

INSTALLATION INSTRUCTIONS

Original Issue Date: 4/02

Model: **Model K and Model S Programmable Transfer Switches**

Market: **Transfer Switches**

Subject: **Preferred Source Selector Switch Kit GM20933-KP1**

Introduction

This document provides installation instructions for the preferred source selector switch.

The two-position key-operated preferred source selector switch allows selection of either source as the preferred source. See Figure 1. The transfer switch seeks and transfers to the preferred source whenever it is available. The preferred source selection cannot be changed remotely through software or the Modbus® connection. Figure 2 shows the preferred source selector switch.

Source N is always the source connected to the Normal side of the transfer switch and Source E is always connected to the Emergency side. Generator engine start relays are assigned to the source (Source N or Source E). The engine start relays do not change when the preferred source switch position changes. This prevents the need to change the wiring of the engine start relay(s) when the preferred source changes.

Operating Modes. Typically the transfer switch is set for the generator set-to-utility mode of operation. This mode uses one generator set, which is connected to the Emergency side of the contactor (Source E), and one engine start relay. The engine start contact is assigned to the connected generator set and does not change assignment when the preferred source switch position is changed. In this mode, if the preferred source switch is set to Source E, then the system operates the generator set indefinitely, transferring to utility power only if the generator set fails.

Use the setup program to change the mode to generator set-generator set or utility-utility if necessary. The generator set-generator set mode uses two generator sets and requires the assignment of a second engine start output. Use the setup program to assign one of the main logic board terminal strip or I/O module outputs to Start Source N Generator, and connect the engine start leads for the Source N generator set to the corresponding terminals on the terminal strip or I/O module terminals.

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Note: A personal computer running the setup program is required to configure changes to the preferred source selector switch function. Refer to the setup program operation manual to set up changes.

Read the entire installation procedure and compare the kit parts with the parts list at the end of this publication before beginning installation. Perform the steps in the order shown.

Special Tools Required

- Electric drill
- Hole saw, 16.2 mm (0.64 in.), or hole punch/die
- Knife or razor blade

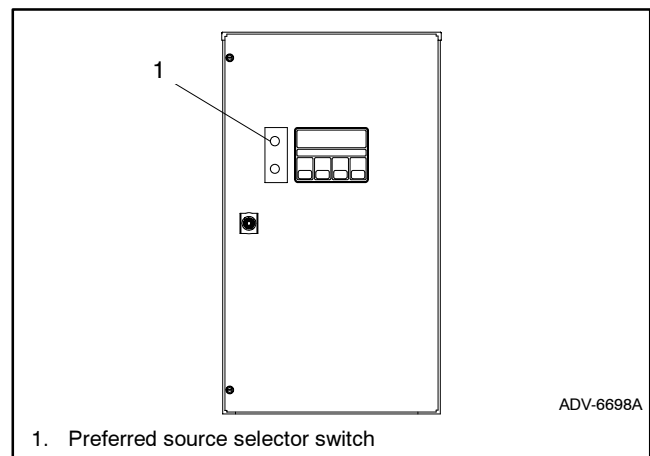


Figure 1 Preferred Source Selector Switch Location

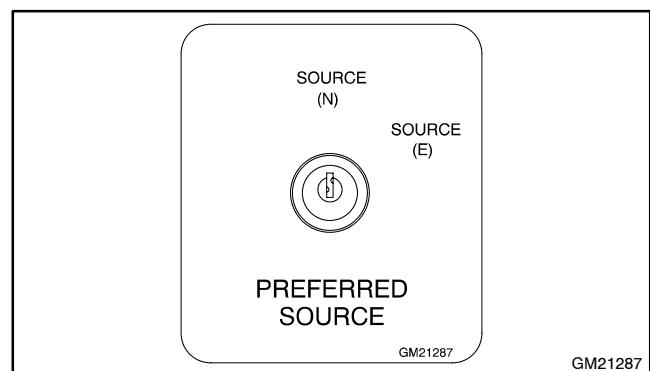
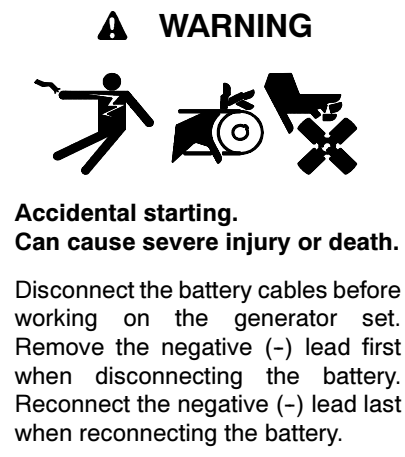
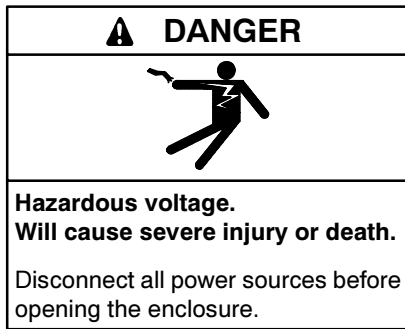


Figure 2 Preferred Source Selector Switch

Safety Precautions

Observe the following safety precautions during installation.



Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

Grounding electrical equipment. Hazardous voltage can cause severe injury or death. Electrocution is possible whenever electricity is present. Open the main circuit breakers of all power sources before servicing the equipment. Configure the installation to electrically ground the generator set, transfer switch, and related equipment and electrical circuits to comply with applicable codes and standards. Never contact electrical leads or appliances when standing in water or on wet ground because these conditions increase the risk of electrocution.

Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove all jewelry before servicing the equipment.

NOTICE

Foreign material contamination. Cover the transfer switch contactor and logic assembly during drilling to keep dirt, grit, metal drill chips, and other debris out of the components.

Installation Procedure

1. Remove the generator set and transfer switch from service

- 1.1 Place all generator set master switches in the OFF position.
- 1.2 Disconnect the power to all battery chargers, if equipped.
- 1.3 Disconnect all generator set engine starting battery(ies), negative (-) leads first.
- 1.4 Disconnect all power sources to transfer switches and power monitors.
- 1.5 Turn off and disconnect the power to all devices in the system.
- 1.6 Open the transfer switch security cover, if installed.
- 1.7 Open the transfer switch enclosure.

2. Install the switch assembly

Note: Foreign material contamination. Cover the transfer switch contactor and logic assembly during drilling to keep dirt, grit, metal drill chips, and other debris out of the components.

- 2.1 Drill or hole punch a 16.2 mm (0.64 in.) diameter hole in the transfer switch door as shown in Figure 3. Dimensions shown are mm. Use a hole saw or hole punch/die and follow the manufacturer's instructions. Remove burrs and metal chips.

Note: Do not drill or punch the hole oversize as the larger flange diameter on the switch assembly is 17.8 mm (0.7 in.).

- 2.2 With the surfaces clean and dry, apply the decal (GM21287) to the hole in the enclosure door. Align the decal's small circle to the center of the hole. See Figure 4.
- 2.3 Use a knife or razor blade and cut the decal flush with the hole opening.

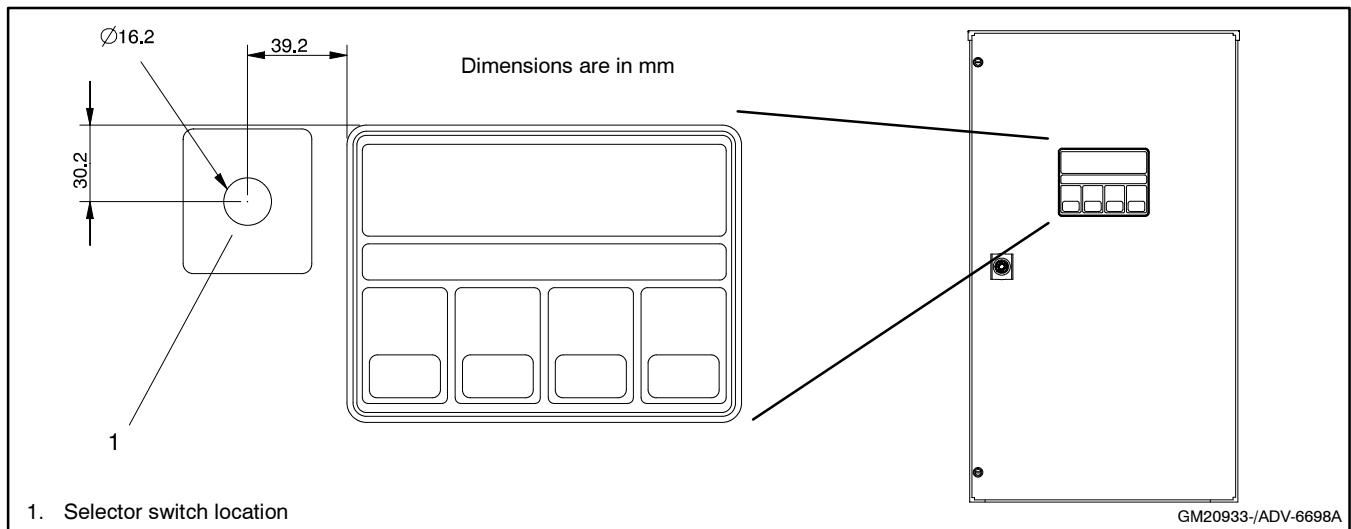


Figure 3 Drill or Punch Hole in Transfer Switch Door

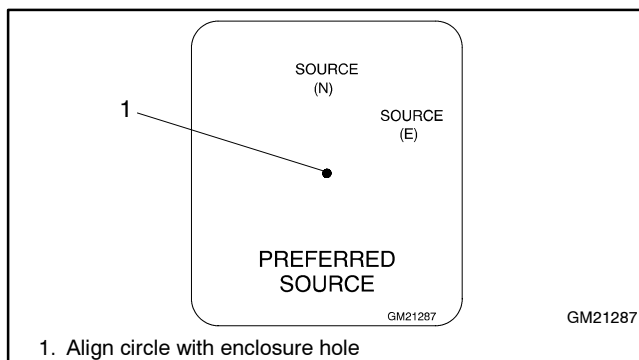


Figure 4 Attaching Selector Switch Decal

- 2.4 Place a small slotted screwdriver at either corner of the wire clip and pry up slightly to separate the contact assembly (GM20928) from the operator assembly (GM20927) part of the switch assembly, if connected. See Figure 5.
- 2.5 Remove the nut and retaining washer from the operator assembly. Keep the rubber washer on the operator assembly.
- 2.6 Install the key and turn counterclockwise in the operator assembly.
- 2.7 Install the operator assembly and rubber washer in the enclosure door hole and install the retaining washer and nut. Position the bent corners of the retaining washer against the enclosure door. Do not overtighten the nut.
- 2.8 Verify that the key positions correspond to the decal's normal and emergency positions. Rotate the operator assembly as necessary. See Figure 6.
- 2.9 Attach the contact assembly to the operator assembly. The two pieces are indexed such that

they will fit together in only one position. If attachment problems occur, place the contact assembly against the operator assembly. Apply a slight amount of pressure while rotating the contact assembly until the two pieces lock together with a positive *click* sound.

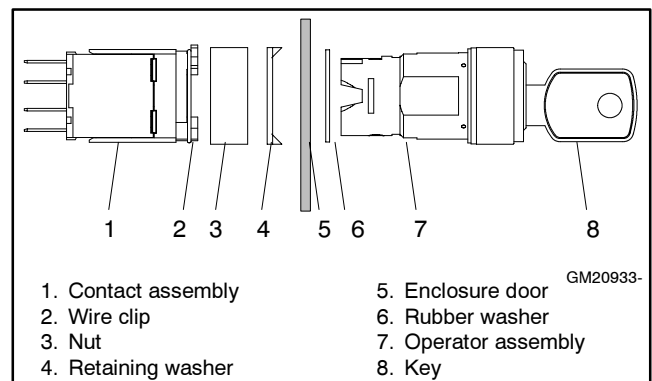


Figure 5 Selector Switch Components

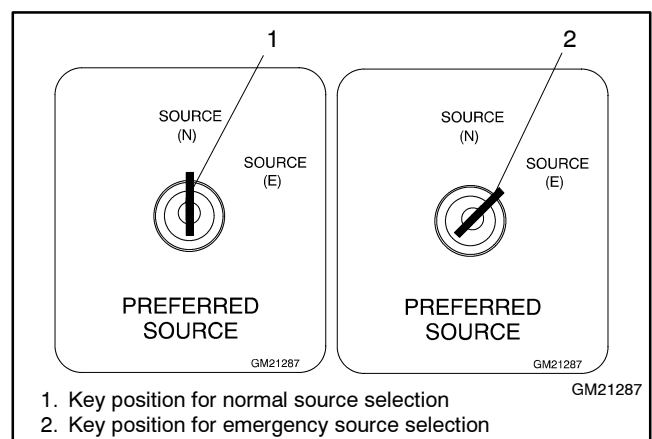


Figure 6 Preferred Source Selector Switch Key Positions

3. Connect the switch assembly to the transfer switch logic circuit board

- 3.1 Connect leads SW101-1806-5905 and SW102-1806-5905 to the switch assembly as shown in Figure 7.
- 3.2 Connect the corresponding leads to the terminal block (GM20930) as shown in Figure 7.
- 3.3 Connect the terminal block to the mating connector on the transfer switch logic circuit board. See Figure 8.

4. Restore the generator set and transfer switch to service

- 4.1 Close and secure the transfer switch enclosure.
- 4.2 Use the key to place the preferred source selector switch in the designated position. Remove the key if required.
- 4.3 Close and secure the transfer switch security cover, if installed.
- 4.4 Check that the generator set master switches are in the OFF position.
- 4.5 Reconnect the generator set engine starting battery(ies), negative (-) leads last.
- 4.6 Reconnect power to the battery charger, if equipped.
- 4.7 Reconnect all power sources to the transfer switches and power monitors.
- 4.8 Reconnect power to all devices in the system.
- 4.9 Place all generator set master switches in the AUTO position.

Preferred Source Selector Switch Test

Verify preferred source selector switch kit function using the following information after installation and during troubleshooting.

5. Test procedure

- 5.1 Place the preferred source selector switch in the Source (N) position.
- 5.2 Close the utility source circuit breaker if not already done.
- 5.3 Place the generator set master switch in the AUTO position.
- 5.4 Verify that the transfer switch is in the normal source position.

- 5.5 Move the preferred source selector switch to the Source (E) position.
- 5.6 Verify that the generator set starts, runs, and the transfer switch transfers to the emergency source position.
- 5.7 Move the preferred source selector switch to the Source (N) position.
- 5.8 Verify that the transfer switch transfers to the normal source position.
- 5.9 After completing the test, place the generator set master switch in the OFF position to stop the generator set.

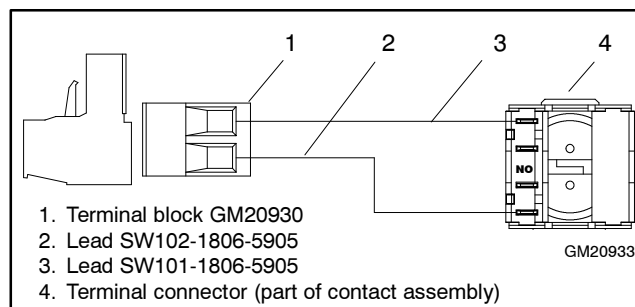


Figure 7 Switch Assembly Electrical Connections

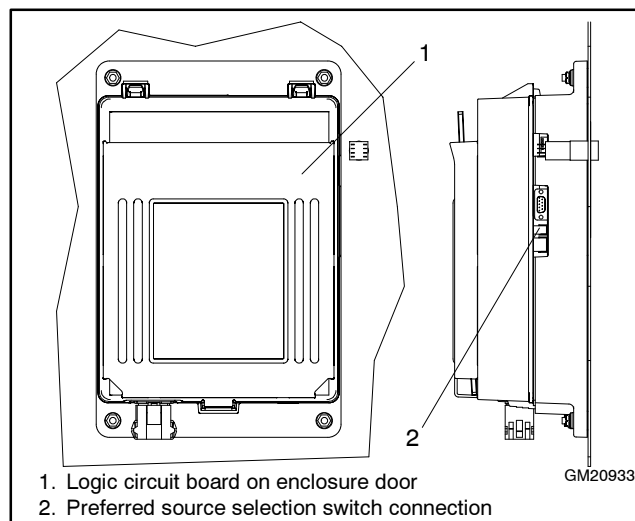


Figure 8 Connect Switch Assembly to Logic Circuit Board

Parts List

Kit: GM-20933-KP1		
Qty.	Description	Part Number
1	Switch assembly (2 position)	GM20927
2	Key, switch assy. (included w/GM20927)	—
1	Contact assembly (1 NO contact)	GM20928
1	Terminal block (2 position)	GM20930
1	Decal, preferred source	GM21287
1	Lead, 101	SW101-1806-5905
1	Lead, 102	SW102-1806-5905