PowerFlex 700H and 700S AC Drives Frames 13 and 14 Main Fan Capacitor Replacement Kit

ATTENTION: The sheet metal cover and mounting screws on the ASIC Board located on the power structure are energized at (-) DC bus potential high voltage. Risk of electrical shock, injury, or death exists if someone comes into contact with the assembly.

ATTENTION: This drive contains ESD (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference A-B publication 8000-4.5.2, “Guarding Against Electrostatic Damage” or any other applicable ESD protection guide.

ATTENTION: Only qualified personnel familiar with adjustable frequency AC drives and associated machinery should perform maintenance/repair of the system. Failure to comply may result in personal injury and/or equipment damage.

ATTENTION: The following information is merely a guide for proper installation. Rockwell Automation cannot assume responsibility for the compliance or the noncompliance to any code, national, local or otherwise for the proper installation of this drive or associated equipment. A hazard of personal injury and/or equipment damage exists if codes are ignored during installation.
What This Kit Includes

![Image of the kit components]

<table>
<thead>
<tr>
<th>Photo ID#</th>
<th>Part Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fan capacitor</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Fan capacitor bracket</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Bracket lock washer (M12)</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Bracket nut (M12)</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Bracket spring washer</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Bracket hexagonal socket screw (M8 x 12 mm)</td>
<td>1</td>
</tr>
</tbody>
</table>

Tools That You Need

- #2 POZIDRIV® screwdriver
- T20 hexalobular screwdriver
- Hexagonal head screwdriver/bit
- 19 mm wrench
- Wire cutter
- Nose pliers

POZIDRIV® is a registered trademark of the Phillips Screw Company
What You Need to Do

Complete the appropriate steps depending upon whether you are replacing a main fan capacitor on a converter or inverter unit.

Step: 1 Remove Power from the Drive

**ATTENTION:** To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before performing any work on the drive. Check the DC bus voltage at the Power Terminal Block by measuring between the +DC and -DC terminals, between the +DC terminal and the chassis, and between the -DC terminal and the chassis. The voltage must be zero for all three measurements.

Remove power before making or breaking cable connections. When you remove or insert a cable connector with power applied, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

- sending an erroneous signal to your system’s field devices, causing unintended machine motion
- causing an explosion in a hazardous environment

Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

1. Turn off and lock out input power. Wait fifteen minutes.
2. Verify that there is no voltage at the drive’s input power terminals.
3. Check the DC bus voltage at the Power Terminal Block by measuring between the +DC and -DC terminals, between the +DC terminal and the chassis, and between the -DC terminal and the chassis. The voltage must be zero for all three measurements.
Step: 2  Remove the Protective Covers

1. If you are replacing the fan capacitor on an inverter unit for an AC input drive, skip this step and continue with step 2 below. If you are replacing the fan capacitor on a converter unit or an inverter unit for a DC input drive, complete the following steps:
   a. For DC input drives with a precharge interlock, disconnect the input wiring to the X50 terminal block on the control frame.
   b. Loosen the two hexalobular screws that secure the control frame to the enclosure and swing the control frame away from the converter unit.

2. Remove the four hexalobular screws that secure the air flow plate to the drive enclosure and slide the plate off the drive.

Note: AC input drive shown
3. Remove the four POZIDRIV screws that secure the protective cover to the unit being repaired and remove the cover. Tightening torque for re-assembly is 1.5 N•m (13.3 lb•in).

4. If necessary, remove the side protective cover.

Inverter unit shown
Step: 3 Remove the Existing Fan Capacitor

The procedures vary depending on whether you are replacing a main fan capacitor on a converter or inverter unit.

- If you are replacing a capacitor for a fan on the converter unit, continue with Replacing the Fan Capacitor on the Converter Unit below.

- If you are replacing a capacitor for a fan on the inverter unit, continue with Replacing the Fan Capacitor on the Inverter Unit on page 11.

Replacing the Fan Capacitor on the Converter Unit

1. Remove the two fuses from the fuse holder.
2. Disconnect the +DC and -DC wires from the fan fuse holder.
3. Remove the M4 x 8 mm POZIDRIV screw that secures the fuse holder assembly to the drive chassis and remove the fuse holder assembly. Tightening torque for re-assembly is 3 N\(\cdot\)m (26.5 lb\(\cdot\)in).
4. Remove the four Phillips® head screws that secure the fan inverter protection cover to the drive, and remove the cover. Tightening torque for re-assembly is 0.9 N•m (8 lb•in).
5. Disconnect the connector X3 from the fan inverter circuit board.

6. Cut the cable ties that secure the fan capacitor wires to the wire bundle.

7. Disconnect the fan capacitor wires from the connectors marked “Brown” and “Blue.”

8. Unscrew and remove the existing fan capacitor from the inverter assembly.
9. Secure the fan capacitor bracket to the drive chassis using the M8 x 12 mm hexagonal socket screw and spring washer provided as shown below. Tightening torque is 20 N•m (178 lb•in).
10. Secure the new fan capacitor to the bracket using the M12 hexagonal nut and lock washer provided. Tightening torque is 5 N•m (44.2 lb•in).

11. Connect the new fan capacitor wires to the connectors marked “Brown” and “Blue.”

12. Secure the fan capacitor wires to the fan wire bundle using cable ties.

**IMPORTANT** Verify that no wire shields are touching the sheet metal on the drive chassis.

13. Complete the remaining installation in the reverse order of removal as detailed in the previous steps for the Converter Unit.
Replacing the Fan Capacitor on the Inverter Unit

1. If you are replacing a fan capacitor on a PowerFlex 700H drive inverter unit, continue with step 2 on page 12. For PowerFlex 700S drives, if you are replacing the fan capacitor on the V phase of the inverter unit, complete steps a….c.
   a. Disconnect the bus connection cable from connector J2 and the motor feedback connection cable from connector J1 on the voltage feedback board.
   b. Disconnect the fiber-optic cables from connectors J4 and J5 on the voltage feedback board.

   **IMPORTANT**  Minimum inside bend radius for fiber-optic cable is 50 mm (2 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases with decreased inside bend radii.

c. Remove the four POZIDRIV screws that secure the voltage feedback board assembly to the fan housing and remove the assembly. Tightening torque for re-assembly is 1.35 N•m (12 lb•in).
2. If you are replacing the fan capacitor on the V phase power structure of the inverter unit, cut the cable tie that secures the ASIC board fiber-optic cable bundle to the fan housing (if present) and remove the fiber-optic bundle and rubber grommet from the support bracket in order to allow room for the fan housing to be removed from the unit.

PowerFlex 700S drive shown

3. Disconnect the fan inverter power supply wires from the bottom of the fuse holder.
4. Disconnect the fan inverter connector from the connector on the support bracket and pull the connector out of the sheet metal support bracket using a pliers.

5. Remove the M8 x 20 mm hexagonal socket screw from the chassis in front of the fan housing in order to allow room for the fan housing to be removed from the unit. Tightening torque for re-assembly is 20 N•m (177 lb•in).

6. Remove the four POZIDRIV screws that secure the main fan housing to the inverter assembly and remove the fan housing. Tightening torque for re-assembly is 3.5 N•m (31 lb•in).
7. Carefully push the rubber grommet with the fan wire and connectors through the hole in the drive chassis.
8. On the inside of the housing for the fan, cut the cable ties that secure the fan inverter cable to the housing.

9. Remove the four M5 x 10 mm POZIDRIV screws that secure the fan inverter assembly to the fan housing and, using the handle provided at the base of the assembly, slide the fan inverter assembly out of the housing. Tightening torque for re-assembly is 3.5 N•m (31 lb•in).
10. Cut the cable ties that secure the fan capacitor wires to the wire bundle.

11. Disconnect the fan capacitor wires from the connectors marked “Brown” and “Blue.”

12. Unscrew and remove the existing fan capacitor from the inverter assembly.

13. Secure the new fan capacitor to the bracket using the M12 hexagonal nut and lock washer provided. Tightening torque is 5 N•m (44.2 lb•in).
14. Secure the fan capacitor bracket (and fan capacitor) to the fan inverter assembly using the M8 x 12 mm hexagonal socket screw and spring washer provided as shown below. Secure the capacitor in a position that allows the maximum amount of clearance possible between the transformer and capacitor, ensuring that they **DO NOT** touch. Tightening torque is 20 N•m (178 lb•in).

15. Connect the new fan capacitor wires to the connectors marked “Brown” and “Blue.”

16. Secure the fan capacitor wires to the fan wire bundle using cable ties.

17. Complete the remaining installation in the reverse order of removal as detailed in the previous steps for the Inverter Unit.