



Technical Journal

TITLE:

ERAD (electric rear axle drive) fault tracing

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PARTNER: 3 US 7510 Volvo Car USA		ISSUE DATE: 2020-09-01	STATUS DATE: 2020-09-18
FUNC GROUP: 4632	FUNC DESC: Electrical rear axis drive	Page 1 of 3	

“Right first time in Time”

Attachment

File Name	File Size
Sensor_disc_fault_ERAD.mp4	5.9175 MB
TJ33358_Baseline.avi	6.3334 MB
TJ33358_Bearing_noise.avi	6.7931 MB

Vehicle Type

Type	Eng	Eng Desc	Sales	Body	Gear	Steer	Model Year	Plant	Chassis range	Struc Week Range
246	BK	B1LPHEV					2020-9999		-	201917-209952
246	BR	B1FPHEV					2018-9999		-	201717-209952
256	BA	B1APHEV					2016-9999		-	201526-209952
256	BC	B1BPHEV					2016-9999		-	201526-209952
256	BR	B1FPHEV					2018-9999		-	201717-209952

CSC Customer Symptom Codes

Code	Description
YR	Drive mode "AWD"/Disengages automatically/Not available
56	Drive mode "OFF ROAD"/Disengages automatically/Not available
53	Driving, Twin Engine/Propulsion using electric motor not possible
55	Driving, Twin Engine/Propulsion using combustion engine/Always active/Active too often
AJ	Driving/Poor performance/lacks power
DL	Warning lights and chimes/Malfunction Indicator Light ("Check engine" light) indication/no indication
8N	Driving/Unusual noise/Unsure when/at all times



Code	Description
D2	Front/rear axle/Unusual noise

VST Operation Number

VST Operation Number	Description
46511-2	ERAD transmission replace
31130-2	High Voltage Battery disconnection and connection
36060-3	Calibration with VIDA
46533-2	Electric Rear Axle Drive (ERAD) remove-install/replace
46548-2	Electric motor ERAD replace
31133-3	Isolation testing high voltage system

DTC Diagnostic Trouble Codes

Control Module	Code	Fault Type
IEM	P286F00	Intermittent
IEM	P286D00	Intermittent
IEM	P287100	Intermittent

Rows beginning with * are modified

Note! If using a printed copy of this Technical Journal, first check for the latest online version.

DESCRIPTION:

***This TJ has been rewritten in its entirety.**

For the purpose of correct fault tracing of the electric rear axle drive (ERAD), this technical journal has been developed, as an overview of the ERAD to indicate possible faults/solutions. The ERAD can almost always be repaired by replacing only the transmission or electric motor. The Complete ERAD rarely needs to be replaced. To determine if the transmission, electric motor or the complete ERAD needs to be exchanged follow the instructions under Service.

SERVICE:

Use the information and video files below as a guide line to sort out if there is a problem with the ERAD, electric motor or the transmission.

The fault trace is divided in noise, engine hesitation or loss of power and DIM (Driver Information Module) messages.

Noise:

If the customer is driving in electric mode and experiences noise from the rear that increases with vehicle speed according to the attached video (TJ33358_Bearing_noise) it is most likely the electrical motor bearing issue. In this case the electric motor is to be exchanged. No DTC (diagnostic trouble codes) are set for this issue and no message in DIM.

If the customer complaint is about a strange noise when the car is at a stand still after driving, it might be the sensor disc causing the problem. Use video (Sensor_disc_fault_ERAD) as reference. In this case the ERAD transmission is to be exchanged.

**Hesitation or loss of power:**

If the customer experiences hesitation or loss of power when the electrical motor should be engaged or no electrical motor engagement at all, the electric rear axle transmission might be the problem.

This fault may result in clutch DTC indicated in the DTC list, and a possible message in DIM “Hybrid system failure, Service required”.

Please follow VIDA instruction.

DIM message:

For DIM message follow VIDA fault trace.

Noise combined with hesitation / loss of power or Noise and DIM message:

If Noise combined with hesitation / loss of power or Noise and DIM message complete ERAD might need to be replaced. Before deciding on a complete replacement, the electric motor and transmission must be separated and visually inspected according to VIDA.

Note:

If the electric motor or the transmission will be replaced, transmission oil is necessary to order. This is not included in the repair kit. Please order in accordance with VIDA.

For the electric motor replacement, you will also need to order face sealing. This is not included in the repair kit. Please order in accordance with VIDA.

Baseline:

Use this video (TJ33358_Baseline) to sort out a normal ERAD sound. To be able to receive correct sound a headset or earphones is preferable.

Warranty claim info:

To get warranty claim accepted for a job described in this TJ, please use following data:

VST OP number:

Electric motor ERAD replace: 46548-2,31130-2, 31133-3, 36060-3

ERAD transmission replace: 46511-2,31130-2, 31133-3, 36060-3

Electric Rear Axle Drive (ERAD) replace: 46533-2, 31130-2, 31133-3, 36060-3

VEHICLE REPORT:

Yes, please submit a Vehicle Report if the service instruction described in this TJ has no effect or. Use concern area “Vehicle Report” and sub concern area “Support not needed”, use function group 4632.

This TJ has one sound file.