

---

**INSTALLATION INSTRUCTIONS**

---

Original Issue Date: **6/95**

Model: **ATS Microprocessor-Based Controller (M/M+)**

Market: **Industrial**

Subject: **Controller Assembly Field Service and Programming Kits 346060 and 346061**

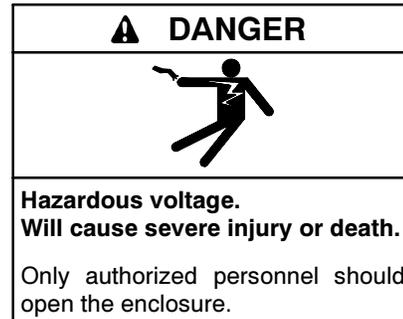
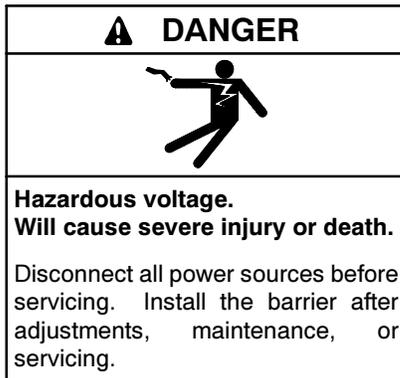
**Introduction**

The controller assembly field service and programming kit enables replacement of the automatic transfer switch controller assembly. The installation involves transferring the original controller assembly accessories, shunt jumpered features, and index programming.

**Safety Precautions**

Observe the following safety precautions while installing the kit.

**Servicing the transfer switch. Hazardous voltage can cause severe injury or death.** Deenergize all power sources before servicing. Open the main circuit breakers of all transfer switch power sources and disable all generator sets as follows: (1) Move all generator set master controller switches to the OFF position. (2) Disconnect power to all battery chargers. (3) Disconnect all battery cables, negative (-) leads first. Reconnect negative (-) leads last when reconnecting the battery cables after servicing. Follow these precautions to prevent the starting of generator sets by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer. Before servicing any components inside the enclosure: (1) Remove all jewelry. (2) Stand on a dry, approved electrically insulated mat. (3) Test circuits with a voltmeter to verify that they are deenergized.



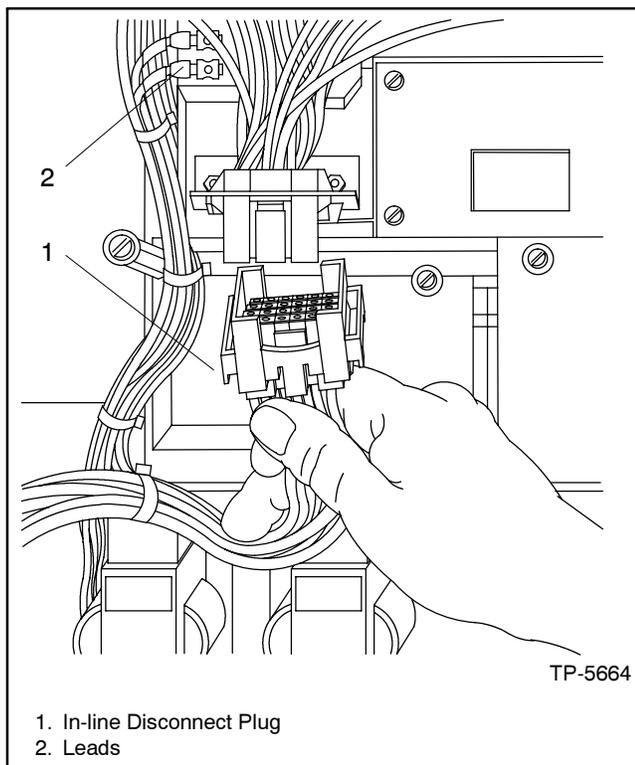
**Grounding electrical equipment. Hazardous voltage can cause severe injury or death.** Electrocutation is possible whenever electricity is present. Open the main circuit breakers of all power sources before servicing the equipment. Configure the installation to electrically ground the generator set, 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.

**Testing live electrical circuits. Hazardous voltage or current can cause severe injury or death.** Have trained and qualified personnel take diagnostic measurements of live circuits. Use adequately rated test equipment with electrically insulated probes and follow the instructions of the test equipment manufacturer when performing voltage tests. Observe the following precautions when performing voltage tests: (1) Remove all jewelry. (2) Stand on a dry, approved electrically insulated mat. (3) Do not touch the enclosure or components inside the enclosure. (4) Be prepared for the system to operate automatically.  
*(600 volts and under)*

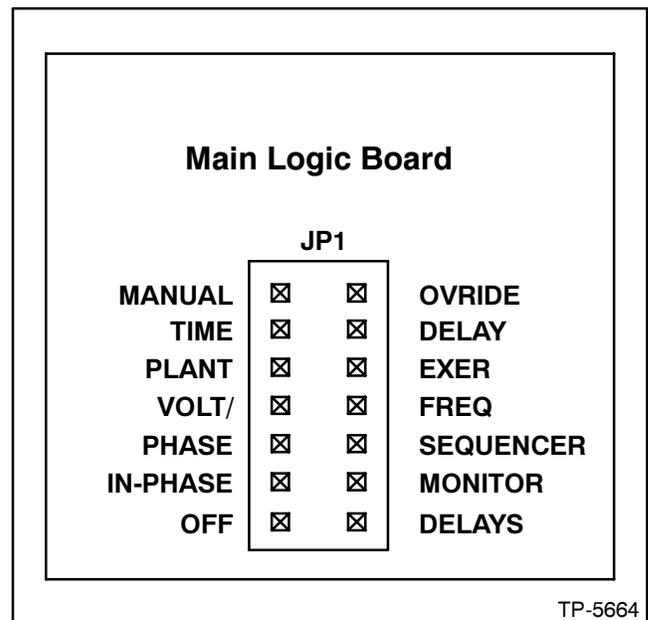
## Installation

1. Record installed controller assembly set points from all indexes if possible.
2. Disconnect utility and emergency power sources to the transfer switch.
3. Disconnect all plugs and wires connected to the original controller assembly. Mark leads so they can be reconnected on the new controller assembly in the same locations. See Figure 1.
4. Remove hardware securing controller assembly to the transfer switch door. Remove controller assembly from the door.
5. Verify that the replacement controller is the same type as the original controller by checking that the transformer assembly base part numbers match. If they do not, contact the factory to receive the correct controller. Do not connect the incorrect controller to the ATS.
6. Locate the lot number on top of the power board. Record the lot number so it can be entered later.
7. Locate the serial number on the ATS nameplate. Record the serial number so it can be entered later.



**Figure 1** In-line Disconnect Plug.

8. Remove shunt jumpers from JP1 on the old main logic board and install them on the new main logic board JP1 in the same locations. If the controller assembly is equipped with three-phase sensing, remove three-phase sensing assembly from circuit board to expose JP1. See Figure 2.
9. Remove any factory installed accessories from the controller assembly, i.e., three-phase sensing and modem, and install them on the new controller assembly.
10. Install new controller assembly. Secure controller assembly to the transfer switch door with hardware removed in step 4.
11. Reconnect leads to controller assembly and in-line plug(s) disconnected in step 2. Use extra care not to bend pins when connecting plug(s).
12. Reconnect power to transfer switch.
13. Turn the programming mode switch on the front of the controller to the local position.
14. Upon application of power to the transfer switch, the liquid crystal display (LCD) will flash SET TIME AND DATE. Set time and date following instructions on front panel.

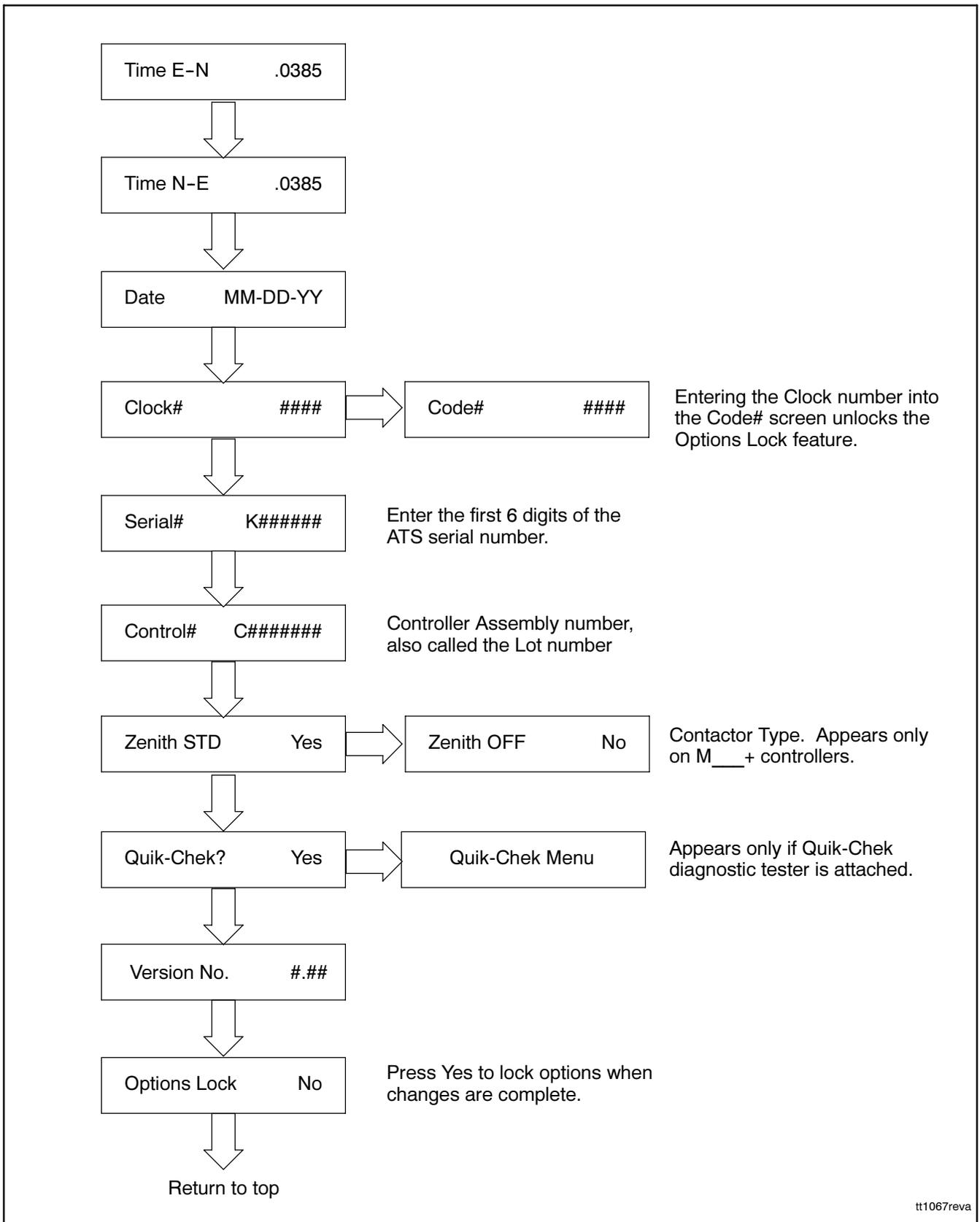


**Figure 2** Logic Board Accessory Programming Shunts (typical).

15. Access the factory initialization menu using the following procedure. See Figure 4 for Menu 20 displays.
  - a. Press the RESET MENU key.
  - b. Press 20 and then the MENU DOWN key.
  - c. Press the MENU DOWN key until the display shows CLOCK #. See Figure 4. Record the clock# displayed.
  - d. Press MENU RIGHT once. Enter the clock # recorded in step c. Press the ENTER key.
  - e. If the display does not show the date, press the MENU DOWN key until the the date appears.
  - f. Enter the current month-day-year (MM-DD-YY), including zeroes as needed. Press ENTER.
  - g. Press the MENU DOWN key until the LCD displays SERIAL K000000.
  - h. Enter the first 6 digits of the serial number from the transfer switch nameplate and press ENTER.
  - i. Press the MENU DOWN key. The LCD will display CONTROL C000000.
  - j. Enter the lot number recorded in step 6 and press ENTER.
  - k. **M\_ \_ \_ + only:** Press the MENU DOWN key. The display will show a contactor type. See Figure 3. Press the MENU RIGHT key until correct contactor type is displayed. Press YES and then ENTER.
  - l. Press the MENU Down key until the LCD display shows OPTIONS LOCK? NO. Press YES and then ENTER.
  - m. Store these settings by pressing RESET MENU and then ENTER.
16. Check the transfer switch voltage with a meter across the lugs. Record the meter reading.
  - a. Access index 1 and compare the meter reading with what index 1 shows.
  - b. Access index 2 and compare the meter reading with what index 2 shows.
  - c. Controller calibration must be within  $\pm 2\%$  of the meter reading. If calibration is not within  $\pm 2\%$ , access index 12 following the procedure in the transfer switch service manual.
17. Access the following indexes and input the necessary information following the procedures listed in the operation and installation manual. Use information and set points recorded in step 1.
  - a. Index 11—Installed Control Options. Index shows which shunt-enabled options/features are installed. These options/features are hard wired and cannot be enabled or disabled from the keyboard. Use the transfer switch operation and installation manual for programming procedures.
  - b. Index 5—Time Delays.
  - c. Index 6—Normal-Source Voltage, Frequency Settings, and Set Points.
  - d. Index 7—Emergency-Source Voltage, Frequency Settings, and Set Points.
  - e. Index 8—Plant Exerciser Settings.
  - f. Index 9—Load-Shed Settings, if equipped.
  - g. Index 12—Voltage-Sensing Calibration Settings. Access only if index 1 and 2 do not read within  $\pm 2\%$  nominal voltage as measured with a meter.
  - h. Index 13—Remote Control and Monitoring Settings, if equipped for remote communication.
18. Turn the programming mode switch to the OFF position.

Setting	Contactor Description
ASCO	Asco contactor
ZENITH STD	Zenith standard (includes bypass)
ZENITH OFF	Zenith programmed-transition
M-GERIN MP	Merlin-Gerin circuit breaker Masterpact (1600-4000 amps)
M-GERIN MC	Merlin-Gerin circuit breaker (40-1250 amps)
T-MECA MAGN	Telemecanique magnetically held
T-MECA MECH	Telemecanique mechanically held
T-MECA ELEC	Telemecanique electrically held

**Figure 3** Contactor Types (Menu 20)



**Figure 4** Menu 20 Flowchart