

This service bulletin explains how to replace the coil, control circuit board, miniature switch, and the contact block(s) in ASCO 918 remote control switches.

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Parts replacement is easier when the switch is removed from its installation.

Tools Needed

- adjustable torque limiting screwdriver (1-30 in-lb capacity)
- voltmeter
- needle-nose pliers
- blade screwdriver

⚠ WARNING

To prevent the possibility of personal injury or property damage, disconnect all power sources to the switch before working on it.

Switch Removal

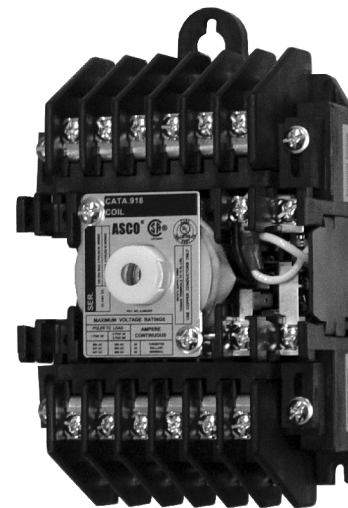
1. Open the circuit breaker feeding the switch poles. Use a voltmeter to make sure there is no voltage on the switch terminals.
2. Label the three control wires **L, O, C** (right side of switch) and disconnect them. Tape the loose ends.
3. Disconnect the line and load wires. Label, tape, and remove the line and load connections to the contact block terminals.
4. Loosen the three mounting screws and slide the switch upward to remove it from the enclosure.

Manual Operation

An #8-32 plastic screw 1½" long can be used to manually operate the switch. One is supplied in all replacement parts kits requiring manual operation. The screw should be used for maintenance purposes only. Remove the screw after maintenance.

⚠ WARNING

To prevent the possibility of personal injury do not manually operate the switch until all power and control circuits are disconnected.



Open circuit breakers, then use a voltmeter to verify no voltage is present at the switch at both control and line terminal screws.

Insert the plastic screw into the center of the coil and carefully turn it clockwise until the threads engage the cam/core. See Figure 1.

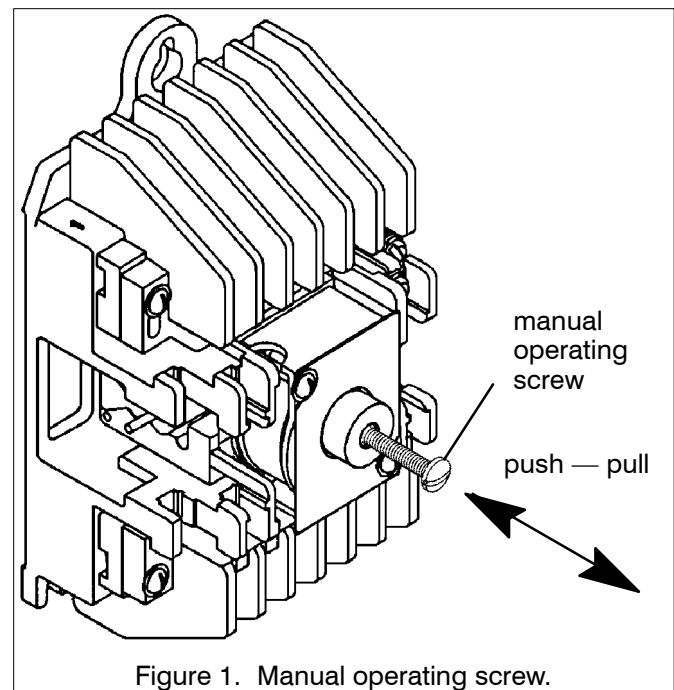


Figure 1. Manual operating screw.

Pull the screw outward to open the switch contacts; push it in to close the contacts. Observe the buttons in the contact block (buttons out means contacts open).

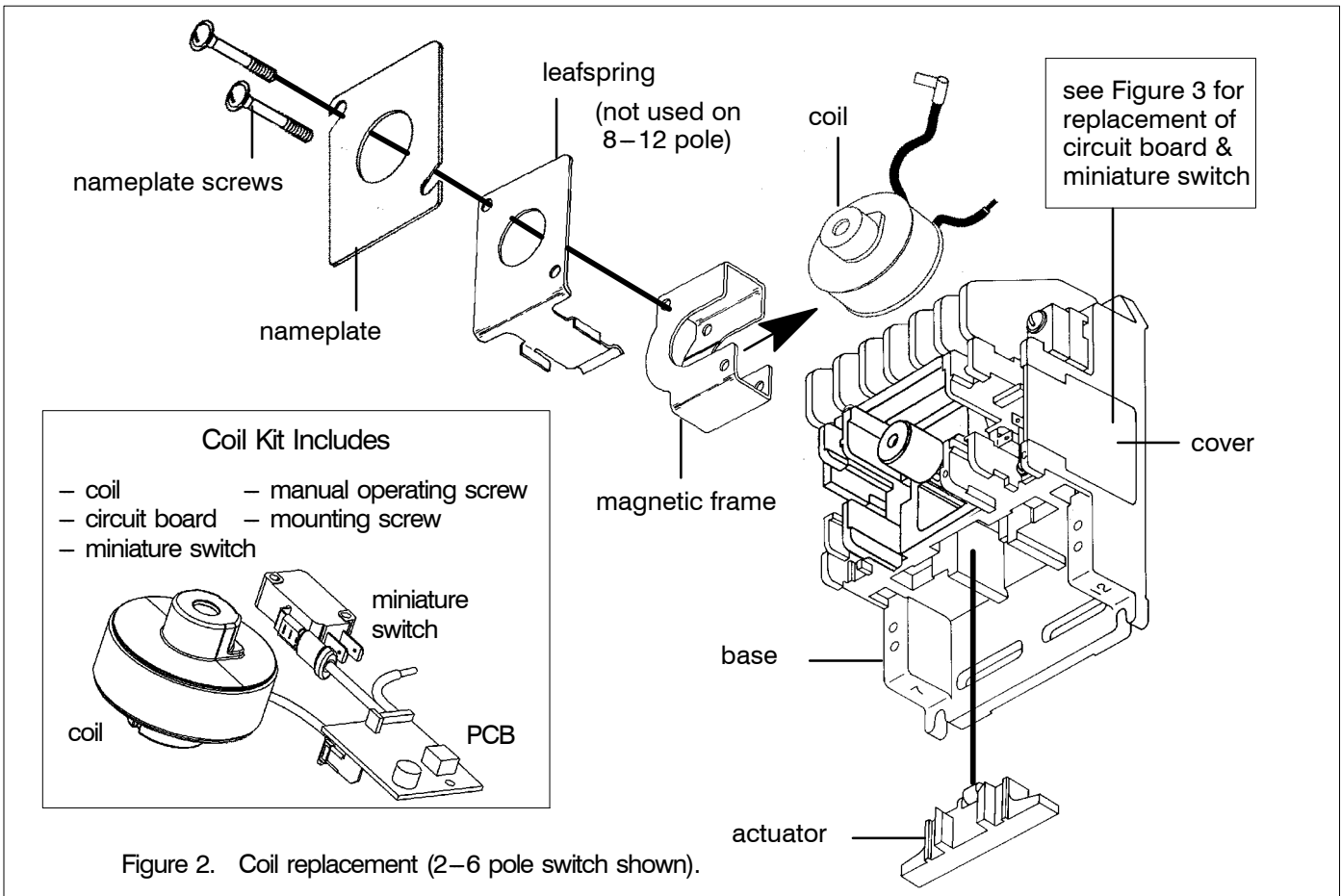


Figure 2. Coil replacement (2-6 pole switch shown).

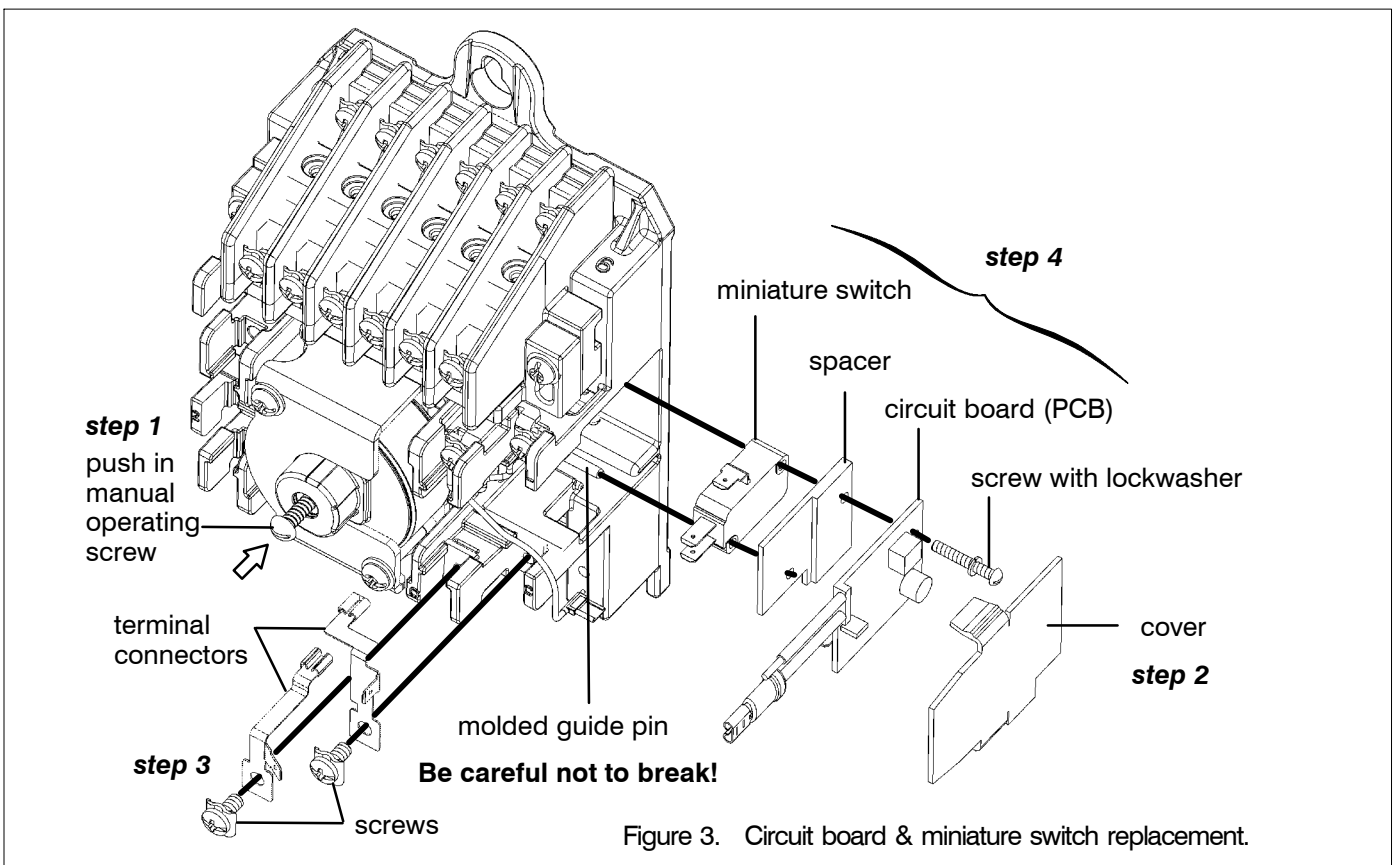


Figure 3. Circuit board & miniature switch replacement.

Coil Replacement (coil kits listed below)

| AC Control Voltage | 110-120 V | 208-240 V | 265-277 V |
|--------------------|------------|------------|------------|
| Coil Kit No. | 827025-1 | 827025-2 | 827025-3 |
| Coil No. in Kit | 834172-001 | 834172-002 | 834172-003 |

Disassembly

⚠ WARNING

To prevent the possibility of personal injury or property damage, disconnect all power sources to the switch before working on it.

The coil assembly is mounted in the center of the switch base. The coil control circuit board and miniature switch are on the right side behind a cover. See Figures 2 and 3.

1. Remove the switch, then manually close the contacts. See page 1, **Switch Removal** and **Manual Operation**.
2. Remove cover and two terminal connectors. Figure 3. First, pull off the cover on the right side. Next use a screwdriver (counterclockwise) to remove the **O** and **C** terminal screws, then carefully disconnect the two terminal connections from the top of the miniature switch. Then remove the two terminal connectors.
3. Disconnect coil and remove PCB and miniature switch. Loosen the terminal screw closest to the coil to disconnect two wires: the black coil lead and the white

wire from the circuit board (PCB 2). The other wires do not need to be disconnected to remove the circuit board and miniature switch. Use a small screwdriver (counterclockwise) to remove the small screw. Then remove the spacer, circuit board (PCB), miniature switch. Be careful not to break the molded guide pin. See Figures 3 and 4.

⚠ CAUTION

Be careful not to break the molded guide pin.

4. Remove the coil. See Figure 2. Use a screwdriver (counterclockwise) to remove the two screws in the magnet frame. Then pull the coil assembly, leaf spring*, and nameplate straight out. Slide the coil out of the right side of the magnetic frame. On 2 — 6 pole switches the actuator will be loose and may drop out of the lower switch cavity.

*Note: The leaf spring and lower actuator are loose parts on 2 — 6 pole switches. On switches with 8 — 12 poles the leaf spring is not used; the lower actuator is held in by the lower contact block.

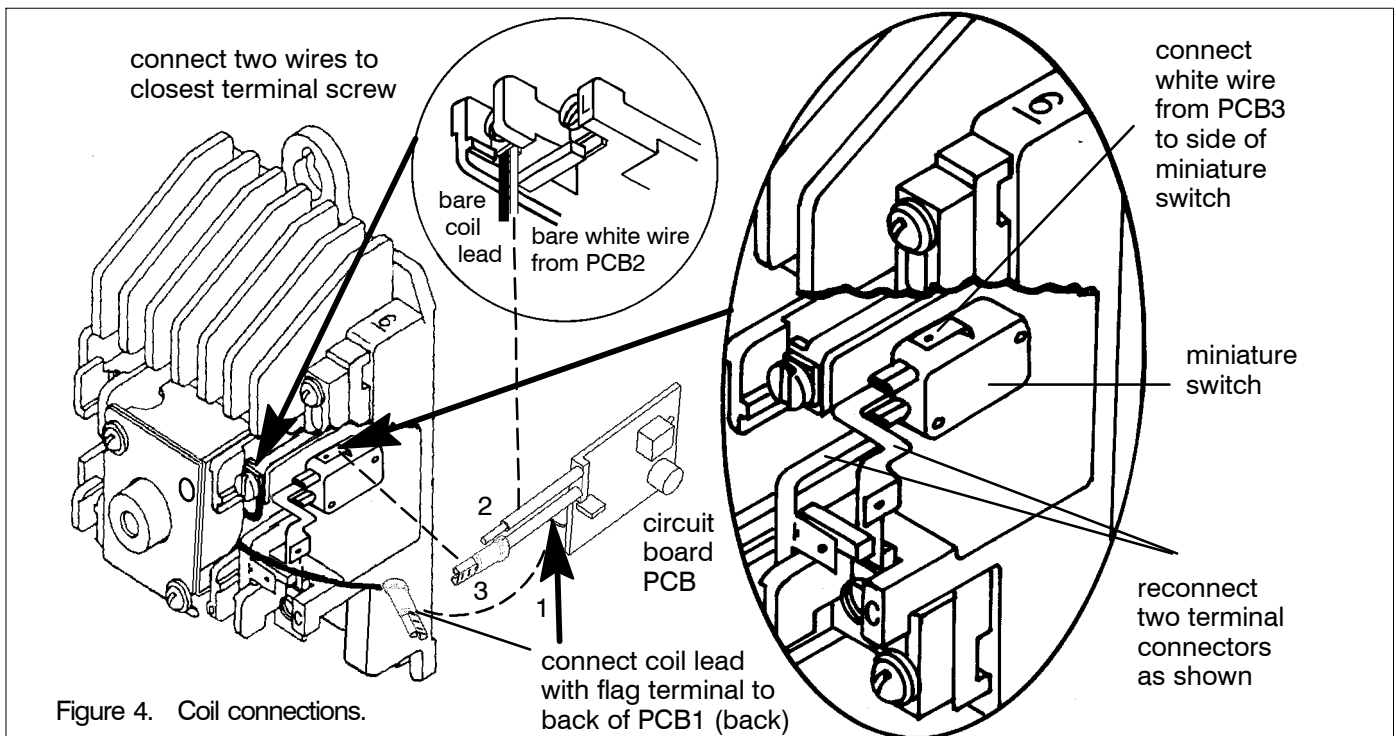


Figure 4. Coil connections.

Reassembly

Be sure the voltage indicated on the replacement coil matches the coil voltage shown on the nameplate.

1. Install the new coil into the magnetic frame. Figure 2. Position the magnetic frame with the seam facing the base. Position the new coil with small hole outward and slide it into the right side of the magnetic frame.
2. Install the coil assembly. See Figure 2. Place the coil assembly onto base (cam/core fits into the coil). Be sure the magnetic frame is flat against the base. On 2 — 6 pole switches reinstall and hold the lower actuator while reinstalling the leafspring and onto the magnetic frame. Then reinsert the two screws through the leaf spring (if present) and magnet frame, and start them clockwise but do not tighten them yet. Put the nameplate against the leaf spring (if present) or magnetic frame and rotate it in place, then tighten the screws evenly to 10 in-lbs.
3. Connect new coil and new PCB board wires. Figure 4. Connect the black coil lead with flag lug to the push-on terminal on the back of the circuit board (PCB 1). Connect two wires to the closest top screw terminal (under the plate): the other black coil lead (bare) and the white wire from PCB 2. Connect the white wire with flag terminal from PCB 3 to the new miniature switch (right side).

⚠ CAUTION

Be careful not to break the molded guide pin.

4. Install the new miniature switch onto the guide pin. **Very carefully** install the new miniature switch, spacer, and new PCB onto the molded guide pin. Then install the small screw with lockwasher through the PCB, spacer, and miniature switch. Tighten the screw to 4 in-lb (clockwise). See Figure 3.
5. Reinstall the terminal connectors and cover. Figure 3. Install two terminal connectors to the top of the miniature switch as shown in Figure 3. Reinstall the O and C terminal screws. Then snap on the cover on the right side.
6. Manually operate the switch. Use the plastic screw to open and close the switch. See Figure 1. The action should be smooth, without any binding. If not, recheck alignment of coil assembly. *Remove the plastic screw.*

⚠ CAUTION

Be sure to remove the plastic screw.

Auxiliary Contact Replacement

| Auxiliary Contact Kit No. | Quantity Required | |
|---------------------------|-------------------------|---------------------------|
| | for Acc.14H one contact | for Acc.14HA two contacts |
| 363675-4 | 1 | 2 |

If furnished, one or two auxiliary contacts are installed on the left side of the ASCO 918. They operate along with the main contacts to provide remote indication of the RC switch position (closed or open).

The replacement auxiliary contact kit includes one miniature switch. See Figure 5.

⚠ WARNING

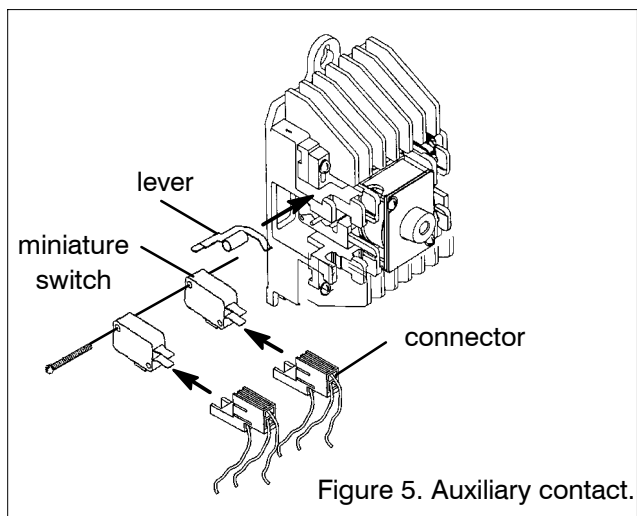
To prevent the possibility of personal injury or property damage, disconnect all power sources to the switch before working on it.

1. Remove the mounting screw and miniature switch(es).
2. Unplug the connector from the miniature switch.
3. Plug the connector onto the new miniature switch from the kit.
4. Insert the mounting screw through the far hole in the miniature switch. Very carefully slide the assembly onto the guide pin on the left side of the RC switch. Tighten the screw to 4 in-lbs maximum.

⚠ CAUTION

Be careful not to break the molded guide pin. Do not overtighten the mounting screw.

5. Manually operate the switch to check operation of auxiliary contacts(s). See Figure 1.



Contact Block Replacement (contact block kits listed below)

| Contact Block Kit Numbers (quantity & location indicated at right) | Number of Switch Poles | | | | | | |
|---|------------------------|-------|-------|-------|----------|----------|--------|
| | 2 | 3 | 4 | 6 | 8 | 10 | 12 |
| 825975-1 | 1 top | | | | 1 bottom | | |
| 825975-2 | | 1 top | | | | | |
| 825975-3 | | | 1 top | | | 1 bottom | |
| 825975-4 | | | | 1 top | 1 top | 1 top | 2 both |

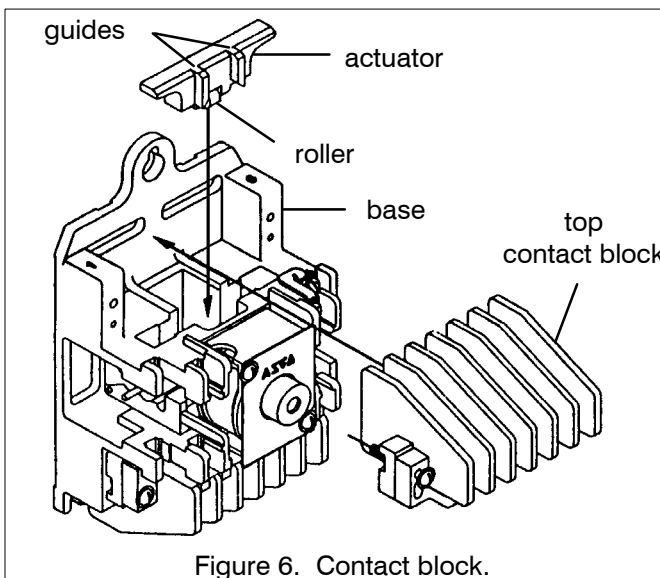
Disassembly

⚠ WARNING

To prevent the possibility of personal injury or property damage, disconnect all power sources to the switch before working on it.

The contact blocks are mounted on the top and bottom of the switch. *A bottom contact block is used only for switches with more than six poles.* See Figure 6.

1. Disconnect the line and load wires.
Label, tape, and remove the line and load connections to the contact block terminals.
2. Remove the contact block(s).
Use a screwdriver to loosen two screws in each contact block, then pull the contact block straight out. The lower actuator may drop out when the bottom contact block is removed.



Reassembly

Be sure to use the correct replacement contact block(s). Switches with more than six poles use two contact blocks. When two are used, always mount the six pole contact block on the top of the switch.

1. Install the new contact block(s).
Use a screwdriver to install the new contact block(s) onto the top and bottom of the switch. Be sure the actuator is in the cavity (roller facing in) before installing the contact block. Tighten the two screws to 10 in-lbs.
2. Reconnect the line and load wires.
Make necessary line and load connections to the terminals on the new contact block. Recheck all wiring and tighten the screw terminals.
3. Manually operate the switch.
Use the plastic screw to open and close the switch contacts. See Figure 1. Observe the black buttons in the contact block(s); the contacts are open when the buttons are out. The action should be smooth, without binding. If not, recheck alignment of contact block and actuator. *Remove the plastic screw.*

Other Replacement Parts

| Item Number | Kit/Part Description (see Figure 7) | Quantity | | Kit/Part Number |
|-------------|--|-------------------|--------------------|-----------------|
| | | 2-6 Pole Switches | 8-12 Pole Switches | |
| 1 | actuator kit | 1 | 2 | 363790 |
| 2 | cam/core kit (standard) | 1 | 1 | 363791 |
| 3 | magnetic frame | 1 | 1 | 355208 |
| 4 | lever kit | 1 | 1 | 363793 |
| 5 | leaf spring | 1 | - | 397432 |

Actuator Replacement

See Contact Block Replacement on page 5.

Cam/Core Replacement

1. Release the coil assembly by removing the nameplate, leaf spring (present on 2 through 6 pole switches only) and the two screws in the magnetic frame. Then pull the coil assembly outward and to the right to expose the cam/core. On 2 through 6 pole switches the actuator will be loose and may drop out of the lower switch cavity. Leave the coil connected to the switch.
2. Release the contact block(s) by backing out the two screws in the block(s). Then move the contact block(s) slightly away from the coil. This action removes contact pressure on the cam/core. Leave the wires connected to the contact blocks.
3. Pull the cam/core out of the base.
4. Install the new cam/core (from the kit), but do not force it into the base. Be sure the guides slide in on the ribs. Use your fingers to depress the lever(s) (on both sides of the switch if auxiliary contacts are supplied) while gently pushing the cam/core into the base.
5. Be sure the actuator is in place between the cam/core and contact block. Then reattach the contact block(s) to the base by tightening the two screws in the block(s) to 10 in-lbs.
6. Reattach the coil assembly to the base. For 2 through 6 pole switches, install actuator and hold in place. Then position leaf spring to hold actuator, install and tighten two screws through the magnetic frame, leaf spring, (if present) and nameplate to 10 in-lbs.
7. Manually operate the switch with the plastic operating screw. See Figure 1 on page 1. Then remove the screw.

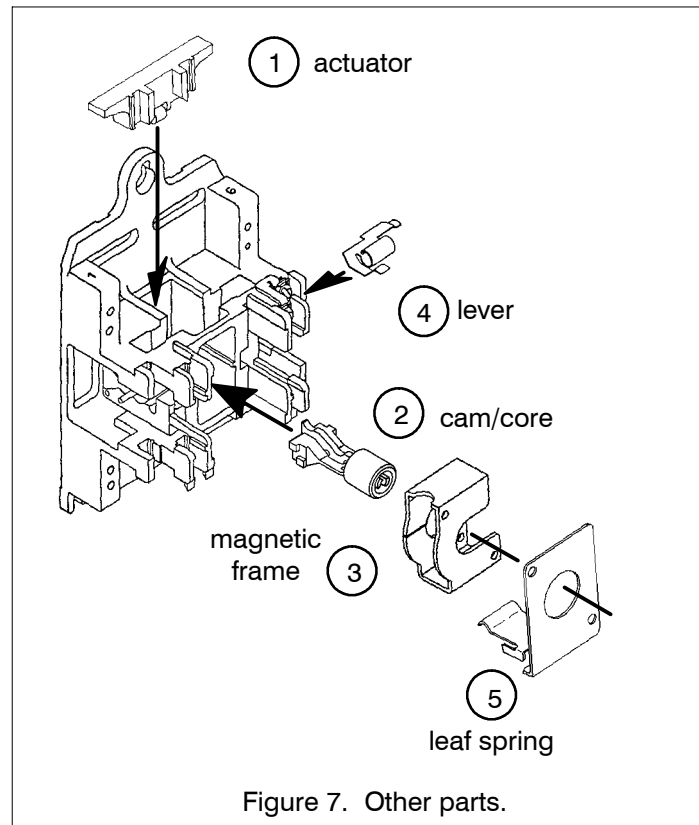


Figure 7. Other parts.

Magnetic Frame Replacement

See Coil Replacement on pages 2-4.

Lever Replacement

See Control Contact Replacement on this pages 2-4. When the miniature switches are removed, pull out the lever and install the replacement lever (from the kit). The cam/core must be in the outward (up) position to do this. Use the manual operating screw. See Figure 1. *Remove the screw.*

Solid-State Control Module Replacement

Optional Accessories 47, 48, 49 (module kits listed below)

| Module Control | 2-Wire Control Accessory 47 | | 3-Wire Control Accessory 48 | | Form 3 Control Accessory 49 | |
|------------------|-----------------------------|------------|-----------------------------|------------|-----------------------------|------------|
| | Module No. | Kit No. | Module No. | Kit No. | Module No. | Kit No. |
| Voltage 50/60 Hz | | | | | | |
| 120 Vac | 429447-001 | 445613-001 | 429448-001 | 445613-011 | 429449-001 | 445613-021 |
| 24 Vac & dc | 429447-002 | 445613-002 | 429448-002 | 445613-012 | 429449-002 | 445613-022 |
| 240/277 Vac | 429447-003 | 445613-003 | 429448-003 | 445613-013 | 429449-003 | 445613-023 |
| 12 Vac & dc | 429447-004 | 445613-004 | 429448-004 | 445613-014 | 429449-004 | 445613-024 |

If furnished, these control modules are installed on the RC switch. There are four different control modules for each Accessory 47, 48, and 49. Each module is suitable only for the control voltage marked on it. Ratings for the control modules are listed in *Owner's Manual 381333-006*.

⚠ WARNING

To prevent the possibility of personal injury or property damage, disconnect all power sources to the switch before working on it.

Module Replacement

The control module is mounted to the remote control switch on the bottom or right side depending on the number of switch poles. Label, disconnect, and tape the control wiring to the module. Then, while holding in the bus strips, disconnect the two quick connect leads from the RC Switch and replace the module as follows:

Bottom Mounting. For switches with up to 6 poles the module is mounted directly into the lower part of the switch with two short screws in the tabs. Remove the screws and remove the module. Install the new module (tabs up) and tighten the screws to 5 in-lbs maximum. See Figure 8.

⚠ CAUTION

Do not overtighten screws.

Side Mounting. For switches with more than 6 poles the module is mounted on the right side of the switch with the two contact block screws. Loosen the two existing screws on the right side of the upper and lower contact block assemblies and back out the screws to clear the cut outs in the contact blocks so that the module's mounting tabs are released. Remove the module and install the new module (tabs left). Retighten the two screws (through the module's mounting tabs) to 10 in-lbs. See Figure 9.

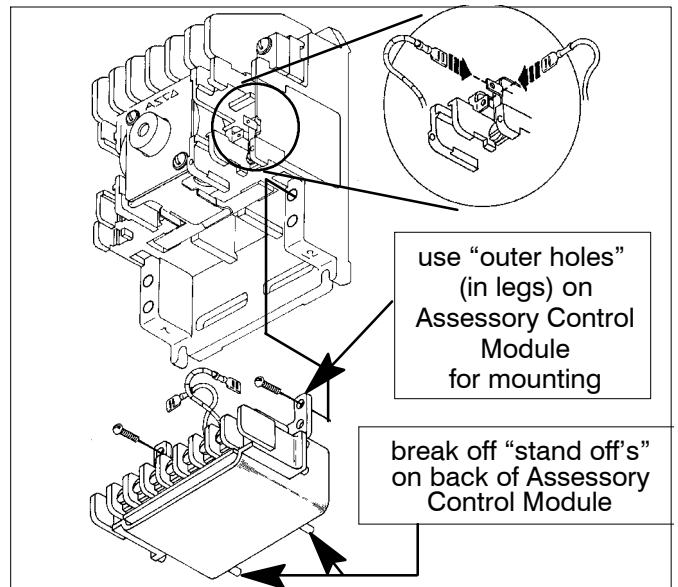


Figure 8. Control module – bottom mounted.

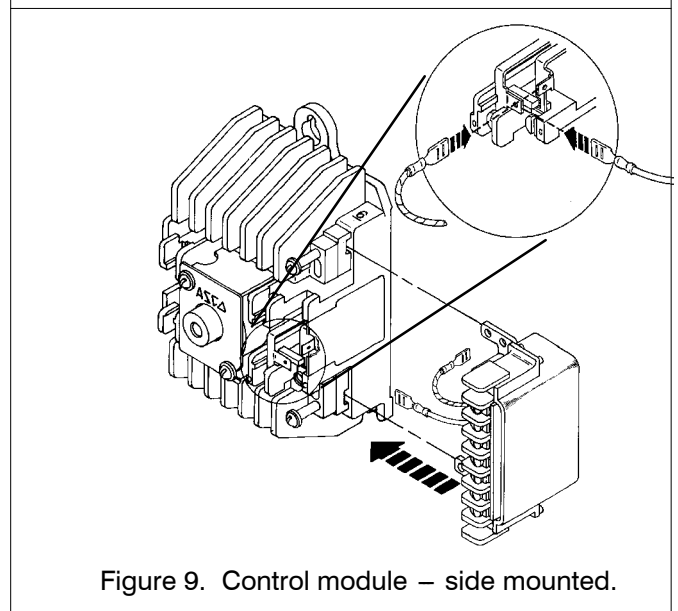


Figure 9. Control module – side mounted.

Solid-State Control Module Replacement Optional Accessories 47, 48, and 49 (continued)

Connections

Connections to the Accessories 47, 48, and 49 control modules are shown in Table A. See Figure 10 for examples of 120 V ac labels. Also refer to *Wiring Diagram JS 363-165* in *Owner's Manual 381333-006*. Barrier screw type terminals accept #22-12 AWG Cu control wiring.

The control modules have two colored leads with quick connect lugs for connecting to the O and C terminal bus on the RC switch. Connect the yellow wire between the O terminals; connect the orange/black wire between the C terminals.

Reconnect the control wiring for the module to terminals 2, 3, and 4 on the module. Terminal 2 is not used on Accessory 47 and terminal 1 is never used.

⚠ CAUTION

For dc modules be sure to connect terminal 4 to negative (-).

Recheck the control wiring to the RC switch (coil voltage); on terminal 5 on the control module and on terminal L on the RC switch. If the line voltage (service) is the same as the coil voltage, the control voltage can come directly from the poles of the RC switch.

Operation

Accessory 47 control modules are for two-wire control of the ASCO 918 Remote Control Switch only. The module must be energized to close the RC switch, and de-energized to open the RC switch. Therefore, use a single pole, maintained type control station to operate the module.

Accessory 48 control modules are for three-wire control of the RC switch. One terminal must be energized to close the RC switch; another terminal must be energized to open the RC switch. If neither or both terminals are energized, no output will occur. Therefore, use a single pole, double throw, momentary type control station to operate the module.

Accessory 49 control modules are for Form 3 (start-stop) control of the RC switch. The module must be energized to close the RC switch, and de-energize to open the RC switch. Therefore, use one normally closed and one normally open separate control stations to operate the module.

Table A — Connections to Control Modules

| Module Terminal | Connect To |
|-----------------|-------------------------------------|
| 1 | not used |
| 2 | control station for Acc. 48, 49 |
| 3 | control station for Acc. 47, 48, 49 |
| 4* | module control voltage* |
| 5 | RC switch control voltage |
| O | O on RC switch |
| C | C on RC switch |

* For dc control modules connect terminal 4 to negative (—).

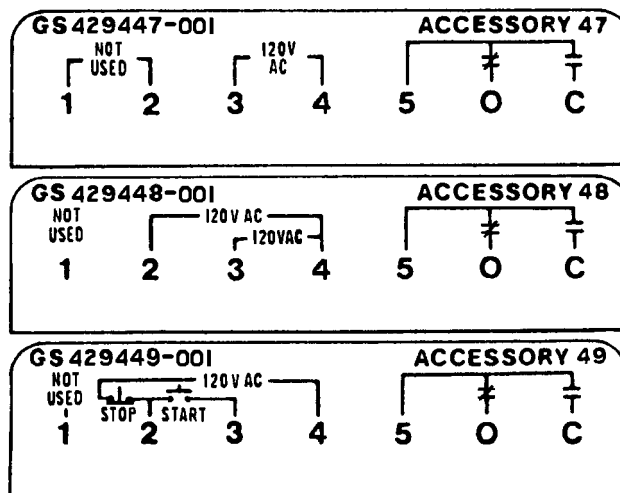


Figure 10. Labels on 120 V ac control modules (typical).

For further information
refer to
Owner's Manual 381333-006