

- ATTENTION:**
- GENERAL MANAGER
 - PARTS MANAGER
 - CLAIMS PERSONNEL
 - SERVICE MANAGER

IMPORTANT - All Service Personnel Should Read and Initial in the boxes provided, right.

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QUALITY DRIVEN® SERVICE

SERVICE BULLETIN

APPLICABILITY: XV Crosstrek Hybrid (HEV)

NUMBER: 16-108-17R

SUBJECT: New Service Procedure for Repair of DTC P172A and P0B0B

DATE: 6/28/17

Revised: 11/03/17

INTRODUCTION:

In conjunction with current TSB **16-94-15R**, this bulletin provides a new service procedure for repairing the drive motor case assembly. Previously, failure of the non-serviceable o-rings on the electric oil pump relief valve located inside the case required replacement of the complete motor case assembly. Although these o-rings are still not serviceable, a new relief valve assembly, p.n. **31869AA001** (with new o-rings already installed) is now available separately.



PART INFORMATION:

The following parts will be required to perform the relief valve replacement:

Part No.	Part Name	Qty. Req'd.
31869AA001	VALVE CP-RELIEF	1
31325AA190	BOLT ASSY-SEAL	2
806921110	O RING-21.2X2.4	1
31377AA600	RING-SEAL	2
806912200	O RING-12.3X2.4	5
806917100	O RING-17.4X3	1
806921120	O RING-21.8X2.4	1
806929070	O RING-29.7X2.4	1
31759AA040	CLIP	1
31377AA590	RING-SEAL	2
31377AA490	RING-SEAL	1

NOTE: This parts list is supplied for reference only. Make sure to always order the most up-to-date part numbers.

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Part No.	Part Name	Qty. Req'd.
31377AA470	RING-SEAL	1
806911080	O RING-11.5X2.1	1
99079AA100	HOSE-ATF	1
99079AA110	HOSE-ATF	1
806913250	O RING-13.8X2.4	1
806735300	OILSEAL-35X50X9	1
806735290	OILSEAL-35X50X9	1
33295AA000	GSKT-CVR PWR CONN	1
31759AA060	CLIP-TRANS HARNESS	1
44022AA123	GASKET EXHAUST PIPE-REAR	1
44022AA020	GASKET EXHAUST PIPE-FRONT	2
28333AG010	CIRCLIP-CVJ	2
806916050	O-RING	1
THREE BOND 1215		As needed
DIFFERENTIAL GEAR OIL		As needed
CVTF		As needed

ADDITIONAL TOOLS REQUIRED:

- Digital Voltage / Ohm Meter (DVOM) with test leads (1000v, CAT III)
- ¼” drive T-25 or T-30 TORX® bit for battery cover screws
- Electrical tape to insulate power cable terminal ends (3- 2” long pieces of tape)
- Personal Protective Equipment (Hybrid Safety Kit J-51311, check Expiration Date on Gloves)

DIAGNOSIS PROCEDURE / INFORMATION:

VERY IMPORTANT SAFETY WARNING: The HEV system includes a high-voltage circuit. Mishandling of HEV-related components may cause electric shock and serious personal injury. Technicians who have not received Subaru Hybrid training should NOT perform testing or repairs related to the HEV system. ****See Subaru Technician Reference Booklet, Module 702 (MSA5P1702C) for more HEV information.**

NOTE: Before starting the diagnosis procedure, use the SSMIII to confirm the CVT fluid temperature is below 104 degrees F (40 C).

IMPORTANT: The next steps require that Personal Protective Equipment be worn.

- Remove the rear cargo area floor mat and the sub-trunk (storage tray).
- Remove the orange HEV Service Disconnect plug and put it in your pocket.

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WARNING: After pulling out the service disconnect plug, high voltage is accumulated in the condenser inside the inverter. If touching any of the high voltage parts, wiring harness, terminals and connectors is required, wait for 10 minutes before starting the operation.

- Remove the TORX screws and necessary trim clips securing the aluminum battery cover.
- **ONE AT A TIME**, remove the 3 bolts securing the orange “W”, “V”, and “U” cables to the electric oil pump inverter. As each cable is removed, cover each terminal end with one of the strips of electrical tape to insulate it. Connect the RED (+) test lead from the DVOM to the “U” cable end and BLACK (-) lead to the “V” cable end as shown. Confirm the “W” cable end is wrapped with insulating tape.



- Reinstall the orange HEV Service Disconnect plug.
- Turn on the DVOM and set it to measure AC Voltage.
- Start the engine and with the transmission in PARK, hold the engine at 1800 RPM.
- Read the AC voltage on the DVOM display and record your result.

NOTE: The AT TEMP lamp will stay on because the power cables to the inverter are removed.

- **IF THE DVOM SHOWS 0.5V OR MORE:** The relief valve o-rings are damaged. Replace the relief valve following the new procedure supplied below.
- **IF THE DVOM SHOWS LESS THAN 0.5V:** the root cause of the DTC is elsewhere. Continue diagnosing the DTC using the applicable Service Manual procedure.

VERY IMPORTANT: The next steps also require that Personal Protective Equipment be worn.

REMINDER: ALWAYS disconnect the (orange) Hybrid service plug and put in your pocket **BEFORE** reconnecting the electric oil pump inverter power cables.

- Re-connect the inverter power cables **ONE AT A TIME** and torque the 10mm bolts to 5.5 ft. lbs.
- Replace the battery cover and torque the TORX screws to 5.5 ft. lbs.

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SERVICE PROCEDURE / INFORMATION:

- Remove the CVT assembly following the procedure in the applicable Service Manual.
- Remove the drive motor / case assembly from the CVT and place it on the workbench as shown below. Remove the plug circled in the photo below to gain access to the relief valve.



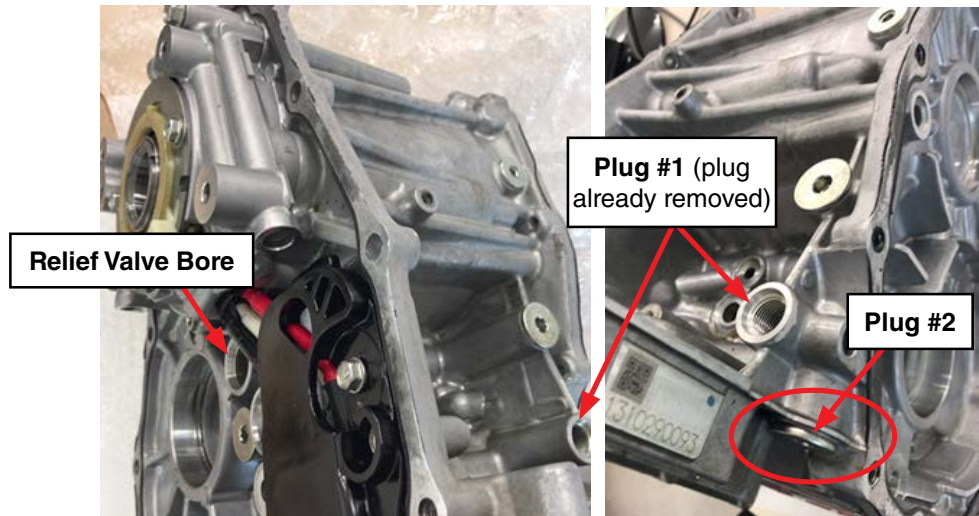
- Use a pair of needle-nosed pliers to CAREFULLY remove the relief valve from the case.



- Inspect the o-rings on the relief valve for any damage.



- Remove **Plug #1** and **Plug #2** as shown in the photos below and allow any remaining CVTF to drain.



- REMINDER:** Always wear eye protection for this step: Thoroughly clean the bores with spray parts cleaner then blow dry with compressed air. Always direct the spray away from other people and vehicles. Re-inspect closely for any remaining contamination.
- Install **new** o-rings on both plugs, lubricate with CVTF and re-install. Torque these 2 plugs to 50 Nm (37 ft. lbs.).
- Lubricate the o-rings with CVTF then **CAREFULLY** install the new relief valve assembly (cut-out portion in first) until it is fully seated in its bore. Use caution to avoid damaging the new o-rings on the plug threads. The valve can be installed in any rotational position.



- Install a **new** o-ring on the relief valve plug, lubricate with CVTF and re-install. Torque this plug to 44 Nm (32 ft. lbs.).
- IMPORTANT:** Thoroughly clean all residual sealer from the case and component mating surfaces before reassembling the CVT in reverse order of disassembly.
- Reinstall the orange HEV Service Disconnect plug, sub-trunk and rear cargo area floor mat.
- After reassembly and installation, road test to confirm proper CVT operation in all modes.
- Using the SSM, clear the AT Learning value then perform the AT Learning and Rear Differential Inspection modes.
- Always be sure to clear any history codes from the related modules to complete the procedure.

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WARRANTY / CLAIM INFORMATION:

For vehicles within the Basic New Car Limited or Powertrain Limited Warranty period or covered by an active Subaru Added Security Powertrain, Classic or Gold plan, this repair may be submitted using the following claim information:

Labor Description	Labor Operation #	Labor Time	Fail Code
HEV DRIVE MOTOR ASSEMBLY R&R	B302-001	4.8	MTU-16
ELECTRIC OIL PUMP RELIEF VALVE, REPLACE	C302-013	0.7	
HEV SYSTEM TESTING & DIAGNOSIS	C800-201	0.5	

IMPORTANT REMINDERS:

- SOA strongly discourages the printing and/or local storage of service information as previously released information and electronic publications may be updated at any time.
- Always check for any open recalls or campaigns anytime a vehicle is in for servicing.
- Always refer to STIS for the latest service information before performing any repairs.