

G-06a: Replace Motor (Wiring Three-Phase Induction/Change Rotation)

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- Motor starter may be explosive when restarted.
- Electrical hazard always exists when working with 480 volts.
- Failure to wire motor correctly could result in reversing of motor.

EQUIPMENT

- digital volt-ohmmeter (DVM)
- basic Electrician hand tools

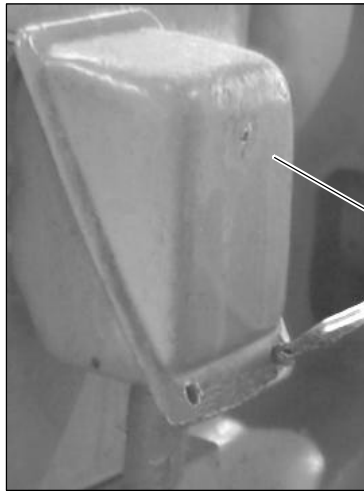
RESOURCES

- electrical prints
- motor nameplate data



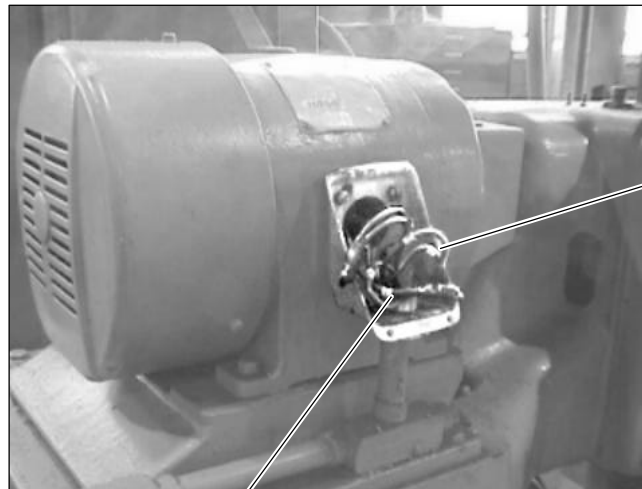
Replace Motor (Wiring Three-Phase Induction/Change Rotation)

1. Perform lockout/tagout on the motor power.
2. Remove the motor wiring cover.



Motor Wiring Cover

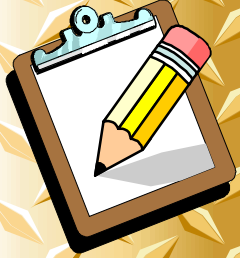
3. Verify that the connected motor wires are clearly marked.
 - Check the motor leads and the incoming power leads.
 - Mark the wires as needed.



Motor Lead Marking

Taped Motor Leads

4. Disconnect the motor leads.
 - Remove the tape and disconnect the leads.
5. Pull the incoming power leads out of the conduit.

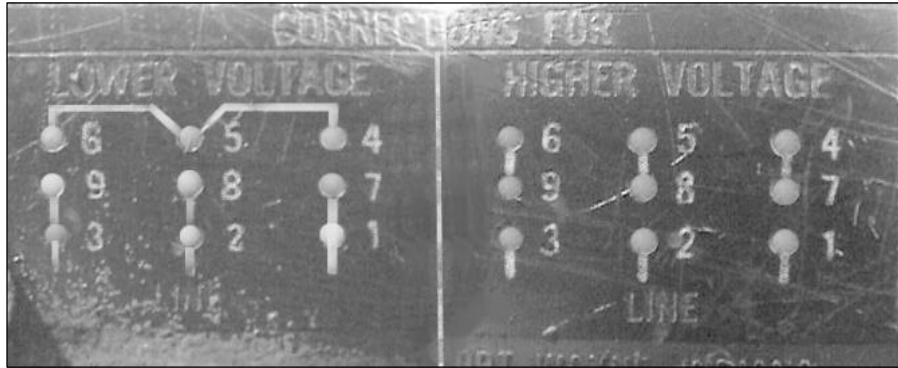


6. Apply tape to the ends of each of the power leads.

Warning: Taping the power leads will prevent electrical shock if anyone accidentally removes the safety disconnect and tries to start the motor.

7. Ask a Maintenance Mechanic to remove the motor.
 - Note the nameplate data to compare with the replacement motor.
8. Inspect the replacement motor.
 - Compare the nameplate data with the motor.

- Verify that the motor is wired according to voltage requirements.



Low and High Voltage Wiring Diagram

Note: Most motors come wired for high voltage (480). Most motors in Caterpillar facilities require this type of configuration.

- Configure the motor wiring, if necessary.
9. Ask the Maintenance Mechanic to install the replacement motor without engaging the coupling.
 10. Connect the motor leads to the incoming power leads.
 - Pull the incoming power leads into the motor wiring cover from the conduit.
 - Verify that the leads match (i.e., T1 to T1).

- Use lugs and machine screws to connect the leads.



- Tape the leads using at least one wrap per 100 volts.



Taped Leads

11. Replace the motor wiring cover.
12. Remove lockout/tagout.
13. Confirm the correct motor rotation.

Warning: The next step requires starting the motor. To avoid injury alert the Operator and any others in the work area. Work with the Operator to remove any jams in the machine.

- Refer to the Change Rotation steps to reverse the rotation, if necessary.

14. Ask the Maintenance Mechanic to engage the coupling.
15. Jog the motor to verify proper motor operation.

Change Rotation

1. Determine why there is a request for a rotation change.
 - Determine if the change is temporary (to remove) a jam or permanent.
2. Perform lockout/tagout on the motor power.
3. Remove the motor leads marked T1 and T2 from the terminal strip on the control panel.
4. Switch the T1 and T2 leads on the terminal strip.
 - Switching any two of the motor leads changes the rotation of the motor.
5. Remove lockout/tagout.

Warning: The next step requires starting the motor. To avoid injury alert the Operator and any others in the work area. Work with the Operator to remove any jams in the machine.

6. Jog the motor to confirm that the rotation has changed.
7. Reset the motor rotation if the change is temporary.

