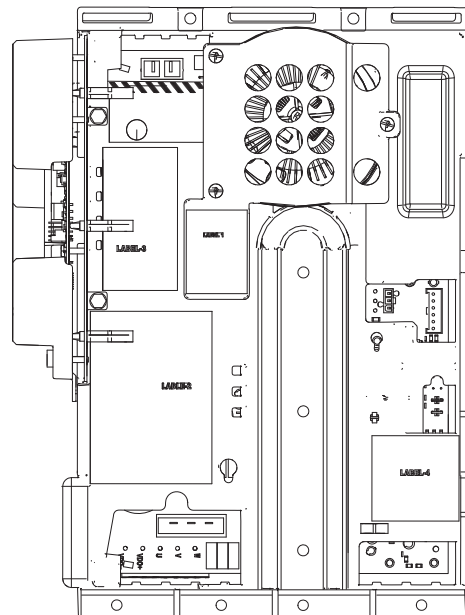


Installer's Guide

Variable Speed Side Discharge HP Control Drive Replacement

DRV03234



Note: "Graphics in this document are for representation only. Actual model may differ in appearance."

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

Table of Contents

Section 1. Safety	2
Section 2. Tools and Parts Required	3
Section 3. Terminology	3
Section 4. Remove Drive assembly	4
Section 5. Install AOC	6
Section 6. Apply Thermal Grease.....	6
Section 7. Reinstall the Drive	6
Section 8. Perform Final Inspection	7
Section 9. Return Drive Board	7

Section 1. Safety

IMPORTANT — These instructions do not cover all variations in systems, nor do they provide for every possible contingency to be met in connection with the installation. Should further information be desired, or should particular problems arise which are not sufficiently covered for the purchaser's purposes, the matter should be referred to your installing dealer or local distributor.

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

WARNING

HAZARDOUS VOLTAGE!
Failure to follow this Warning could result in property damage, severe personal injury, or death. Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized.

WARNING

REFRIGERANT OIL!
Failure to follow this Warning could result in property damage, severe personal injury, or death. These units use R-410A refrigerant which operates at 50% to 70% higher pressures than R-22. Use only R-410A approved service equipment. Refrigerant cylinders are painted a "Rose" color to indicate the type of refrigerant, and may contain a "dip" tube to allow for charging of liquid refrigerant into the system. All systems use a PVE or POE oil that readily absorbs moisture from the atmosphere. To limit this "hygroscopic" action, the system should remain sealed whenever possible. If a system has been open to the atmosphere for more than 4 hours, the compressor oil must be replaced. Never break a vacuum with air and always change the driers when opening the system for component replacement.

WARNING

SERVICE VALVES!
Failure to follow this Warning may result in abrupt release of system charge and may result in personal injury and/or property damage. Extreme caution should be exercised when opening the Service Valves.

WARNING

HIGH LEAKAGE CURRENT!
Failure to follow this warning could result in property damage, severe personal injury, or death. Earth connection essential before connecting supply.

CAUTION

HOT SURFACE!
May cause minor to severe burning. Failure to follow this Caution could result in property damage or personal injury. Do not touch compressor.

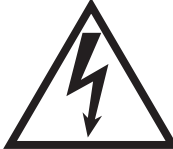
CAUTION

CONTAINS REFRIGERANT!
Failure to follow proper procedures can result in personal illness or injury or severe equipment damage. System contains oil and refrigerant under high pressure. Recover refrigerant to relieve pressure before opening system.

CAUTION

GROUNDING REQUIRED!
Failure to inspect or use proper service tools may result in equipment damage or personal injury. Reconnect all grounding devices. All parts of this product that are capable of conducting electrical current are grounded. If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

⚠ WARNING




400 VOLTS

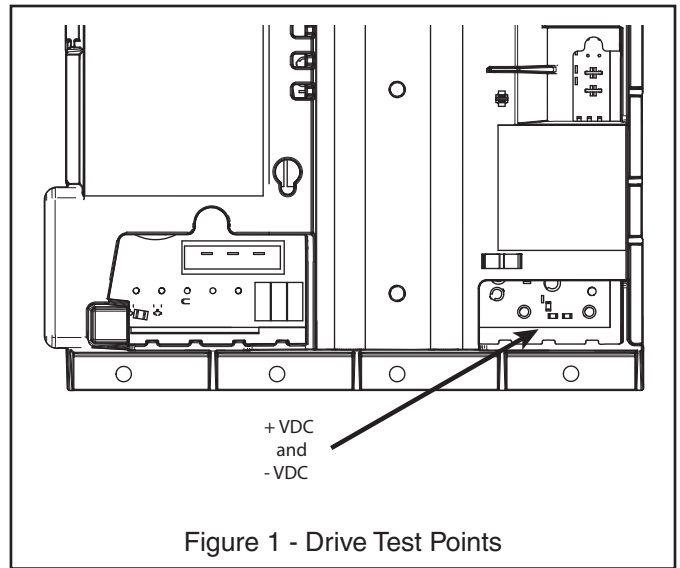
ELECTRICAL HAZARD

Failure to follow this warning could result in personal injury or death.

WAIT TWO (2) MINUTES after disconnecting power prior to touching electrical components as they may hold a dangerous charge of 400VDC, then verify DC Voltage is less than 42 VDC at inverter test points labeled +VDC and -VDC before servicing be



If voltage does not drop to 42VDC or less, contact your local service representative



Section 2. Tools and Parts Required

2.1 – Tools Required

The following tools are required to perform the procedures described in this document:

- DC Volt Meter
- 5/16" Nut Driver
- 7/16" Socket Wrench
- Torque Wrench w/ 7/16" Socket
- Small screwdriver (may be required if external ambient temperature thermister is used)

2.2 – Parts Required

All required parts are contained in the Replacement Kit that accompanies this document. They include:

- Thermal Grease
- Aluminum Nuts (3) - These Aluminum Nuts secure the Cold Plate to the Drive assembly. These are spares and should be used in the event of damage to the ones installed on the Unit.

Verify that you have the required tools and parts before proceeding.

Section 3. Terminology

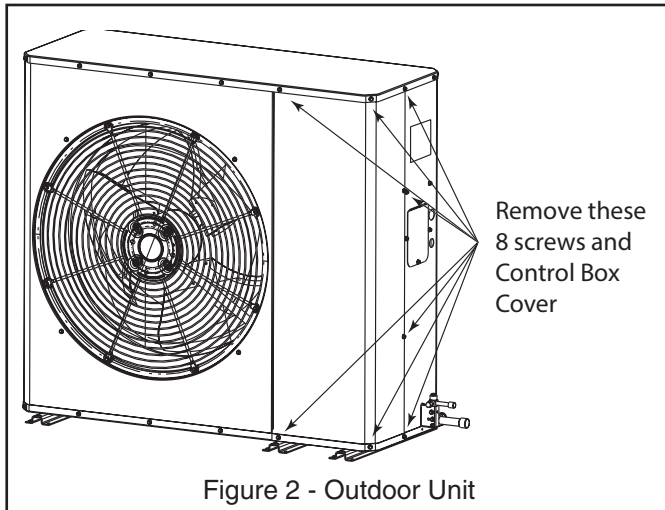
The following terms and abbreviations are used in this document.

Drivesame as MOC
 Drive Assembly same as AOC and MOC
 EEVElectronic Expansion Valve
 HPCOHigh Pressure Cut Off
 PM Personality Module

Section 4. Remove Drive assembly

4.1 – Power Down Unit and Remove Cover

1. Power down the Outdoor Unit and wait at least 2 minutes.
2. Remove the 8 screws securing the Control Box cover and place screws and cover aside. See Figure 2 - Outdoor Unit.

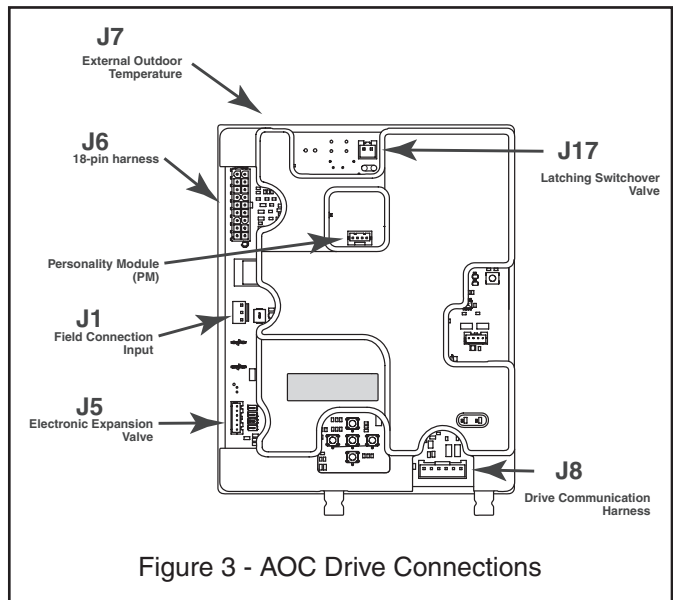


3. Test voltage across Inverter test points (see "Section 2. Tools and Parts Required on page 3.")

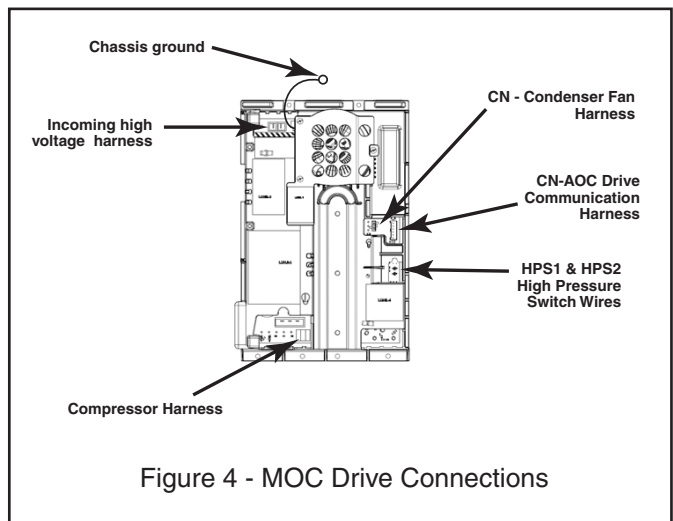
WARNING – DO NOT PROCEED until DC voltage measures less than 42 VDC.

4.2 – Remove Connections

1. Use care when removing the connectors. Some have latching tabs that must be depressed while removing. **DO NOT PULL ON WIRES.** Grasp by connector only when removing plug from Board.
2. Remove the following wiring and harnesses from the AOC. See Figure 3 - AOC Drive Connections.
 - J6- 18 pin harness
 - J1- DRB low voltage harness
 - J5- EEV Stepper motor
 - J7- External Outdoor Temp Sensor (if used)
 - J17- LSOV Solenoid
 - J8- Drive Communication Harness
 - Personality Module (PM)

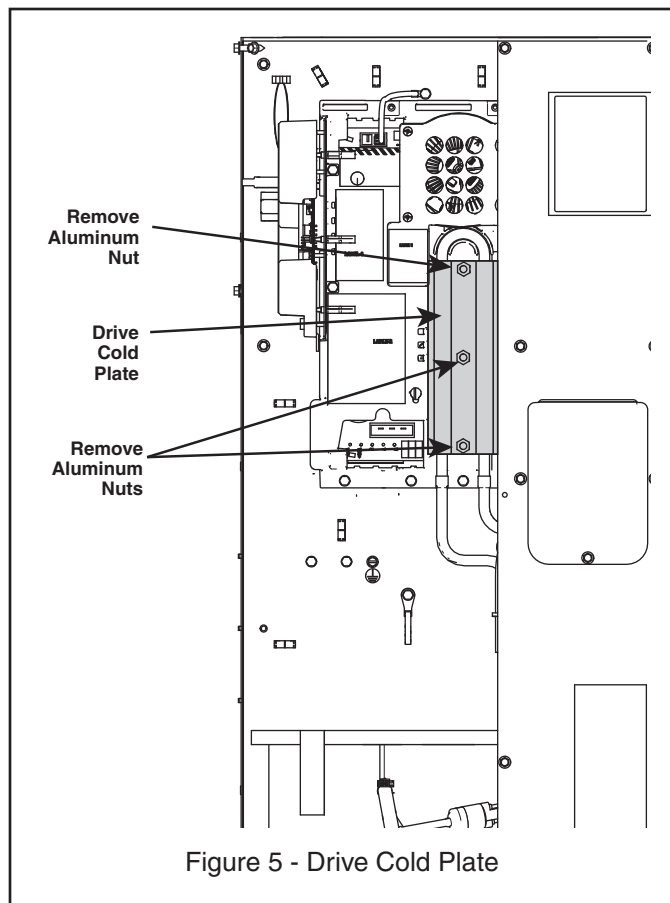


3. Remove the following wiring and harnesses from the DRIVE/ MOC: See Figure 4 - MOC Drive Connections.
 - Incoming high voltage harness
 - Compressor harness
 - CN- Condenser fan harness
 - HPS1/ HPS2 High Pressure Switch wires
 - CN-AOC Drive Communication Harness
 - Chassis ground at the top of the Drive



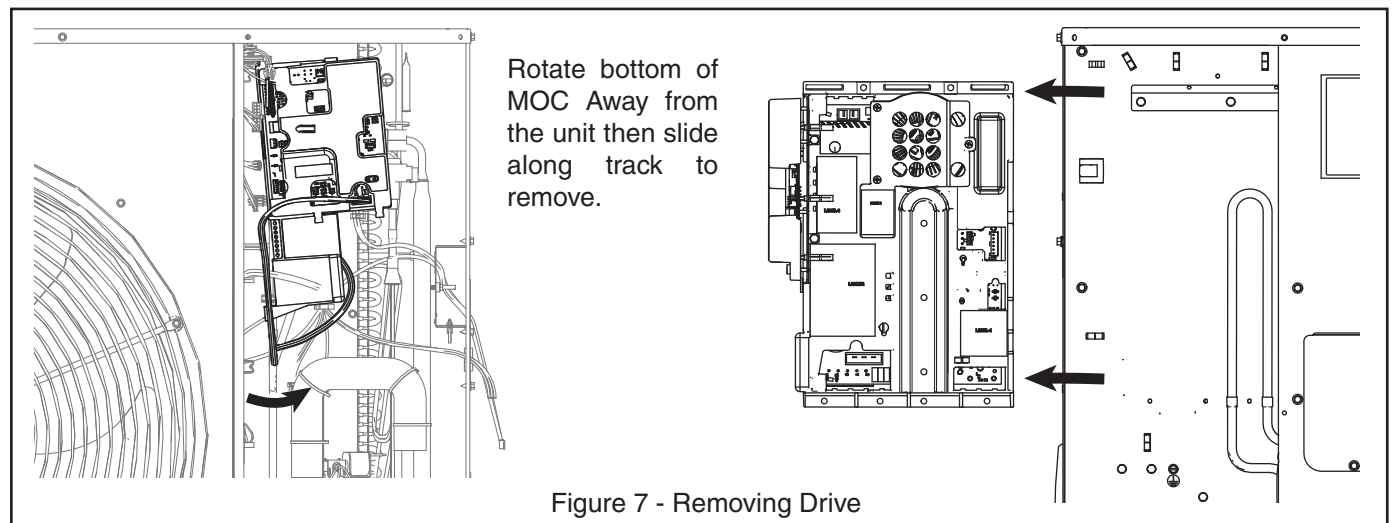
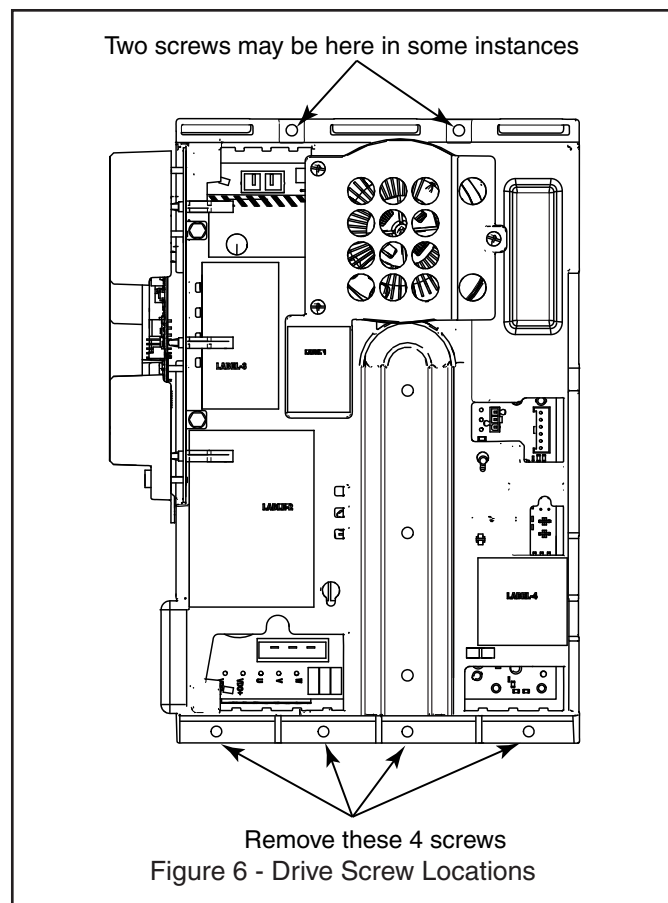
4.3 – Remove the Cold Plate

1. Remove the three Aluminum nuts securing the Cold Plate to the Drive Assembly. See Figure 5 - Drive Cold Plate. Nuts may be discarded as replacement drive kit has new nuts. You will use a Torque Wrench when reattaching Cold Plate to Drive.
2. Remove the Cold Plate and set aside. Avoid direct contact with the Thermal Grease that is exposed when the Plate is removed.
3. Separate the Liquid Line from the Drive Assembly one to two inches. Be careful not to bend or strain the copper tubing.



4.4 – Remove the Drive Assembly

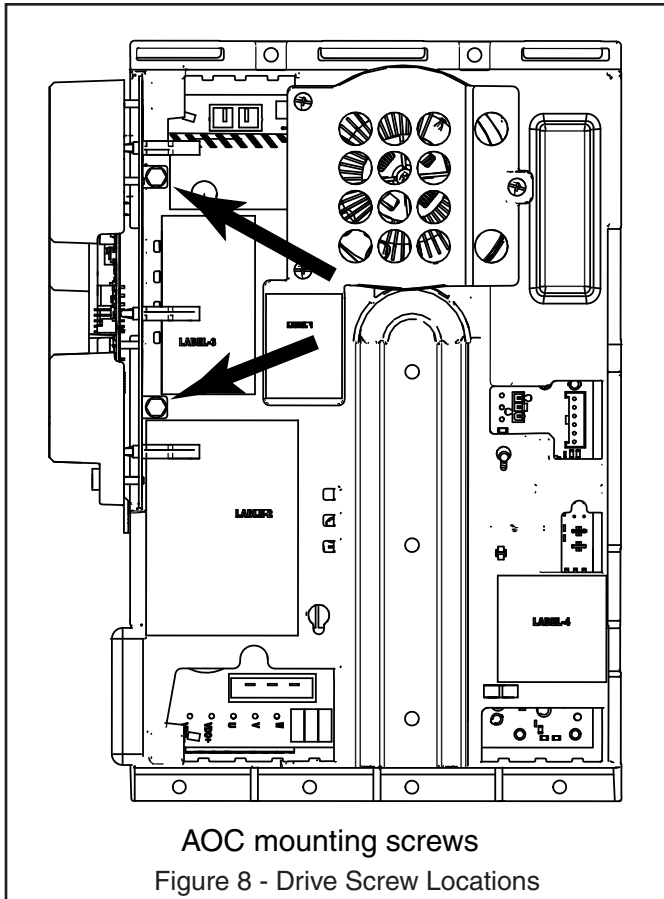
1. Remove the four screws securing the Drive in place. See Figure 6 - Drive Screw Locations. In some instances there may be two additional screws at the top. **USE CARE AND DO NOT ALLOW THE DRIVE TO SLIP AND DAMAGE THE LIQUID LINE.**
2. Looking at the AOC, tip the bottom of the drive to the right providing enough clearance for the drive to slide straight out and clear the obstructions from wiring and cabinet flange. Pull towards you gently while paying attention to the Liquid Line cooling loop. See Figure 7 - Removing Drive.



Section 5. Install AOC

5.1 – Remove the AOC from the old Drive and install onto new Drive.

1. Remove 2 screws holding the AOC mounting plate assembly to the Drive. See Figure 8.
2. Slide the AOC assembly out of track.
3. Slide the AOC assembly into new Drive track and secure with 2 screws.



Section 6. Apply Thermal Grease

It is critical that the copper Liquid Line has good thermal contact with the aluminum plate. Proper application of Thermal Grease will ensure this contact.

Clean old thermal grease from liquid line to ensure good thermal contact.

Apply a small, 1/8" bead of Thermal Grease in the center of the cutout around the entire length. It takes very little grease to create adequate thermal transfer. The included .5-ounce tube contains enough grease for 2-3 applications.

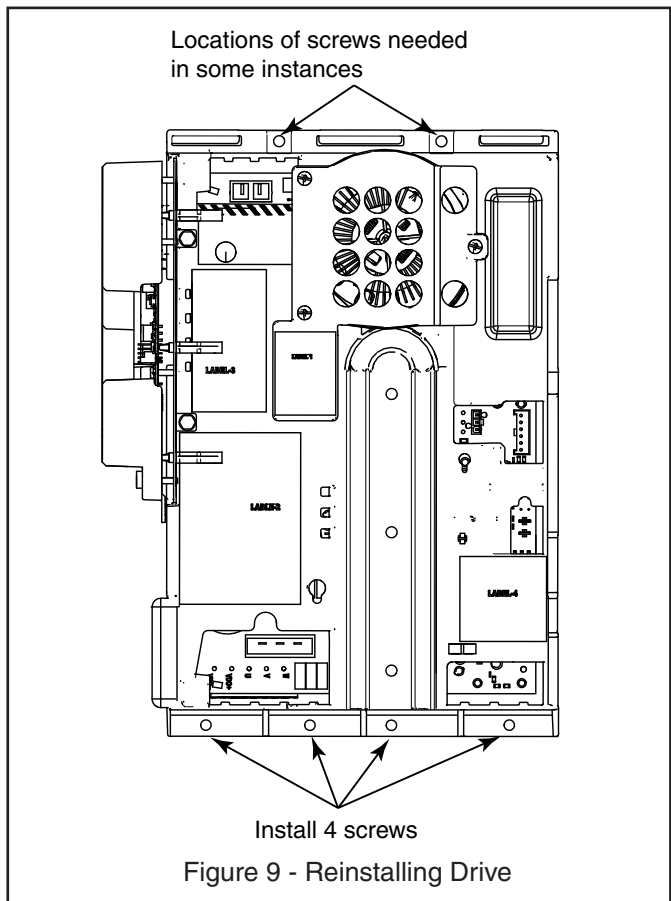
Section 7. Reinstall the Drive

7.1 – Return the Drive to the Cabinet Housing

1. Install new drive and assembly onto the track. Place the Drive back in its original position by sliding it between the Liquid Line and the cabinet housing. With the drive angled slightly to avoid the cabinet flange and wiring, begin sliding the drive inward. Ensure the Liquid Line cooling loop has been adjusted so that the drive does not damage it while traveling to position.

Note: Two additional screws may be used in some instances. See allowable locations in Figure 9.

2. Once in final position, locate the 4 screw holes and secure the bottom of the drive.
3. Gently position the Liquid Line cooling loop onto the



drive in the proper position.

4. Place the 3 aluminum nuts on the bolts and hand tighten 2-3 turns.
5. Press the Liquid Line into the cutout so that it is properly aligned and seated into the cutout. Apply pressure to the Cold Plate and finger tighten the aluminum nuts. Repeat this process 3-4 times to ensure the Liquid Line is firmly seated in the cutout. You should see the Thermal Grease begin to flow around the copper tubing.

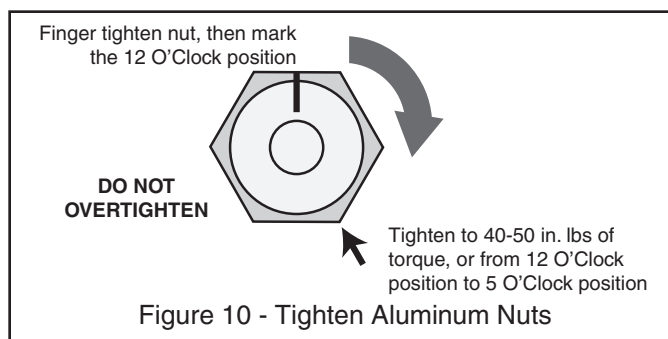
NOTICE: Use only the aluminum nuts that were on the unit originally or those that shipped with the Replacement Kit.

7.2 – Tighten the Aluminum Nuts

Using a torque wrench, tighten the aluminum nuts to 40-50 in. lbs. of torque.

CAUTION. The aluminum nuts are designed to strip out at 80 in. lbs. DO NOT OVERTIGHTEN.

If you do not have a torque wrench, finger tighten the nuts as described above. With a felt tip marker, mark a position on the nut at 12 O'Clock and turn the nut to the 5 O'Clock position. See Figure 10 - Tighten Aluminum Nuts.



7.3 – Reattach all Harnesses and Wiring

Reattach the following wires and connectors. While the order in which you reattach the wiring is not significant, you may find it easiest to start in the upper left hand of the Board. Refer to Figures 3 and 4 for connection locations.

1. Reinstall all harnesses and wiring on the MOC.
 - Chassis ground green wire at the top of the drive to the cabinet wall
 - Incoming high voltage to Drive/ MOC
 - Compressor harness
 - CN- Condenser Fan harness
 - HPS1/ HPS2 High Pressure switch wires
 - CN AOC Drive Communication harness
2. Reinstall all harnesses and wiring on the AOC.
 - J6- 18 Pin harness to
 - J1- DRB low voltage harness
 - J5- EEV stepper motor
 - J7- External OD temp sensor (if used)
 - J17- LSOV Solenoid harness
 - J8- Drive Communication Harness
 - Personality Module- PM
 -

7.4 – Secure wiring into routing clips.

7.5 – Re-apply power to Outdoor Unit.

Section 8. Perform Final Inspection

1. Verify that all wires and plugs are reconnected and that no wires are pinched between the Drive and the Cabinet Housing.
2. Start up Unit and verify operation.
3. Replace the Control Box cover and secure the 4 screws.

Section 9. Return Drive Board

1. Package the failed control and return to your local parts center.

NOTE: To receive Factory Credit for failed Drive Boards covered by the Limited Warranty, a valid pre-authorization number is required. Be sure to mark the box and the service invoice with the pre-authorization number before returning to your local parts center.

About Trane and American Standard Heating and Air Conditioning
Trane and American Standard create comfortable, energy efficient indoor environments for residential applications.
For more information, please visit www.trane.com or www.americanstandardair.com



The AHRI Certified mark indicates company participation in the AHRI Certification program. For verification of individual certified products, go to ahridirectory.org.

The manufacturer has a policy of continuous data improvement and it reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.