

INSTALLATION INSTRUCTIONS

Original Issue Date: 12/02

Model: **Transfer Switches with Programmable Controllers**

Market: **ATS**

Subject: **Transformer Kits GM26369 (480 V) and GM26859 (600 V)**

Introduction

A potential problem exists on transfer switches equipped with the Programmable ATS Controller and installed in some 480-volt and 600-volt applications. The Programmable ATS Controller’s user interface is shown in Figure 1 for controller identification.

The problem may surface when the transfer switch is installed in 600-volt applications or in 480-volt applications that do not utilize a three-phase, four-wire wye connection. In these applications, the power supply on the control board can fail. If the controller power supply fails, the transfer switch will not function.

Install transformer kit GM26369 on all transfer switches equipped with the Programmable Controller and installed in a 480-volt application other than a three-phase, four-wire system (i.e. an ungrounded wye, ungrounded delta, or corner-grounded delta configuration).

Use transformer kit GM26859 for 600-volt applications. The transformer kit is factory-installed on all 600-volt transfer switches equipped with the Programmable ATS Controller built after October 12, 2002.

The transformer kit includes a controller (logic) assembly, transformer with terminal guard, transformer mounting panel, and wiring harness.

Refer to the transfer switch Operation and Installation Manual, TP-6126 or MP-6126, for more detailed information about controller connections, setup, and test throughout the procedure.

If the controller’s factory default settings are not used, a personal computer running the ATS Controller Setup Program is required to save system settings including time delays, system parameters, inputs, and outputs from the existing controller and then load those settings onto the replacement controller.

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.

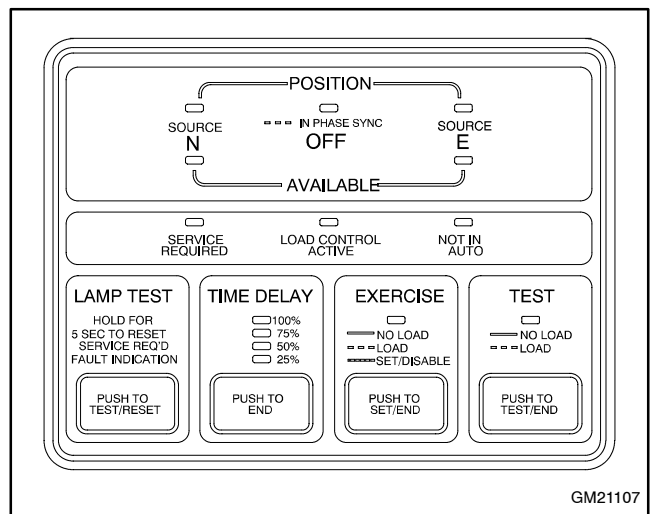
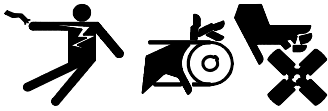


Figure 1 Programmable ATS Controller User Interface

Safety Precautions

Observe the following safety precautions while installing the kit.

WARNING



Accidental starting. Can cause severe injury or death.

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

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.

 DANGER

Hazardous voltage. Will cause severe injury or death. Disconnect all power sources before opening the enclosure.



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.

Installation Procedure

1. Save the system settings.

- 1.1 If the system does not use the factory-default controller settings, use a personal computer

running the ATS Controller Setup Program to save system settings. Use the *Save Setup* command to save system settings including time delays, pickup and dropout settings, etc. Refer to the Setup Program Operation manual for instructions.

2. Prevent the generator set from starting and disconnect power to the transfer switch.

- 2.1 Remove the generator set from service.
 - 2.1.1 Place the generator set master switch in the OFF position.
 - 2.1.2 Disconnect the power to the battery charger, if equipped.
 - 2.1.3 Disconnect the generator set engine starting battery(ies), negative (-) lead first.
- 2.2 Disconnect power to the transfer switch.
 - 2.2.1 Transfer Switches: Disconnect power to the transfer switch by opening the normal and emergency source circuit breakers or switches.
 - 2.2.2 Bypass/Isolation Switches: Follow the instructions in the the Bypass/Isolation Switch Operation/Installation Manual to bypass and isolate the transfer switch.

- 2.3 Open the transfer switch enclosure door.

3. Assemble and install the transformer assembly.

- 3.1 Attach transformer GM26854 (480 V) or GM26855 (600 V) to mounting panel GM26858 using 4 lockwashers (X-22-9) and 4 nuts (X-6210-1) as shown in Figure 2.
- 3.2 Connect the new wiring harness (GM26857) to the transformer assembly. See Figure 2 and refer to the 480-volt or 600-volt view corresponding to your system.

Note: The 480-volt configuration requires a jumper across terminals H2 and H3.

- 3.3 Snap the terminal cover (GM25856) over the transformer terminals.

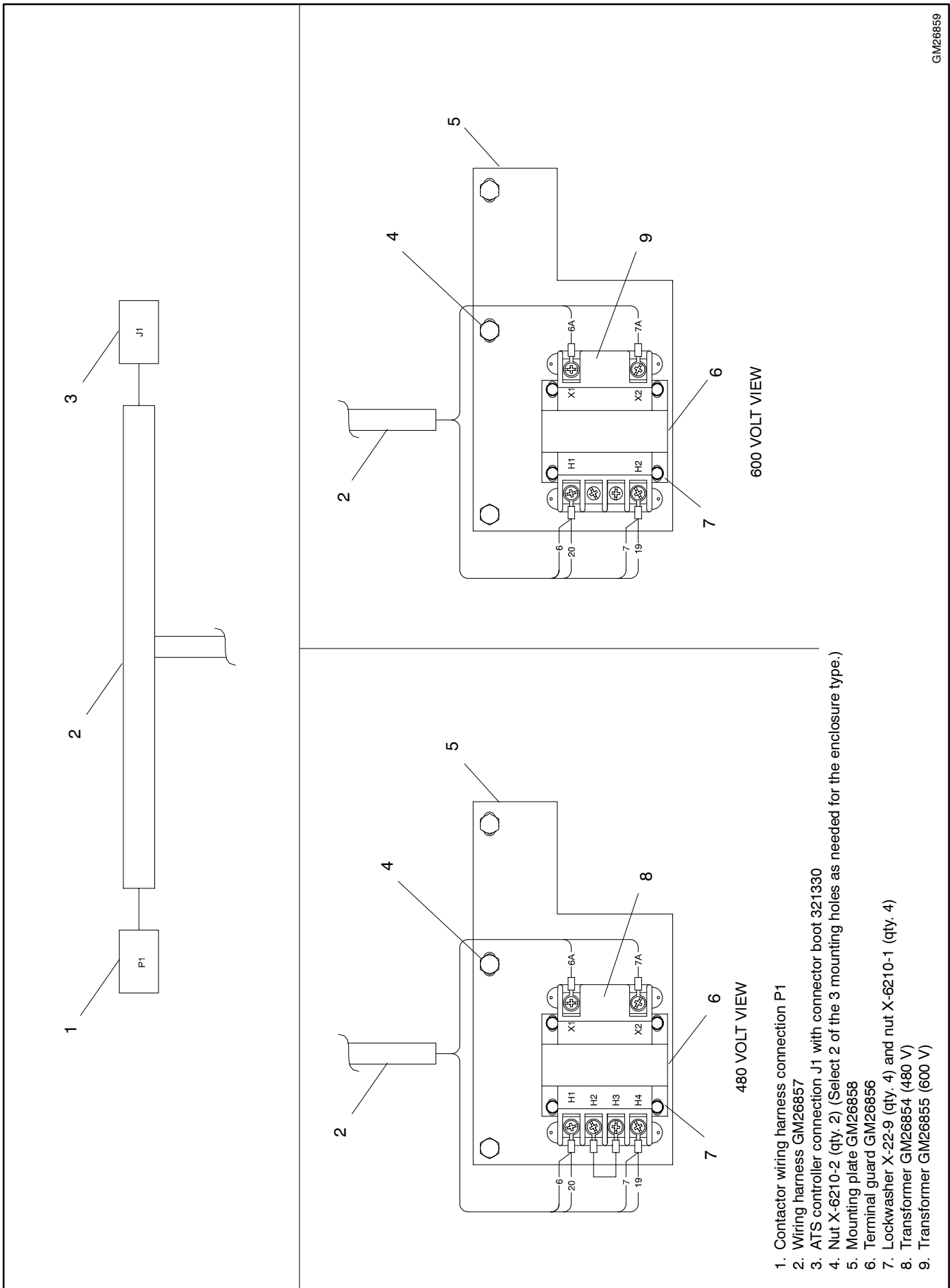


Figure 2 Transformer Assembly with Wiring Harness

1. Contactor wiring harness connection P1
2. Wiring harness GM26857
3. ATS controller connection J1 with connector boot 321330
4. Nut X-6210-2 (qty. 2) (Select 2 of the 3 mounting holes as needed for the enclosure type.)
5. Mounting plate GM26858
6. Terminal guard GM26856
7. Lockwasher X-22-9 (qty. 4) and nut X-6210-1 (qty. 4)
8. Transformer GM26854 (480 V)
9. Transformer GM26855 (600 V)

3.4 Install the transformer assembly.

3.4.1 30-400 amp models: See Figure 3. Mount the transformer assembly on the right side of the enclosure onto the two lower I/O module mounting studs. Mount the transformer assembly mounting plate *under* the I/O module assembly, if installed. Secure the assembly with two nuts (X-6210-2).

3.4.2 600-800 amp models: See Figure 4. Mount the transformer assembly on the right side of the enclosure onto the two lower battery charger mounting studs. Mount the transformer assembly mounting plate *under* the battery charger, if installed. Secure the assembly with two nuts (X-6210-2).

3.4.3 Framework enclosures (1000-4000 amp open-transition and all bypass/isolation switches): See Figure 5. Mount the transformer assembly onto the enclosure's corner support below the field connection block. Locate the transformer assembly so that the wiring harness can be connected to the transformer, the controller, and the contactor harness. Secure the assembly with two X-67-113 screws.

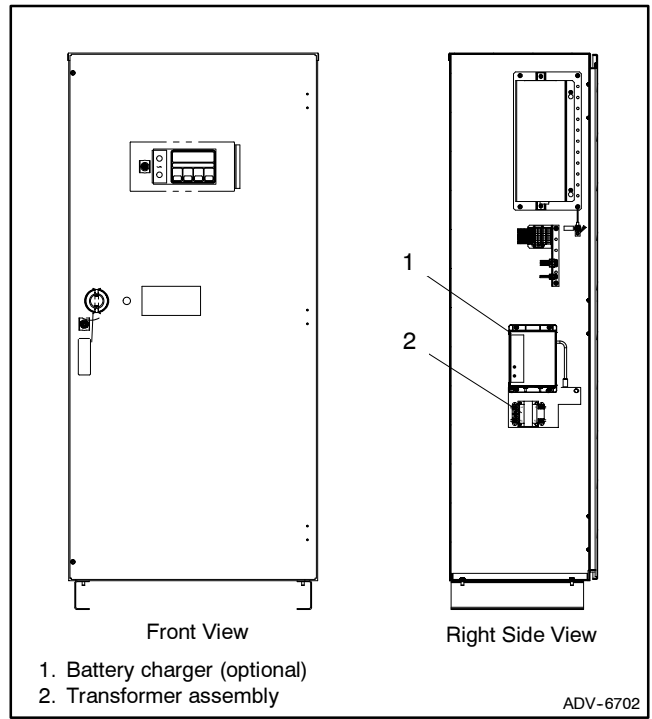


Figure 4 Transformer Assembly Location, 600-800 Amp Models

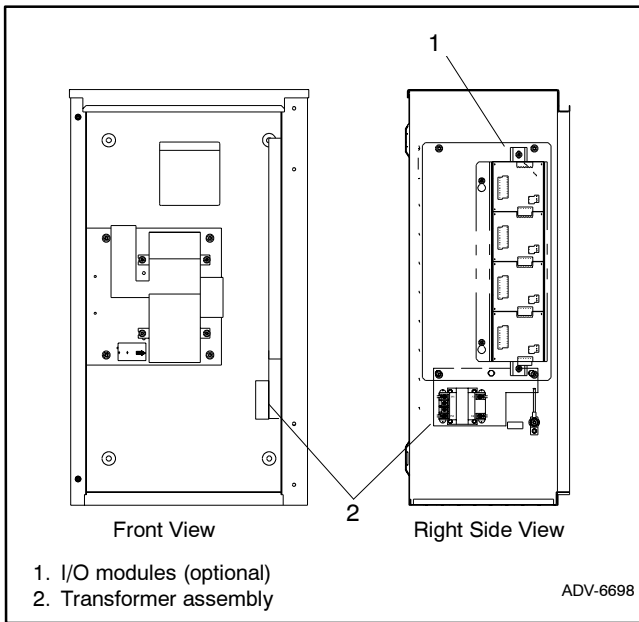


Figure 3 Transformer Assembly Location, 30-400 Amp Models

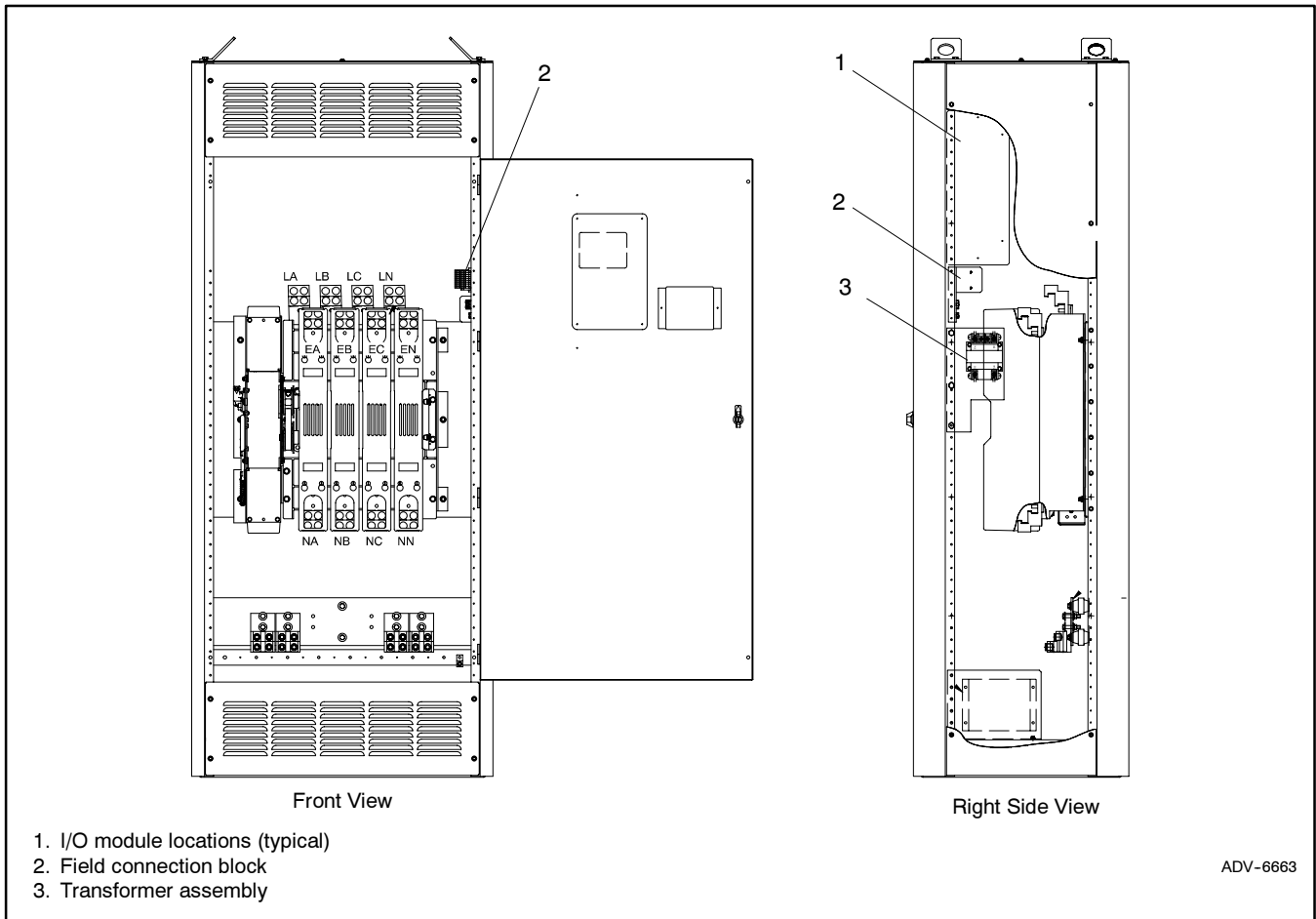


Figure 5 Transformer Assembly Location, Large Framework-Style Enclosures

4. Remove the existing controller assembly.

- 4.1 Use a voltmeter to check the voltage at the source connections to verify that the power is off.
- 4.2 Remove the plastic cover from the old controller . To remove the cover, depress the latch at the bottom of the cover. Swing the cover open on its hinges and lift it off. See Figure 6.
- 4.3 Remove the literature holder from the cover. Save the literature holder for reinstallation later.

Note: The literature holder includes the transfer switch nameplate, which must remain with the transfer switch.

- 4.4 Check and record the controller's DIP switch settings for reference later in the procedure.

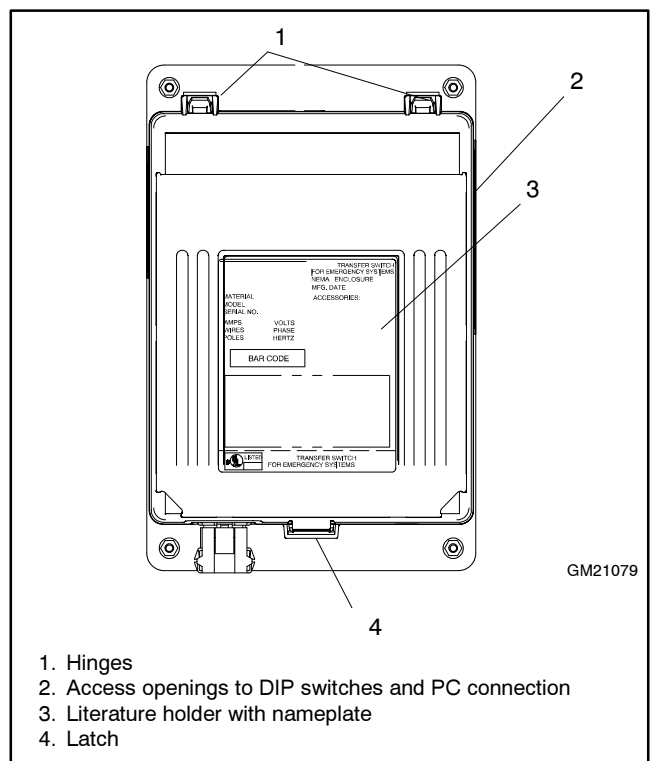


Figure 6 Controller Housing Cover

- 4.5 Disconnect the controller. See Figure 7.
 - 4.5.1 Disconnect the transfer switch harness at the connector on bottom of the controller.
 - 4.5.2 Disconnect the programmed-transition board, if equipped, from the controller at connector P9.
 - 4.5.3 Label each input/output lead connected to the main logic board terminal strip and then disconnect the I/O leads.
 - 4.5.4 Disconnect I/O modules (if equipped) at connector P3.
 - 4.5.5 Disconnect the preferred source switch and supervised transfer switch (if equipped) from the controller board connectors P7 and P8.
 - 4.5.6 Disconnect the controller ground wire at the ring terminal on the enclosure door.
- 4.6 Support the controller assembly and remove four nuts at the corners.
- 4.7 Carefully remove the controller assembly, including the user interface panel, which is part of the assembly.

5. Install the new controller assembly.

- 5.1 Mount the new controller assembly (GM28287) onto the enclosure door. Secure the four nuts (X-6210-1) at the corners and tighten them to no more than 6.8 Nm (5 ft. lbs. or 60 in lbs.) torque.
- 5.2 Reconnect the controller using the new wiring harness (GM26857). See Figure 2 and Figure 7.
 - 5.2.1 Connect the controller ground wire at the ring terminal on the enclosure door.
 - 5.2.2 Connect the programmed-transition board (if equipped) to the controller at connector P9.
 - 5.2.3 Connect the I/O leads to the main logic board terminal strip, using the labels attached in step 4.5.3 to connect the leads to the appropriate terminals.
 - 5.2.4 Connect I/O modules (if equipped) at connector P3.
 - 5.2.5 Connect the preferred source switch and supervised transfer switch (if equipped) to the controller board connectors P7 and P8.

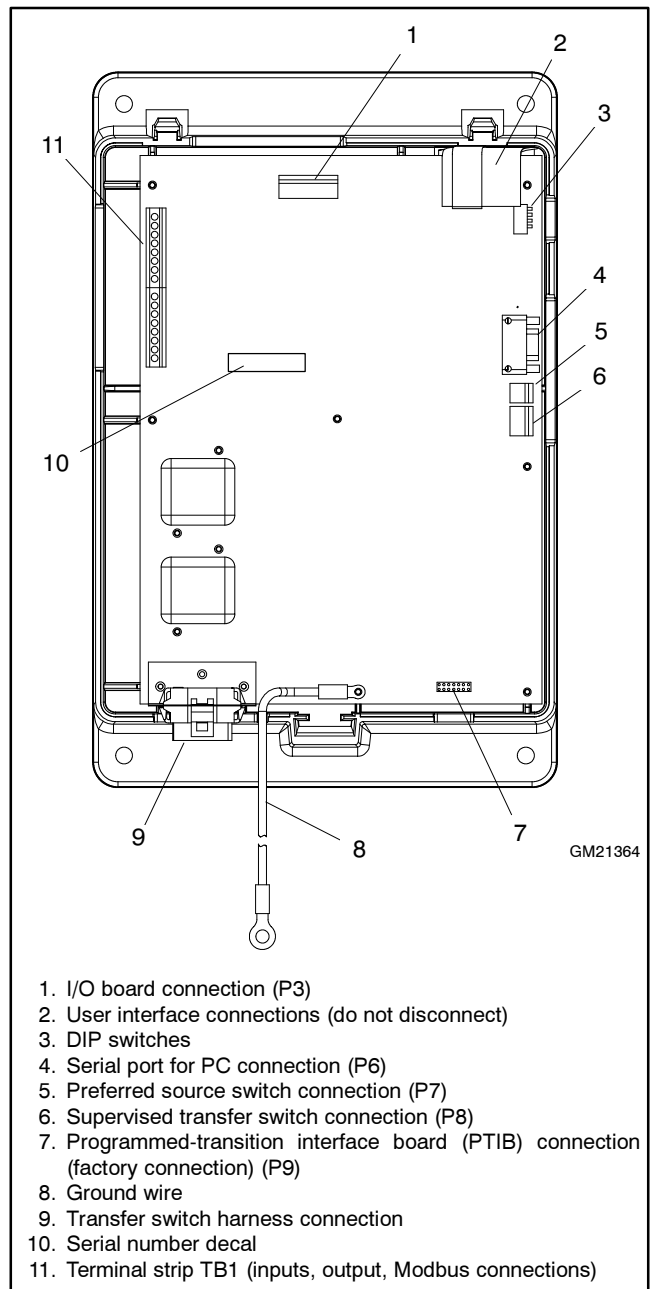


Figure 7 Controller Board Component Locations (cover removed)

- 5.2.6 Connect the J1 connector of the new wiring harness (GM26857) to the transfer switch harness connector (P1) on the bottom of the controller.
- 5.3 Check the controller's DIP switch settings and adjust them if necessary to match the settings on the old controller.
- 5.4 If the controller settings will be restored or adjusted using a PC, connect the controller communication cable to controller serial port P6 and bring the other end of the cable out the door through the bottom of the enclosure.

- 5.5 Remove the literature holder from the new controller and replace it with the literature holder from the old assembly.

Note: The literature holder includes the transfer switch nameplate, which must remain with the transfer switch.

- 5.6 Install the controller housing cover.
 - 5.7 Connect plug P1 of the new wiring harness (GM26857) to the transfer switch contactor wiring harness using the connector boot (321330).
 - 5.8 Close and lock the transfer switch enclosure door.
 - 5.9 Reconnect power to the transfer switch.
 - 5.9.1 Transfer Switches: Close and lock the enclosure door. Reconnect power to the transfer switch by closing the normal and emergency source circuit breakers or switches.
 - 5.9.2 Bypass/Isolation Switches: Follow the instructions in the the Bypass/Isolation Switch Operation/Installation Manual to return the transfer switch to service.
- Note:** Power to the controller is required in order to check and adjust the controller settings. If all the power sources are generator sets, reconnect the normal source generator set engine starting battery and move the generator set master switch to the AUTO position.
- 5.10 Connect a personal computer and use the Setup Program to check or restore the system settings and adjust them, if necessary. Refer to the Setup Program Operation Manual for instructions.
 - 5.10.1 If the *Save Setup* command was used in step 1.1 to save the old controller's system settings, the *Restore Setup* command can now be used to load those settings onto the new controller.
 - 5.10.2 Check the system voltage, frequency, number of phases, phase rotation, time delays, and other user-adjustable

settings. Set up inputs/outputs and the in-phase monitor, if applicable. Refer to the Setup Program Operation and Installation Manual for instructions.

- 5.11 Disconnect power to the transfer switch by opening circuit breakers or switches.
- 5.12 Open the enclosure door and remove the communications cable.
- 5.13 Close and lock the enclosure door. Tighten any screws that secure the door.

6. Return the transfer switch to service.

- 6.1 Reconnect power to the transfer switch.
 - 6.1.1 Transfer Switches: Reconnect power to the transfer switch by closing the normal and emergency source circuit breakers or switches.
 - 6.1.2 Bypass/Isolation Switches: Follow the instructions in the the Bypass/Isolation Switch Operation/Installation Manual to return the transfer switch to service.
- 6.2 Reconnect the generator set engine starting battery, negative (-) lead last.
- 6.3 Move the generator set master switch to the AUTO position.

7. Test the transfer switch operation and set the exerciser.

- 7.1 Press the LAMP TEST button on the front of the controller and verify that all LEDs light.
- 7.2 Run an operation test. Refer to the transfer switch Operation and Installation Manual for instructions.
- 7.3 If the calendar mode exerciser is not being used, press the EXERCISE button on the controller user interface to set the exercise time and start an exercise run. The generator set should start. Refer to the transfer switch Operation and Installation Manual for more information about the exerciser.

Parts List

Transformer Kit, 480 Volt

Kit: GM26369		
Qty.	Description	Part Number
1	Boot, connector	321330
1	Transformer	GM26854
1	Guard, Terminal	GM26856
1	Harness, Wiring	GM26857
1	Panel, Mounting	GM26858
1	Logic Assembly	GM28287
1	ATS Transformer Kit	TT-1338
4	Washer, lock.20 ID x .373 in.OD	X-22-9
2	Nut, flange spiralock, 1/4-20	X-6210-2
4	Nut, flange whiz, 10-32	X-6210-1
2	Screw, hex washer, thread-forming	X-67-113

Transformer Kit, 600 Volt

Kit: GM26859		
Qty.	Description	Part Number
1	Boot, connector	321330
1	Transformer	GM26855
1	Guard, Terminal	GM26856
1	Harness, Wiring	GM26857
1	Panel, Mounting	GM26858
1	Logic Assembly	GM28287
1	ATS Transformer Kit	TT-1338
4	Washer, lock.20 ID x .373 in.OD	X-22-9
4	Nut, flange whiz, 10-32	X-6210-1
2	Nut, flange spiralock, 1/4-20	X-6210-2
2	Screw, hex washer, thread-forming	X-67-113