



# Installation Manual

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## Transfer Switch

RSS100 and RSS200

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# Safety Precautions

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This manual includes the following symbols to indicate potentially dangerous conditions. Read the manual carefully and know when these conditions exist. Then take the necessary steps to protect personnel and the equipment.

**⚠ DANGER** *This symbol warns of immediate hazards that will result in severe personal injury or death.*

**⚠ WARNING** *This symbol refers to a hazard or unsafe practice that can result in severe personal injury or death.*

**⚠ CAUTION** *This symbol refers to a hazard or unsafe practice that can result in personal injury or product or property damage.*

## ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

High voltage in transfer switch components presents serious shock hazards that can result in severe personal injury or death. Read and follow these instructions.

Keep the transfer switch cabinet cover secured with the provided mounting hardware. Only authorized personnel are allowed to access the inside of the cabinet.

Due to the serious shock hazard from high voltages within the cabinet, all service and adjustments to

the transfer switch must be performed only by a trained and experienced electrician or an authorized Cummins Onan service representative.

If the cabinet must be opened for any reason:

1. Disconnect the AC utility power from the transfer switch by opening the circuit breaker in the main panel that feeds the transfer switch.
2. Move the operation selector switch on the generator set to Stop/Off.
3. Disconnect the negative (–) cable from the generator set starting batteries.

## GENERAL PRECAUTIONS

Place rubber insulative mats or dry wood platforms over metal or concrete floors when working on any electrical equipment. Do not wear damp clothing (particularly wet shoes) or allow skin surfaces to be damp when handling any electrical equipment.

Jewelry is a good conductor of electricity and should be removed when working on the electrical equipment.

Wear safety glasses whenever servicing the transfer switch.

Do not smoke near the batteries.

Do not work on this equipment when mentally or physically fatigued, or after consuming alcohol or any drug.

### **⚠ WARNING**

**INCORRECT SERVICE OR REPLACEMENT OF PARTS CAN RESULT IN DEATH, SEVERE PERSONAL INJURY, AND/OR EQUIPMENT DAMAGE. SERVICE PERSONNEL MUST BE TRAINED AND EXPERIENCED TO PERFORM ELECTRICAL AND/OR MECHANICAL SERVICE.**

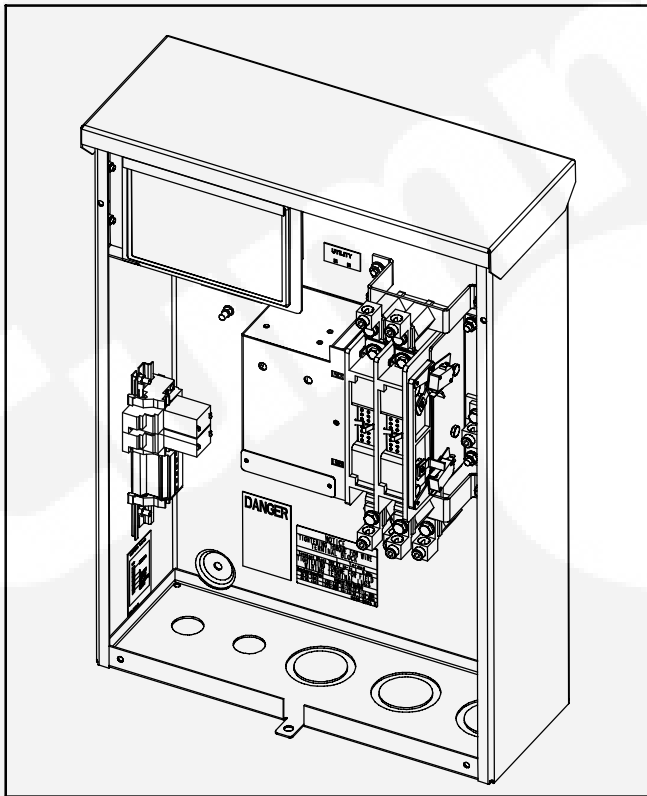


# 1. Introduction

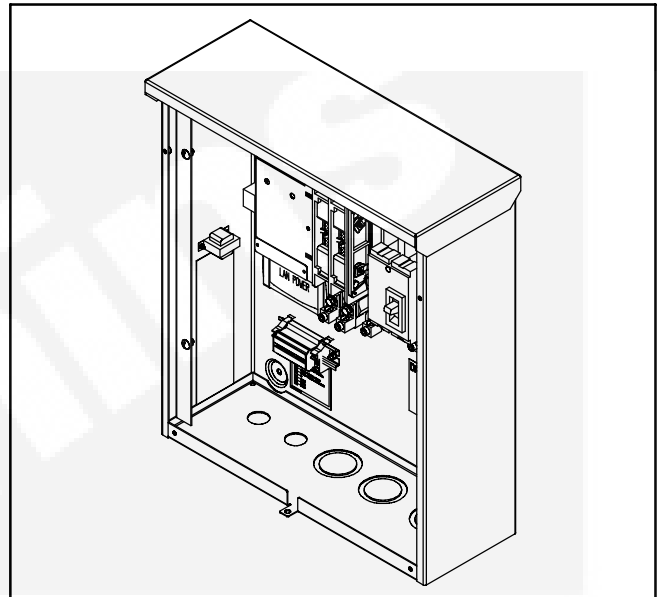
## ABOUT THIS MANUAL

This manual provides necessary information for the installation of an RSS transfer switch.

Figure 1-1 shows an RSS transfer switch with a controller. Figure 1-2 shows an RSS transfer switch without a controller (includes one circuit breaker). Refer to the schematic and wiring diagrams at the end of this manual for specific information about transfer switch configuration.



**FIGURE 1-1. RSS TRANSFER SWITCH WITH CONTROLLER (WITH DOOR PANEL REMOVED)**



**FIGURE 1-2. RSS TRANSFER SWITCH WITHOUT CONTROLLER**

Use normal and necessary safety precautions before starting any installation or service procedure. Identify all hazards by referring to the Safety Precautions portion of this manual and by observing all warnings and cautions within the manual. Whenever you are installing or troubleshooting, remember that the generator set, the transfer switch, and the utility power source are all interdependent.

## MODEL IDENTIFICATION

Identify your model by referring to the Model and Specification number as shown on the nameplate. The nameplate also includes electrical characteristics.

### Transfer Switches With a Controller

The nameplate for transfer switches with a controller is located inside the cabinet, on the upper right side (see Figure 1-3 for the RSS100 transfer switch and Figure 1-4 for the RSS200 transfer switch).

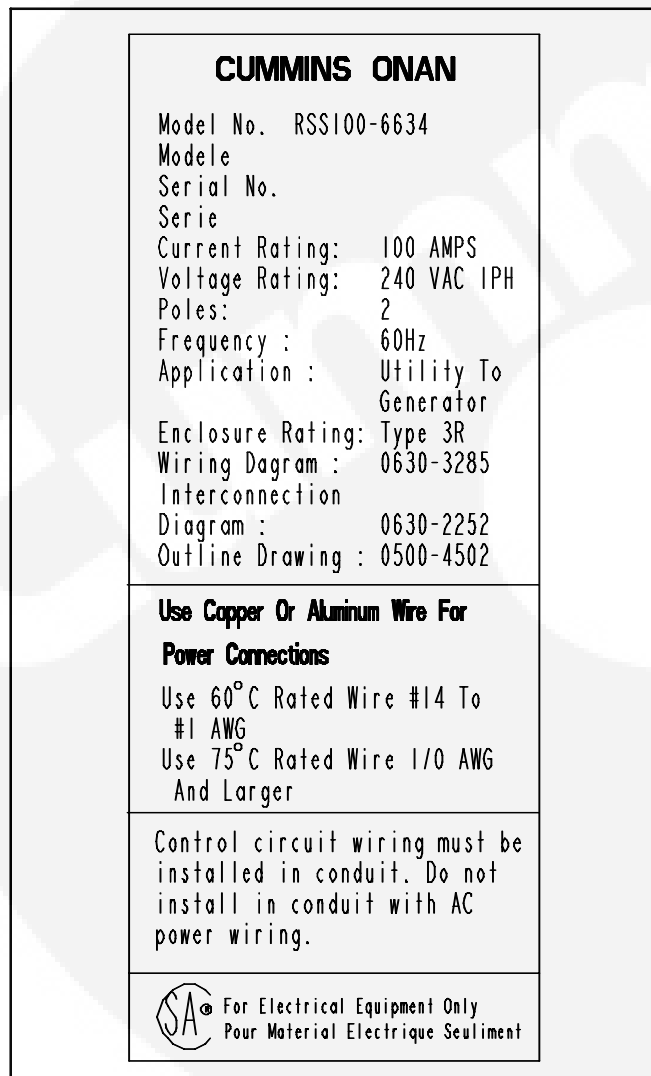


FIGURE 1-3. RSS100 WITH CONTROL DISPLAY NAMEPLATE

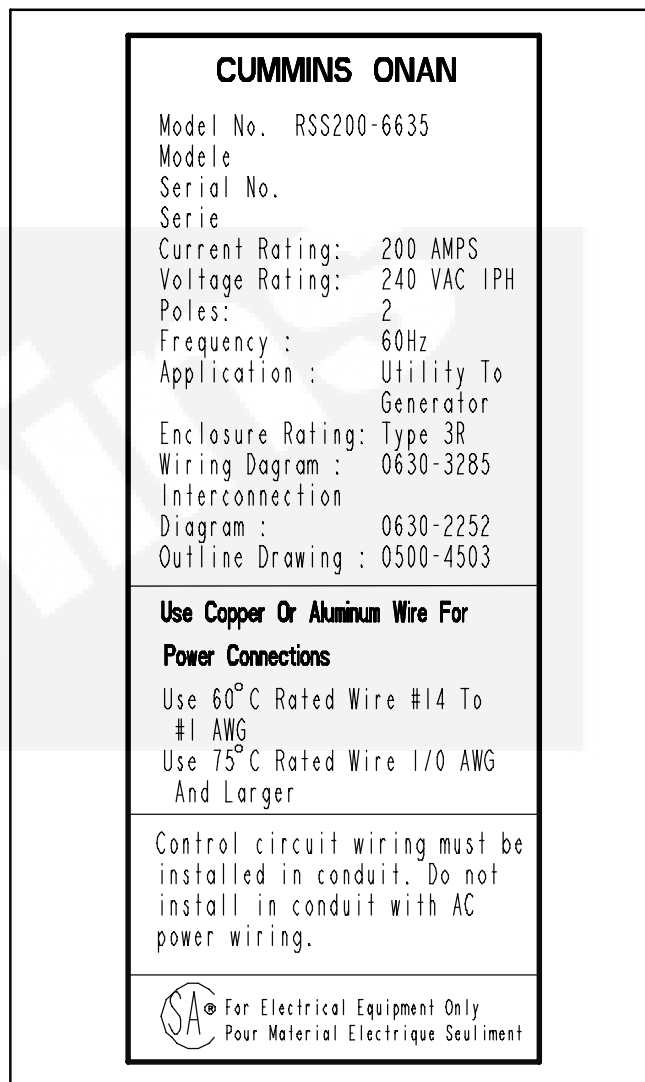


FIGURE 1-4. RSS200 WITH CONTROL DISPLAY NAMEPLATE

## Transfer Switches Without a Controller

The nameplate for transfer switches without a controller is located inside the cabinet, on the lower left side (see Figure 1-5 for the RSS100 transfer switch and Figure 1-6 for the RSS200 transfer switch).

<b>CUMMINS ONAN</b>	
Model No.	RSS100-6868
Model	
Serial No.	
Series	
Current Rating:	100 AMPS
Voltage Rating:	240 VAC 1PH
Poles:	2
Frequency :	60Hz
Application :	Utility To Generator
Enclosure Rating:	Type 3R
Wiring Diagram :	0630-3395
Interconnection	
Diagram :	0630-3518
Outline Drawing:	0500-4824
Suitable for use as service equipment - UTILITY source only. An additional disconnect must be readily available for the alternate source, unless the alternate source is an accessible generator and can be readily shut down.	
Use Copper Or Aluminum Wire For Power Connections	
Use 60°C Rated Wire #14 To #1 AWG	
Use 75°C Rated Wire 1/0 AWG And Larger	
Control circuit wiring must be installed in conduit. Do not install in conduit with AC power wiring.	
Suitable only for use with Cummins generator model GSAA.	
This transfer switch is rated for use on a circuit capable of delivering not more than 10,000 rms symmetrical amperes, 240 volts maximum.	
Continuous load current not to exceed 80 percent of switch rating.	

**FIGURE 1-5. RSS100 WITHOUT CONTROL DISPLAY NAMEPLATE**

<b>CUMMINS ONAN</b>	
Model No.	RSS200-6869
Model	
Serial No.	
Series	
Current Rating:	200 AMPS
Voltage Rating:	240 VAC 1PH
Poles:	2
Frequency :	60Hz
Application :	Utility To Generator
Enclosure Rating:	Type 3R
Wiring Diagram :	0630-3395
Interconnection	
Diagram :	0630-3518
Outline Drawing:	0500-4824
Suitable for use as service equipment - UTILITY source only. An additional disconnect must be readily available for the alternate source, unless the alternate source is an accessible generator and can be readily shut down.	
Use Copper Or Aluminum Wire For Power Connections	
Use 60°C Rated Wire #14 To #1 AWG	
Use 75°C Rated Wire 1/0 AWG And Larger	
Control circuit wiring must be installed in conduit. Do not install in conduit with AC power wiring.	
Suitable only for use with Cummins generator model GSAA.	
This transfer switch is rated for use on a circuit capable of delivering not more than 10,000 rms symmetrical amperes, 240 volts maximum.	
Continuous load current not to exceed 80 percent of switch rating.	

**FIGURE 1-6. RSS200 WITHOUT CONTROL DISPLAY NAMEPLATE**

## HOW TO OBTAIN SERVICE

When the transfer switch requires servicing, contact your nearest Cummins Power Generation distributor. Factory-trained Parts and Service representatives are ready to handle all your service needs.

To contact your local Cummins Power Generation (CPG) distributor in the United States or Canada, call 1-800-888-6626 (this automated service utilizes touch-tone phones only). By selecting Option 1 (press 1), you will be automatically connected to the distributor nearest you.

If you are unable to contact a distributor using the automated service, consult the Yellow Pages. Typically, our distributors are listed under:

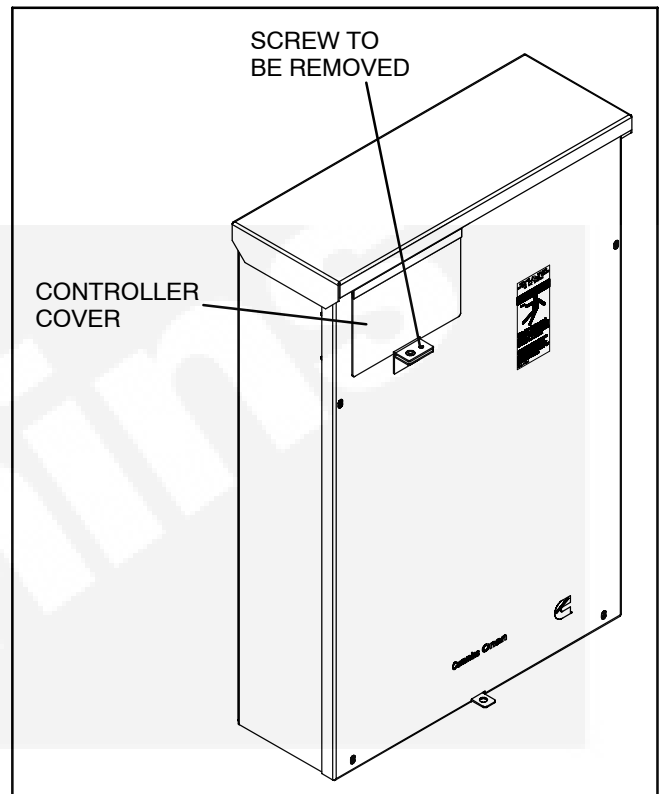
Generators-Electric,  
Engines-Gasoline or Engines-Diesel, or  
Recreational Vehicles-Equipment,  
Parts and Service.

If it is necessary to contact a distributor regarding the transfer switch, always give the complete Model and Serial number. This information is necessary to properly identify your unit among the many types manufactured.

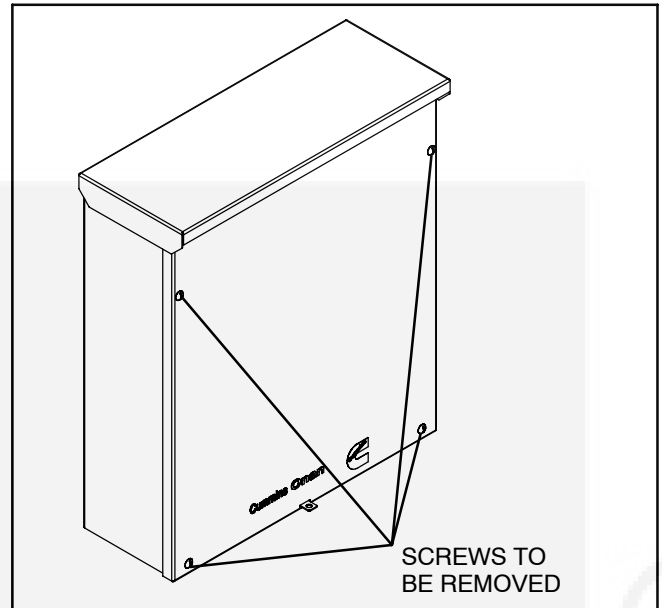
- For models with a controller, a model and serial number label (see Figure 1-7) is located on the back of the controller cover. To view the label, remove the screw securing the controller cover and open the cover (see Figure 1-8).
- For models without a controller, a model and serial number label is located on the inner panel. To view the label, remove the outer panel (see Figure 1-9).

Model No. _____
Serial No. _____

**FIGURE 1-7. MODEL AND SERIAL NUMBER LABEL**



**FIGURE 1-8. CONTROLLER COVER**



**FIGURE 1-9. TRANSFER SWITCH WITHOUT CONTROLLER**

## 2. Installation – Mounting

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### INTRODUCTION

Proper storage, installation, operation, and maintenance helps to increase the life of the transfer switch. **Installation is to be done only by licensed certified electricians.**

**⚠WARNING** *AC power within the cabinet presents a shock hazard that can cause severe personal injury or death. Incorrect installation, service, or parts replacement can result in severe personal injury, death, and/or equipment damage. All corrective service procedures must be done only by technically trained and experienced personnel.*

Each RSS transfer switch is factory wired and tested. Installation of the RSS transfer switch includes the following.

- Mounting a transfer switch cabinet
- Connection of all Utility, Generator, and Load cables (covered in *Section 3*)
- Connection of low voltage signal circuits (covered in *Section 3*)
  - For transfer switches with a controller, refer to Figures 5-6 through NO TAG.
  - For transfer switches without a controller, refer to Figure 5-11. **RSS transfer switches without a controller are only designed to be installed with GSAA generators. Installing this transfer**

**switch with any other generator model will void the warranty.**

### INSTALLATION OVERVIEW

These installation recommendations apply to typical installations. Whenever possible, these recommendations also cover factory designed options or modifications. However, because of the many variables in any installation, it is not possible to provide specific recommendations for every situation. If there are any questions not answered by this manual, contact your nearest Cummins distributor for assistance.

### Safety Considerations

The transfer switch has been carefully designed to provide safe and efficient service when properly installed, maintained, and operated. However, the overall safety and reliability of the complete system depends on many factors outside the control of the manufacturer. To avoid possible safety hazards, make all mechanical and electrical connections to the transfer switch exactly as specified in this manual. All systems external to the transfer switch must comply with all applicable codes. Make certain all required inspections and tests have been completed and all code requirements have been satisfied before certifying the installation is complete and ready for service.

Verify that both power source voltages match the nameplate rating prior to installation.



## EQUIPMENT INSPECTION AND STORAGE

Once you have received the transfer switch, inspect it for any damage. Check for damage to the enclosure, the transfer switch, the control panel (if applicable), and the wiring harness.

Prior to installation, make sure the transfer switch is stored in a clean dry place, protected from dirt and water. Provide ample air circulation and heat, if necessary, to prevent condensation from gathering on the equipment. Be sure to adhere to the transfer switch storage and operating requirements listed below.

- Storage Temperature: –3 to +70 Degrees C (–22 to +158 Degrees F)
- Operating Temperature (Ambient): –20 to +60 degrees C (–4 to +140 Degrees F)
- Humidity: 5 to 95% (non-condensing)

## LOCATION

The location of the transfer switch in the existing electrical circuit varies with the application and the type of entrance switch.

There must be a service disconnect (circuit breaker or fuses) in the power line ahead of the transfer switch (see Figures 2-1 through 2-5).

A typical installation of a transfer switch with a controller is shown in Figure 2-4. It is a graphical representation of the diagram shown in Figure 2-3.

A typical installation of a transfer without with a controller is shown in Figure 2-6. It is a graphical representation of the diagram shown in Figure 2-5.

Cabinet dimensions and weights are listed in Table 2-1.

**Choose a vibration-free mounting surface that supports the weight of the switch. Avoid locations that are near flammable liquids or gases, or are hot, moist, or dusty.**

**⚠️WARNING** *An electrical arc occurs during transfer that can ignite flammable vapors or gases, resulting in severe personal injury or death. The switch must not be located near batteries, fuel tanks, solvents, or other sources of flammable liquids or gases, or in areas sharing ventilation with such sources.*

## INSTALLING TRANSFER SWITCHES WITHOUT A CONTROLLER THAT INCLUDE A UTILITY PANEL

Transfer switches without a controller are rated service entrance equipment. The main bonding jumper is factory installed in the connected position between Neutral and the Ground Bus Bar. By installing a transfer switch without a controller shown in Figure 2-2, the main bonding jumper (see Figure 3-2) should be removed or moved from a connected position to a disconnected position.

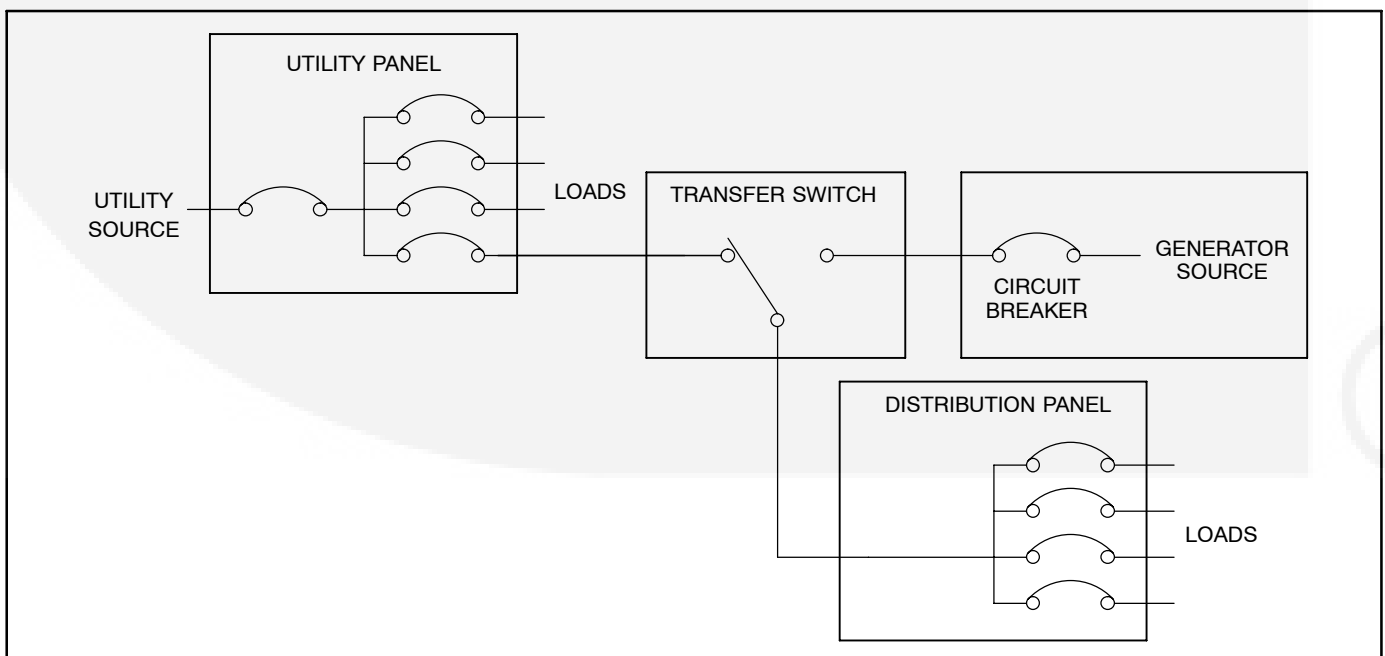
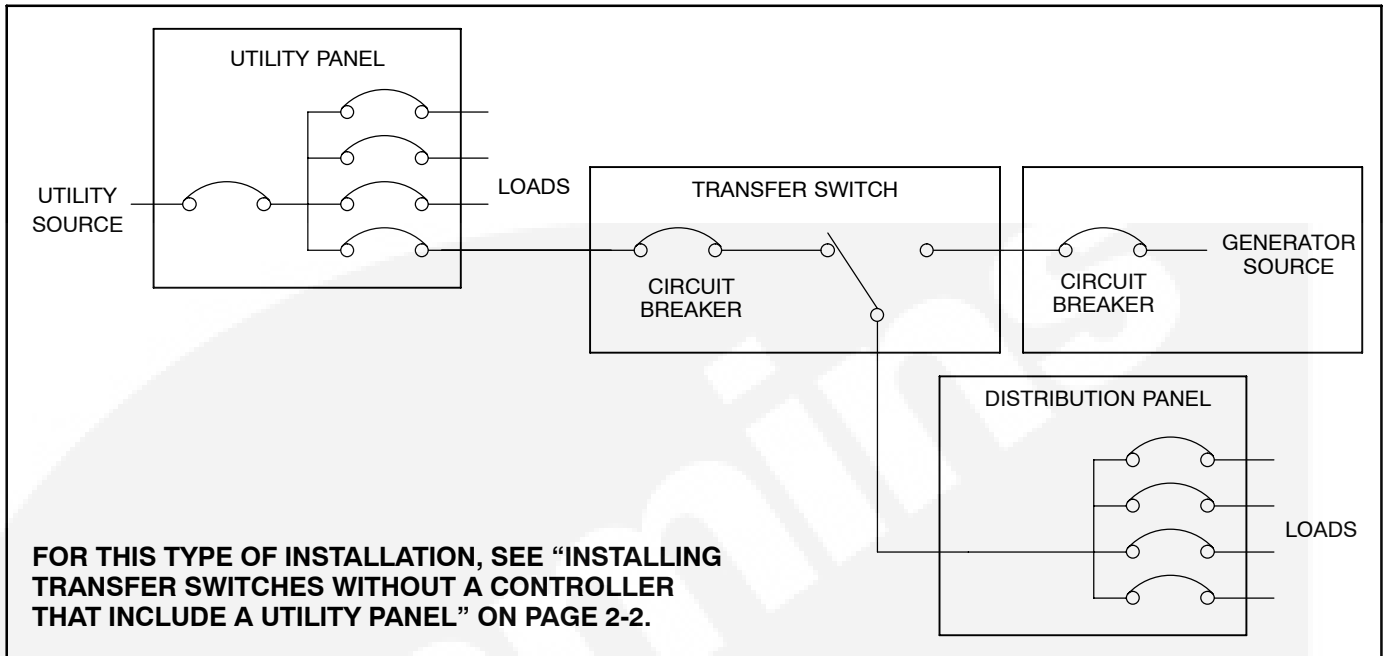
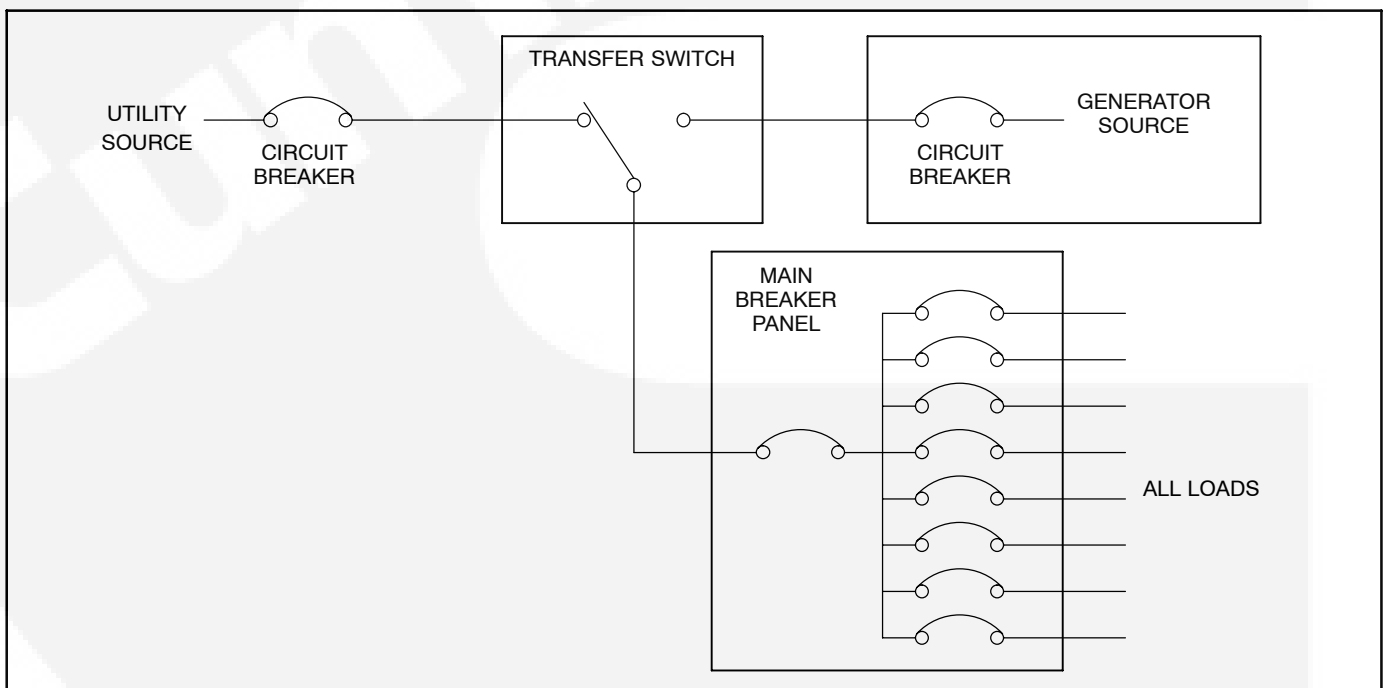


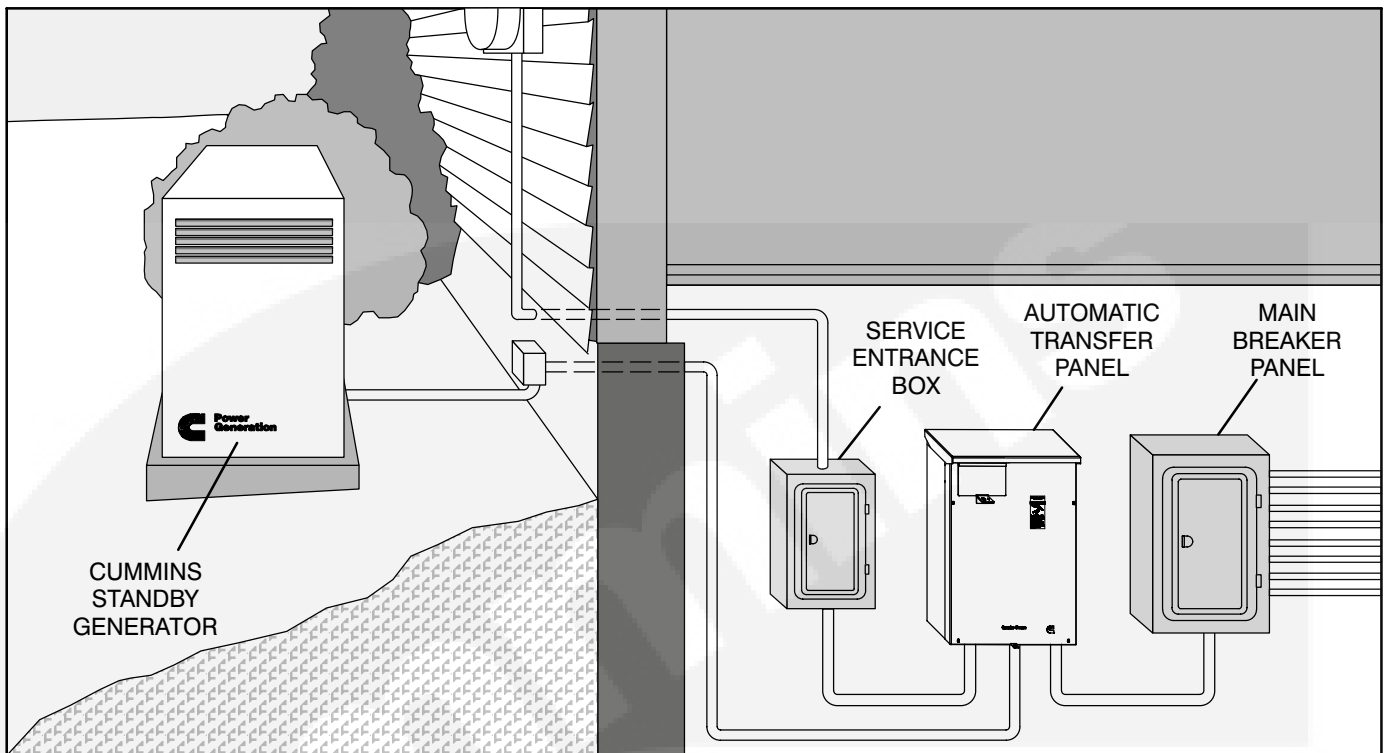
FIGURE 2-1. PARTIAL COVERAGE SYSTEM (TRANSFER SWITCH WITH CONTROLLER)



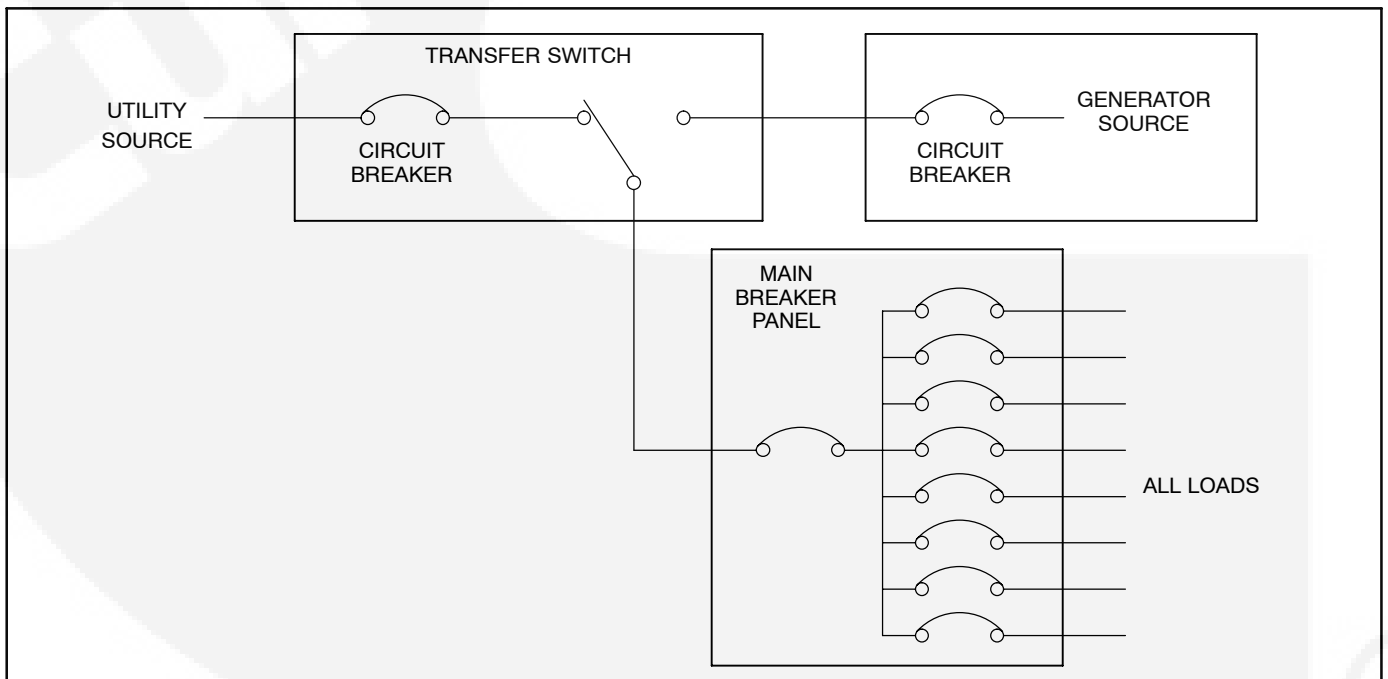
**FIGURE 2-2. PARTIAL COVERAGE SYSTEM (TRANSFER SWITCH WITHOUT CONTROLLER)**



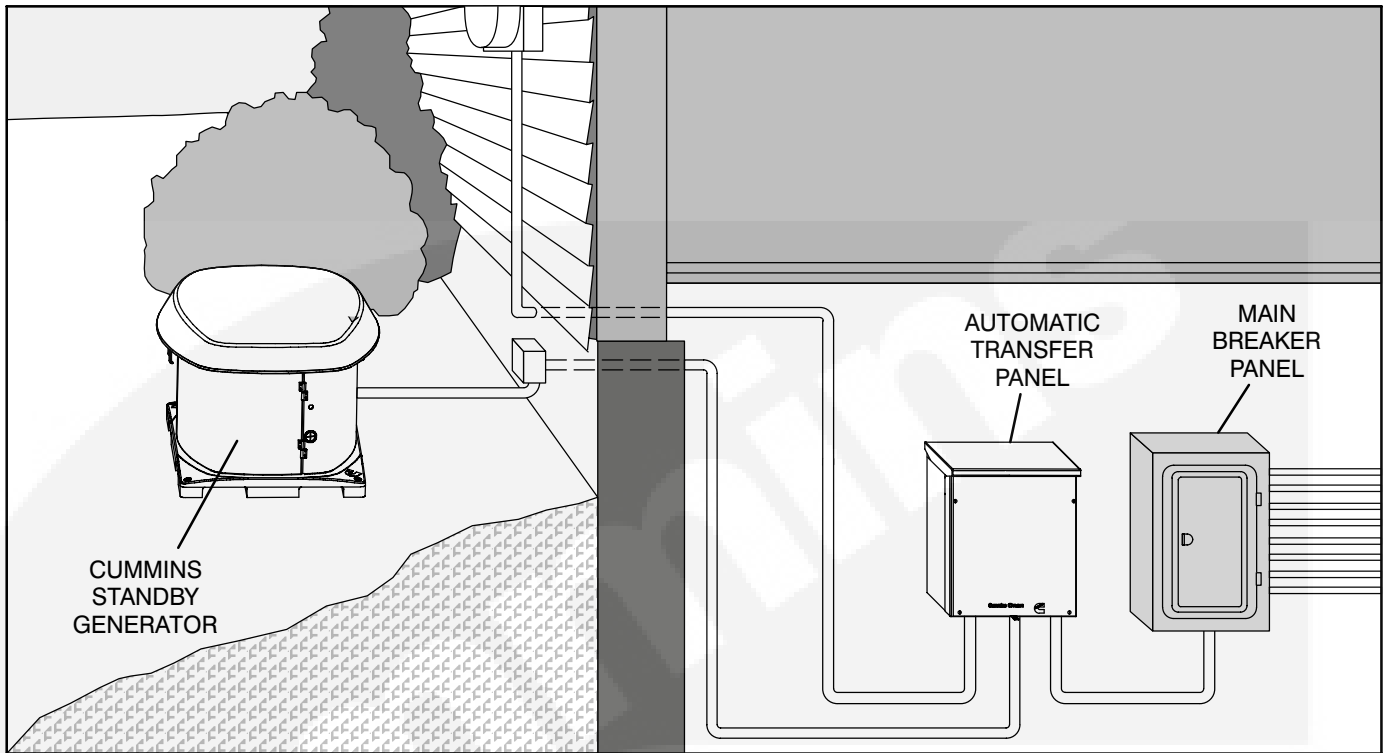
**FIGURE 2-3. TOTAL COVERAGE SYSTEM (TRANSFER SWITCH WITH CONTROLLER)**



**FIGURE 2-4. TYPICAL WALL-MOUNT INSTALLATION (SHOWN SCHEMATICALLY IN FIGURE 2-3)**



**FIGURE 2-5. TOTAL COVERAGE SYSTEM (TRANSFER SWITCH WITHOUT CONTROLLER, ONE CIRCUIT BREAKER)**



**FIGURE 2-6. TYPICAL WALL-MOUNT INSTALLATION (SHOWN SCHEMATICALLY IN FIGURE 2-5)**

**TABLE 2-1. APPROXIMATE CABINET DIMENSIONS**

Switch Current Rating	Height	Width	Depth	Weight
100 Amp With Controller	24.0 in 619 mm	17.0 in 433 mm	7.4 in 187 mm	33 lb 15 kg
200 Amp With Controller	27.1 in 688 mm	18.2 in 463 mm	7.4 in 187 mm	46 lb 21 kg
100 and 200 Amp One Circuit Breaker, Without Controller	23.3 in 591.5 mm	20.2 in. 513 mm	7.9 in. 200 mm	58 lb 26 kg

## MOUNTING

RSS transfer switches are mounted to a wall. Follow the mounting instructions listed below and refer to the appropriate outline drawing (Figures 5-1 through 5-3) for installation dimensions, specifications, and mounting hole patterns. Enough room must be allowed to remove the door panel for inspection and servicing of the switch, as per NEC and local codes.

1. Make sure that the wall where the transfer switch is to be mounted is suitable to hold firmly the weight and size of the transfer switch, within a reasonable safety factor.
2. Check the location to be sure no wires or plumbing, gas, or exhaust lines run behind the wall.
3. Make sure that all anchorage fasteners used to bolt the switch to wall are strong enough to withstand the switch weight and its vibration during operation, within a reasonable safety factor.
4. Use four 1/4 inch bolts for wall mounting. Measure and mark wall for drilling.
5. Install two mounting bolts in the wall for the top cabinet mounting keyholes.

6. With the shipping box standing so that the cabinet is lying down, carefully remove the top and the foam from the shipping box.

**⚠WARNING** *Improper lifting can cause severe personal injury. Have sufficient personnel for lifting and mounting the cabinet.*

7. Remove the transfer switch from the box and remove the plastic covering.
8. Raise the cabinet and mount it on the two mounting bolts in the wall. Provide support for the cabinet during installation.
9. Install two bottom mounting bolts, but do not tighten them. **(Do not remove the cabinet support until all bolts are installed.)**
10. Push the cabinet against the wall. If the cabinet will not align flush against the wall, shim the mounting bosses as required, using metal shims.
11. When the switch is installed on the wall, the switch cabinet should be squared up before final fastener tightening. Make sure the installed transfer switch is square and level upon completion of the installation.
12. Tighten all mounting bolts.

# 3. Installation – Wiring

For transfer switches with a controller, refer to Figures 3-1 for component locations. For transfer switches without a controller, refer to Figure 3-2 for component locations.

**⚠WARNING** *AC voltages and currents present an electrical shock hazard that can cause severe personal injury or death. Only trained and experienced personnel are to perform the following procedures.*

When installing conduit, observe the following precautions:

1. The RSS transfer switch includes knockouts on the bottom of the cabinet for wiring. **If you decide to drill your own holes in the top of the cabinet instead of using the knockouts provided, cover the transfer switch to prevent accidental entry of metal chips before beginning conduit installation.**

2. If using solid conduit between the generator set and the transfer switch, install at least 2 feet (610 mm) of flexible conduit between the rigid conduit and generator set to absorb vibration.

3. Run control circuit wiring in separate conduit from the AC wiring; otherwise, induced currents could cause operational problems within the switch. Knockouts are available through the bottom of the cabinet. (Refer to the switch outline drawings included in the back of this manual.)

**⚠CAUTION** *Installation debris can cause equipment failure and damage. Use extreme care to keep drill chips and filings out of the relays, contacts, and other parts of the automatic transfer switch when mounting or connecting conduit. Screwdrivers should be used carefully to prevent damage to components.*

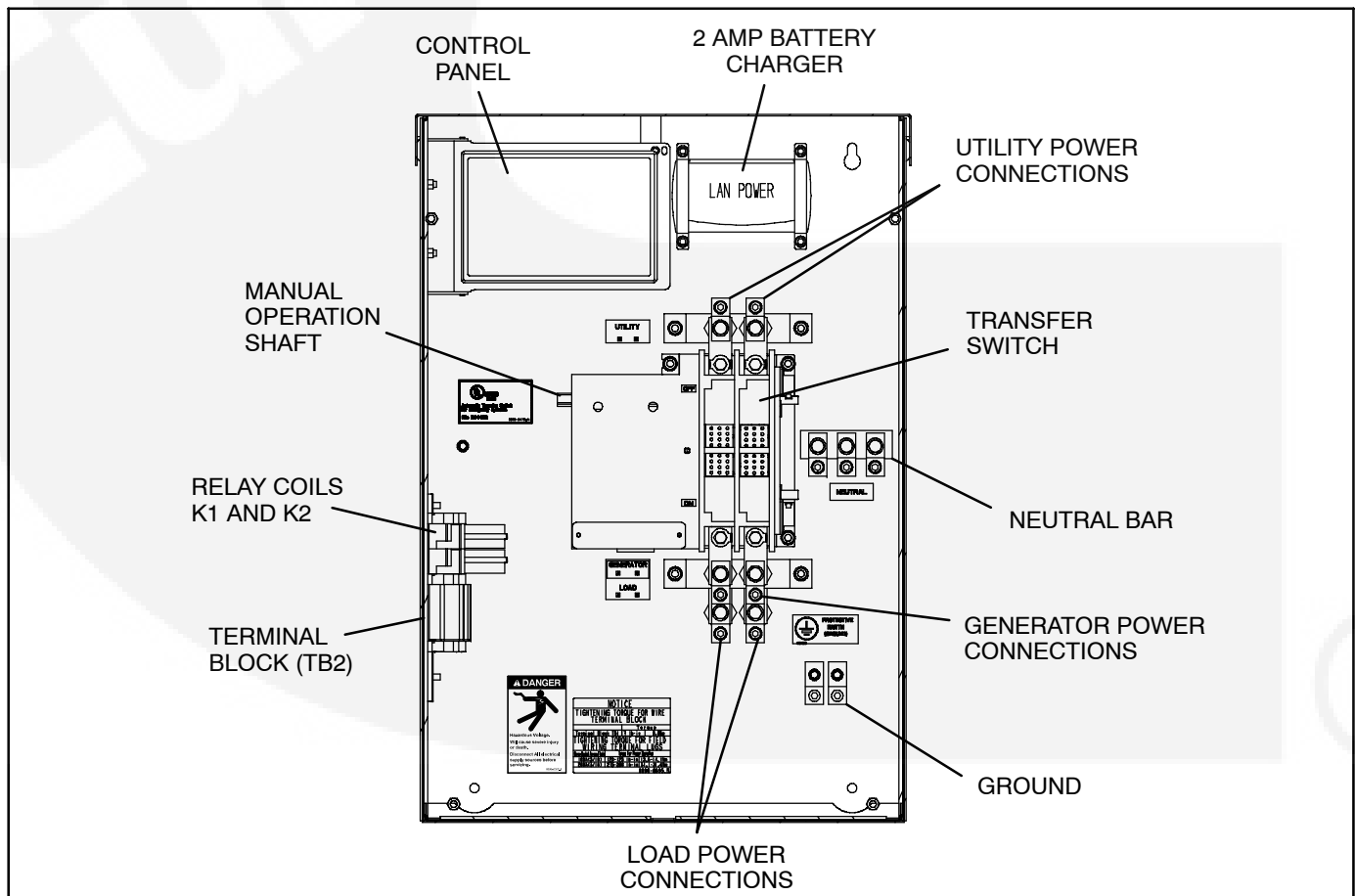
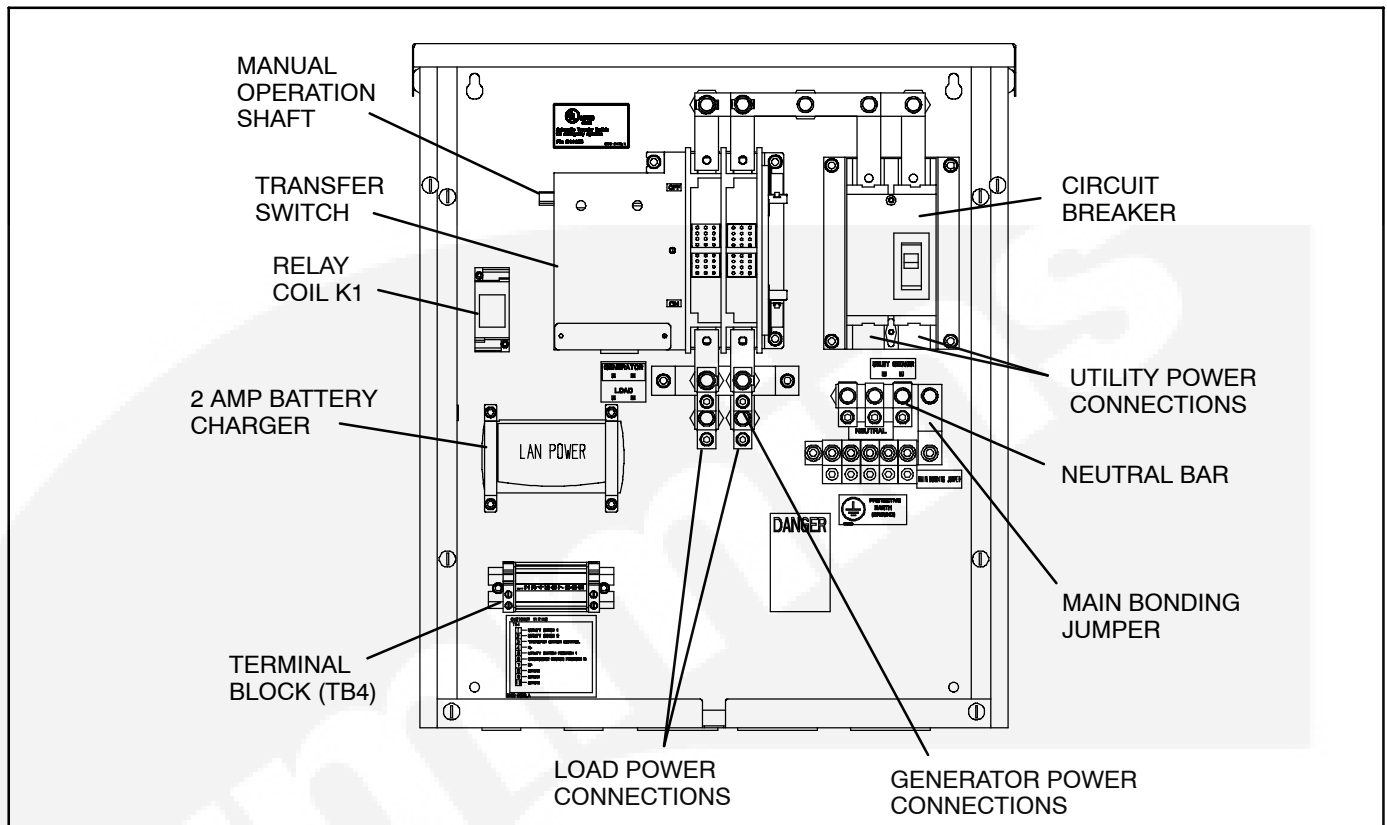


FIGURE 3-1. INTERIOR COMPONENTS FOR TRANSFER SWITCH WITH A CONTROLLER



**FIGURE 3-2. INTERIOR COMPONENTS FOR TRANSFER SWITCH WITHOUT A CONTROLLER**

### AC POWER CONNECTIONS

RSS transfer switches are supplied with screw type terminals for the Utility, Generator, Load, and Neutral power connections. Either copper or aluminum cables can be used for AC connections.

Connect the Utility, Generator, Load, and Neutral conductors to the clearly-marked terminals on the transfer switch. Use a wire brush to remove any surface oxides from the cables. Verify that all connections are correct before tightening the lugs. All lug connections must be tightened to the proper torque values listed in Table 3-1 or 3-2.

Perform wiring in the following sequence:

1. Test the operation of the generator set from its own control.

**⚠ WARNING** *Failure to prevent the generator set from starting before wiring procedures are performed presents a shock hazard that can cause severe personal injury or death.*

**Disconnect generator battery (negative (-) terminal first) before proceeding.**

2. Stop the generator set and remove the negative lead from the cranking battery to prevent starting.

**⚠ WARNING** *AC voltages and currents present an electrical shock hazard that can cause severe personal injury or death. Make sure that both AC power sources are disconnected.*

3. Make sure that both AC power sources are disconnected.
4. Connect power cables of sufficient size (for lug size, see Table 3-1 for transfer switches with a controller or Table 3-2 for transfer switches without a controller) to carry rated current from the line, load, and generator directly to the transfer switch terminals or circuit breaker(s), which are marked A and B. A neutral bar is standard on the switches. Tighten the terminal lugs as indicated in Table 3-1 or 3-2.

**TABLE 3-1. SCREW TYPE TERMINALS AND TORQUE VALUES FOR EXTERNAL POWER GENERATION ON TRANSFER SWITCHES WITH A CONTROLLER**

Switch Size (Amps)	Terminal Description								
	Utility, Generator, and Load Terminals			Neutral Bar Terminals			Ground Terminals		
	Cables Per Pole	Range of Wire Size	Tightening Torque	No. of Cables	Range of Wire Sizes	Tightening Torque	No. of Cables	Range of Wire Sizes	Tightening Torque
100 Amp	1	#14 to 2/0 AWG	120 In-lbs (14 N•m)	3	#14 to 2/0 AWG	120 In-lbs (14 N•m)	2	#14 to 1/0 AWG	120 In-lbs (14 N•m)
200 Amp	1	#6 AWG to 300 MCM	275 In-lbs (31 N•m)	3	#6 AWG to 300 MCM	275 In-lbs (31 N•m)	2	#14 to 1/0 AWG	120 In-lbs (14 N•m)

**TABLE 3-2. SCREW TYPE TERMINALS AND TORQUE VALUES FOR EXTERNAL POWER GENERATION ON TRANSFER SWITCHES WITHOUT A CONTROLLER**

Switch Size (Amps)	Terminal Description					
	Utility Circuit Breaker			Utility and Load Terminals		
	Cables Per Pole	Range of Wire Size	Tightening Torque	No. of Cables	Range of Wire Sizes	Tightening Torque
100 Amp	1	#4 AWG to 300 MCM	250 In-lbs (28 N•m)	1	#14 to 2/0 AWG	120 In-lbs (14 N•m)
200 Amp	1	#4 AWG to 300 MCM	250 In-lbs (28 N•m)	1	#6 AWG to 300 MCM	275 In-lbs (31 N•m)

Switch Size (Amps)	Terminal Description								
	Generator Terminals			Generator Neutral Terminals			Ground Terminals		
	Cables Per Pole	Range of Wire Size	Tightening Torque	No. of Cables	Range of Wire Sizes	Tightening Torque	No. of Cables	Range of Wire Sizes	Tightening Torque
100 Amp	1	#14 to 2/0 AWG	120 In-lbs (14 N•m)	1	#14 to 2/0 AWG	120 In-lbs (14 N•m)	4	#14 to 1/0 AWG	120 In-lbs (14 N•m)
200 Amp	1	#14 to 2/0 AWG	120 In-lbs (14 N•m)	1	#14 to 2/0 AWG	120 In-lbs (14 N•m)	4	#14 to 1/0 AWG	120 In-lbs (14 N•m)



## LOW VOLTAGE SIGNAL CONNECTIONS

### Transfer Switches With a Controller

Control wiring connections are made at terminal block TB2, located on the lower left side of the enclosure for unit with a controller (see Figure 3-1).

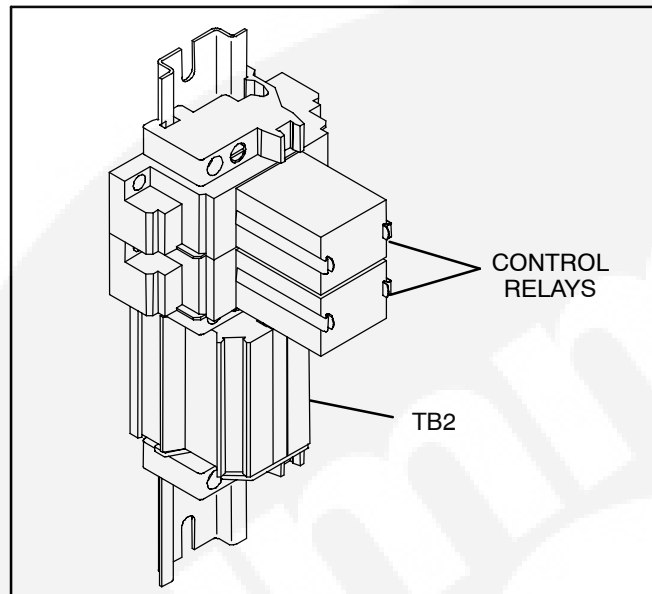


FIGURE 3-3. CONTROL WIRING CONNECTIONS

### Connecting the Transfer Switch to the Generator

**⚠ WARNING** AC voltages and currents present an electrical shock hazard that can cause severe personal injury or death. Disconnect the AC power source.

Make sure the generator set is not running and cannot be started. Disconnect the batteries and make sure the generator's control is in the Off position.

A minimum of three wires need to be run from the generator set to the terminal block in the transfer switch cabinet. The connections at the terminal block (TB2) need to be made at B+, Ground, and Remote Generator Start (refer to Figures 5-6 through NO TAG). Make sure that the wire selected does not exceed the maximum wire size and length listed in Table 3-3. Make the following connections:

- Battery Positive (B+) to TB2-3
- Battery Negative (GND) to TB2-1
- Remote Start to TB2-4

**NOTE:** For GSAA generators, the terminal block on the generator set is not marked "Remote Start." Use the TB1-5 connection marked "Switch Position Utility" (see Figure 5-9).

TABLE 3-3. WIRE SPECIFICATIONS

Wire Size (AWG)	Distance in Feet (One Way)
16	125
14	200
12	300
10	500

Different generator sets require different start signal connections that may require the installation of a jumper to the TB2 terminal block in the transfer switch. When needed, the jumper is included inside the literature package shipped with the transfer switch. Refer to the generator Installation Manual and the interconnection wiring diagrams at the end of this manual for information on wiring connections for your generator set.

- If the generator set needs a ground (B-) start signal, connect a jumper from TB2-1 to TB2-2.
- If the generator set needs a positive (B+) start signal, connect a jumper from TB2-2 to TB2-3.

For all other generator sets where a jumper is not used, four wires must be connected between the generator set and the transfer switch. Refer to the interconnection diagrams at the end of this manual to determine what connections apply to your installation.

Wire resistance must not exceed 0.5 ohm per line. Use stranded or solid wire. For connection to the screw terminal, strip the insulation back 3/8 inch (10 mm).

## Remote Test Input

To add remote test, connect a normally open, dry contact between terminals 1 and 5 of TB2 (see Figure 3-4). Closing the contact activates the feature and opening the contact deactivates it.

Use number 22 (0.4 mm<sup>2</sup>) to number 12 AWG (4 mm<sup>2</sup>) wire. For connection to the screw terminal, strip the insulation back 3/8 inch (10 mm).

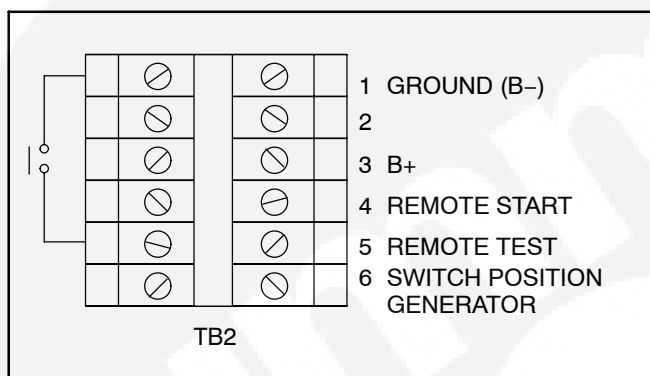


FIGURE 3-4. TB2 CONNECTIONS FOR REMOTE TEST TRANSFER

## Transfer Switches Without a Controller

Control wiring connections are made at terminal block TB4, located on the back of the enclosure in the lower left-hand corner (see Figure 3-5). Refer to Figure 5-11 for wire connections between transfer switch and generator set terminals. Make sure that the wire selected does not exceed the maximum wire size and length listed in Table 3-3.

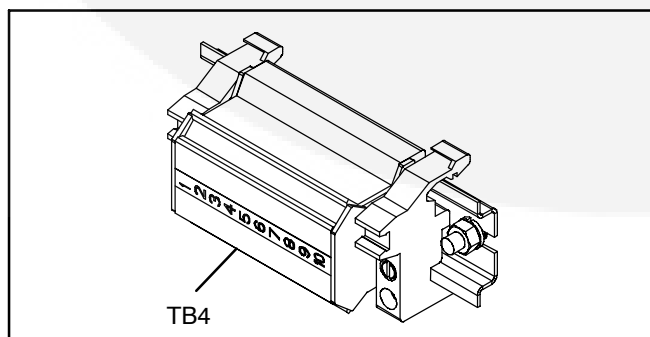


FIGURE 3-5. CONTROL WIRING CONNECTIONS

## FINAL INSPECTION AND CLEANUP

Prior to energizing the transfer switch:

1. Inspect all wiring to be certain that:
  - All cabled connections are correct
  - All generator start low voltage signal connections are correct (refer to drawings at end of this manual – 630–2252 for transfer switches with a controller (Figures 5-6 thru NO TAG) or 630–3514 (Figure 5-11) for transfer switches without a controller).
  - Wiring does not interfere with switch operation
  - Wiring is not damaged as the door opens and closes
  - Wiring does not contact sharp or abrasive surfaces
  - No wiring is left loose and unconnected

**CAUTION** Debris lodged in the electrical and mechanical components may result in equipment damage. Do not use a blower to remove debris.

2. Use a vacuum cleaner to remove any dust, filings, chips, or debris from the cabinet interior and components.
3. Check the lug torque values of the power connections.

**NOTE:** Lug torque values are specified on the label inside of the enclosure and in Tables 3-1 and 3-2.

4. Double check the power supply voltages to make sure they match the voltages listed on the nameplate (see Figures 1-3 and 1-4 for transfer switches with a controller or Figures 1-5 and 1-6 for transfer switches without a controller).
5. Make sure that all covers and barriers are installed and properly fastened.

**NOTE:** The mechanism is shipped in the Utility side position. For transfer switches without a controller, the circuit breaker is shipped in the Off position.

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## 4. Transfer Switch Start-Up

This section applies only to **transfer switches with a controller**. For transfer switches without a controller, refer to the GSAA generator Operators Manual.

The RSS transfer switch is preset at the factory to operate using default settings. Table 4-1 shows the basic control default settings. The control will operate the transfer switch when 12 VDC power is applied to the control.

**TABLE 4-1. PRESET TRANSFER SWITCH SETTINGS**

Function	Factory Setting
TDPT (Time Delay Program Transition)	Set to "0" (Disabled)
TDEL (Time Delay Elevator Signal)	Set to "0" (Disabled)
External Exercise	Set to "Off"
System Nominal Voltage Table	Set to "Voltage Table 1"
System Nominal Voltage	Set to "240"
System Nominal Frequency	Set to "60 Hz"
Single Phase/ Three Phase	Set to "Single Phase"
Return to Programmed Transition On/Off	Set to "Off"
Elevator Post Transfer Delay On/Off	Set to "Off"

### START-UP AND TEST PROCEDURE

**⚠️WARNING** *The failure to install the front panel on the transfer switch cabinet can result in severe personal injury or death. Always make sure the front panel is installed before applying power to the transfer switch.*

1. Make sure the front cover is installed on the transfer switch.

2. Make sure the generator set is installed as described in the generator's Installation Manual and that the operation selector switch on the generator control panel is in the Remote/Auto position.
3. Turn on the breaker in the utility panel (see Figure 2-1 or 2-2) or the service entrance panel (see Figure 2-3 or 2-5) that feeds the utility power connection of the transfer switch.
4. Open the controller security cover on the transfer switch front panel. The Utility Power Available and Utility Power Connected LEDs will be lit.
5. Switch the main circuit breaker from the "ON" to the "OFF" position.
6. Make sure the following occurs.
  - a. The generator control receives a signal to start the generator set.
  - b. After the generator set starts and the TDNE expires, the load is transferred from the utility to the generator set.
7. Switch the main circuit breaker from the "OFF" to the "ON" position.
8. Make sure the following occurs.
  - a. After a 10-minute TDEN time delay, the load is transferred back to the utility.
  - b. Once the transfer switch is connected to utility power, the generator set receives a signal to cool down the generator set.
  - c. After a 10-minutes TDEC time delay, the generator set stops.

**NOTE:** When ending a test, you can bypass the re-transfer time delay (TDEN) and cause the immediate load retransfer by pressing the Override button. The generator set stops after the engine cooldown time delay (TDEC).

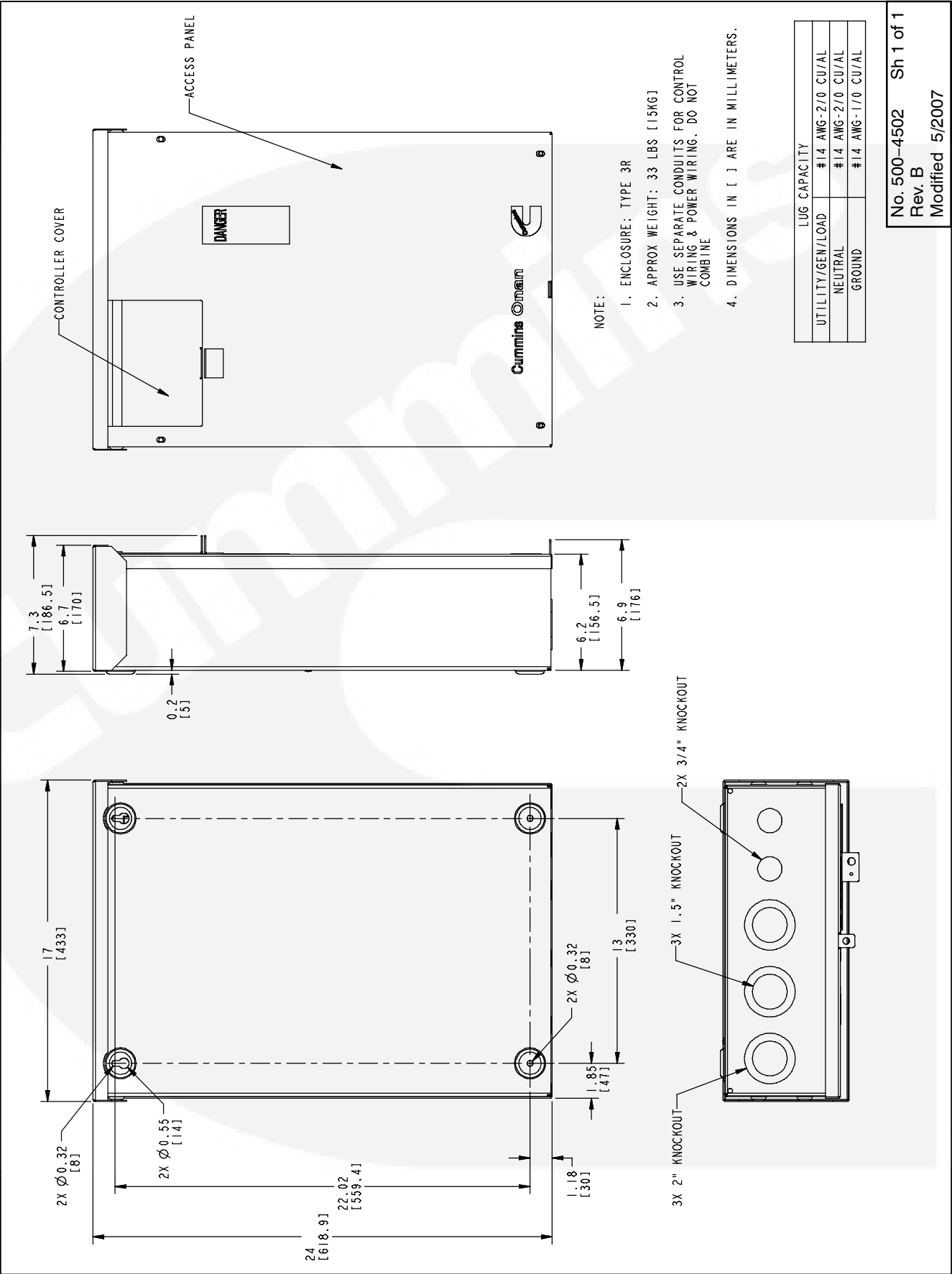
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## 5. Outline Drawings and Wiring Diagrams

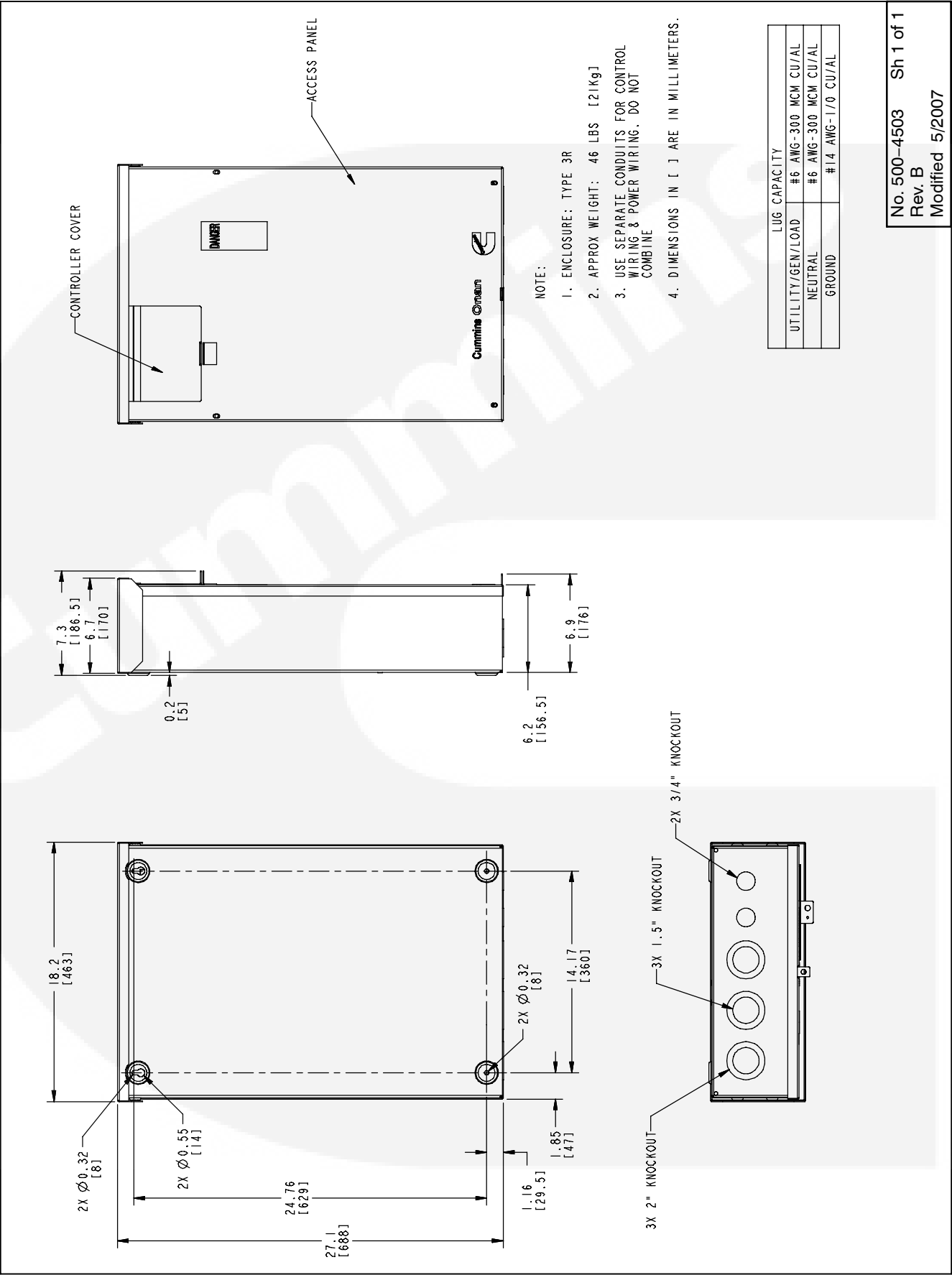
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SCHEMATIC	PAGE
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FIGURE 5-1. RSS100 CONTROL BOX OUTLINE DRAWING WITH CONTROLLER



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FIGURE 5-2. RSS200 CONTROL BOX OUTLINE DRAWING WITH CONTROLLER



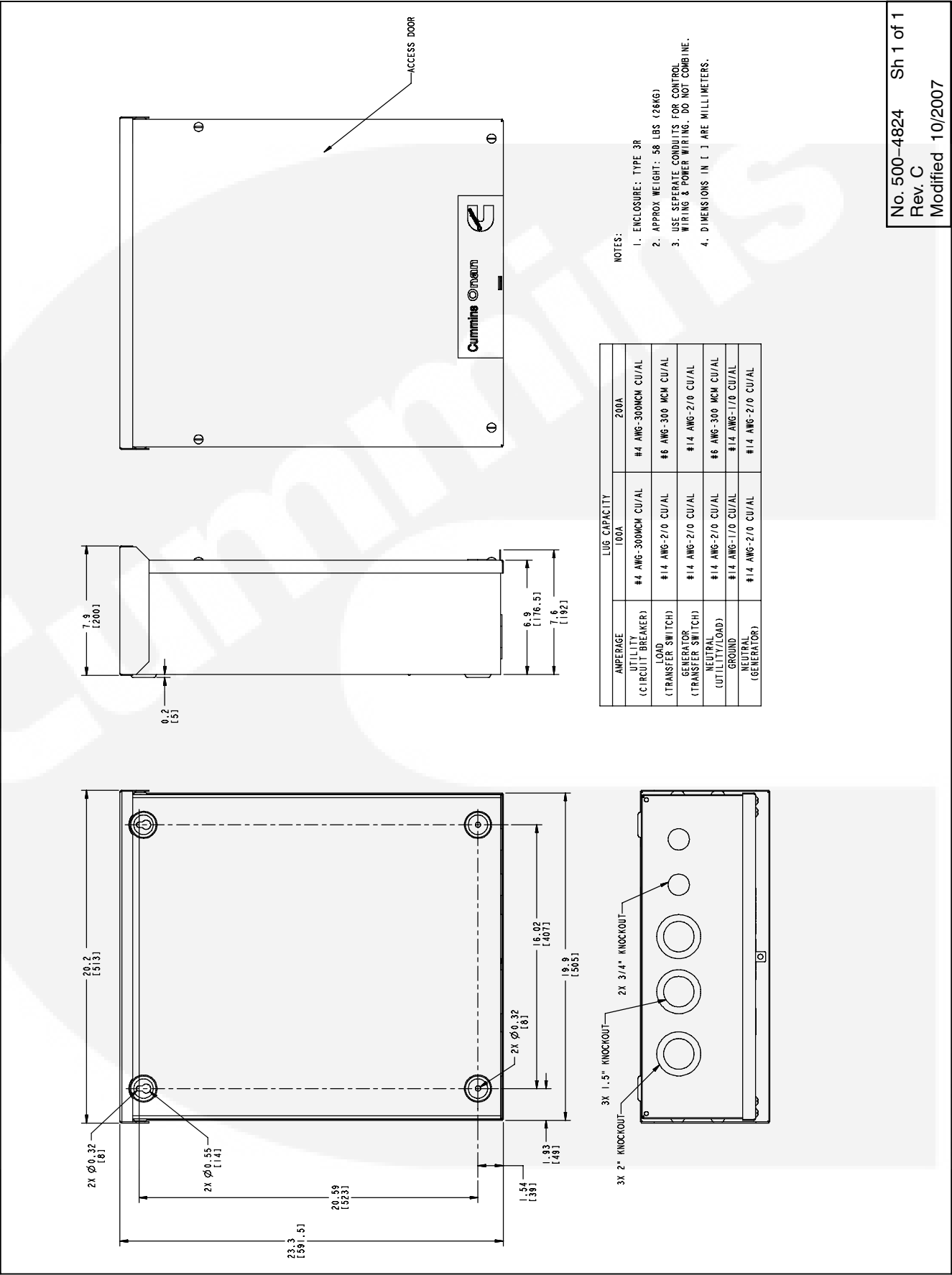
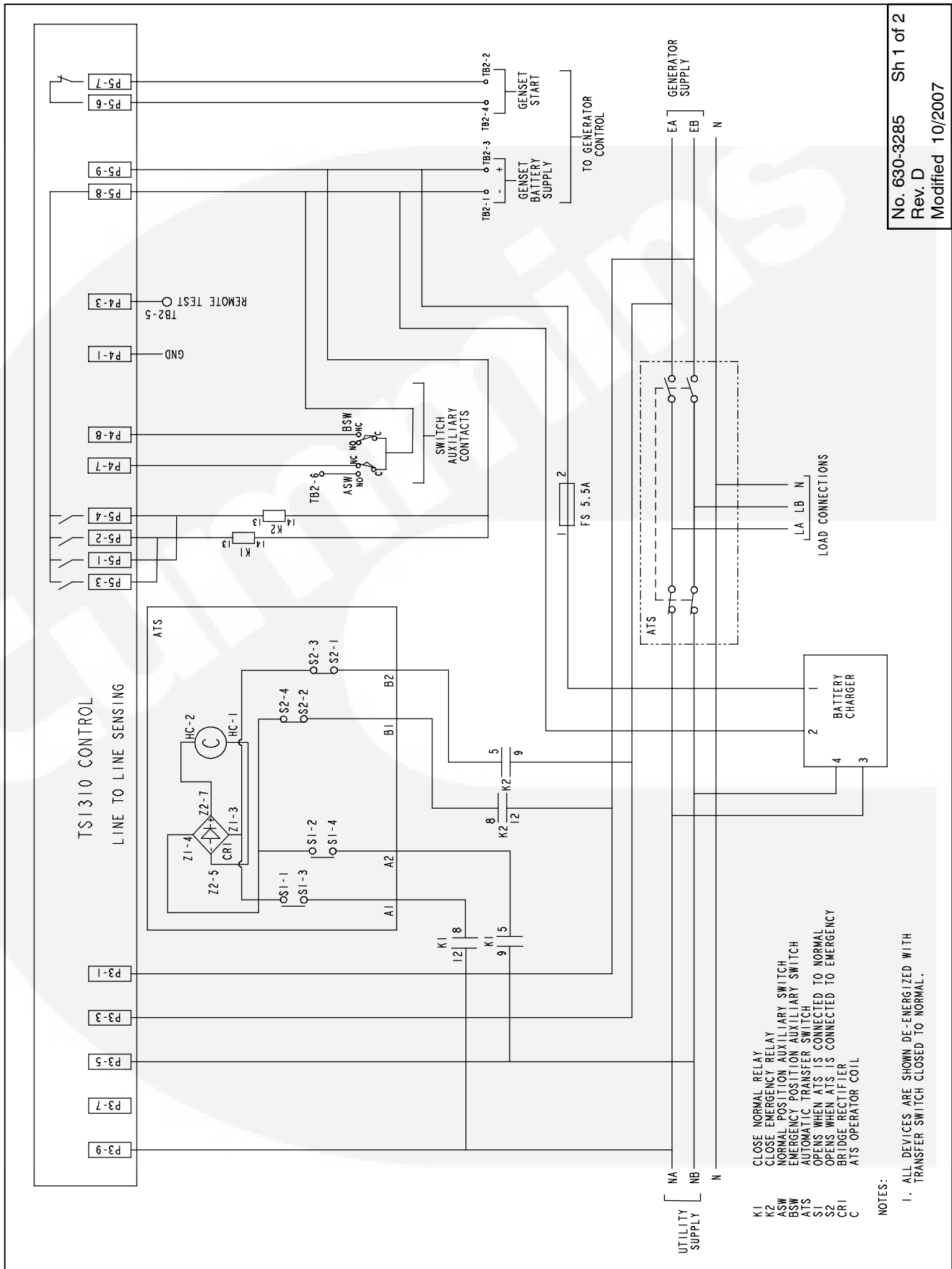


FIGURE 5-3. RSS100 AND RSS200 OUTLINE DRAWING – WITHOUT CONTROLLER





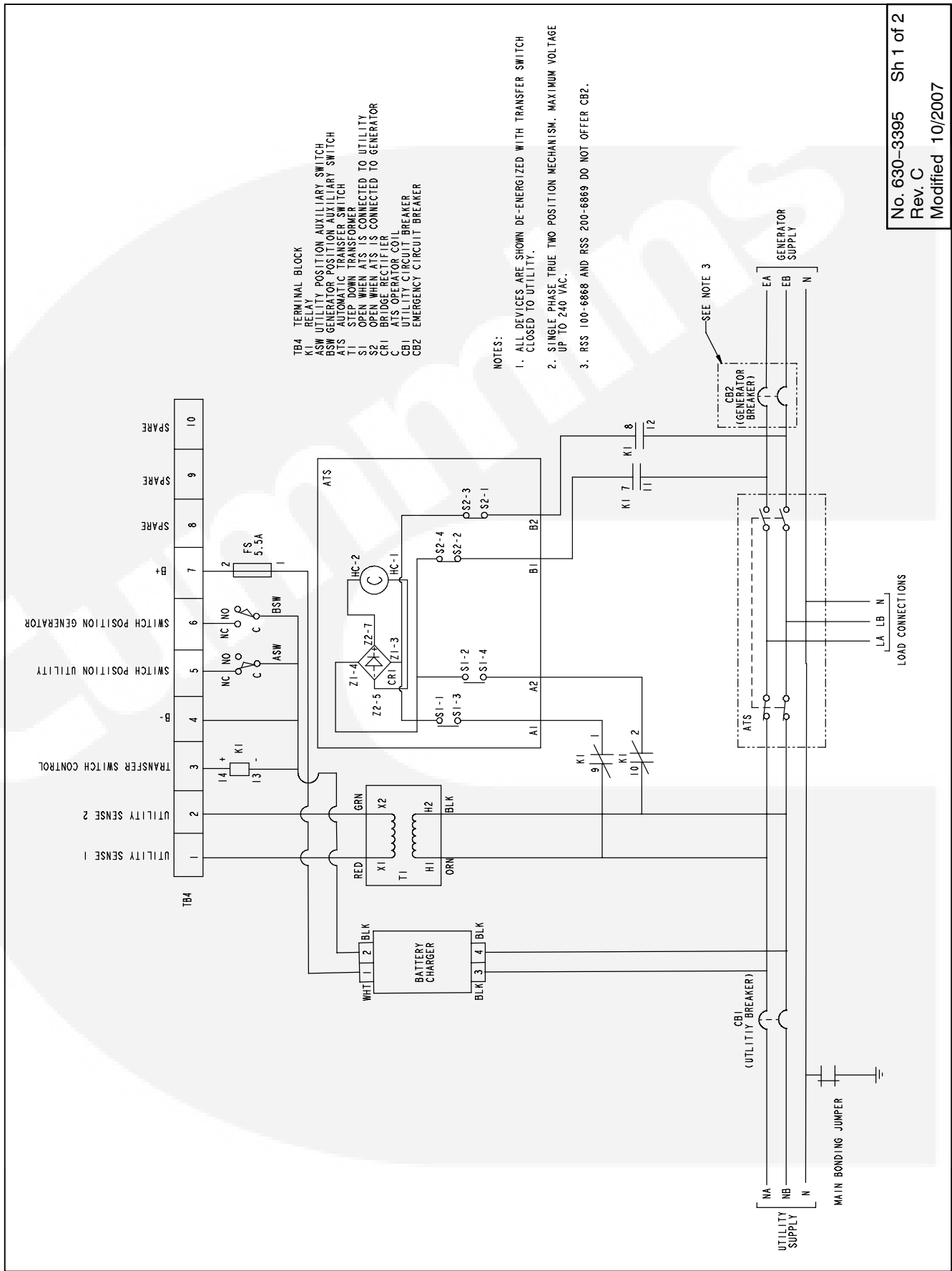
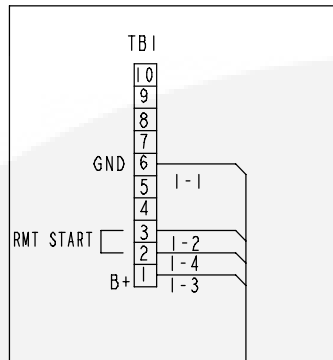


FIGURE 5-5. RSS TRANSFER SWITCH WITHOUT CONTROLLER WIRING DIAGRAM (SHEET 1 OF 2)



ONAN/CUMMINS GENERATOR SET  
SERIES GGDB ALL SPEC'S

ENGINE CONTROL PANEL

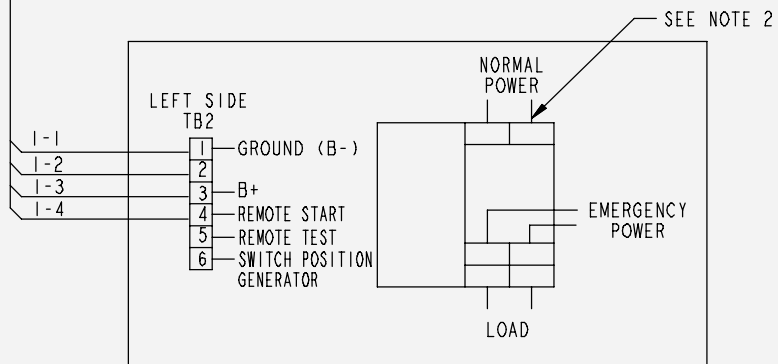


NOTE:  
1. SIZE WIRES AS FOLLOWS:

WIRE SIZE (AWG)	DISTANCE IN FEET (ONE WAY)
16	125
14	200
12	300
10	500

2. NORMAL/EMERGENCY LEADS ARE SIZED FOR  
LOAD AND LENGTH.

SEE NOTE 1

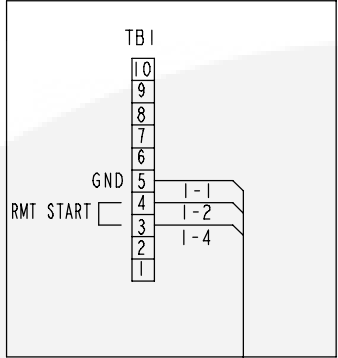


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FIGURE 5-6. INTERCONNECTION WIRING DIAGRAM FOR GGDB (ALL SPECS) GENERATORS

ONAN/CUMMINS GENERATOR SET  
SERIES FD, FE, DB, GGHE, GGHF

ENGINE CONTROL PANEL



TO B+ TERMINAL  
ON STARTER

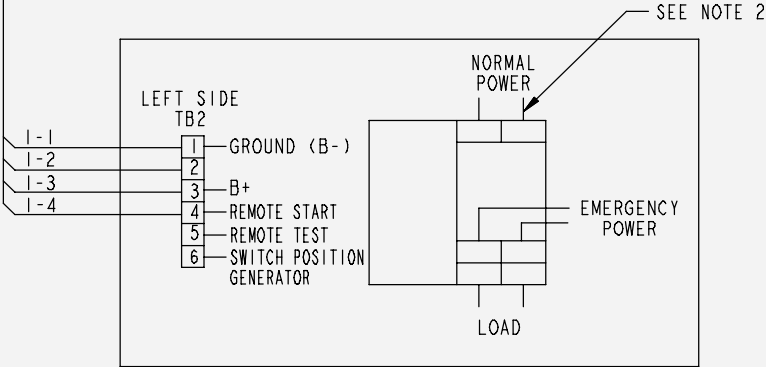
1-3

SEE NOTE 1

NOTE:  
1. SIZE WIRES AS FOLLOWS:

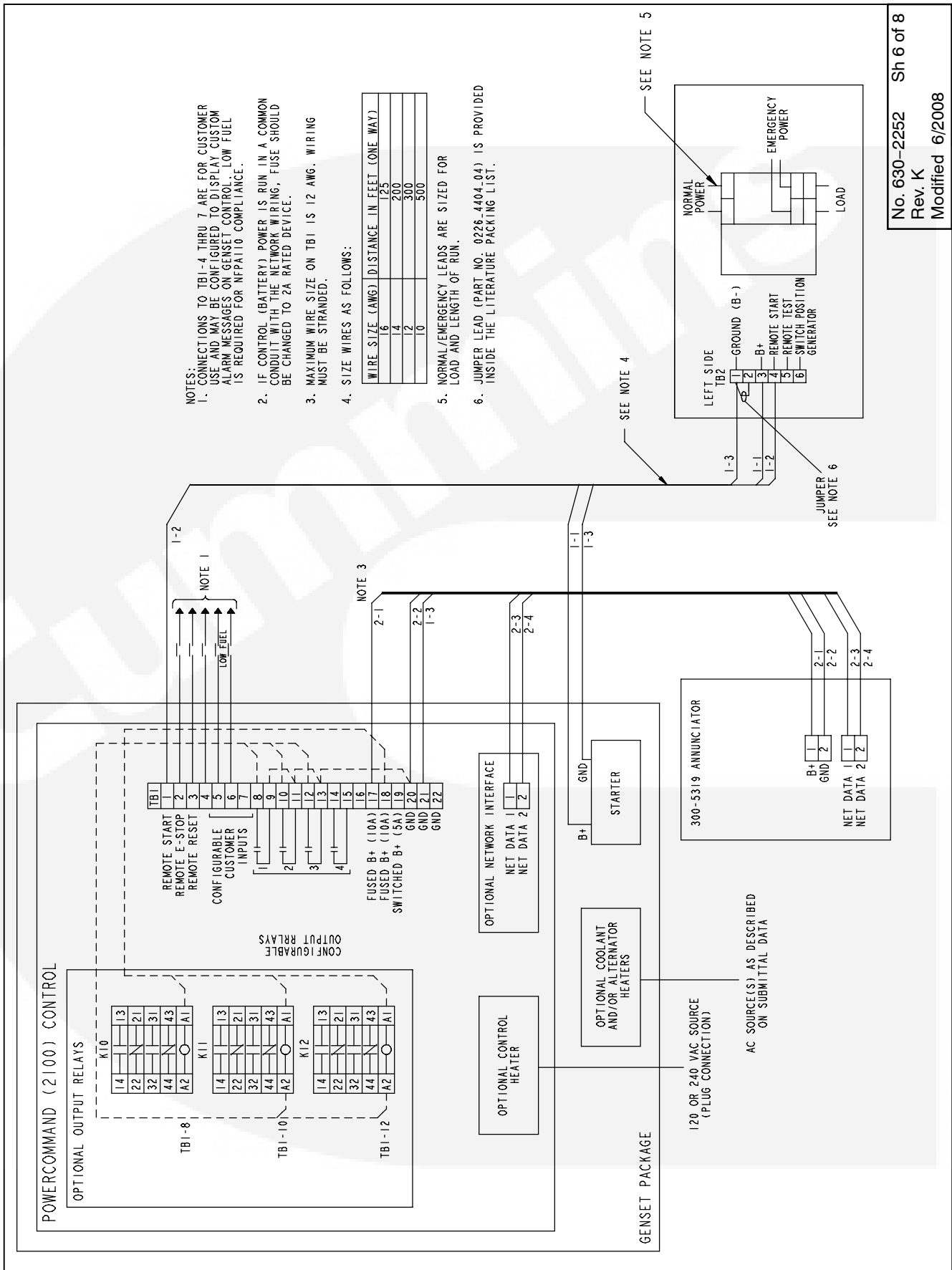
WIRE SIZE (AWG)	DISTANCE IN FEET (ONE WAY)
16	125
14	200
12	300
10	500

2. NORMAL/EMERGENCY LEADS ARE SIZED FOR  
LOAD AND LENGTH.



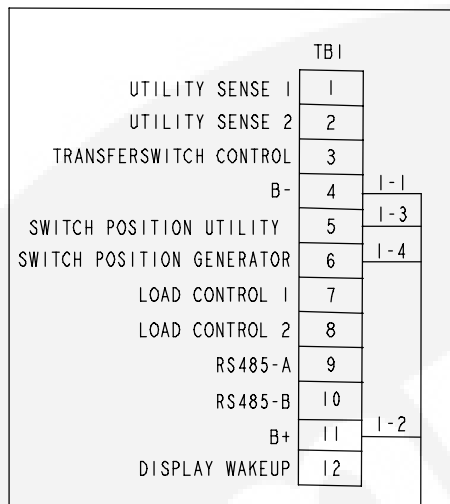
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FIGURE 5-7. INTERCONNECTION WIRING DIAGRAM FOR GENERATOR SERIES FD, FE, DB,  
GGHE, AND GGHF





ONAN/CUMMINS GENERATOR SET  
SERIES GSAA



NOTE:

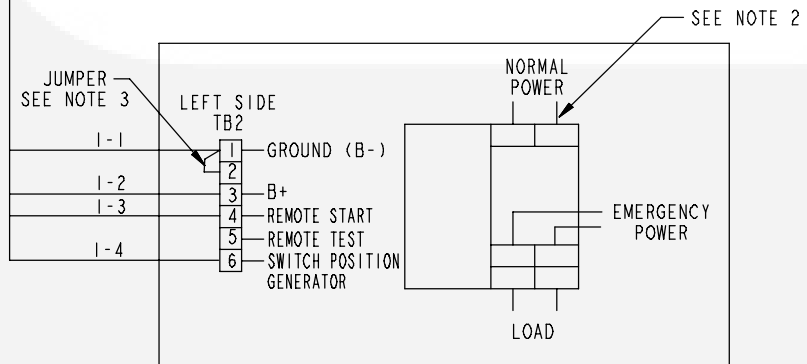
1. SIZE WIRES AS FOLLOWS:

WIRE SIZE (AWG)	DISTANCE IN FEET (ONE WAY)
16	125
14	200
12	300
10	500

2. NORMAL/EMERGENCY LEADS ARE SIZED FOR LOAD AND LENGTH.

3. JUMPER LEAD (PART NO. 0226\_4404\_04) IS PROVIDED INSIDE THE LITERATURE PACKING LOT.

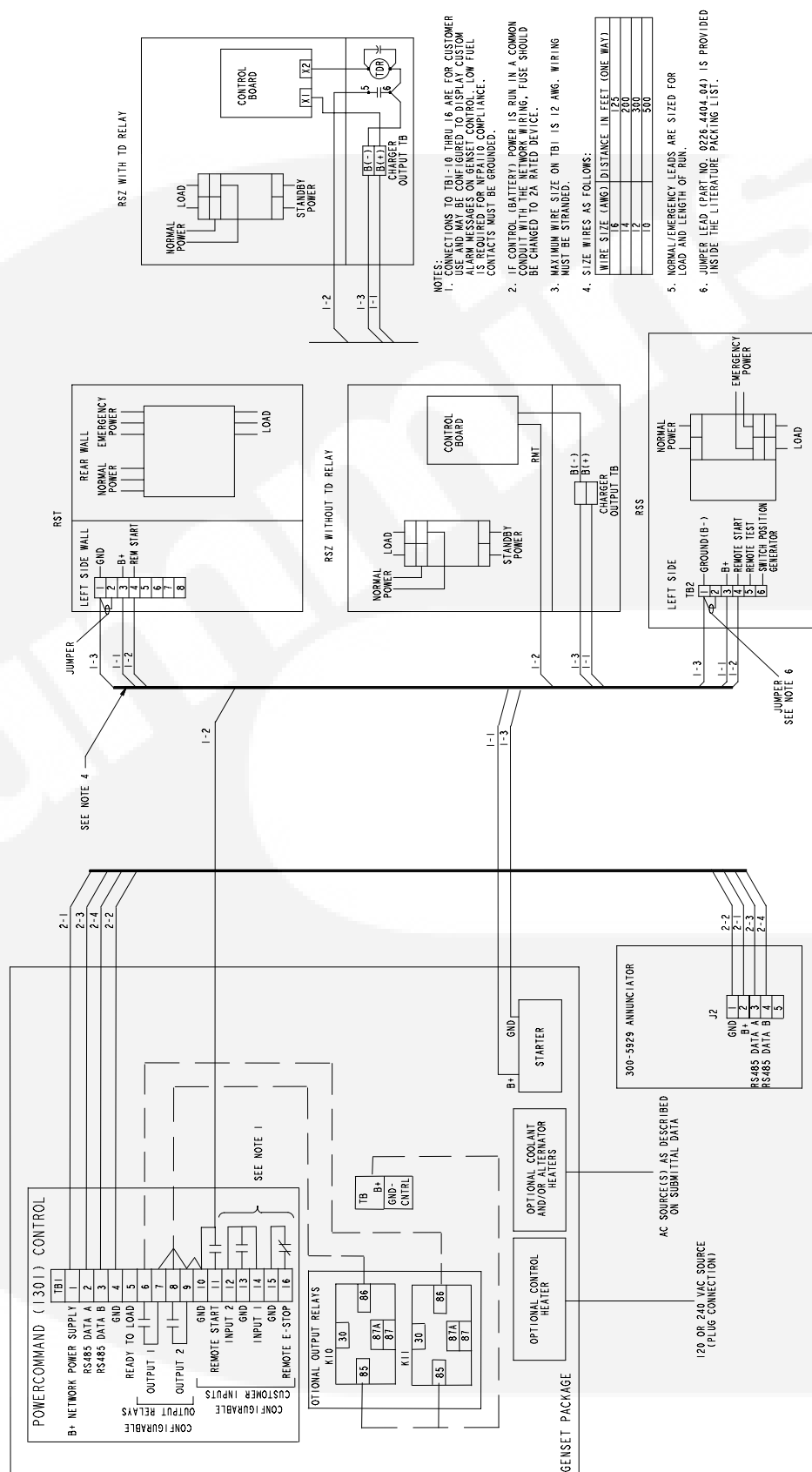
SEE NOTE 1



THIS INTERCONNECTION DIAGRAM MENTIONS THE CONNECTION TO TB1-5 IN THE GENERATOR. THE CONNECTION IS MARKED "SWITCH POSITION UTILITY" BUT IT IS CONNECTED TO "REMOTE START" IN THE TRANSFER SWITCH (TB2-4). ALTHOUGH IT LOOKS LIKE THE WRONG DESCRIPTION, THIS CONNECTION IS CORRECT.

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FIGURE 5-9. INTERCONNECTION WIRING DIAGRAM WITH CONTROLLER FOR GENERATOR SERIES GSAA



NOTES:  
1. CONNECTIONS TO TB1-10 THRU 16 ARE FOR CUSTOMER USE AND MAY BE CONFIGURED TO DISPLAY CUSTOM ALARM MESSAGES ON GENSET CONTROL LOW FUEL (S) RELAYED FROM A CUSTOMER COMPLIANCE. CONTACTS MUST BE GROUNDED.

2. IF CONTROL (BATTERY) POWER IS RUN IN A COMMON CONDUIT WITH THE NETWORK WIRING, FUSE SHOULD BE CHANGED TO 2A RATED DEVICE.

3. MAXIMUM WIRE SIZE ON TB1 IS 12 AWG. WIRING MUST BE STRANDED.

4. SIZE WIRES AS FOLLOWS:

WIRE SIZE (AWG)	DISTANCE (IN FEET ONE WAY)
16	175
14	200
12	300
10	500

5. NORMAL/EMERGENCY LEADS ARE SIZED FOR LOAD AND LENGTH OF RUN.

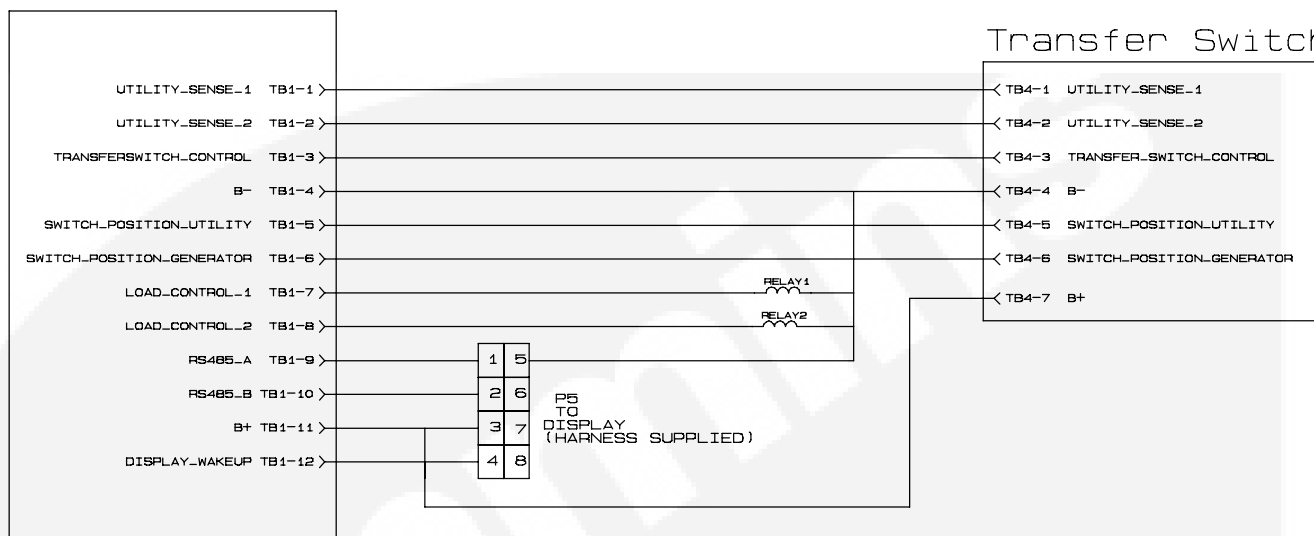
6. JUMPER LEAD (PART NO. 0226-404-841) IS PROVIDED INSIDE THE LITERATURE PACKAGING LIST.

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FIGURE 5-10. INTERCONNECTION WIRING DIAGRAM FOR GENERATORS WITH POWERCOMMAND 1301 CONTROL (PCC1301)

# Generator

# Transfer Switch



## NOTES:

1. ALL WIRING AND RELAYS ON THIS PAGE ARE CUSTOMER SUPPLIED.
2. CHANGES TO THIS DIAGRAM SHEET MUST BE TRANSFERRED TO 0098-8775.
3. LABEL 0098-8773 MUST BE UPDATED WITH 0630-3514 UPDATES.

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Rev. C  
Modified 9/2007

**FIGURE 5-11. INTERCONNECTION WIRING DIAGRAM WITHOUT CONTROLLER FOR GENERATOR SERIES GSAA**



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