

Tech Note: Rapid Mate Inspection

Tech Notes are internal announcements that help to communicate and track new information about Tesla Service concerns.

Improper sealing of the HV Rapid Mate (Figures 1 and 2) can allow water ingress. This can result in isolation faults and, in extreme cases, damage to the Rapid Mate connection points. Any time the HV battery pack is removed, follow the care points in this tech note.

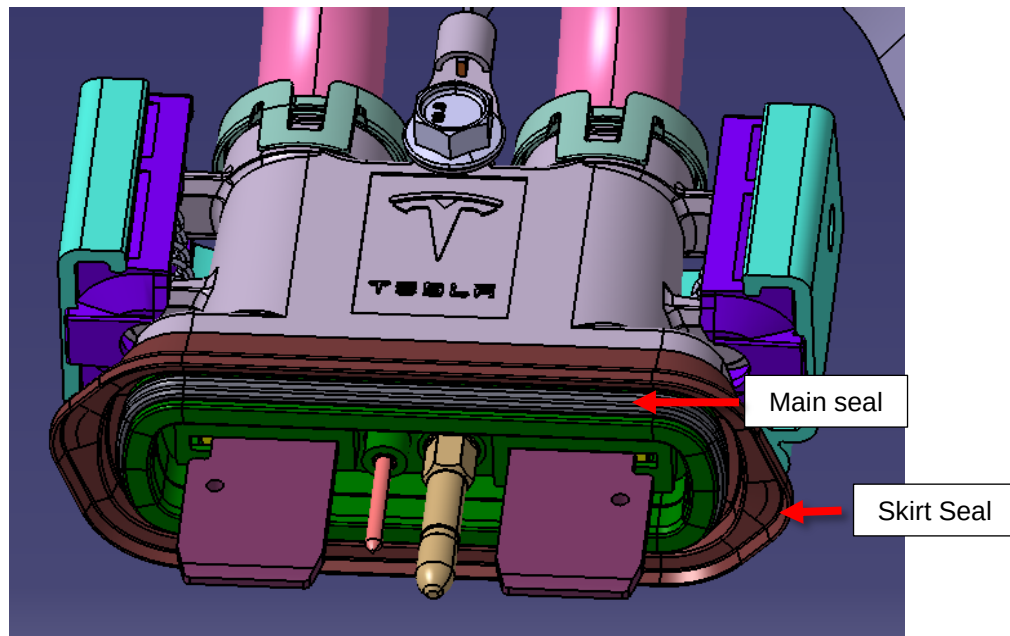


Figure 1 (Vehicle-side Rapid Mate connection)

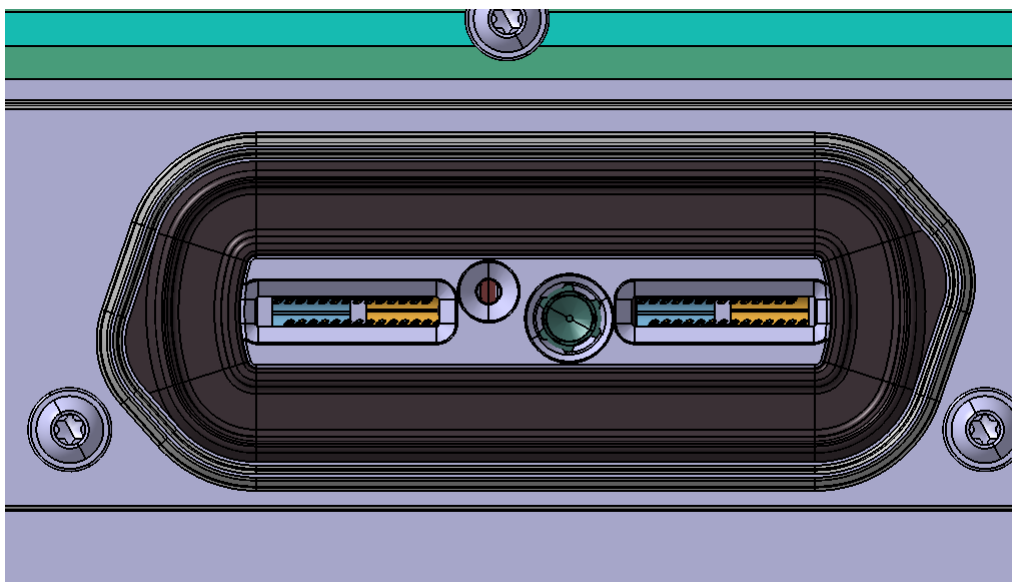


Figure 2 (Battery-side Rapid Mate connection)

Before Removing the HV Battery Pack

Use a boroscope to take a picture of the Rapid Mate seating (Figure 3) and attach it to a new ATTAC case. Other care points in this bulletin will require pictures to attach to the ATTAC case. Submit the ATTAC case after completing all care points in this document.



Figure 3 (Boroscope picture of Rapid Mate connection)

When Removing the HV Battery Pack

When removing the HV battery, note whether any water was present in the Rapid Mate connection. Minor water ingress is acceptable, but if water flows out, which might indicate that there was a large amount of standing water in the connection, then there is a high probability of damage. Take high resolution pictures of both the vehicle-side and battery-side Rapid Mate connectors and attach them to the ATTAC case. The pictures should be taken from the same orientation and show the same details as shown in Figures 1 and 2.

After Removing the Pack

Inspect the Skirt Seal

Inspect the skirt seal on the vehicle-side HV Rapid Mate. The seal is pliable, but can become permanently deformed (Figures 4 and 5) during removal and reinstallation of the HV battery pack. In the “After Securing the Battery Pack” section, it is necessary to confirm proper seating with a boroscope. Therefore:

- If the long, straight section of the seal on the front side of the vehicle is deformed, replace the vehicle-side HV Rapid Mate, because this area is not visible with a boroscope once the battery is reattached.
- If the long, straight section of the skirt seal on the rear side of the vehicle is deformed, mold it back into place, if possible. Follow the steps in the “After Securing the Battery Pack” section to ensure proper seating. If the seal is permanently deformed, replace the vehicle-side HV Rapid Mate.



Figure 4 (Seal deformed outwards)



Figure 5 (Seal deformed inwards)

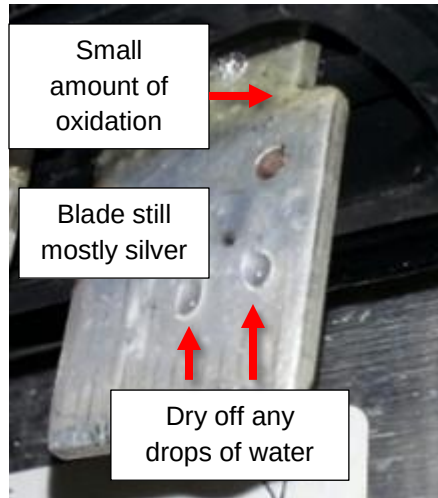
Inspect the Vehicle-side HV Rapid Mate

1. Clean the vehicle-side HV blades, pins, and plastic insulator plate with isopropyl alcohol and a non-abrasive cloth. Thoroughly dry all parts.
2. Inspect the blades and pins for signs of corrosion (Figures 6-8). A small amount of discoloration is acceptable, but if any silver is flaking off, or is bubbled or cracked, replace the vehicle-side HV Rapid Mate. If there is any doubt whether there is corrosion, take high resolution pictures and attach them to the ATTAC case.



No corrosion,
blade is silver

✓ Ideal
Figure 6

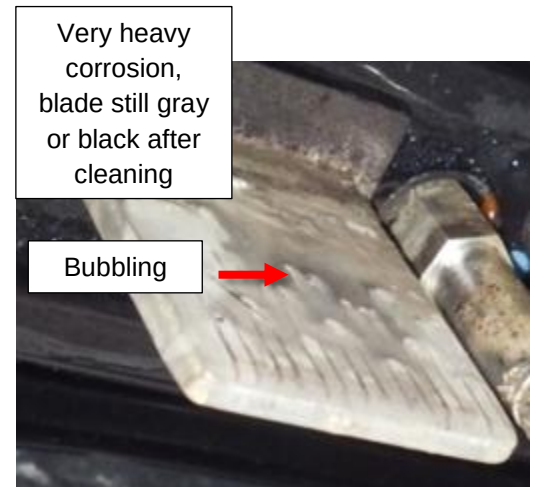


Small
amount of
oxidation

Blade still
mostly silver

Dry off any
drops of water

✓ Acceptable
Figure 7



Very heavy
corrosion,
blade still gray
or black after
cleaning

Bubbling

✗ Unacceptable
Figure 8

3. Inspect the blades, pins, and plastic insulator plate for signs of arc-tracking (Figures 9 and 10). If the plastic insulator plate is deformed, cracked, or melted, or if the metal on the blades or pins is discolored or deformed, replace the vehicle-side HV Rapid Mate. If there is any doubt whether there is arc-tracking, take high resolution pictures and attach them to the ATTAC case.



Figure 9

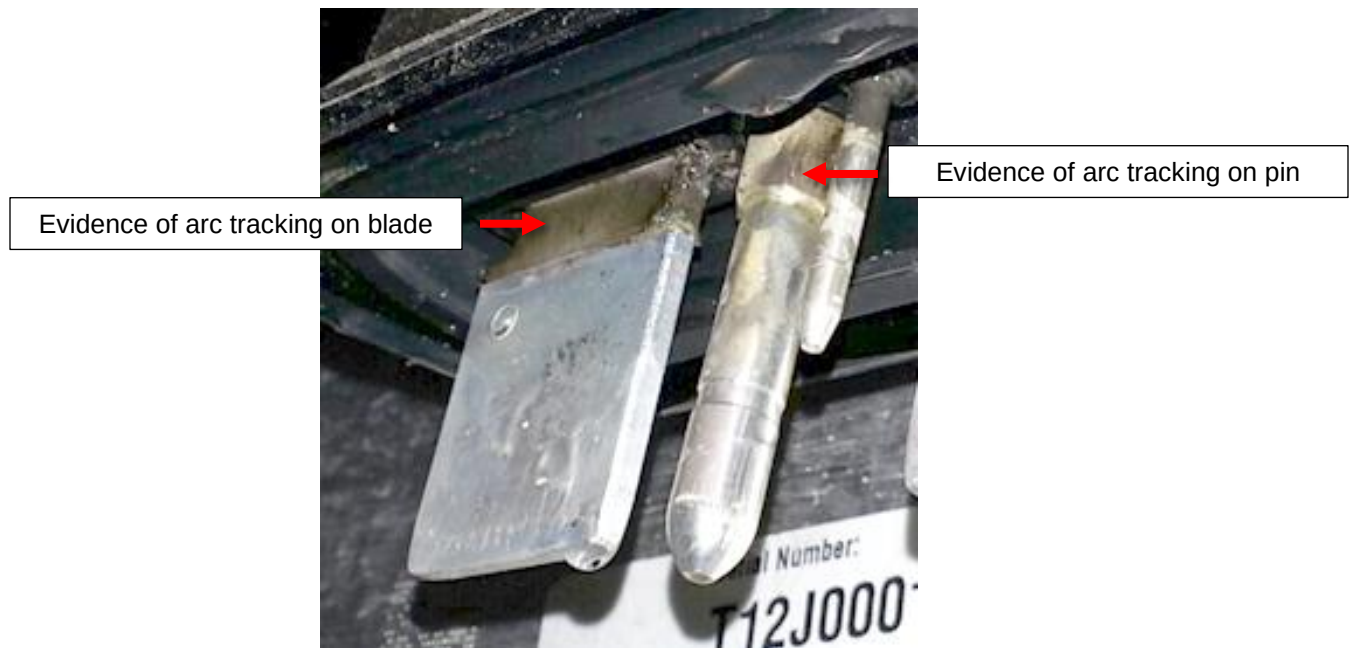


Figure 10

Inspect the Battery-side HV Rapid Mate

1. Clean the plastic insulator with isopropyl alcohol and a non-abrasive cloth.
2. Inspect the battery-side HV Rapid Mate for signs of arc-tracking (Figure 11).

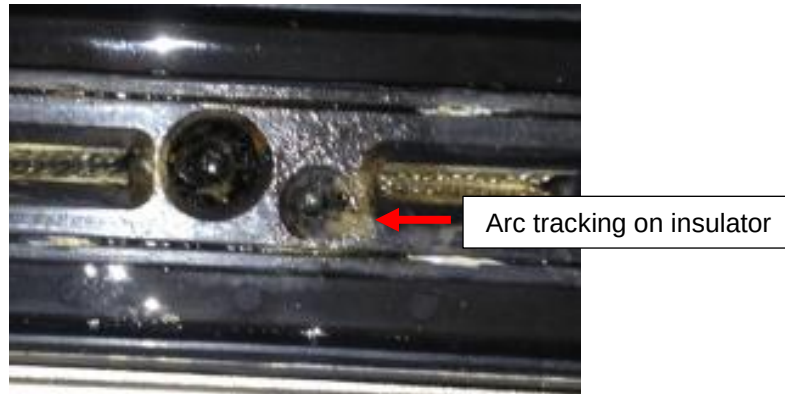
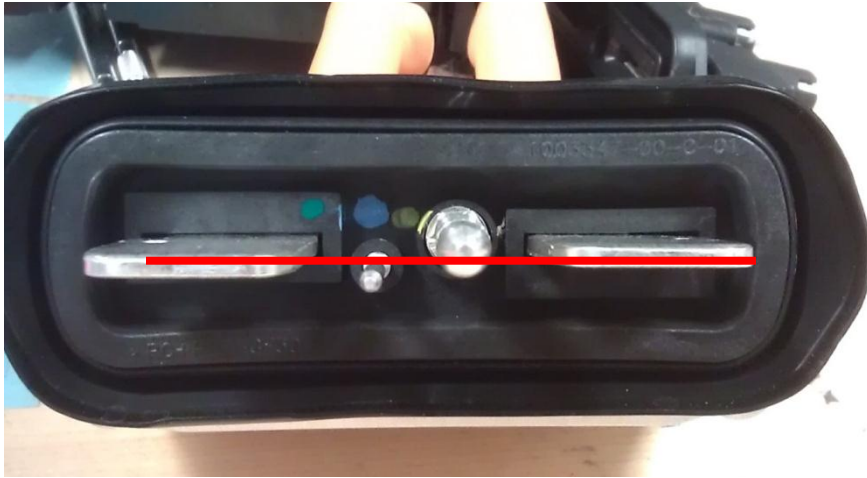


Figure 11

3. Use shop air to clean dirt and other foreign debris out the connectors, even if there is no visible debris. Take high resolution pictures of the connectors and attach them to the ATTAC case.

Blade Alignment

Examine the blades on the vehicle-side of the HV Rapid Mate (Figures 12 and 13). If the blades are far out of alignment, gently use nylon-tipped pliers to position the blades back into place. If the blades cannot be corrected, replace the vehicle-side HV Rapid Mate.



✓ Acceptable
Figure 12



✗ Unacceptable
Figure 13

Before Attaching the HV Battery Pack

Use a Q-tip to gently apply P-80 emulsion (1028374-00-A) on the inside of the skirt seal and the outside of the main seal (Figure 14).

⚠ CAUTION: Do not get any emulsion on the blades, pins, or plastic insulator plate.

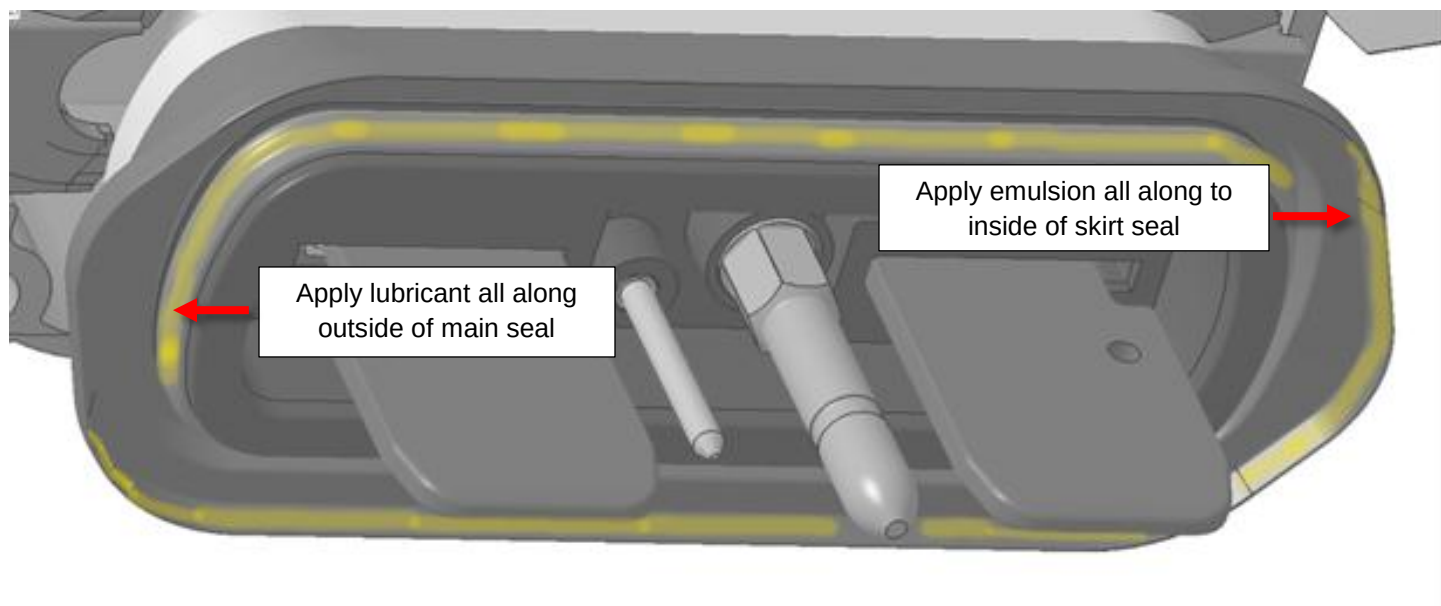
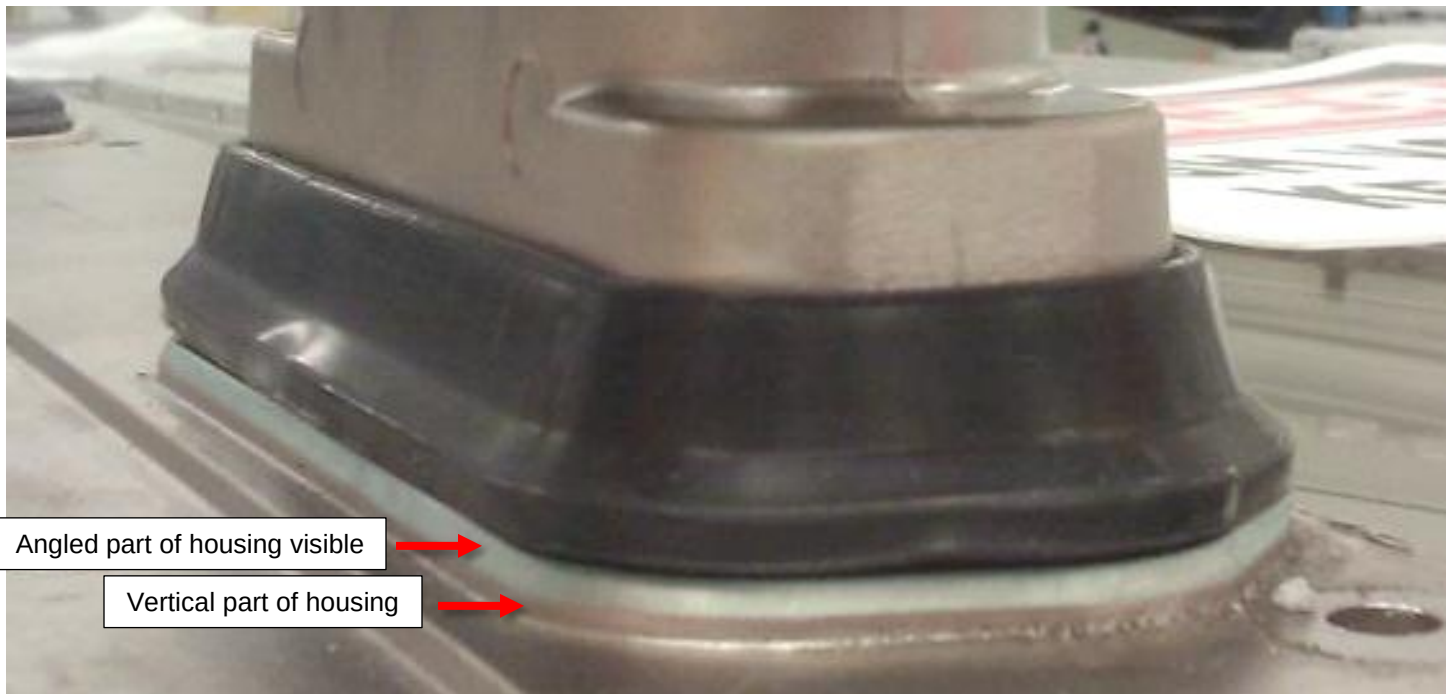


Figure 14

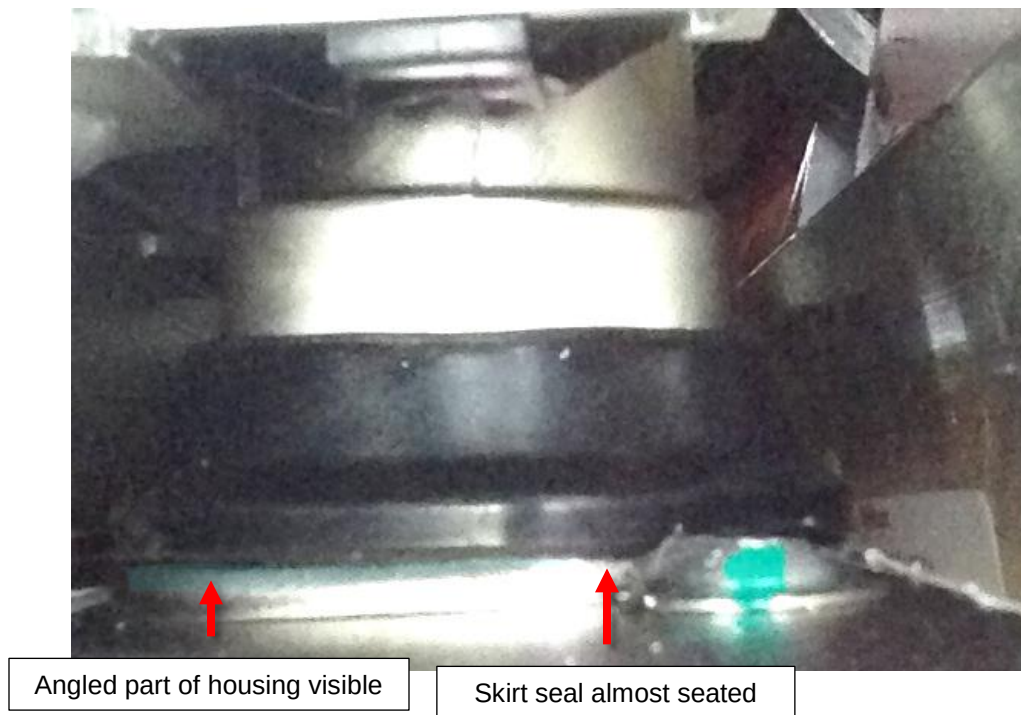
After Securing the Battery Pack

NOTE: Do not install the rear undershield yet.

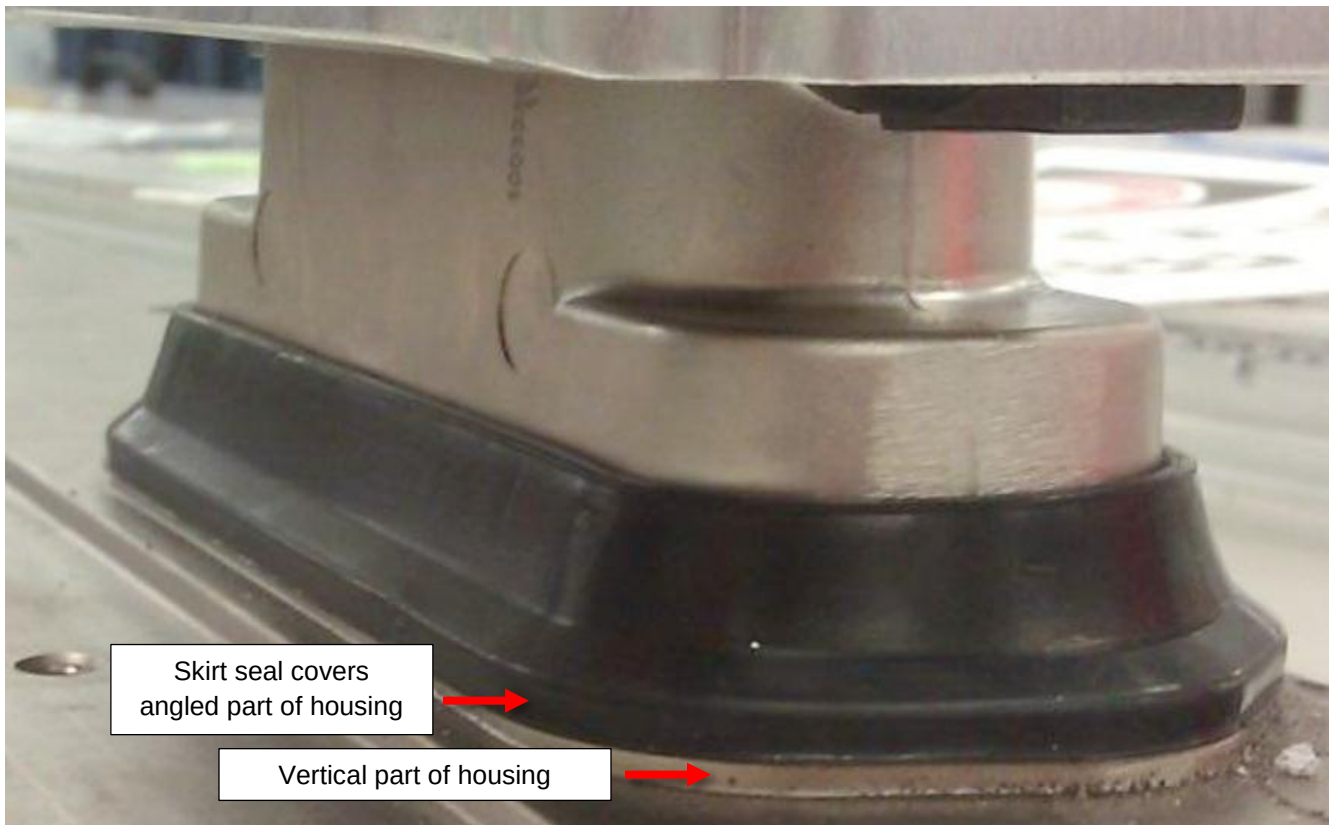
1. Reach in front of the rear subframe and pull down hard on the vehicle-side HV Rapid Mate to make sure that it is fully mated to the battery-side Rapid Mate.
2. Use a mirror or boroscope to check the HV Rapid Mate connection. Check whether the skirt seal is fully seated on the battery. The battery-side Rapid Mate housing is vertical at the bottom, then angles inward. The skirt seal must completely cover the angled part of the housing (Figures 15-18). If the skirt seal cannot fully seat, use a boroscope to take a picture of the seal, and attach it to the ATTAC case.



✗ Incorrect – Skirt seal not fully seated
Figure 15



✗ Incorrect – Skirt seal not fully seated
Figure 16



✓ Correct – Skirt fully seated
Figure 17



✗ Incorrect – Skirt seal caught on base
Figure 18