

A-03: Replace Fuses

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- A key and locking mechanism is built into the main circuit breaker.
- Use high voltage gloves when working with high voltage equipment.
- Use the high voltage tester to ensure that power is disconnected to the interrupter.

EQUIPMENT

- high voltage gloves
- high voltage tester
- crank
- flashlight
- Digital Volt Meter (DVM) or wiggy

RESOURCES

- none



Replace Fuses

Note: This task was analyzed on a power substation. In the following steps, assume that the A Main fuse is blown. The A Main must be disconnected from its normal supply and connected through the tie breaker to B Main.

1. Disconnect the electrical power.
 - Rack out and lock the A Main breaker to the distribution system.



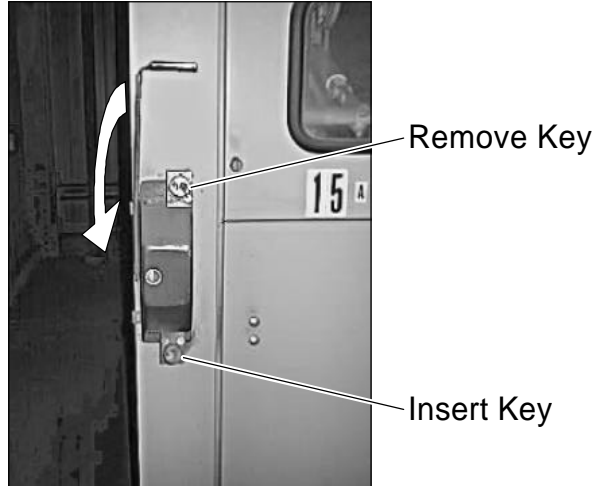
Breaker Rack-Out

- Remove the bottom A Main key and unlock the tie breaker.

Note: The keys on both the A and B Main are number and correspond with numbers on the locks on the tie breaker and interrupter.

- Rack in the tie breaker to connect power to the A Main side.
- Close the breaker.

- Remove the top key from the lock on the A Main.
- Insert the key into the bottom lock on the interrupter and unlock the mechanism.



- Pull down on the handle to disconnect the power.
- Lock the mechanism and remove the top key.
- Visually inspect the knife switches with a flashlight through the window to ensure that they are in the open position.
- Insert the key into the lock on the interrupter door and unlock it.
- Loosen all four thumb screws with a flathead screwdriver and open the door.

2. Test the high voltage tester.

- Turn the voltage select knob counterclockwise to the lowest voltage level indicated on the tester. A low voltage level ensures that the tester is set at the most sensitive setting.

- Test the tester at a known power source (110 outlet).

Note: If the tester is operational, the red light will illuminate.



3. Verify that the power is disconnected.

- Wear high voltage gloves while testing each fuse to ensure that the power is off.

Note: If the red light does not illuminate the power is off.

- Check the tester again to ensure that it still functions properly at the known power source (110 outlet).

Note: If the red light illuminates at the power source, the power is off at the interrupter panel.

4. Identify the defective fuse.

- Look for the red ring at the top of the fuse.

Note: Some fuses may not have a red indicator. Use the DVM or wiggy to identify the defective fuse.



Indication for
a Blown Fuse

5. Remove the defective fuse.
 - Grasp the ring at the top of the defective fuse with your gloved hand and pull the fuse back.
 - When the fuse pivots, pull up and remove the fuse from the cabinet.
6. Install a fuse.
 - Hold the fuse ring and push the fuse into the empty slot.
 - Push forward, securing the fuse in place.
7. Restore the electrical power.
 - Close the door and tighten the thumb screws.
 - Lock the door and remove the key.
 - Insert the key in the top lock and unlock the mechanism.
 - Pull up on the lever to restore electrical power.
 - Lock the bottom mechanism and return the key to the A Main.
 - Insert the key in the top lock unlock mechanism.



- Notify the production line supervisor that power will be disrupted in order to bring side A on line.
- Rack in the A Main.
- Trip the tie breaker.
- Remove the key and return it to A Main.
- Unlock and close A Main.