfer switch is mounted in a UL type 3R enclosure, which can be mounted outdoors or indoors and should be based on the layout of installation, convenience, and proximity to the utility supply and load center.

- Install the transfer switch as close as possible to the electrical loads which will be connected to it.
- Transfer switch must be mounted upright on a vertical rigid supporting structure to maintain UL type 3R rating.

If local Authority Having Jurisdiction (AHJ) requires a Remote Generator Emergency Shutdown switch, a kit is available from Generac to add this feature.

Generac Service Rated Transfer Switches (SE) are listed and labeled as "Suitable for use as service equipment." Generac SE rated Transfer Switches can be installed either as service equipment or not as service equipment. Installation must comply with the applicable requirements in NEC.

- Where a Generac service-rated ATS is installed downstream of the utility metering equipment that does not contain a service disconnecting means, the ATS shall be installed as the service equipment in accordance with the requirements in NEC Article 230.
- Where a Generac service-rated ATS is not being installed as service equipment, the factory installed main bonding jumper shall be removed, and the ATS shall be installed not as service equipment and must comply with all applicable requirements of NEC Article 230 and 250.

Open Enclosure

1. See ***Figure 3-1***. Remove outer cover (A):
   - **a.** Remove thumb screw (B).
   - **b.** Slide slot (C) over retention tab.
   - **c.** Lower cover until clear of top flange (D), and pull away from enclosure.
2. Remove inner panel (E):
   - **a.** Loosen nut (F) until it clears t-slot (H) in inner panel.
   - **b.** Grasp inner panel at two cutouts (G-left and right). Tilt inner panel as shown, passing nut through t-slot.
   - **c.** Lower inner panel until clear of two retention slots (J-left and right sides), and pull away from enclosure.

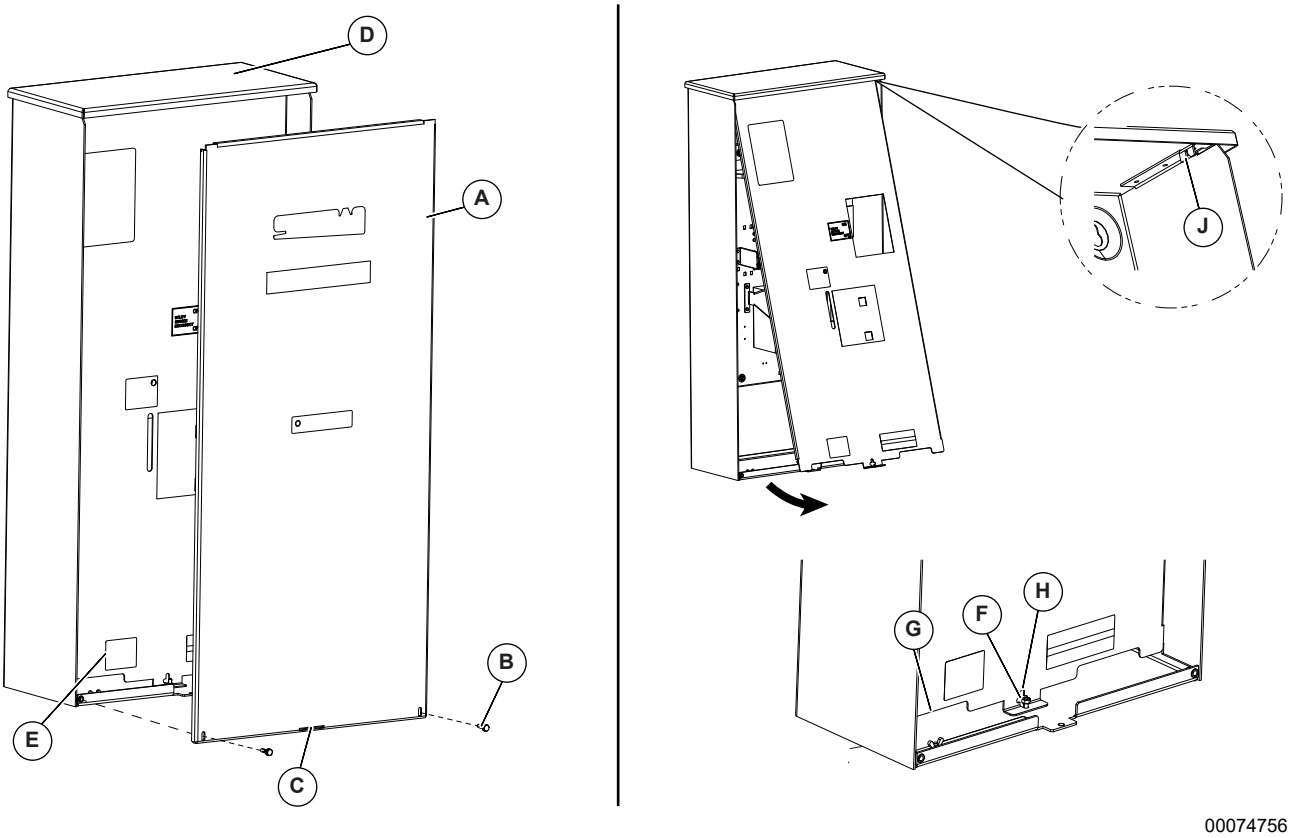


Figure 3-1. Open Enclosure

Connecting Power Source and Generator Power Supply

⚠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.

(D000116)

⚠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.

(C000120)

Installation and interconnection diagrams are provided in 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.

1. Connect utility supply at the utility service disconnect circuit breaker terminals N1 and N2. Follow torque specifications listed on the circuit breaker.
2. See ***Figure 3-2***. Connect utility neutral and ground to Neutral and Ground terminals. Neutral and Ground terminals are bonded to each other with a jumper wire (A).
3. Connect generator to the generator terminals (E1 and E2) on the transfer mechanism.
4. Connect the generator neutral wire to neutral lug.

   IMPORTANT NOTE: A jumper wire (A) bonds the ground neutral lug.
5. Connect a subpanel supply to lower T1 and T2 Terminals. Connect subpanel Neutral and Ground to Neutral and Ground bars.

All conductors must have the ampacity and size needed to supply the loads being served. The terminal ratings for these transfer switches permit the ampacity and size of suitable conductors to be based on 75° C in accordance with NEC standards.

Knockouts into the transfer switch can be made in the field as needed for entry of power cables and conduit. Conduit entry shall maintain the proper wire bending spaces required by Tables 312.6 (A) and (B) in the NEC. Conduits should be arranged to provide separation between the Utility and Generator supply conductors inside the enclosure.

For transfer switches installed in wet locations, power cables or conduits entering above the level of uninsulated

live parts shall use fittings listed for use in wet locations as required by 312.2 in the NEC.

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

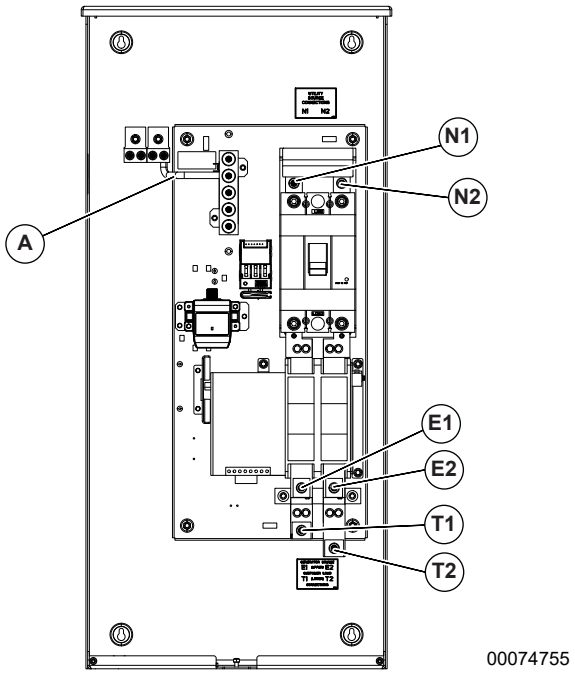


Figure 3-2. Wiring Connections (Service Entrance Rated Models)

Tighten terminal lugs to the torque values as noted on the decal located on the inside of the door. After tightening terminal lugs, carefully wipe away any excess corrosion inhibitor.

Generator Control Wiring and Connections

See ***Figure 3-3***. Control circuit interconnections consist of 0, 194, 23, 00, T1, N1, and N2.

NOTE: Power and Control Tray Cable, Type TC-ER-JP, is permitted to be installed in accordance with the NEC. Some TC-ER-JP cable manufacturers produce cables which are color-coded to Generac's standards.

The generator control circuit wiring is classified in the 2026 NEC as "Non-Power-Limited Remote-Control and Signaling Circuits." All generator control circuit conductors and installation must comply with the applicable sections of the NEC.

NOTE: ALL conductors for Main AC and Control circuit wiring must be rated for 300V (minimum).

Reference instruction manual of specific engine generator for wiring connection details. Screw heads are straight bladed and cross-bladed, and should be tightened to 3.5 in-lb (0.4 Nm).

Recommended wire gauge sizes depend on wire length as specified in the following chart. Consult factory if you are operating more than one transfer switch and fuse control module (FCM).

Recommended Wire Size	Maximum Wire Length (One transfer switch and load shed module)
No. 18 AWG	1–115 ft (0.3–35 m)
No. 16 AWG	116–185 ft (36–56 m)
No. 14 AWG	186–295 ft (57–89 m)
No. 12 AWG	296–460 ft (90–140 m)

Exception: Non-power-limited remote-control and signaling circuit conductors rated 1000 volts AC, 1500 volts DC, nominal or less, and power-supply circuits are permitted to occupy the same cable, enclosure, or raceway without a barrier if all conductors have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway, and the equipment powered is functionally associated.

Customer Wiring Connections Integrated Fused Control Module (FCM)	
Terminal Numbering Decal	**Wire Numbers**
BLACK	0—DC (-) **Not required**
RED	194—DC (+) 12 VDC for transfer controls
WHITE	23—Transfer control signal wire
WHITE AND BLACK	00–Dedicated T1 Neutral
BLUE*	T1—Fused 120 VAC for battery charger
YELLOW	N1—Fused 240 VAC Sensing for utility dropout and pickup
YELLOW WITH BLACK STRIPE	N2—Fused 240 VAC Sensing for utility dropout and pickup
** Required to supply utility or generator voltage to the generator battery charger.*	

Typical Fuse Control Module (FCM) Connections

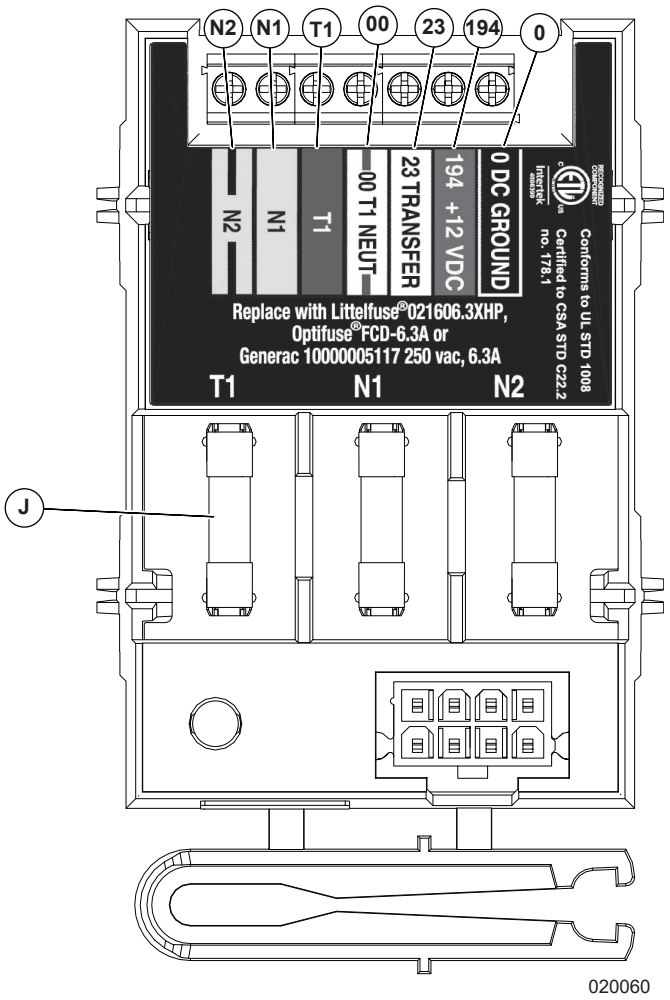


Figure 3-3. Typical Fuse Control Module Connections

0 DC
Ground

194
+ 12 VDC

23
Transfer Control

00
Dedicated T1 Neutral

T1 (fused)
Battery Charge

N1 (fused)
Utility Sense

N2 (fused)
Utility Sense

J
240 VAC, 6.3A Fuses

Fault Current Label

See ***Figure 3-4***. A Fault Current Identification Label is provided in the bag containing the unit Owner's Manual and transfer switch manual operating handle. NEC requires that the short-circuit current rating of the transfer equipment, based on the type of overcurrent protective device protecting the transfer equipment, be field marked on the exterior of the transfer equipment. For NEC compliance, verify the required short-circuit current rating of the transfer switch before installation. The completed label provides the local AHJ (Authority Having Jurisdiction) with the information he or she may require during inspection.

Apply the label to the exterior of the transfer switch enclosure. Use a pen to fill in the required information, and then cover the label with the clear protective decal.

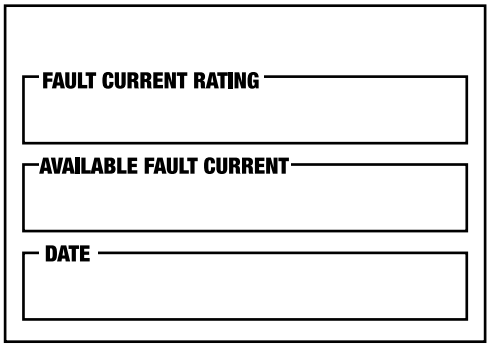


Figure 3-4. Fault Current Label

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Section 4: Operation

Functional Tests and Adjustments



⚠WARNING

Electrocution. Refer to NFPA 70E for PPE and safety equipment before work.

(W000221)

⚠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.

(C000121)

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.

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.

(D000132)

⚠CAUTION

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

(C000122)

See ***Figure 4-1***. A manual handle (A) is shipped with the transfer switch. Manual operation must be checked BEFORE the transfer switch is operated electrically.

Proceed as follows to check manual operation:

1. Verify generator is OFF.
2. Turn OFF (OPEN) both UTILITY and EMERGENCY power supplies to the transfer switch, with whatever means provided (such as the main line circuit breakers).
3. Note position of transfer mechanism main contacts (C, D) by observing display windows in “A” and “B” as follows:
   - Window “A” ON, Window “B” OFF — LOAD terminals (T1, T2) are connected to utility terminals (N1, N2).
   - Window “A” OFF, Window “B” ON — LOAD terminals (T1, T2) are connected to emergency terminals (E1, E2).

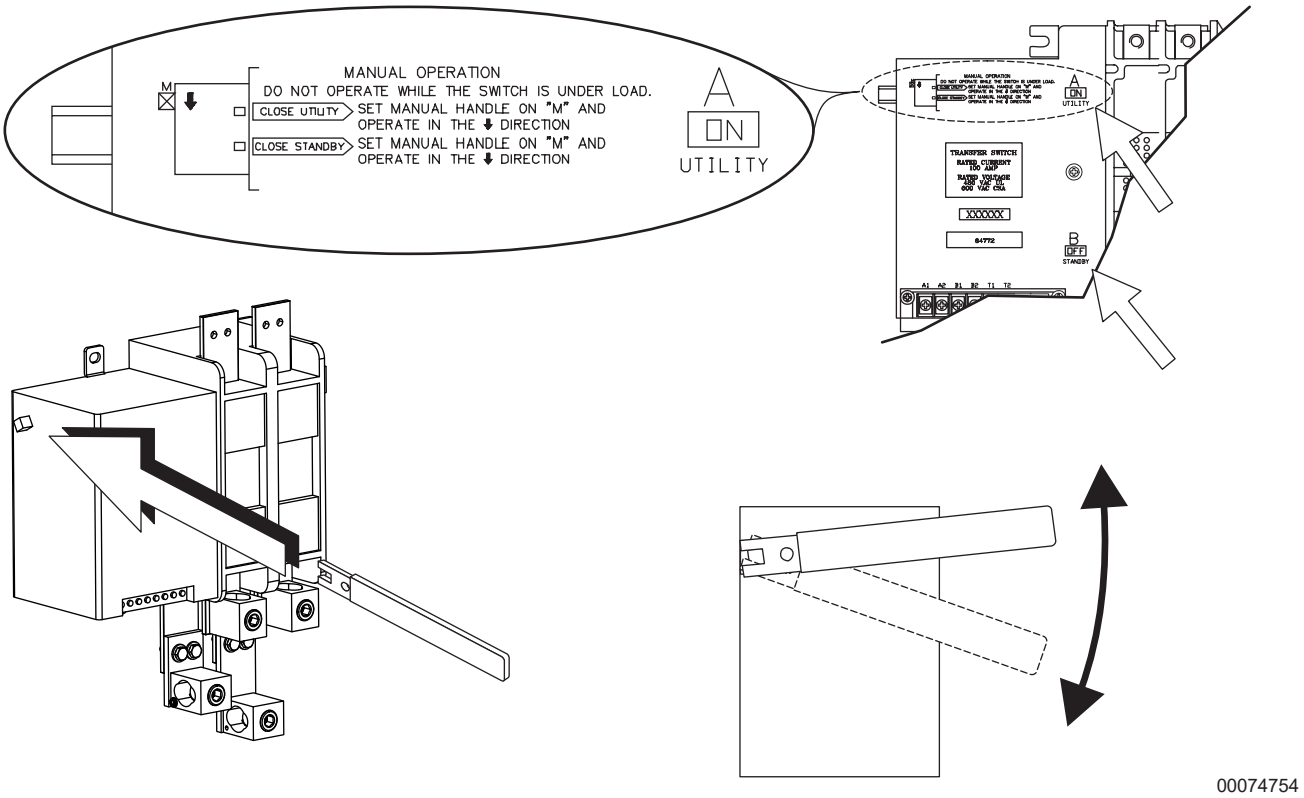


Figure 4-1. Actuating Transfer Switch

Close to Normal Source Side

See ***Figure 4-1***. Before proceeding, verify the position of the switch by observing Window “A.” If Window “A” reads “ON,” the contacts are closed in the normal position; no further action is required. If it reads “OFF,” proceed as follows:

- Attach handle (A) to actuating shaft (B). Move handle in the direction of the arrow on the switch cover until it stops — DO NOT FORCE. Release handle slowly to allow the spring in the switch box to relax. “ON” now appears in Window “A” and “OFF” appears in Window “B.”

Close to Standby Source Side

See ***Figure 4-1***. Before proceeding, verify the position of the switch by observing Window “B.” If Window “B” reads “ON,” the contacts are closed in the EMERGENCY (STANDBY) position; no further action is required. If it reads “OFF,” proceed as follows:

- Attach handle (A) to actuating shaft (B). Move the handle in the direction of the arrow on the switch cover until it stops — DO NOT FORCE. Release handle slowly to allow the spring in the switch box to relax. “OFF” now appears in Window “A” and “ON” appears in Window “B.”

Return to Normal Source Side

Manually actuate switch to return Window “A” to the “ON” position.

Voltage Checks

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. See DMM manufacturer’s literature for additional information.

Utility Voltage Checks

⚠DANGER

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

(D000129)

⚠WARNING

Electrocution. Refer to NFPA 70E for PPE and safety equipment before work.

(W000221)

1. Turn ON the utility power supply to the transfer switch using the utility service disconnect circuit breaker.
2. With an accurate AC voltmeter, check for correct voltage. Measure across ATS terminal lugs N1 and N2; N1 to NEUTRAL and N2 to NEUTRAL.

Generator Voltage Checks



⚠DANGER

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

(D000129)



⚠WARNING

Electrocution. Refer to NFPA 70E for PPE and safety equipment before work.

(W000221)

1. On the generator panel, select the MANUAL mode of operation. The generator should crank and start.
2. Let the generator stabilize and warm up at no-load for at least five minutes.
3. Set the generator's main circuit breaker (CB1) to its ON or CLOSED position.
4. With an accurate AC voltmeter and frequency meter, check the no-load, voltage and frequency. Measure across ATS terminal lugs E1 to E2; E1 to NEUTRAL and E2 to NEUTRAL.

Frequency	60–62 Hz
Terminals E1 to E2	240–246 VAC
Terminals E1 to NEUTRAL	120–123 VAC
Terminals E2 to NEUTRAL	120–123 VAC

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

Do NOT proceed until generator AC output voltage and frequency are correct and within stated limits. If the no-load voltage is correct but no-load frequency is incorrect, the engine governed speed may require adjustment. If no-load frequency is correct but voltage is not, the voltage regulator may require adjustment.

Generator Tests Under Load

NOTE: The following steps are applicable for Generac generators and Generac transfer switches.

1. Set the generator main circuit breaker to OFF (OPEN).
2. Set the utility service disconnect circuit breaker of the transfer switch to OFF (OPEN), and turn OFF (OPEN) all load circuit breakers.
3. See ***Figure 4-1***. Manually actuate the transfer switch main contacts to the emergency (STANDBY) position.
4. Select MANUAL mode to start generator. Allow engine to stabilize for a few minutes, and close lid (if applicable).
5. Set the generator main circuit breaker to ON (CLOSED). The generator now powers all LOAD circuits. Check generator operation under load as follows:
   - Turn on electrical loads to the full rated wattage/amperage capacity of the generator. DO NOT OVERLOAD.
   - 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 59 Hz.
   - Verify gas pressure remains within acceptable parameters. See generator's installation manual.
   - Allow the generator to run under rated load for at least 30 minutes. Observe for unusual noises, vibration, or overheating that might indicate a problem.
6. Set generator main circuit breaker to OFF (OPEN) when checkout under load is complete.
7. Allow generator to run at no-load for several minutes. Then shut down by selecting OFF.
8. Move main switch contacts to utility position.

   NOTE: See ***Manual Operation***. Handle and operating lever of transfer switch should be DOWN.
9. Set transfer switch utility service disconnect circuit breaker to ON (CLOSED).

The system is now set for fully automatic operation.

Checking Automatic Operation

NOTE: If automatic operation does not occur, contact a local Independent Authorized Service Dealer (IASD) to investigate, diagnose, and service the system to identify why automatic operation did not occur.

Proceed as follows to check system for proper automatic operation:

1. Verify generator is OFF.
2. Set transfer switch utility service disconnect circuit breaker to OFF (OPEN).
3. Verify switch is de-energized.
4. Install front cover of the transfer switch.
5. Set transfer switch utility service disconnect circuit breaker to ON (CLOSED).
6. Set generator main circuit breaker to ON.
7. Select AUTO on generator panel. The system is now ready for automatic operation.
8. Set transfer switch utility service disconnect circuit breaker to OFF (OPEN).

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

NOTE: Timer durations may differ between generators and settings.

With the generator running and loads powered by generator AC output, set the transfer switch utility service disconnect circuit breaker to ON (CLOSED). The following will occur:

- The switch will transfer loads back to the utility power source after approximately 15 seconds.
- The generator will shut down approximately one minute after transfer.

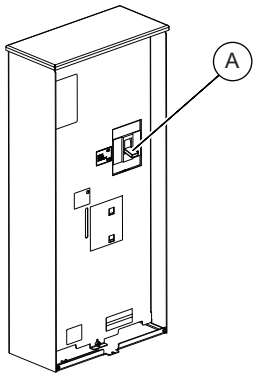
With the generator in the AUTOMATIC mode, the system is now set for fully automatic operation.

Surge Protection Device Operation

After transfer switch installation, a surge event, or a major weather event, check the SPD's LED for operation.

1. See ***Figure 4-2***. Apply system power. LED (A) should illuminate.

   NOTE: If connected LED does not illuminate, remove power, check connections, and test again. If LED still does not light, contact an IASD.



00074753

Figure 4-2. SPD LED Light

2. SPD will automatically begin to protect downstream electrical devices from damaging voltage transients.

With all phase voltages present, LED indicator reports the status of the protection elements and is active when all of them are intact and providing protection. Any loss of protection is signaled when LED turns OFF.

NOTE: The SPD itself is not repairable and contains no user serviceable parts. If SPD fails, as evidenced by unlit LED indicator, contact an IASD for a replacement.

IMPORTANT NOTE: Do NOT use the Suppression Circuit Status LEDs as an indication of the presence or absence of system phase voltages.

Installation Summary

1. Verify the installation has been properly performed as outlined by the manufacturer and that it 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 the end-user on the proper operation, maintenance and service call procedures.

NOTE: The Utility Power Circuit Breaker in the transfer switch must be turned OFF to simulate a utility outage. Shutting off the main disconnect in a subpanel connected to the transfer switch will NOT simulate an outage.

Shutting Generator Down While Under Load

IMPORTANT NOTE: To avoid equipment damage, follow these steps, in order, when shutting the generator down during utility outages. Shutdowns may be required during outages to perform routine maintenance or to conserve fuel.

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

1. Turn the main utility disconnect OFF.
2. Turn the generator MLCB to OFF (OPEN).

3. Allow the generator to run at least one minute to cool down.
4. Turn the generator OFF.

NOTE: If turning the unit off longer than 24 hours, see generator manual for procedures to disconnect the battery negative cable (–). This will prevent long term discharge of the battery.

To turn the generator back ON:

1. Put the generator into AUTO. Start generator and warm-up for a few minutes.
2. Set the MLCB on the generator to ON (CLOSED).

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.

Testing a Load Manager

Refer to the Load Manager Owner's or Installation Manual for the proper testing procedure.

FCM Fuse Service



⚠DANGER

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

(D000129)



⚠WARNING

Electrocution. Refer to NFPA 70E for PPE and safety equipment before work.

(W000221)

See ***Figure 4-3***. A fuse removal and installation tool (A) is included in the FCM housing.

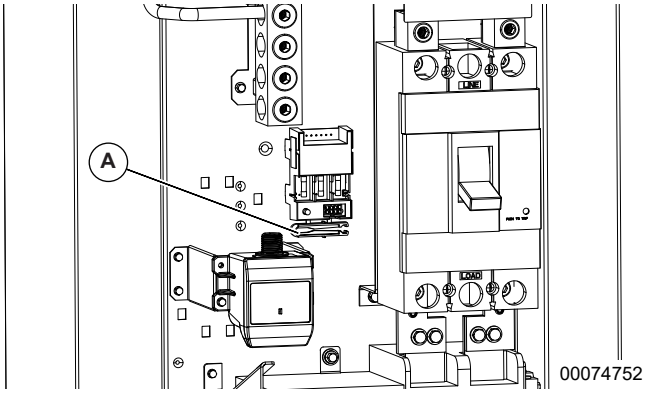


Figure 4-3. Fuse Removal and Installation Tool

If a fuse requires replacement, snap the tool free with an appropriate, electrically insulated tool, such as diagonal pliers, and use it to replace the fuse. Do NOT touch any part of the fuse with anything other than the included fuse removal and installation tool until the fuse is completely removed from the FCM. The tool can be stored in the FCM housing retainer directly above the fuses, with the large thumb tab facing out.

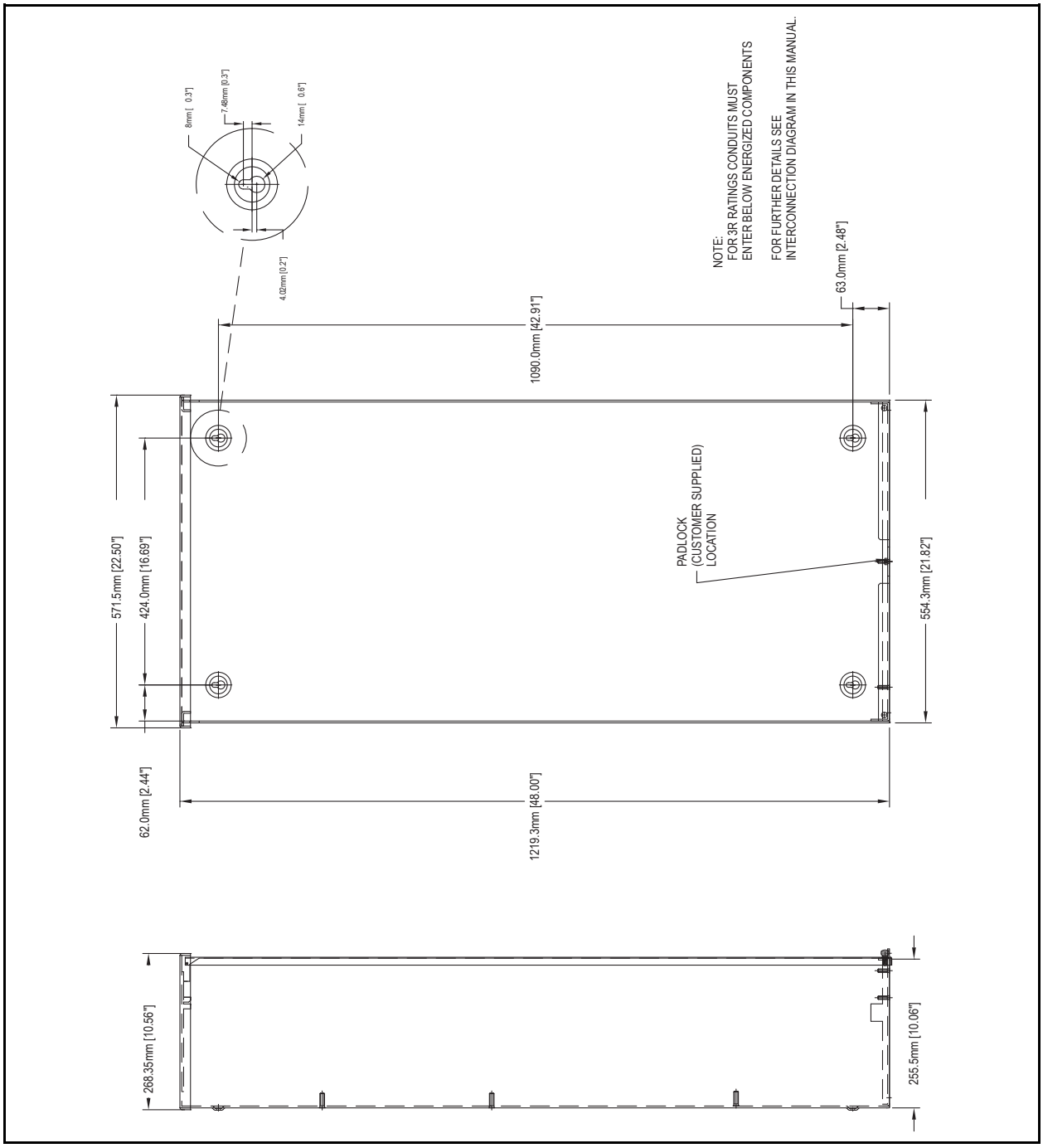
Use only Generac replacement fuses — part number 10000005117, rated 240 VAC, 6.3 Amps, 10,000 AIC.

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Section 5: Drawings and Diagrams

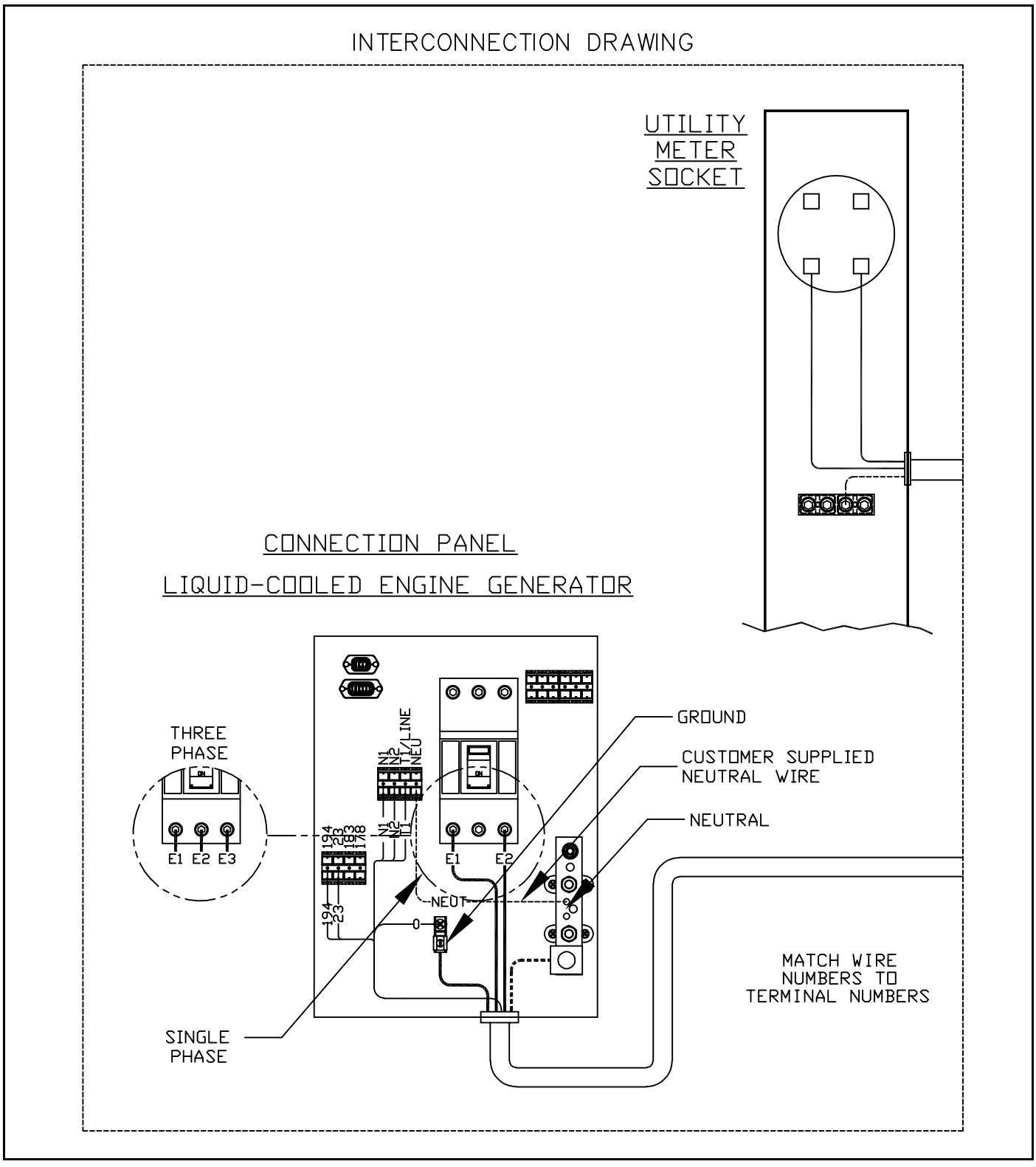
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No. 0K2438-A



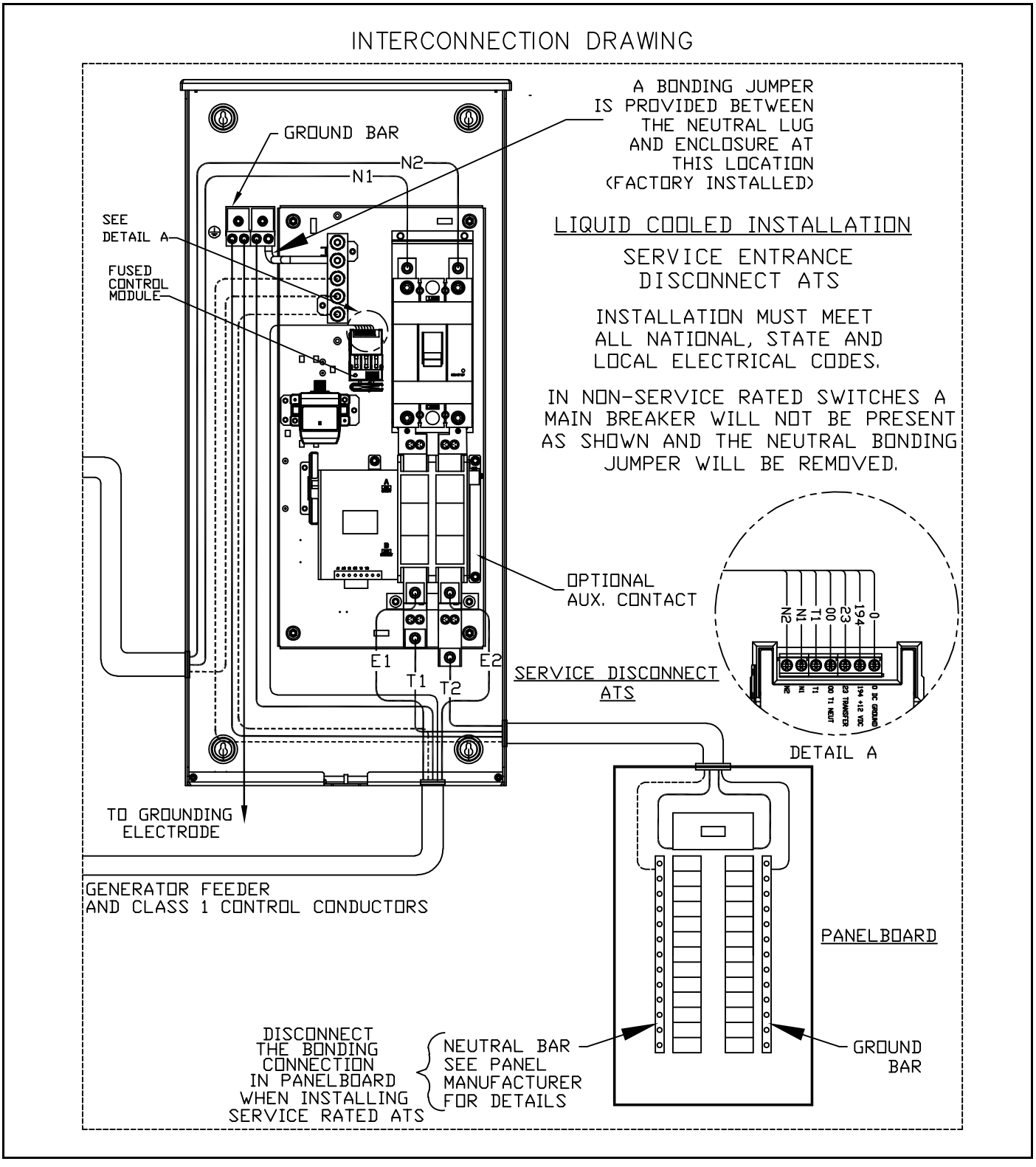
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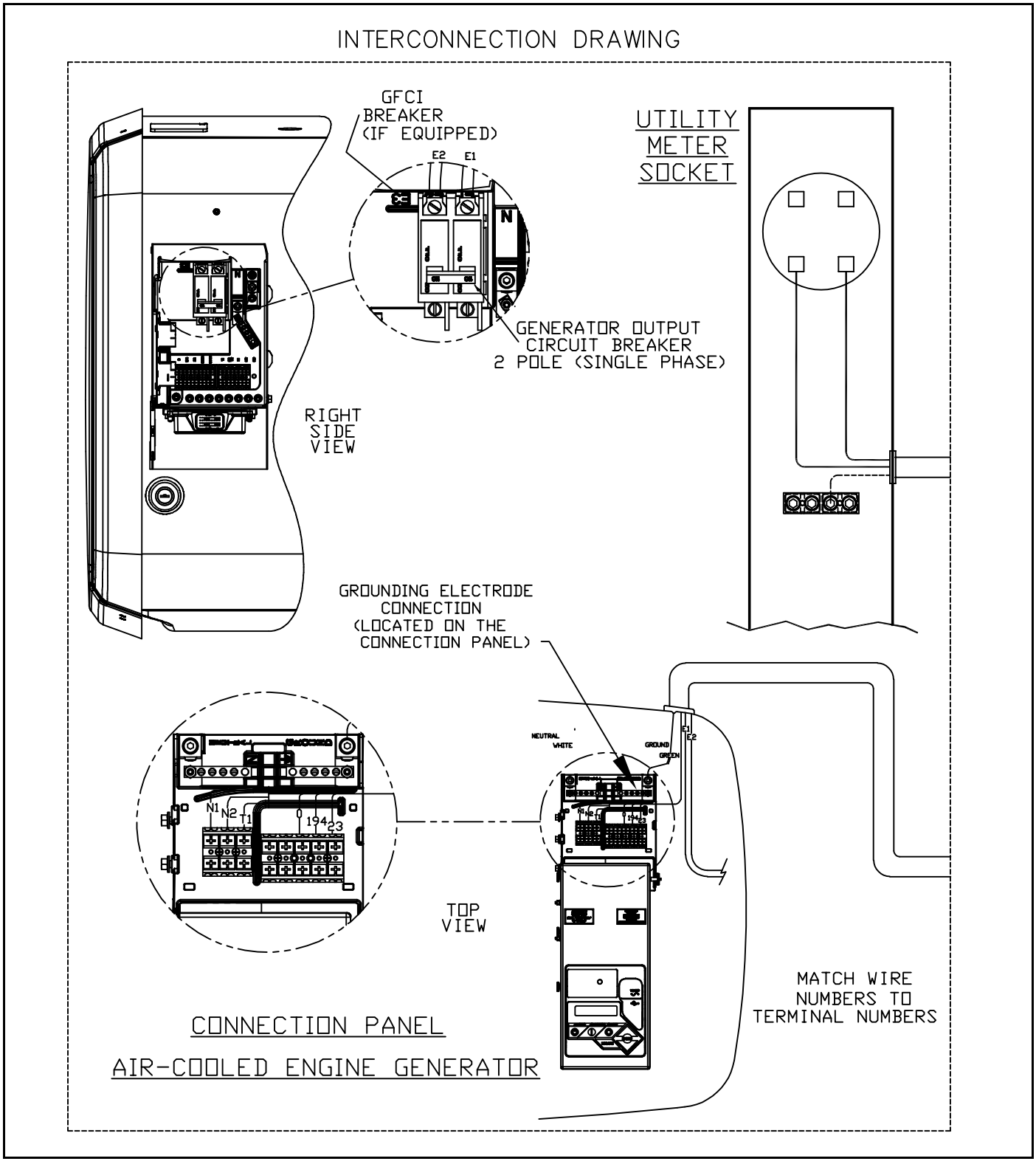
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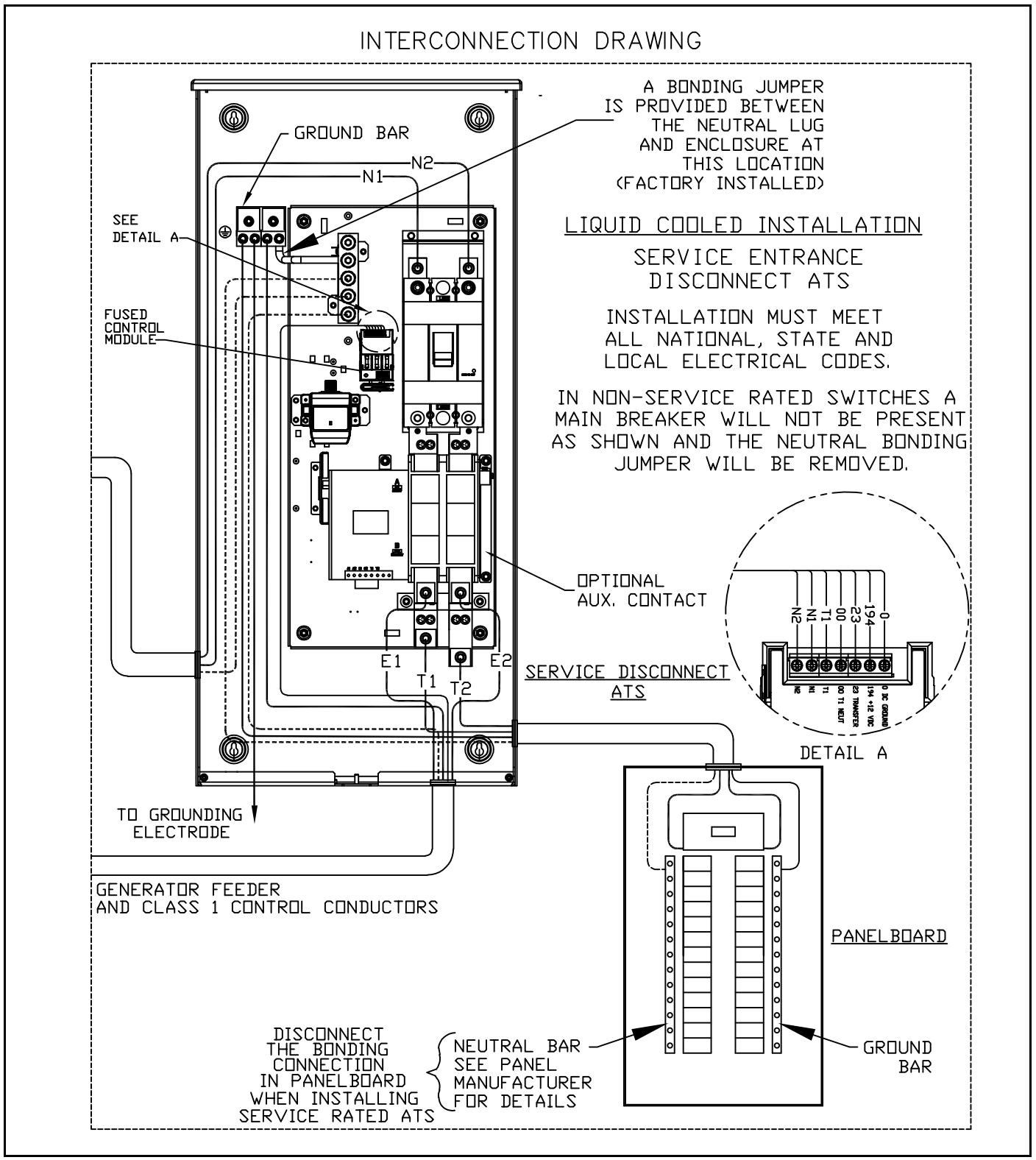
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Interconnection Drawing—300A-400A Service Entrance Rated

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