



KIT HERMETIC FEEDTHROUGH - HIGH POWER

100383, 100383-1



Installation and servicing of Danfoss Turbocor® compressors by qualified and product trained personnel only. Follow these instructions and sound refrigeration/electrical/servicing practices relating to installation, commissioning, maintenance and service.

<p>Consult the appropriate Danfoss Turbocor Compressors Inc. (DTC) Service Manual on turbocor.danfoss.com for detailed service instructions.</p>	<p>Never power compressor without covers in place and secured.</p> <p>Removing the mains input cover will expose you to a voltage hazard of up to 575V. Ensure the mains input power is off and locked out before removing cover.</p> <p>Before removing top cover, wait at least 20 minutes after isolating AC power to allow the high voltage capacitors to discharge.</p>	<p>Always wear appropriately rated safety equipment when working around equipment and/or components energized with high voltage.</p> <p>This equipment contains hazardous voltages that can cause serious injury or death.</p>	<p>Recover all refrigerant from compressor in accordance with local codes and ensure pressure is fully vented before the removal of refrigerant containing components.</p>
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1 - Introduction:

HERMETIC FEEDTHROUGH - HIGH POWER Removal and Installation Instructions.

2 - Removing Refrigerant from Compressor:

- Recover refrigerant from compressor in accordance with local codes and practices.

3 - Removal Instructions:

1. Isolate compressor power as described in Section "Electrical Isolation of the Compressor" of the Service Manual (M-SV-001).
2. Release the fasteners that secure the Mains Input Cover and remove the cover.
3. Using an appropriately rated volt meter, confirm that the AC voltage is isolated.
4. Wait at least 20 minutes for the DC bus capacitors to discharge.

DANGER: Do NOT touch any components when removing the Top Cover. This is particularly true for compressors with CE covers because they are coated on the outside for the express purpose of being conductive

5. Release the fasteners that secure the Top Cover and remove the cover, taking particular care not to touch ANY components underneath.
6. Using an appropriately rated volt meter, check the DC bus bars for voltage level. If the voltage is above 5VDC, wait five (5) minutes and recheck until 5VDC or below is achieved.

7. For F Series and later compressors, remove the Soft Start Temperature Harness. Refer to Figure 1 (Soft Start J9 Connector).

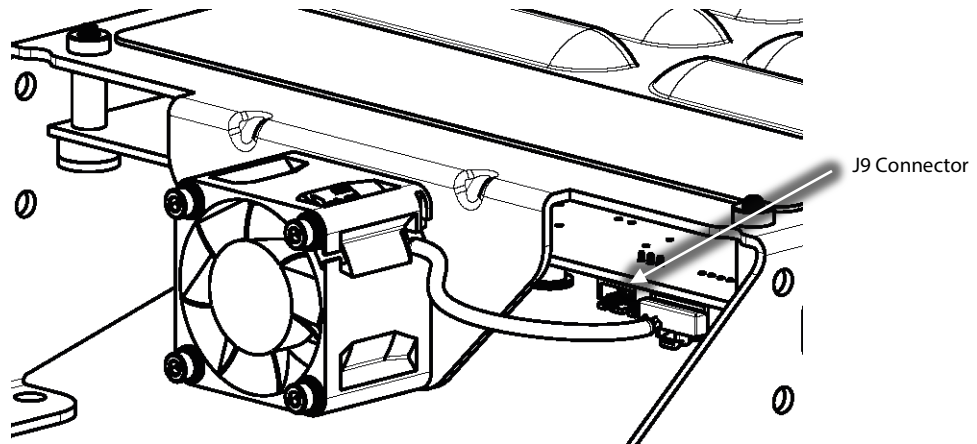


Figure 1 – Soft Start J9 Connector

8. Remove the M5x15 fasteners that secure the Soft Start mounting bracket to the compressor. Refer to Figure 2 (Soft Start Mounting Screws).

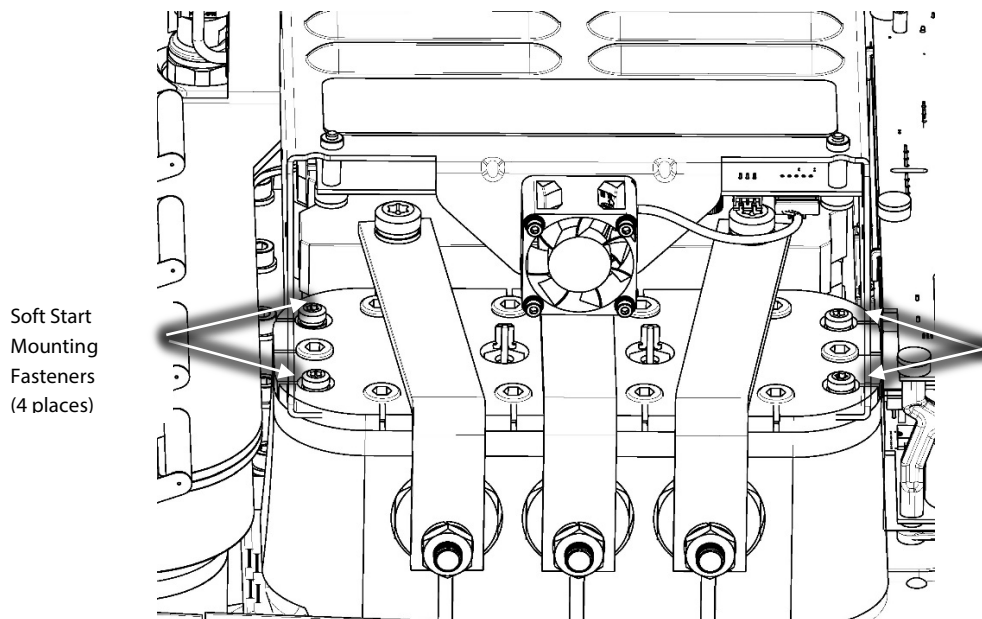


Figure 2 – Soft Start Mounting Fasteners

- Lift the Soft Start and turn it over, placing it board-side up on the AC Bus Bars. Refer to Figure 3 (Soft Start Lift).

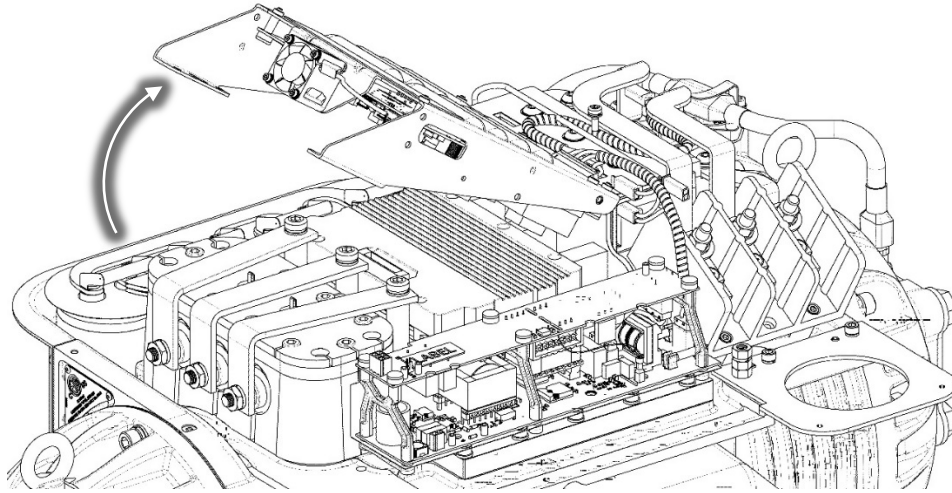


Figure 3 – Soft Start Lift

- Disconnect the two (2) connectors from Thermistor Sensor Feedthroughs. Refer to Figure 4 (Motor Bus Bar Removal).
- To remove the Motor Bus Bar, remove the three (3) M8x70 fasteners attaching the Bus Bars to the Inverter. Then remove the three (3) nuts or screws (depending on the installed feedthrough) from the Motor Bus Bars to the High-Power Feedthroughs. Refer to Figure 4 (Motor Bus Bar Removal) for examples of both versions.

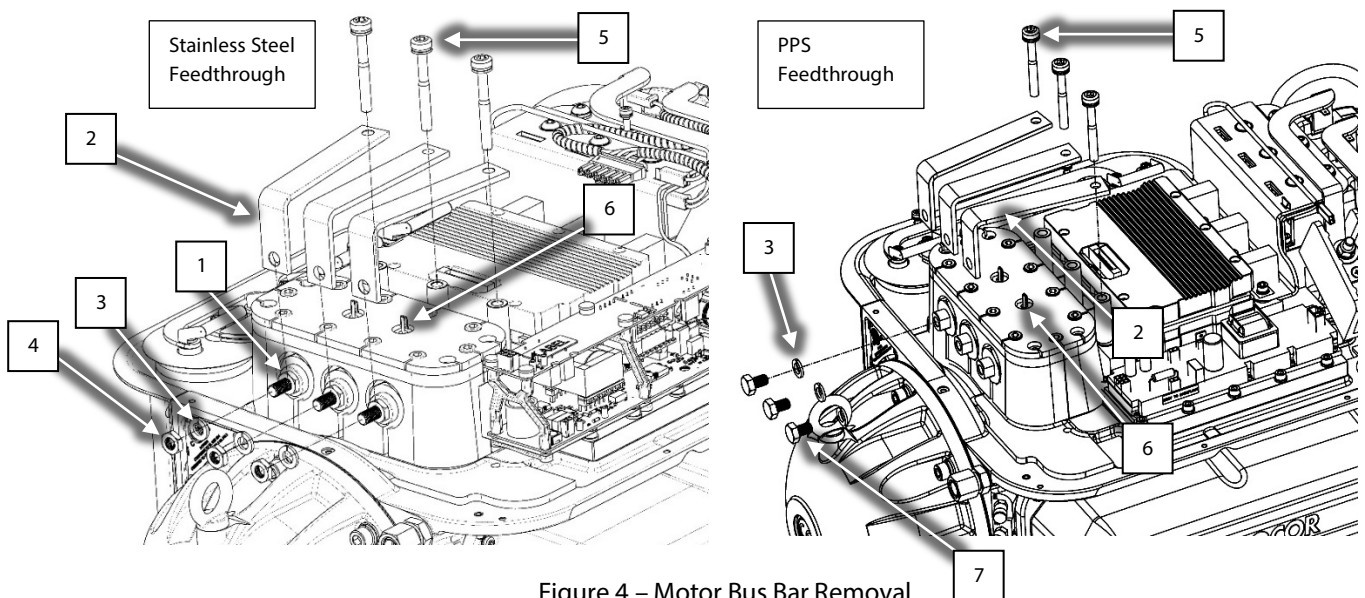


Figure 4 – Motor Bus Bar Removal

No.	Component	No.	Component
1	Inner Nut (3 places)	5	Motor Bus Bar to Inverter Screw (3 places)
2	Motor Bus Bar (3 places)	6	Thermistor Connector (2 places)
3	Lock Washer (3 places)	7	Bus Bar to High-Power Feedthrough Fastener (3 places)
4	Outer Nut (3 places)		

12. Ensure refrigerant has been recovered from the compressor.
13. Remove the 10 M8x25 fasteners that secure the Cover Plate to the Main Housing. Refer to Figure 5 (Cover Plate Removal).

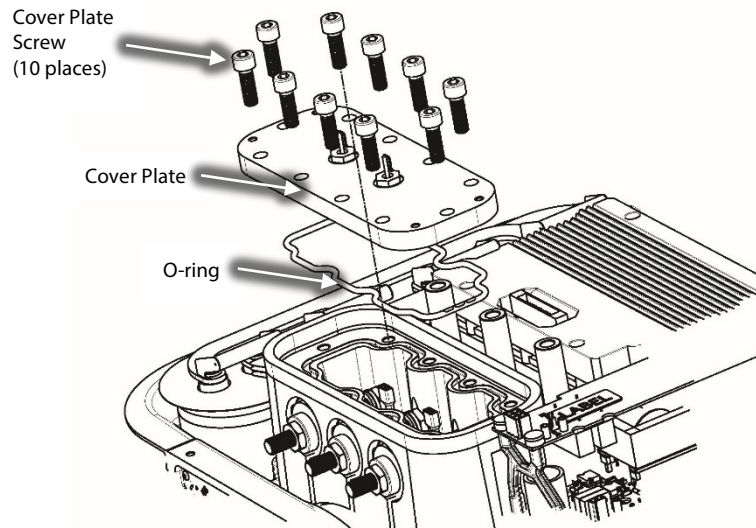


Figure 5 – Cover Plate Removal

14. Carefully cut the insulation and lift the Cover Plate and gently unplug the lower thermistor connectors. Refer to Figure 6 (Thermistor Wire Removal).

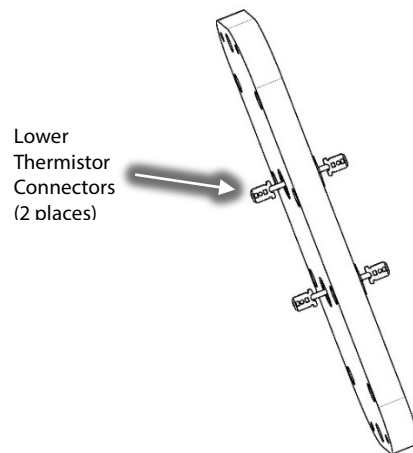


Figure 6 – Thermistor Wire Removal

15. Remove and discard the O-ring.

16. Remove the three (3) outer nuts or screws (depending on installed feedthrough) in order to release the Motor Leads. Refer to Figure 7 (High-Power Feedthrough Removal) for examples of both versions.

WARNING: While loosening the High-Power Feedthrough Nuts, it is important to hold the inner nut with a wrench. Failure to do so could place an excessive load on the feedthrough causing internal damage.

17. Remove the three (3) High-Power Feedthroughs. Refer to Figure 7 (High-Power Feedthrough Removal).
18. Remove the three (3) High-Power Feedthrough O-rings from the Main Housing if they did not come out with the old feedthroughs. Refer to Figure 7 (High-Power Feedthrough Removal).

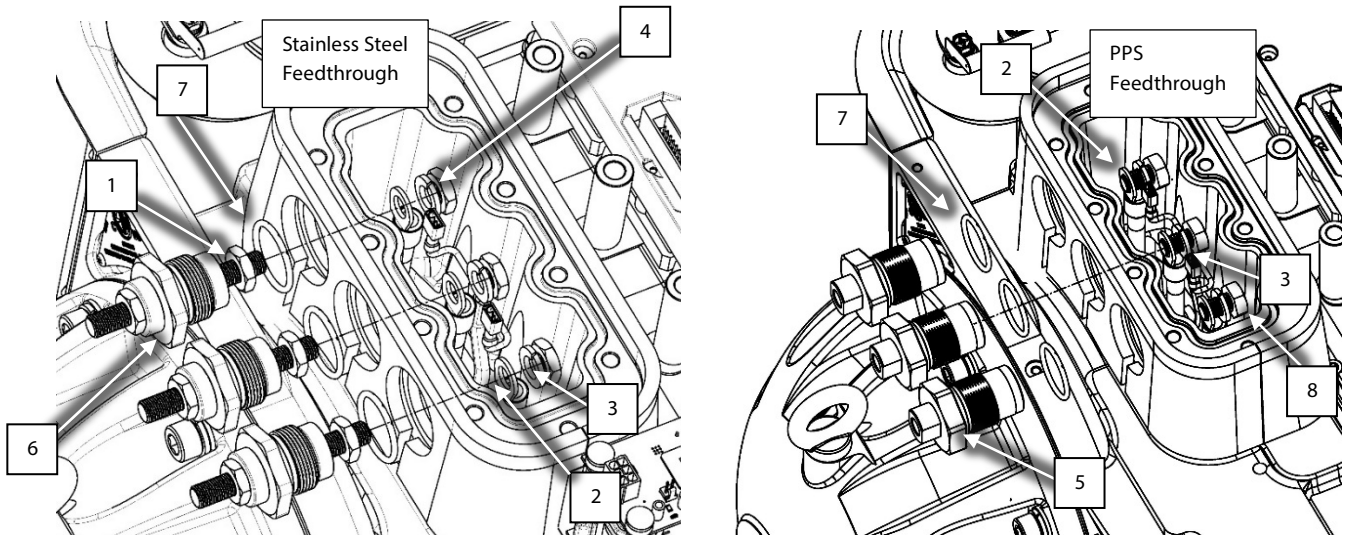


Figure 7 – High-Power Feedthrough Removal

No.	Component	No.	Component
1	Inner Nut (3 places)	5	PPS (Polyphenylene Sulfide) High-Power Feedthrough (3 places)
2	Motor Lead (3 places)	6	Stainless Steel High-Power Feedthrough (3 places)
3	Lock Washer (3 places)	7	O-ring (3 places)
4	Outer Nut (3 places)	8	Screw (3 places)

19. Inspect the sealing area for any residue or debris and clean the threads with a lint-free cloth if needed.

4 - Installation Instructions:

1. Verify that the old High-Power Feedthrough O-rings have been removed.
2. Clean the feedthrough mating surfaces with a lint-free cloth. Inspect the sealing area for any damage.
3. Lubricate and install the new O-rings onto the new High-Power Feedthroughs.
4. Thread one (1) nut onto the inner side of each of the three (3) High-Power Feedthroughs. Thread each nut by hand until it is seated against the feedthrough, then back off the nut at least one (1) full revolution. Do not torque the inner High-Power Feedthrough Nuts. Refer to Figure 8 (Inner Nut Installation).
5. Thread each High-Power Feedthrough halfway into the Main Housing.
6. Slide the Motor Leads onto the High-Power Feedthroughs.
7. Continue to thread the High-Power Feedthroughs into the housing by hand until they stop. Torque to 22 Nm (16 ft.lb.).
8. Position the Motor Leads against the inner High-Power Feedthrough Nuts, then install the lock washers and outer High-Power Feedthrough Nuts.

Warning: Be sure that once the inner nut is seated against the feedthrough, it is backed out at least one revolution. Otherwise damage to the feedthrough could occur.

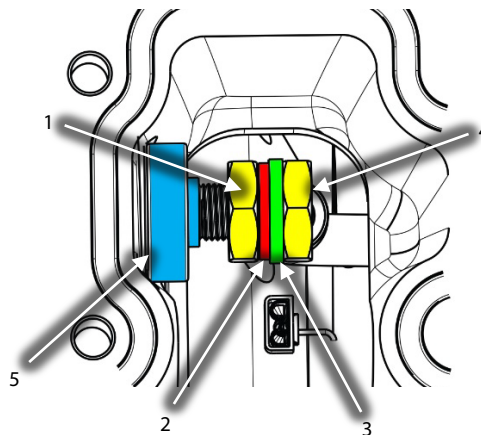


Figure 8 – Inner Nut Installation

No.	Component
1	Inside Nut (not torqued)
2	Motor Lead
3	Lock Washer
4	Outer Nut
5	Feedthrough

9. Once the nuts are finger tight, hold the inner nut with a wrench and torque the outer nut to 15.5 Nm (11.5 ft.lb.).

WARNING: While torquing the High-Power Feedthrough Nuts, it is important to hold the inner nut with a wrench. Failure to do so could place an excessive load on the feedthrough causing internal damage. Also, the feedthrough itself could move which could allow it to loosen or be over torqued.

10. Clean the Main Housing and Cover Plate mating surface with a lint-free cloth. Inspect the sealing area for any damage.
11. Lubricate and install the preformed O-ring into the groove located in the Main Housing.
12. Reinstall the wires on the inner thermistor terminals while holding the Cover Plate.

NOTE: Polarity of the thermistor wires is not required.

WARNING: Care must be taken while plugging in the thermistor sensor connectors. Ensure that the Cover Plate does not damage the mounted O-ring in the housing. The O-ring must be replaced if any damage occurs.

13. Lower the Cover Plate onto the Main Housing.
14. Using the 10 Cover Plate M8x25 fasteners, install the Cover Plate. Finger-tighten and then, according to Figure 9 (Cover Plate Torque Sequence), tighten in a crisscross pattern in two (2) stages.
 - Stage 1: Tighten to 10 Nm (7 ft.lb.)
 - Stage 2: Tighten to a final torque of 18 Nm (13 ft.lb.)

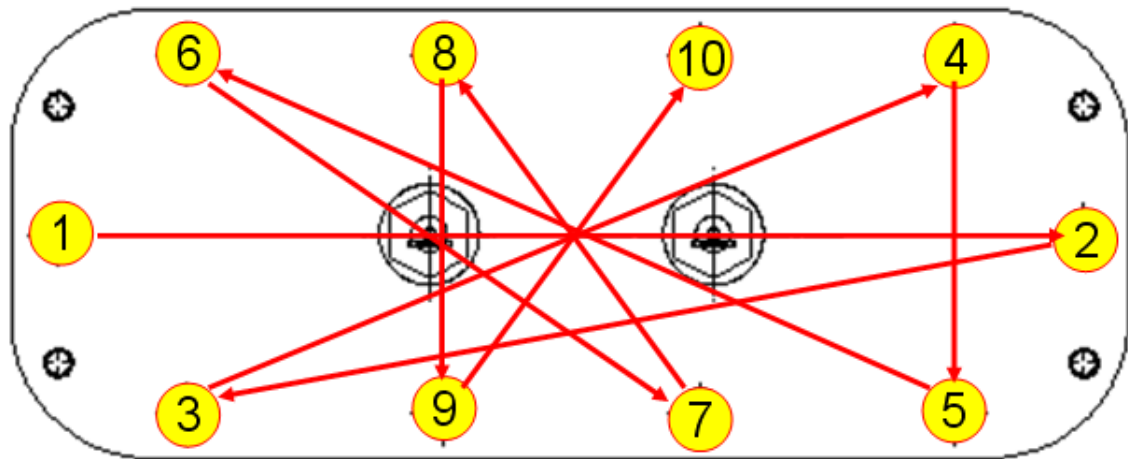


Figure 9 – Cover Plate Torque Sequence

15. Perform a leak test to ensure that the parts are assembled and sealed correctly.
16. Evacuate the compressor.
17. Install the two (2) connectors onto the Thermistor Sensor Feedthroughs.
18. Thread one (1) nut onto the outer side of each of the three (3) High-Power Feedthroughs. Thread each nut by hand until it is seated against the feedthrough, then back off the nut at least one (1) full revolution. Do not torque the inner High-Power Feedthrough Nuts. Refer to Figure 10 (Outer Nut Installation).
19. Slide the bus bar over the new High-Power Feedthrough until it makes contact with the inner nut.
20. Install the three (3) Bus Bar to Inverter fasteners through the copper tubes. Initially thread the fasteners into the Inverter by hand. Torque to 14 Nm (10 ft.lb.).
21. Back out the three (3) inner High-Power Feedthrough Nuts until they rest against the Bus Bars.

Warning: Be sure that once the inner nut is seated against the feedthrough, it is backed out at least one revolution. Otherwise damage to the feedthrough could occur.

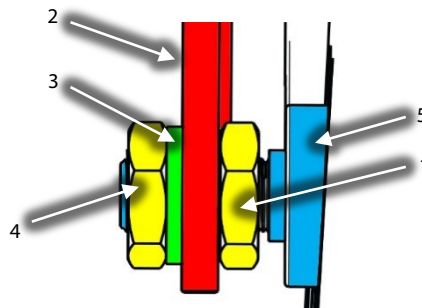


Figure 10 – Outer Nut Installation

No.	Component
1	Inside Nut (not torqued)

2	Motor Bus Bar
3	Lock Washer
4	Outer Nut
5	Feedthrough

22. Install the outer three (3) High-Power Feedthrough Nuts and lock washers, and torque to 15.5 Nm (11.5 ft.lb.)
23. Install the Soft Start and torque to 5 Nm (44 in.lb.).
24. Ensure that no residue remains on the contact surfaces of the Top Cover and casting sides.
25. Place the Top Cover and secure it with the M5x15 fasteners according to the following sequence. Follow the sequence twice. The first time, only tighten the fasteners half way down to allow for adjustment. Torque to 13 in.lb. on the second pass. Refer to Figure 11 (Top Cover Torque Sequence).

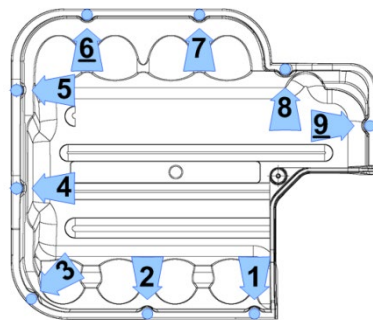


Figure 11 – Top Cover Torque Sequence

26. Ensure that no residue remains on the contact surfaces of the mains input cover and casting sides.
27. Place the Mains Input Cover and secure it with the M5x15 fasteners. Tighten according to Figure 12 (Mains Input Cover Torque Sequence).

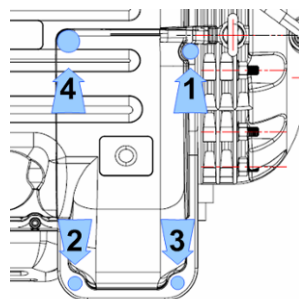
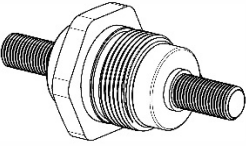
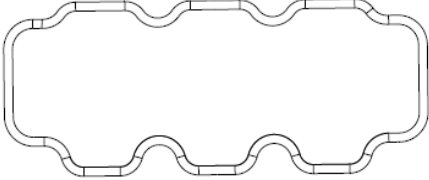







Figure 12 – Mains Input Cover Torque Sequence

28. Follow the sequence twice. The first time, only tighten the fasteners half way down to allow for adjustment. Torque to 13 in.lb. on the second pass. Secure the # 4 fastener only once and use caution as to not overtighten.
29. Connect mains power.

Torque Values	
Component	Torque Value
Soft Start Mounting Screw	5 Nm (44 in.lb.)
Motor Bus Bar to Motor Screw	14 Nm (10 ft.lb.)
Motor Bus Bar to Inverter Screw	14 Nm (10 ft.lb.)
Cover Plate Screw	18 Nm (13 ft.lb.)
High-Power Feedthrough Nut	15.5 Nm (11.5 ft.lb.)
Top and Main Input Cover Screw	1.5 Nm (13 in.lb.)

5 - Kit Contents

QTY	Part(s) Description	Picture(s)
3	FEEDTHROUGH - HIGH POWER- ASSEMBLY (requires 36mm socket)	
1	O-RING (COVER PLATE)	
3	O-RING	
6	WASHER, M10, SPLIT LOCK	
12	NUT BRASS M10 X 1 X 5MM THICK (requires 17mm socket/wrench)	
10	SCREW M8X25 SOCKET HEAD CAP	
1	LUBRICATION-SUPER-O-LUBE-2G	



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