

## INSTALLATION INSTRUCTIONS

Original Issue Date: 7/02

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

Market: **Transfer Switches**

Subject: **Supervised Transfer Control Switch Kit GM20932-KP1**

### Introduction

This document provides installation instructions for the supervised transfer control switch.

The supervised transfer control (AUTO/MANUAL/TRANSFER) switch is a three-position key-operated switch that allows user-controlled transfer from two sources. See Figure 1 for location.

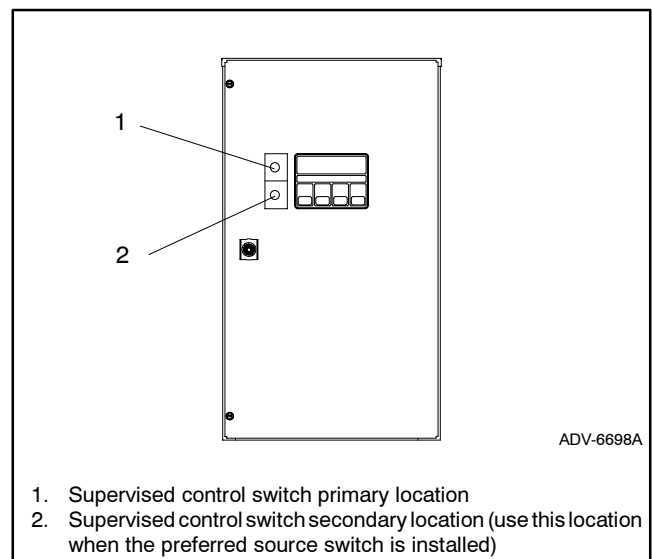
Figure 2 shows the supervised transfer control switch. The AUTO and MANUAL switch positions are maintained positions; the TRANSFER position is momentary with a spring return. It is not necessary to hold the switch in the TRANSFER position during the transfer sequence. Turn the switch to TRANSFER and release it to initiate transfer. The transfer sequence will proceed after the switch returns to the MANUAL position, executing all programmed time delays and transferring the load to the other source if it is available.

The key is removable in the AUTO or MANUAL positions. The key cannot be removed when the switch is in the TRANSFER position. The switch cannot be locked into the TRANSFER position.

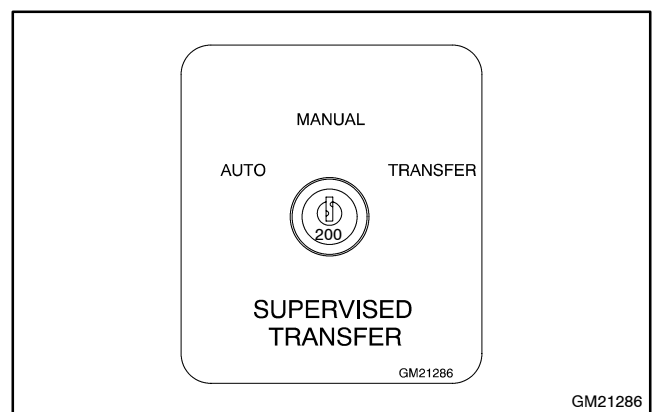
When the supervised transfer control switch is in the AUTO mode and the normal source is unavailable, the transfer switch will automatically transfer to the emergency source when available. When the normal source is restored, the transfer switch will automatically transfer back to the preferred source.

When the supervised transfer control switch is in the MANUAL mode and the normal source is unavailable, the transfer switch will automatically transfer to the emergency source when available. When the normal source is restored, the transfer switch will **NOT** transfer back to the preferred source until the supervised transfer control switch is positioned to TRANSFER or if emergency is lost and normal is present.

The supervised transfer control switch in the MANUAL mode allows the system to run on the emergency source indefinitely, even if the preferred source is available. Only if the emergency source is disrupted will the transfer switch automatically transfer to the normal source when available.



**Figure 1** Supervised Transfer Control Switch Location



**Figure 2** Supervised Transfer Control Switch

Figure 3 summarizes the switch operation.

**Test and Peak Shave Operation.** When the supervised transfer control switch on an automatic system is in the *MANUAL position*, pressing the TEST button or sending a peak shave command causes transfer to the standby source. However, ending the test or removing the peak shave signal will *not* cause a

transfer back to the preferred source. Move the supervised transfer control switch to the TRANSFER position to initiate transfer back to the preferred source.

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.

Switch Position	Automatic Transfer Switch Operation
Auto	<ul style="list-style-type: none"><li>Automatically transfers to the standby source, when available, if the preferred source is lost</li><li>Transfers back to the preferred source when it becomes available</li></ul>
Manual	<ul style="list-style-type: none"><li>Automatically transfers to an available source if the connected source is lost</li><li>Does not automatically transfer back to the preferred source when both sources are available</li></ul>
Transfer	<ul style="list-style-type: none"><li>Can use to transfer when the switch is in the MANUAL position and both sources are available</li><li>Initiates transfer sequence to the other source, if available, including all programmed time delays</li><li>Operates pre- and post-transfer load control time delays if both sources are available</li></ul>

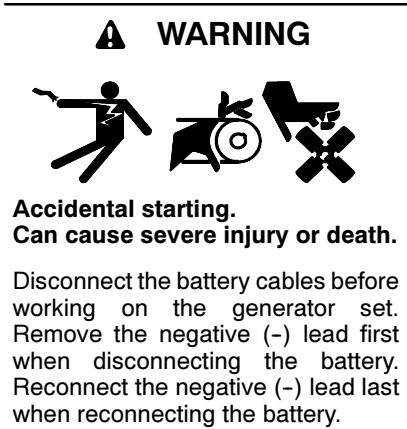
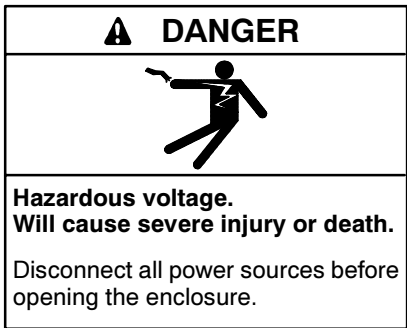
**Figure 3** Supervised Transfer Control Switch Operation

### Special Tools Required

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

### 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.** Electrocuting 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.

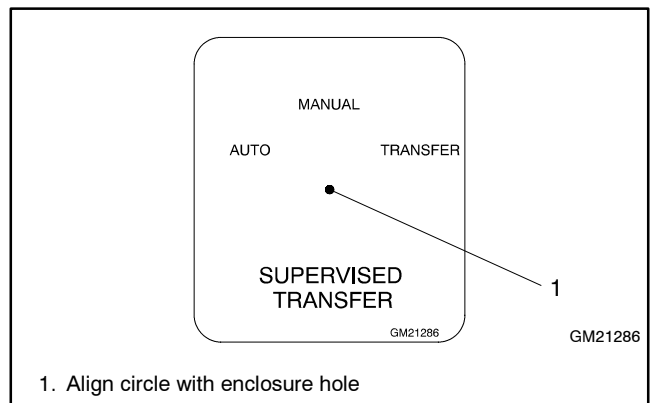
## 2. Install the switch assembly

**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.

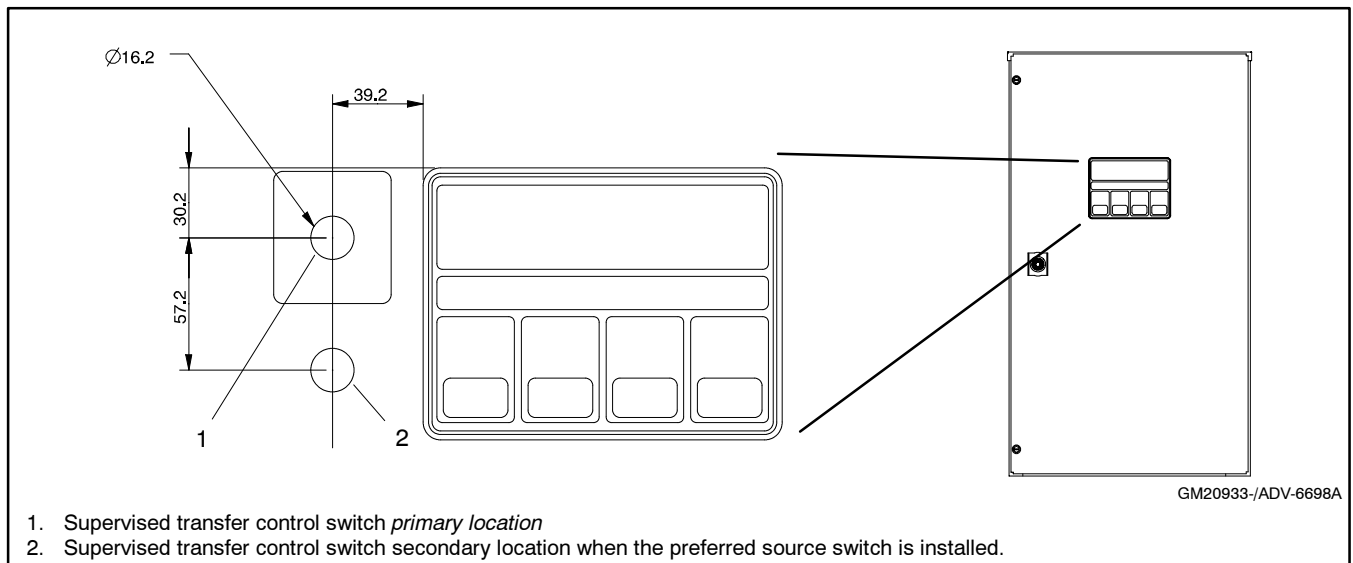
- 2.1 Drill or hole punch a 16.2 mm (0.64 in.) diameter hole in the transfer switch door as shown in Figure 5. Dimensions shown are mm. Use a hole saw or hole punch/die and follow the manufacturer's instructions. Remove burrs and metal chips.

**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 (GM21286) to hole in the the enclosure door. Align the decal 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.

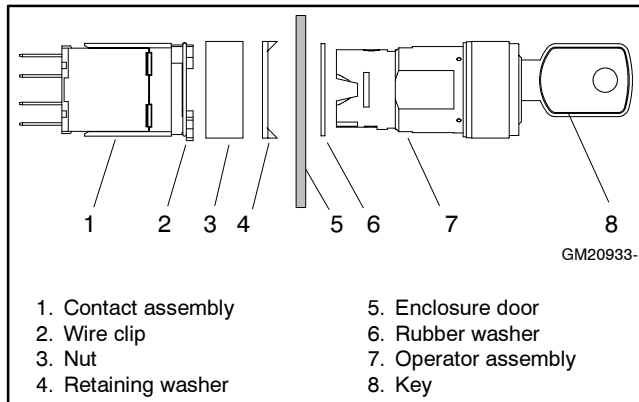


**Figure 4** Attaching Switch Decal



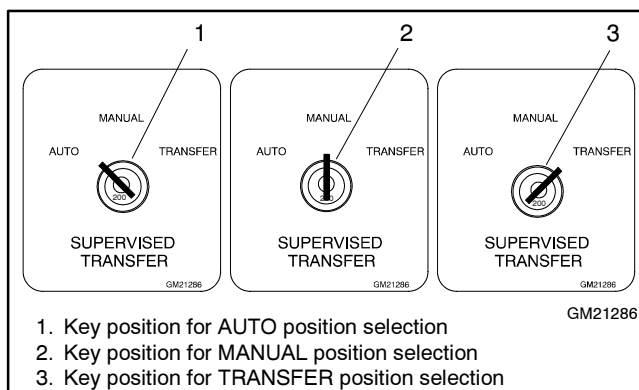
**Figure 5** Drill or Punch Hole in Transfer Switch Door

- 2.4 Place a small slotted screwdriver at either corner of the wire clip and pry up slightly to separate the contact assembly (GM20929) from the operator assembly (GM20926) part of the switch assembly, if connected. See Figure 6.



**Figure 6** Selector Switch Components

- 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 the key 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 AUTO, MANUAL, and TRANSFER positions. Rotate the operator assembly as necessary. See Figure 7.



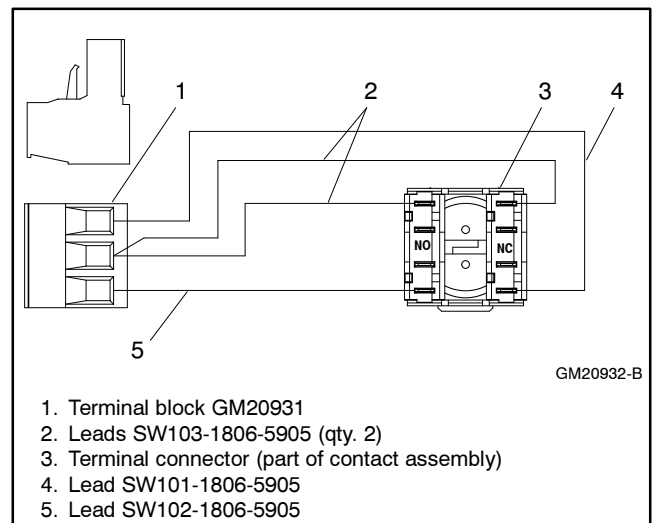
**Figure 7** Supervised Transfer Control Switch Key Positions

- 2.9 Attach the contact assembly to 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

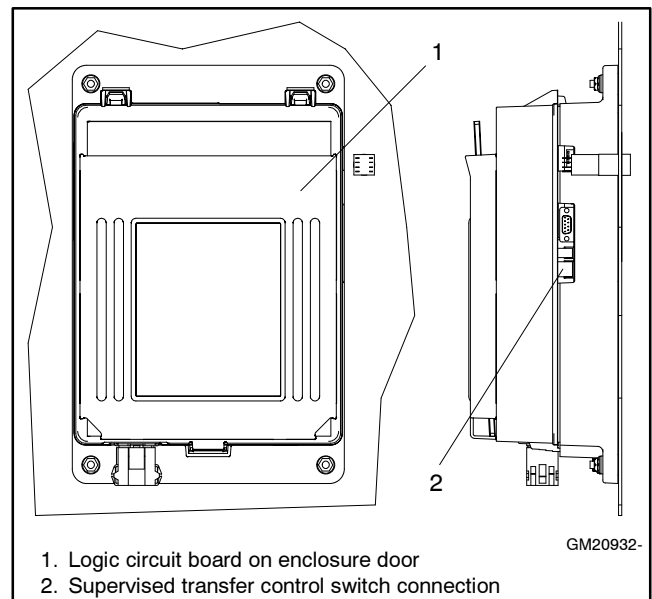
slight amount of pressure while rotating the contact assembly until the two pieces lock together with a positive *click* sound.

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

- 3.1 Connect leads SW101-1806-5905, SW102-1806-5905, and SW103-1806-5905 to the switch assembly as shown in Figure 8.
- 3.2 Connect the corresponding leads to the terminal block (GM20931) as shown in Figure 8.
- 3.3 Connect the terminal block to the mating connector on the transfer switch logic circuit board. See Figure 9.



**Figure 8** Switch Assembly Electrical Connections (as viewed from back of door)



**Figure 9** Connect Switch Assembly to Logic Circuit Board

#### 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 supervised transfer control 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 all 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.

### Test the Supervised Transfer Control Switch

Verify the supervised transfer control switch kit function by using the following information after installation and during troubleshooting.

#### 5. Test procedure

- 5.1 Place the supervised transfer control switch in the **AUTO** mode.
- 5.2 Close the utility source circuit breaker if not already done.
- 5.3 Place the generator set master switch to the AUTO position.
- 5.4 Press the transfer switch TEST button to simulate a loss of normal (preferred) source power.
- 5.5 Verify that the generator set starts and runs, and the transfer switch transfers to the emergency source position. Be sure to allow time for any time delays.

- 5.6 Momentarily place the supervised transfer control switch in the TRANSFER mode and return to the AUTO mode.
- 5.7 Press the transfer switch TEST button to end the test and transfer back to the normal source position. Be sure to allow time for any time delays.
- 5.8 Verify that the transfer switch is in the normal position.
- 5.9 Place the supervised transfer control switch in the **MANUAL** mode.
- 5.10 Press the transfer switch TEST button to simulate a loss of normal (preferred) source power.
- 5.11 Verify that the transfer switch is in the emergency position. Be sure to allow time for any time delays.
- 5.12 Press the transfer switch TEST button to end the simulated loss of normal source test.
- 5.13 Verify that the transfer switch is *still in the emergency position*.
- 5.14 Place the supervised transfer control switch in the **AUTO** mode.
- 5.15 Verify that the transfer switch is in the normal position. Be sure to allow time for any time delays.
- 5.16 Verify that the generator set shuts down. Be sure to allow time for any time delays.

### Parts List

#### Supervised Transfer Control Switch Kit

Kit: GM-20932-KP1		
Qty.	Description	Part Number
1	Switch assembly (3 position)	GM20926
2	Key, switch assembly (included with GM20926)	—
1	Contact assembly (1 NO/1 NC contacts)	GM20929
1	Terminal block (3 position)	GM20931
1	Decal, supervised transfer control	GM21286
1	Lead, 101	SW101-1806-5905
1	Lead, 102	SW102-1806-5905
2	Lead, 103	SW103-1806-5905