ATS Aux Contact Replacement Kit Part Number: 8160A64

1. Introduction
The Auxiliary switch mechanism internal to each source breaker within the ATS (Automatic Transfer Switch) provide remote signaling to the ATS logic controller and provides customer position indication contacts. Each Auxiliary Assembly consists of three Single Pole Double Throw switch assemblies. These switches are integrated into a convenient module that can be inserted into the ATS Source Breaker. The Breaker Aux Contact Kit is for repair or replacement of existing Auxiliary Contacts ONLY! Eaton does not endorse modifying an ATS assembly outside of its intended design.

2. Installation
Figure 1 illustrates the Front Switching Mechanism with the arc barrier removed, exposing the automatic switching mechanism. This mechanism is held in place by 4 bolts that attach, through the breaker, to the back panel. This mechanism must be removed in order to replace the Aux Contact Module. The motor operator attached to the Front Switching Mechanism is positively indexed and should only rotate in one direction. If for some reason the alignment of the armature becomes misaligned use the manual operating handle to index the switching mechanism to the correct position. The J1 connector should be unplugged to allow removal of the Front Switching Mechanism.
Figure 2 shows the ATS with the Front Switching Mechanism removed. Notice the orientation of the bottom breaker is opposite that of the top breaker.

Once the cover is removed, the breaker cavity holding the Aux Contact assembly is exposed. Figure 3 shows the internal breaker components.

The instructions for changing the Aux Contacts for the Bottom breaker are exactly the same with the exception of the breaker orientation. Therefore the Aux contact module will be oriented 180 degrees opposite the Normal breaker. Once the Front Switching Mechanism is removed, the breaker must be opened using the breaker handle mechanism. Place the breaker in the off position and verify that the Handle Position is in the down position. With the breaker open, the cover must be removed. The black cover is held in place by 6 screws, two just above the Handle Mechanism and two screws holding the breaker lug covers at the bottom and the top of the breaker. The Factory Seal shown on the bottom breaker must be removed on the breaker affected by the Aux Contact replacement.

Note: Under no circumstances should you remove the breaker from the back pan. This will damage the mechanical interlock mounted behind the breakers not shown in this picture.

Removal of the bad Aux Contact Assembly is straight forward. Using a flathead screw driver, loosen the Aux Contact Assembly from the Screw Terminals on the top side of the breaker trip unit. Due to the angle, the screw terminal closest to the breaker mechanism may be a little difficult to remove. Care should be taken not to damage this screw or the terminal. Note the routing of the Aux Assembly Wiring and how it is installed within the wire way on the side of the breaker. This is important as the replacement Aux Contact Module wires will fit in the same wire way. Once the original Aux Contact Module is removed replace with the new Aux Contact module. The new Aux Contact Module should fasten to the same Screw Terminals used by the original Aux Contact Module. Replace the breaker cover making sure the Aux Contact Wires don’t pinch between the breaker cover and the base. The breaker cover should be torqued to at least 22-24in/lb. Each Aux Contact Module is made of 3 sets of Black, Blue and Red wires.

Figure 4 shows the Wiring Diagram and corresponding wire color for each set of contacts.
It is important that each set of wires is grouped with a corresponding Aux Contact and routed through the wire way channel on the side of the breaker. The order of the wire sets, within the wire way, is not important but the grouping of the 3 wire set is as it corresponds to an individual set of Aux Contacts shown in Figure 4.

For additional information regarding the installation of the Aux contact refer to IL29C124C(Installation Instructions for Auxiliary Switch for NDB, ND,HND, NDC, NW, HNW, NWC Circuit Breakers, Series C Molded Case Switches, and Motor Circuit Protectors (HMCP)). When replacing the load side lug terminal covers for either the Normal or Emergency Breaker, care should be taken to install the Lug Terminal Covers properly within the channeled grooves. A picture of the channeled grooves and the lug covers are shown in Figure 5.

![Figure 5. Load Side Lug Terminal Cover.](image)

The wires external to the breaker should be pre-crimped with female connector pins that slide into the existing P plug of the transfer switch. Uncouple the P1/S1 connection of the respective breaker requiring the replacement Aux Contact Module. Please note this connection as it may be different for Service Entrance Transfer Switches. Your ATS Aux Contact Replacement Kit should come with an AMP pin extraction tool used to remove the crimped pins from the P plug. Figure 6 shows the AMP Tool removing a crimped pin from the P plug. Pins 7-15 of the P plug connector represent the Aux Contacts for their respective breaker.

![Figure 6. Pin Extraction Tool and P Plug.](image)

Using the AMP Tool, remove the Aux Contact Module wires of the old Aux Contact Module and replace with the Aux Contact Module wires recently installed in the breaker. Once this is complete, you are now ready to reassemble the Transfer Switch Plug connections making sure that each pin is properly seated within the plug and making a good connection to its corresponding socket. When replacing the Transfer Switch Breaker Cover, note that the cover screws should be secured to a torque value of 18 - 23 In/LB. Now that the Transfer Switch Circuit breaker has been reassembled, and all the P and S connectors reassembled, the final portion is to reattach the Front Switching Mechanism. Refer to Figure 1 on where to mount the screws affixing the Front Switching Mechanism to the ATS. The handle mechanism of the affected breaker must be closed or returned to the position it was in before the Front Switching Mechanism is removed. The Torque requirements for this connection is 20ft/lb. When aligning the Front Switching Mechanism, the Handle Mechanism of the breaker will provide a slight interference fit when attaching the Front Switching Mechanism. With the Front Switching Mechanism reattached, reconnect the J1 plug that was previously disconnected. Upon completion, the Transfer Switch should be tested and commissioned before returning the equipment to normal service.
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