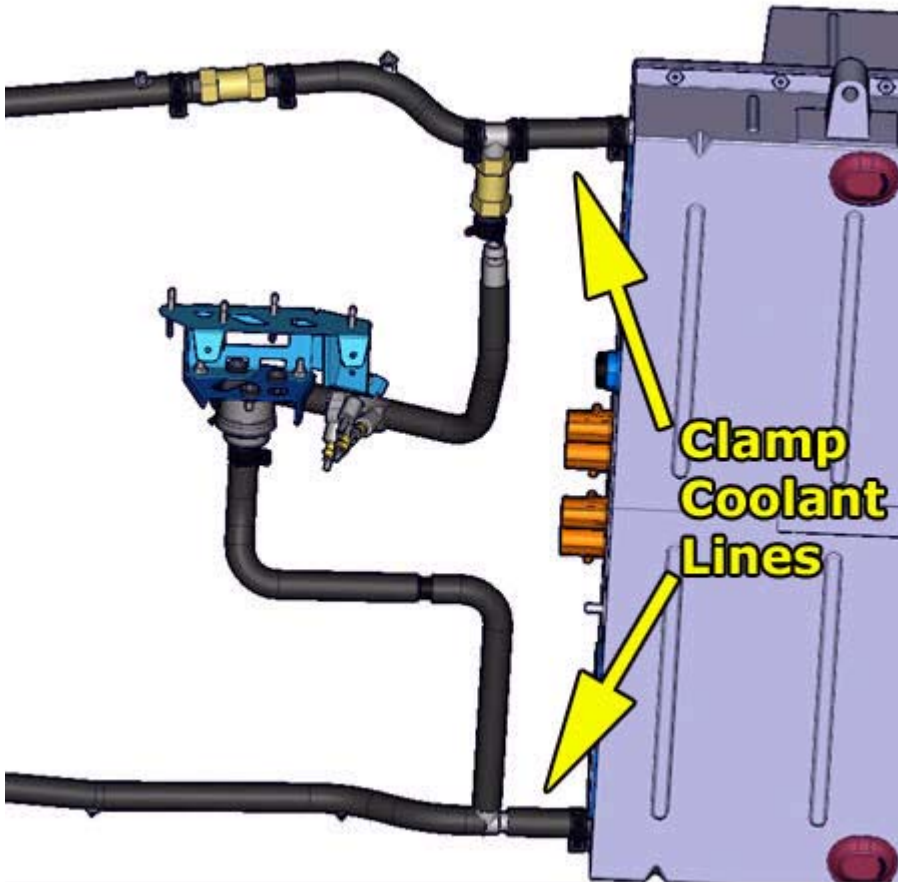


## ESS - Removal & Installation

### Special Equipment Needed

- Lifting device & sling - 750 lb / 340 kg capacity (minimum)
- Transmission jack - 750 lb / 340 kg capacity (minimum)
- Support Cradle
- Transit Connect Electric Diagnostic Tool (TCEDT) & cabling

### Removal



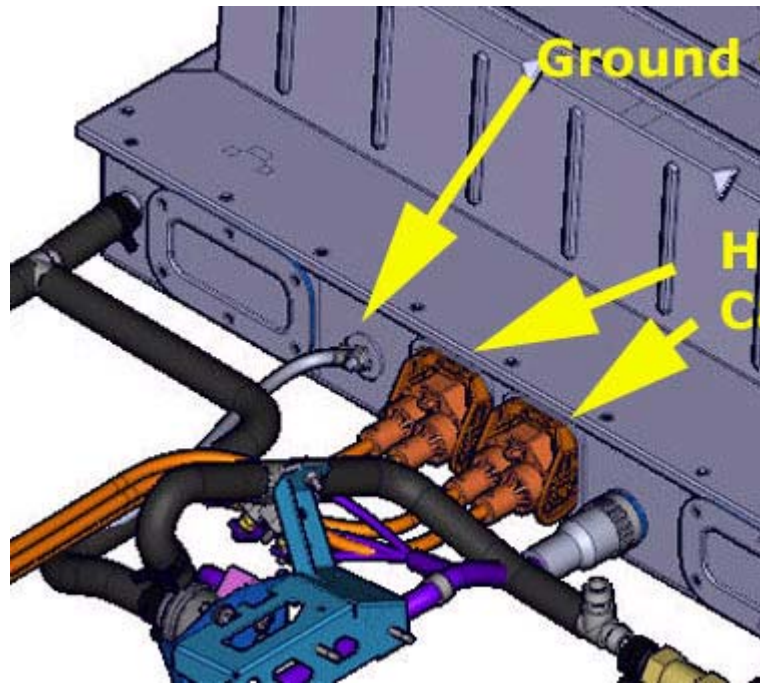
- Clamp off ESS cooling loop
- Drain coolant from the ESS

**Danger - High Voltage**

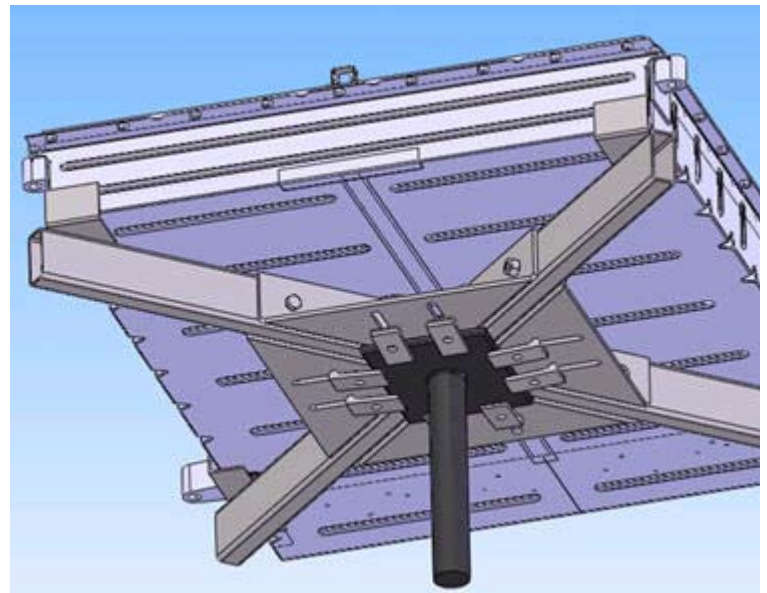
[Disable the ESS & High Voltage Bus - Remove High Voltage Interlock Pins](#)

#### Remove:

- ESS ground cable
- ESS High Voltage cables



- Support ESS on jack and stabilizing cradle
- Remove ESS mounting bolts
- Lower & remove from vehicle.



Using a suitable sling and lifting device, crate the ESS with accompanying service disconnect hardware (in a sealed bag) and return-paperwork in the original ESS crate.

#### Installation

1. Lift ESS onto transmission jack and stabilizing cradle..
2. Install ESS using the original bolts & nuts (102 ft-lbs / 138 Nm).
3. Install the HV connectors, service disconnects & covers (5.9 ft-lbs / 8 Nm), and LV connector.

4. Reconnect ESS cooling loop and top up the degas bottle with fresh 50/50 Motor Premium Gold coolant.

## Validation, Coolant Fill & Testing

1. Connect a trickle-charger to the 12 V battery.



2. Connect the TCEDT - go to **ESS tab**:
  - Save and clear all DTC's
  - Confirm the following Pack 1 & 2 values:
    - Pack State: Disconnected
    - Isolation Status: OK
    - Isolation Level: 1000 kOhms
3. Go To **Diagnostic Mode** - perform the ESS cooling/heating system bleed procedure (*move to general procedures section, and refer to*).

### ***NOTE: DO NOT ENABLE THE ESS HEATERS DURING THIS PROCESS***

- Run the ESS cooling system pump for 10 minutes, monitor and top-up degas bottle.
  - Crack open the bleeder-tee by the inlet to the ESS and allow any air to escape, close the tee.
  - Run the ESS heating system pump for 5 minutes, monitor and top-up degas bottle.
    - (the diagnostic software may need to be updated to add this functionality)
  - Run both ESS cooling and heating system pumps for 2 minutes, monitor and top-up degas bottle.
  - Run the ESS cooling system pump for 5 minutes, monitor and top-up degas bottle.
4. Remove the trickle-charger.

5. Confirm that the ESS Pack 1 & 2 SOC's are at least 25% each - charge if necessary.
6. Test drive for 5 minutes and ensure normal operation (and no warning lamps)
7. Check for VCU and ESS DTC's and State, Status, and IR Levels.
8. Top off the coolant.
9. Charge the ESS to at least 95% SOC. Check for VCU and ESS DTC's and State, Status, and IR Levels.

Revision Level: Pre-Release

Revision Date: 10/19/10

Questions or Comments on this Topic