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RoadMaster 6L80 Transmission & Converter Package Chevy / GMC 4WD / 2WD 2014 - 2021

Transmission Only	Transmission + Torque Converter	
1064844	1064844SS	2014 - 2021 4WD
1064842	1064842SS	2014 - 2021 2WD

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Introduction

BD's RoadMaster 6L80 is our remanufactured transmission made for stock or slightly upgraded GMC Sierra and Chevrolet Silverado 1500's, Tahoe's, Yukon's, Yukon XL's, and Suburban's in the 2014-2021 range. In this transmission, we install new OEM clutches and steels, new clutch select, pressure regulator, and TCC regulator valves, new molded pistons, and a new aluminum deep sump oil pan with a drain plug. We provide an upgraded torque converter with a billet steel cover and the updated GM forward piston. In our remanufacturing process, the bellhousing and pump surfaces are machined to eliminate wear and the TECHM unit is thoroughly cleaned and tested.

Tools Required for Installation

MDI2 or equivalent scan tool with J2534 interface and GM Techline Connect subscription to reprogram the TECHM/TCM
OR
HP Tuners, the TECHM/TCM will need to be read out and saved prior to the transmission removal.

Call BD Tech Support for additional information 1-800-887-5030 (press 2) or email techsupport@bddiesel.com.

Fluid Requirements

AC Delco Dexron VI fluid

The stock transmission total dry fill is 12.2-12.4 quarts.
For non-BD logo aluminum transmission pan the total capacity is 14.2-14.4 quarts.

There is residual oil from the dyno test procedure left in the torque converter and transmission which will reduce the total capacity. Always confirm fill level using transmission fluid level indicator.

Important Notes

IF you plan to use HP Tuners to reprogram the TECHM, you must read out and save the stock program from the origin stock transmission BEFORE starting to remove the transmission.

After the installation of the new transmission, you MUST flash the original stock file back onto the TECHM before the vehicle will be able to start or drive.

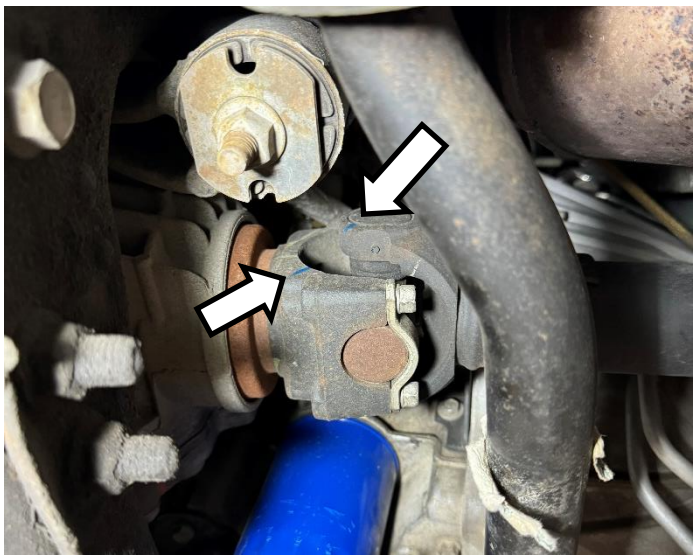
Removal

For safety, secure the vehicle with vehicle chocks and disconnect both vehicle batteries before starting to remove the transmission.

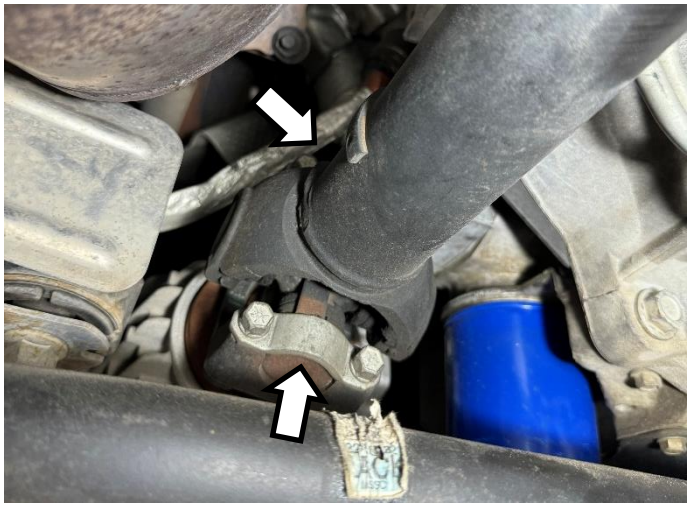
If the vehicle is equipped with a front drive shaft, follow the next four steps to remove it.

At the rear of the front driveshaft, use a flathead screwdriver or small pry bar to push the boot clamp off.

On the front driveshaft, mark the relationship of the driveshaft to the front axle pinion yoke.



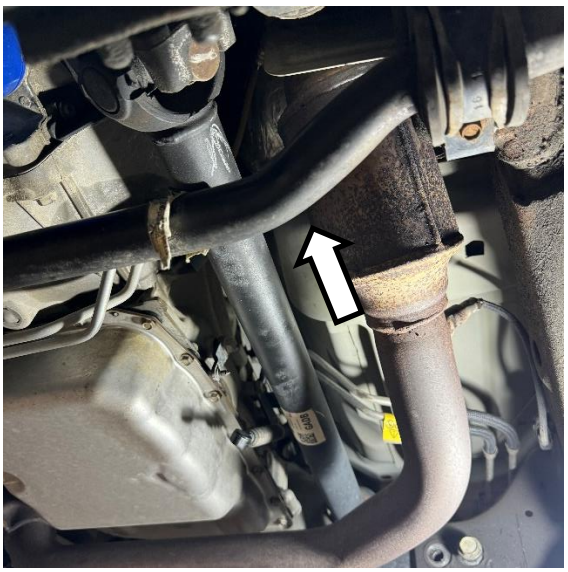
Remove the **4 x bolts** that hold on the yoke retainer using an **11 mm socket**.



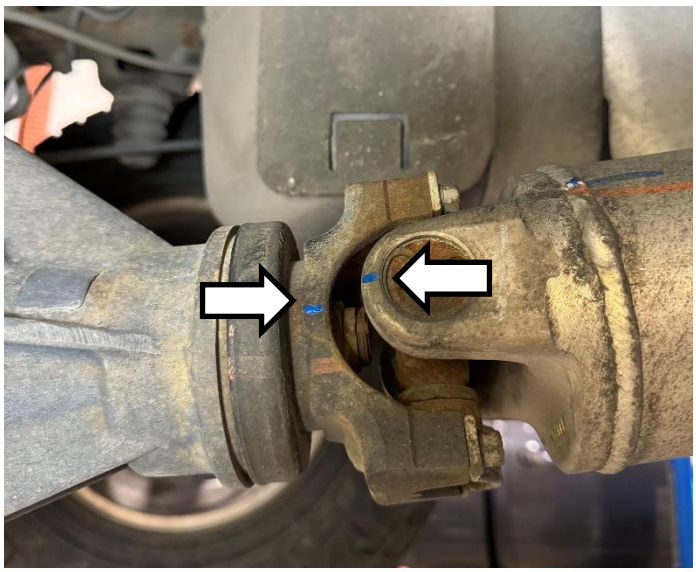
Remove the front driveshaft by pushing the driveshaft into the transfer case to allow room to remove the pinion from the yoke.

Slide driveshaft up towards the engine to allow enough room to remove the slip yoke at the transfer case.

Note: After driveshaft is removed, it is recommended to tape the u-joint bearing caps so they don't fall off.

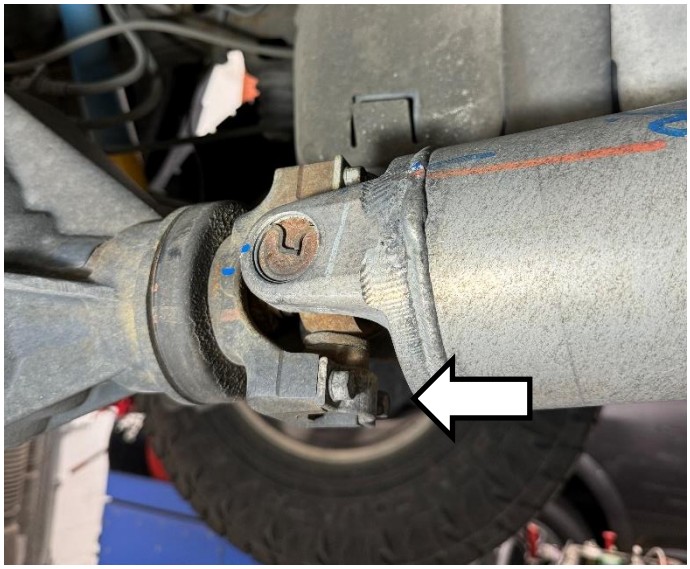


On the rear driveshaft, mark the relationship of the driveshaft to the front axle pinion yoke.

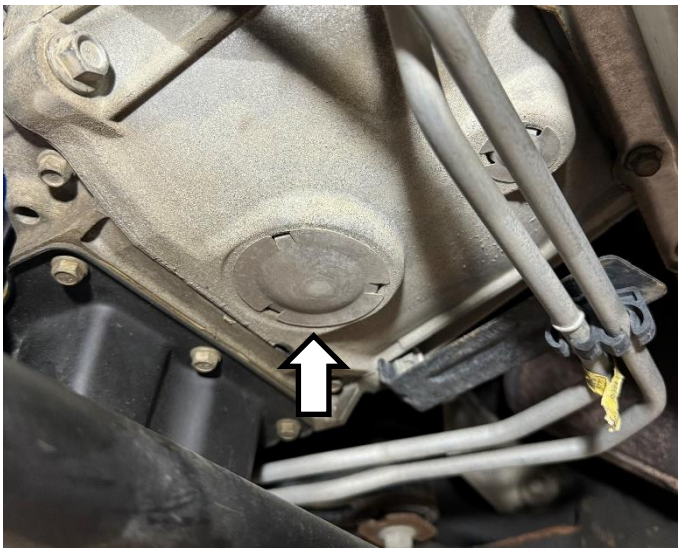


Remove the **4 x bolts** that hold on the yoke retainer using an **11 mm socket**.

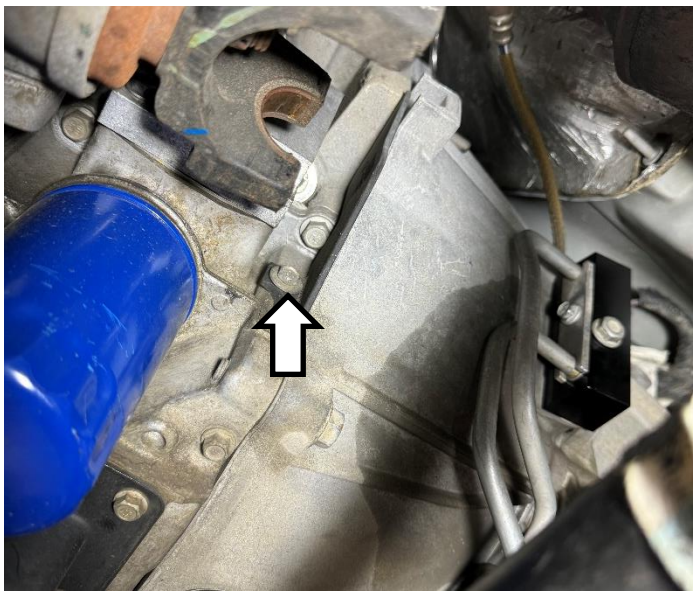
Pull driveshaft towards the rear of the vehicle out of the slip yoke on the transmission.



Optional Step: Remove the torque converter access plug.



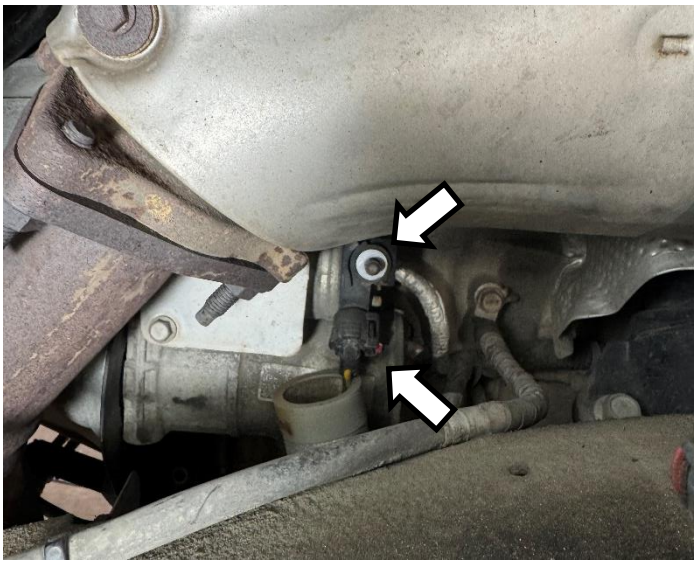
Remove the **1 x bolt** that holds on the left flywheel inspection cover using a **10 mm socket** and remove cover.



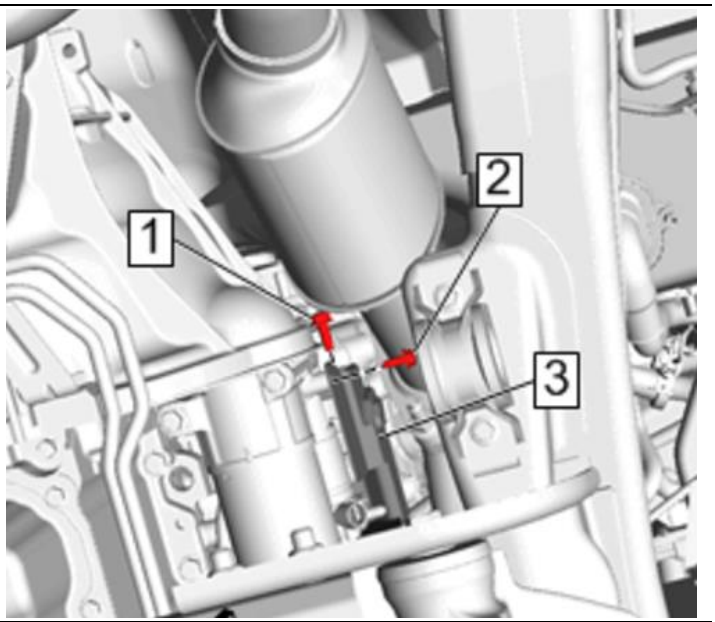
Note: The procedure for removing the starter motor will vary depending on the make and model. The following steps will apply to Silverado's and Sierra's.

Remove the starter motor. For Sierras and Silverados, it is easiest to remove the passenger's side wheel and fender liner.

Remove the electrical connector and the nut that connects the power wire.

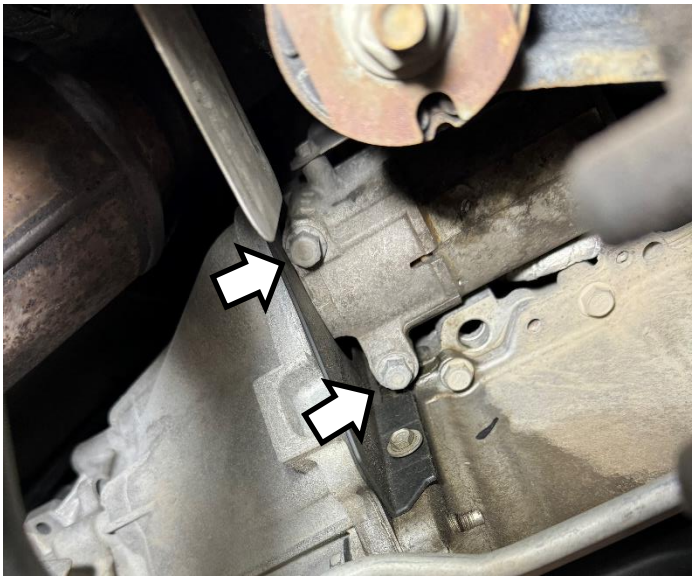


Remove the starter heat shield by taking off the **1 x bolt** on the side of the bracket using a **13 mm socket** and the **1 x bolt** on the top of the bracket using a **10 mm socket**.

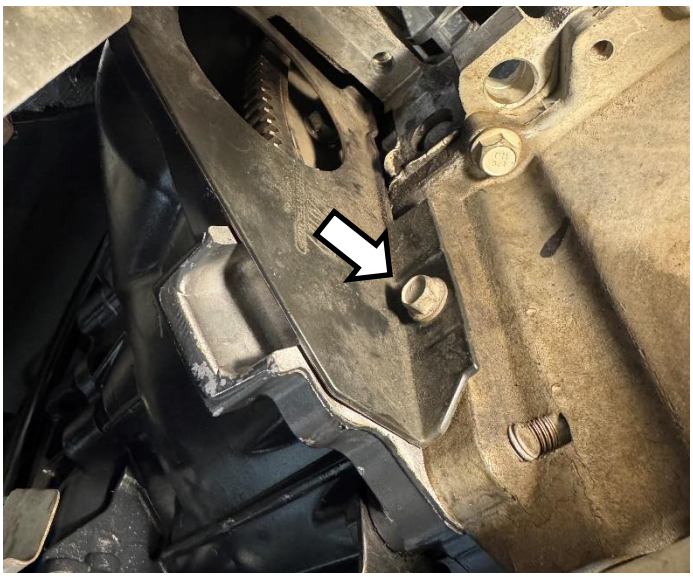


Warning: Complete this step carefully as the starter will fall after removing bolts.

Remove the **2 x bolts** that hold the starter in place using a **13 mm socket**.



Remove the **1 x bolt** that holds on the flywheel inspection cover using a **10 mm socket** and remove cover.

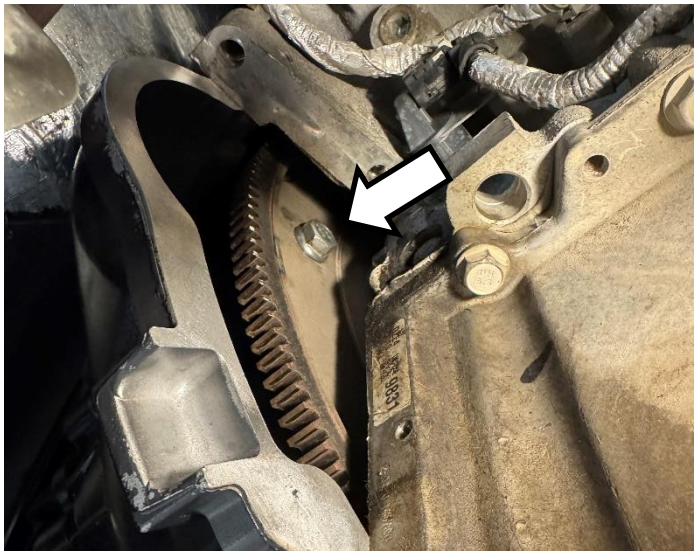


Remove the 8 bolts that hold on the steering gear skid shield and remove.

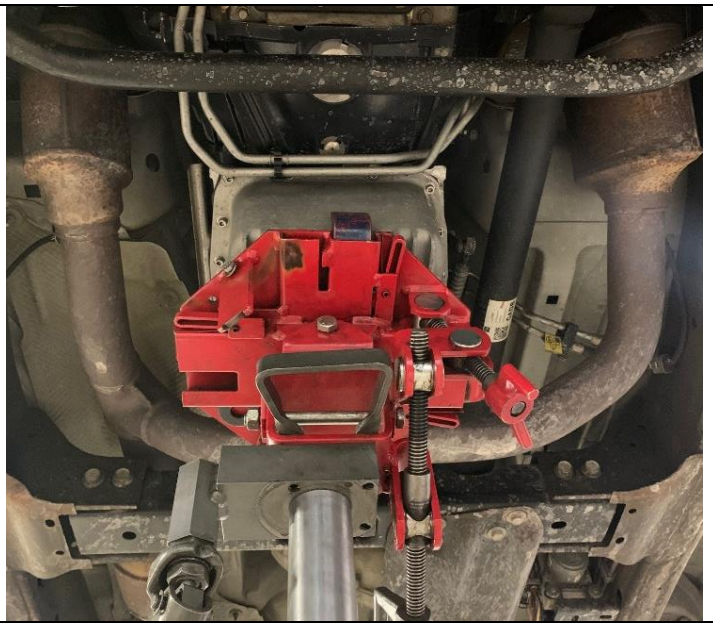
From the torque converter access hole, push the torque converter forward through the access hole to seat the converter pilot into the crank bore.

Remove the **3 x bolts** that hold the torque converter to the flywheel using a **15 mm socket**.

Note: It may help to put a socket and long ratchet on the crankshaft pulley bolt to stop rotation of the flex plate when trying to loosen the bolts.

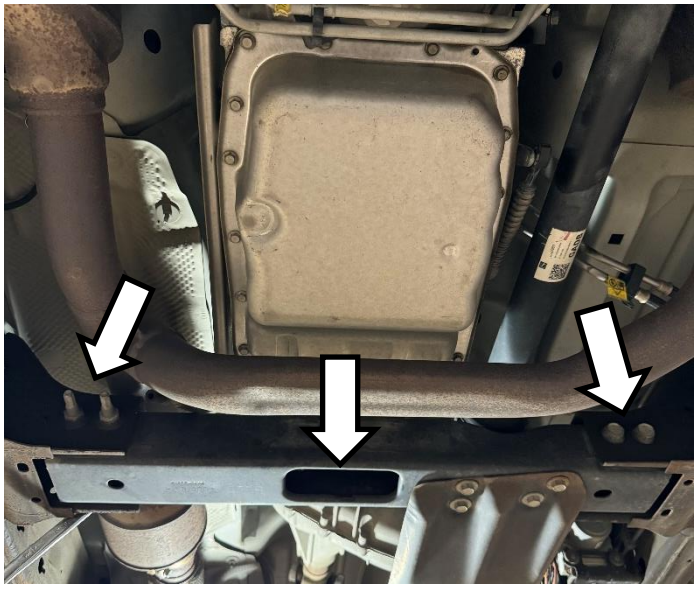


With a transmission jack, support the transmission to take pressure off the transmission cross member.



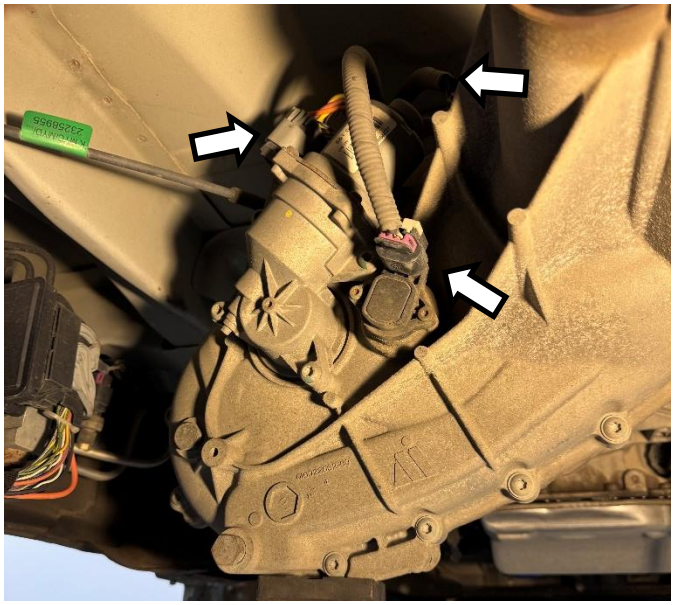
Remove the **2 x nuts** in the center hole of the cross member and remove cross member using a **15 mm socket.**

Remove the **4 x nuts and bolts** holding on the side of the transmission cross member using a **21 mm socket** and wrench.



Remove the **2 x bolts** that hold on the transmission mount using a **15 mm socket** and remove.

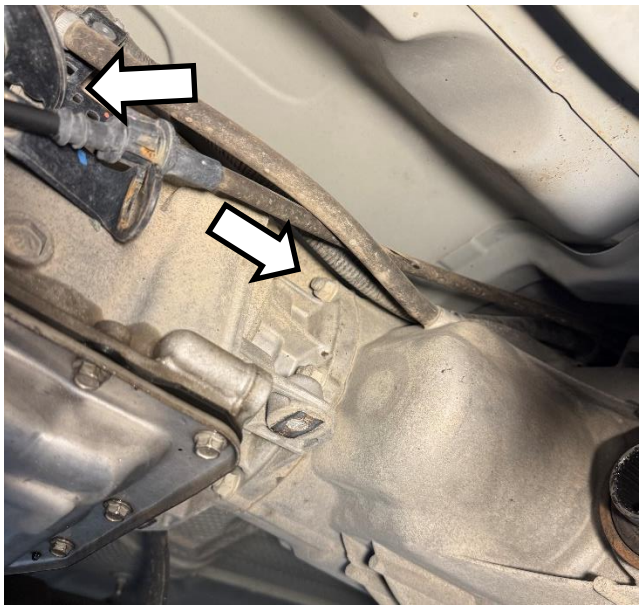
Remove the 3 electrical connectors on the back of the transfer case.



Remove the transmission vent tube retaining nut on the back of the transmission and reposition the vent tube bracket.

With the transmission supported, remove the **6 x nuts** that connect the transfer case to the transmission using a **15 mm socket** and remove transfer case.

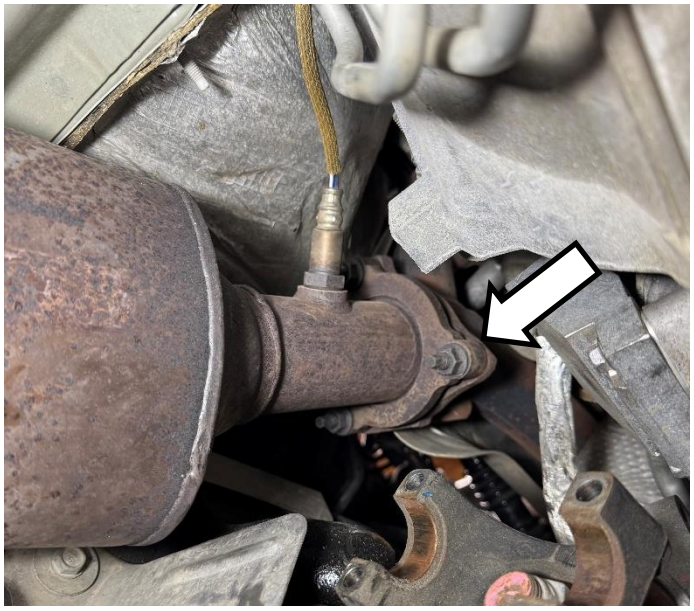
Note: Make sure transfer case is well supported when removing as it is quite heavy.



Disconnect all O2 electrical connectors from the front of the exhaust. There are 2 sensors per side.

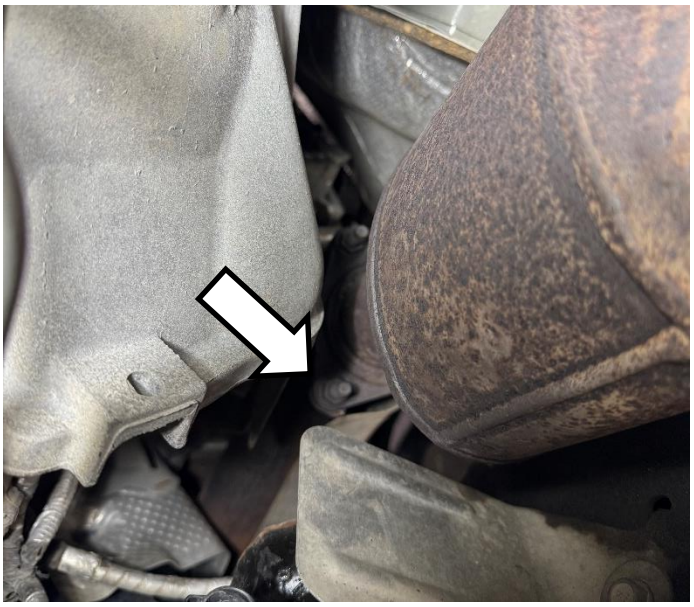
Remove the **3 x nuts** that hold the collector to the manifold on the driver's side using a **15 mm socket**.

Note: It may be easier to reach these nuts through the wheel well.



Remove the **3 x nuts** that hold the collector to the manifold on the passenger's side using a **15 mm socket**.

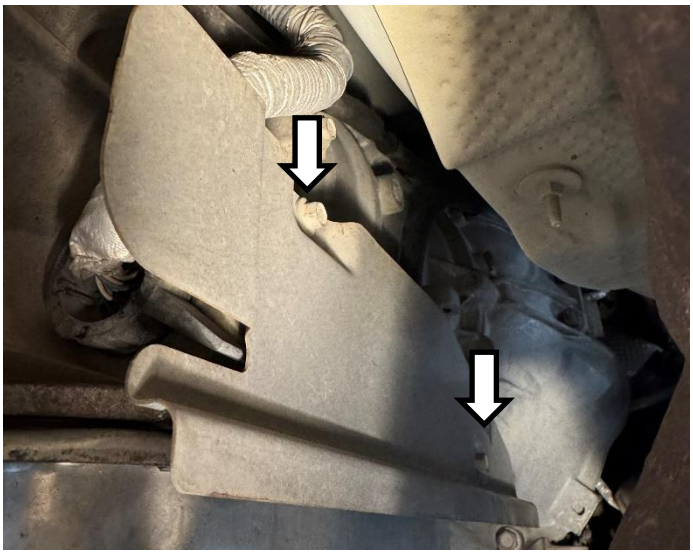
Note: It may be easier to reach these nuts through the wheel well.



Remove the **1 x bolt** that clamps the front ball flange to the rear section using a **15 mm socket** and remove.

Note: It is easier to remove exhaust by slanting down the driver side so exhaust can clear the passenger side of the crossmember bracket.

Remove the **2 x bolts** that hold on the transmission heat shield using a **10 mm socket** and remove heat shield.

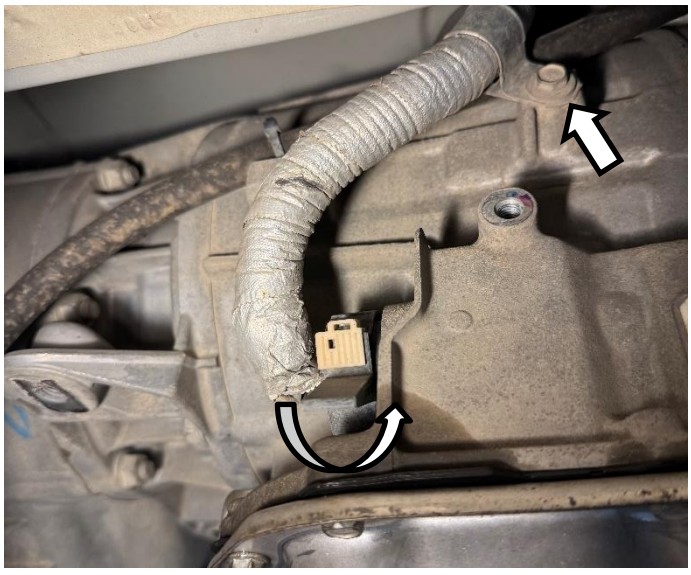


Caution: The connector removed in this step is plastic and may be easily damaged.

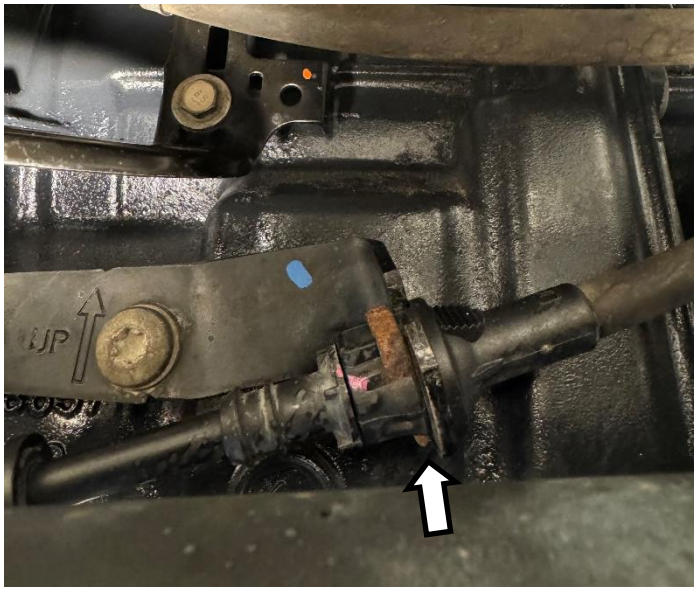
Pull out the white tab to unlock the connector, then rotate the connector counterclockwise to remove the transmission connector.

Remove the **1 x bolt** that holds the wire in place using a **10 mm socket**.

Remove the transmission vent hose out of the top of the transmission.

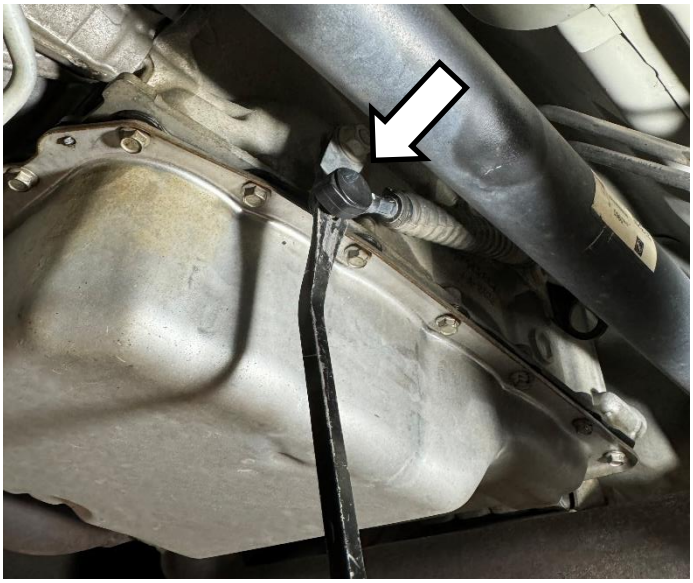


On the range selector cable push up on the end of the clip to remove.

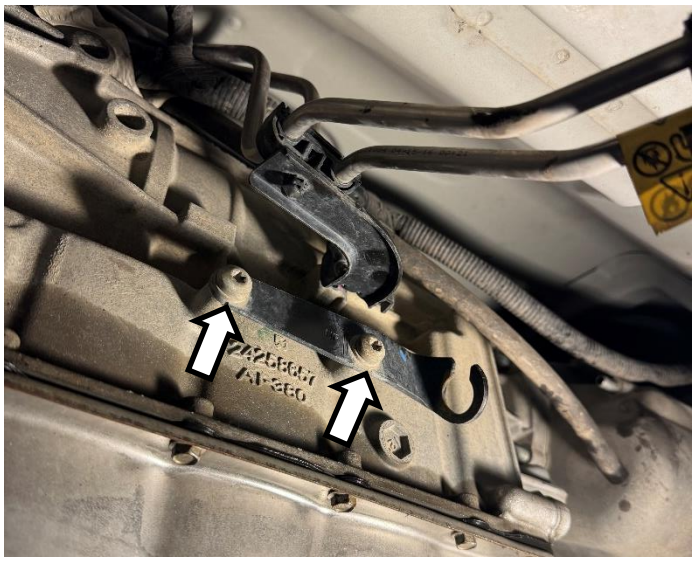


Use a pry bar or flat head screwdriver to pop off the front of the range selector cable.

Lift up on range selector cable to remove from supporting bracket.

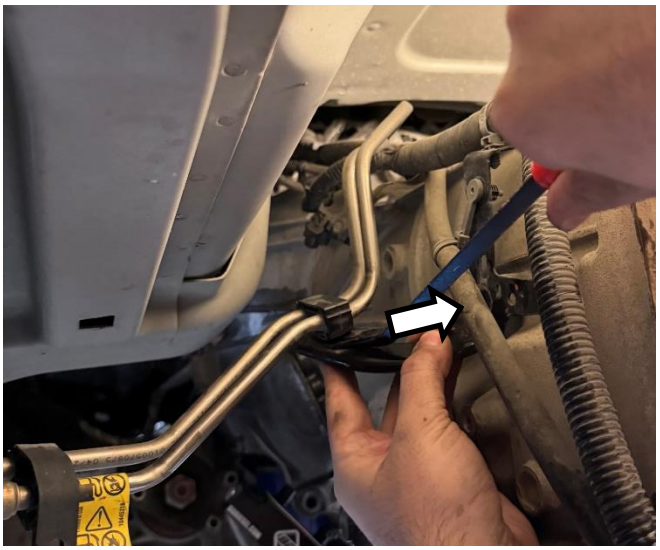


Remove the **2 x T50 torx bolts** that hold on the range selector bracket.



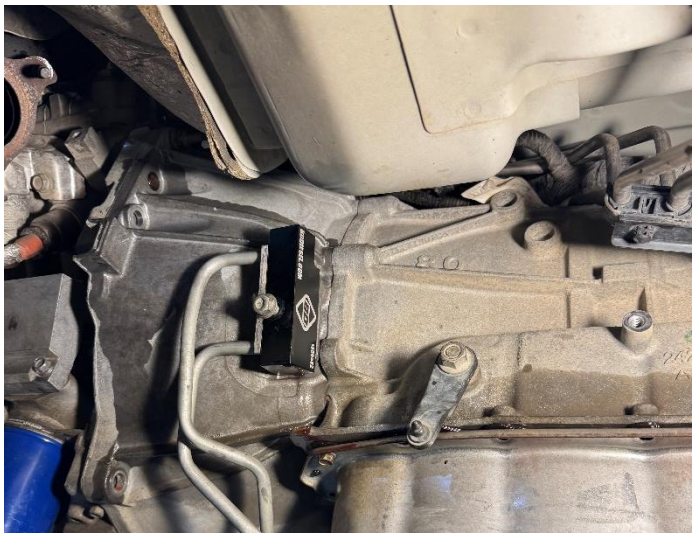
Remove the **1 x nut** that holds on the range selector lever using a **13 mm socket**.

Remove the **1 x bolt** that secures the fuel line bracket to the transmission using a **13 mm socket**. Reposition the bracket.

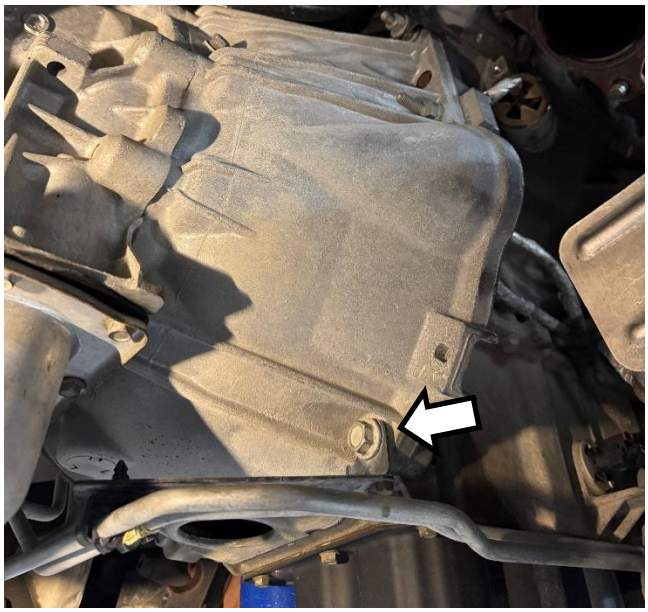


Remove the **1 x bolt** that holds on the cooler bypass block on the driver's side of the transmission using a **13 mm socket**.

Note: Some fluid will come out when removed.

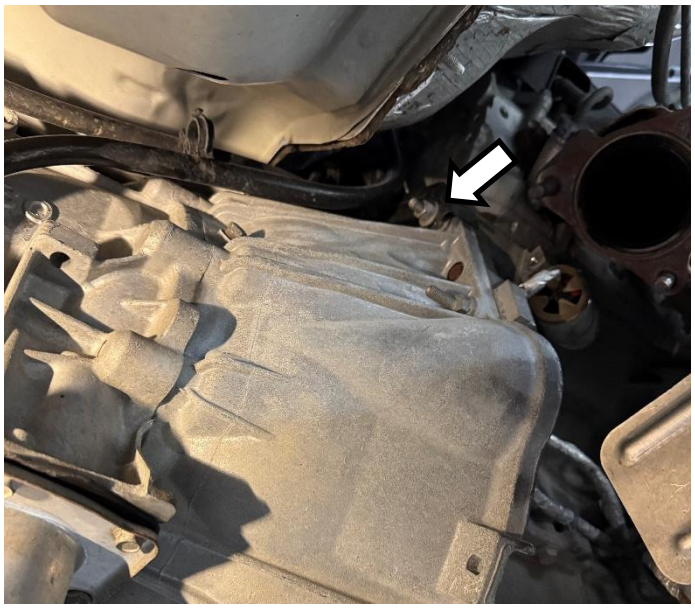


On the passenger's side of the transmission remove the **1 x bolt** that holds the cooler line bracket to the bellhousing using a **15 mm socket**.



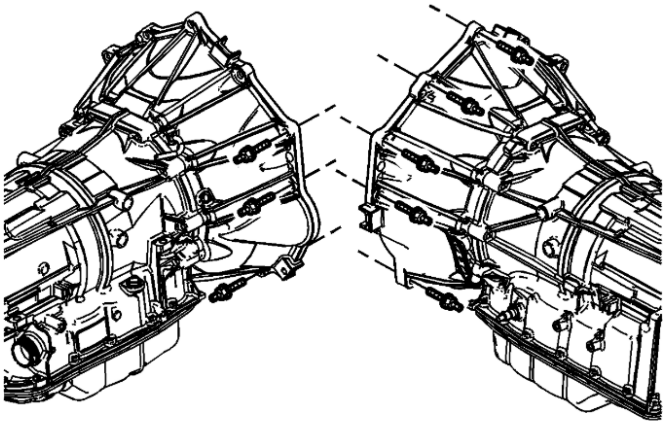
On the passenger's side of the transmission, remove the **1 x nut** that is holding on the transmission dipstick bracket using a **13 mm socket**.

Lower the transmission to gain access to the top and sides of the transmission. Remove the other **2 x nuts** on the top and top left of the bellhousing to gain access the transmission bolts using a **13 mm socket**.

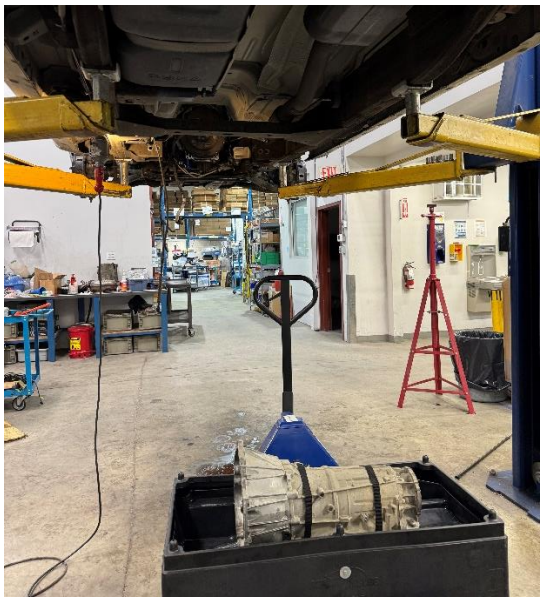


Remove the remaining **7 x bolts** that hold on the transmission to the back of the engine using a **15 mm socket** while simultaneously pulling out the dipstick tube on the passenger's side.

Note: The 8th bolt was already taken out when the cooler line bracket was removed.

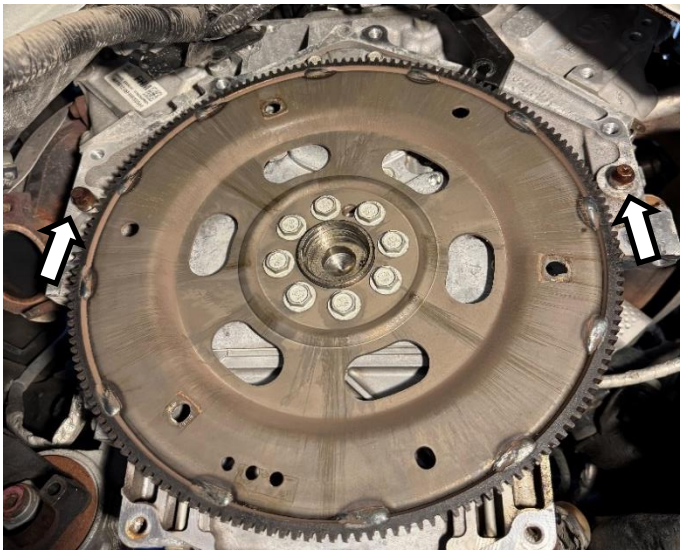


Slowly and carefully, lower the transmission out of the vehicle.

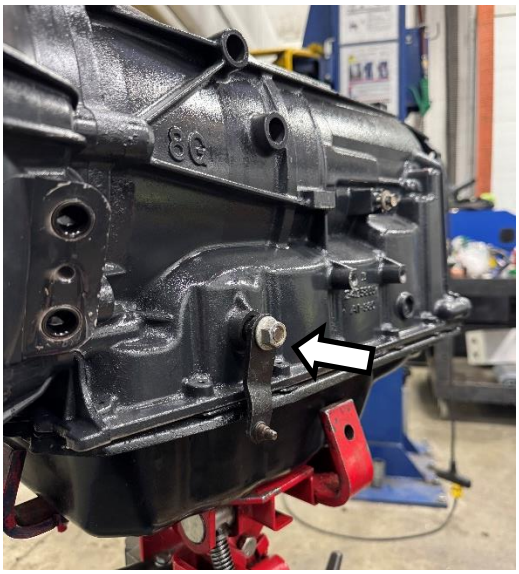


Installation

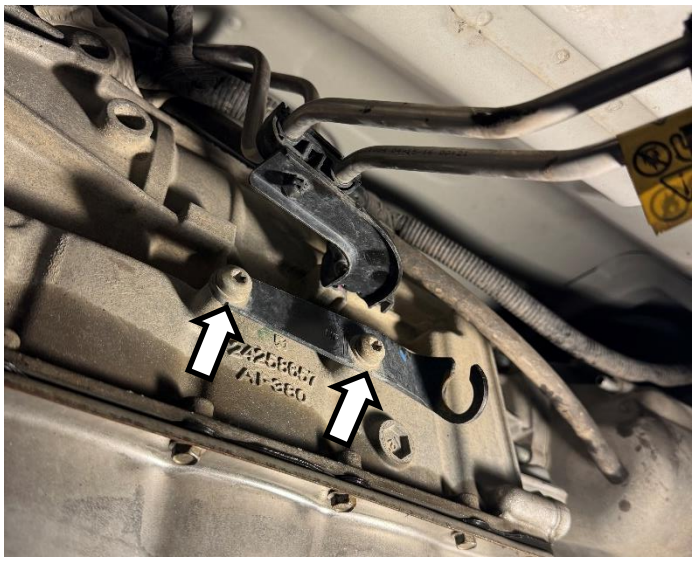
Tip: With no transmission on the back of the engine, use some Scotch-Brite or fine sandpaper to smoothen out the dowel pins for easier installation. Then apply a thin layer of grease to the hub before installing.



Install the range selector lever from the old transmission onto the new transmission.

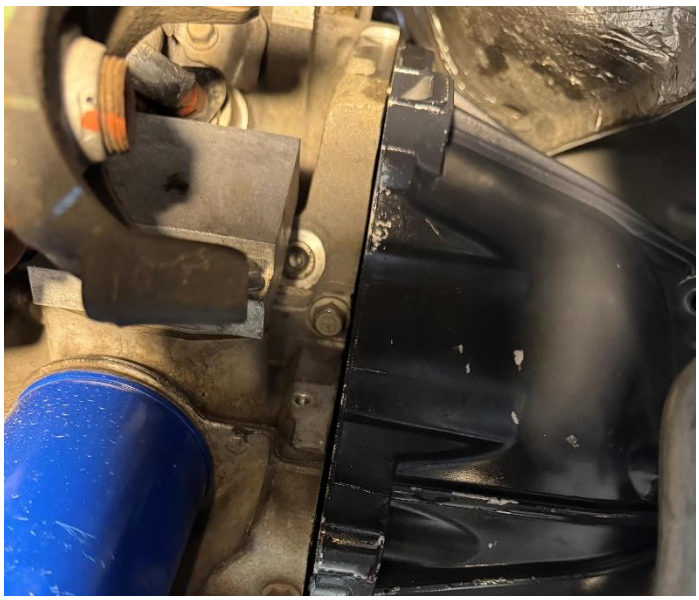


Install the range selector bracket from the old transmission onto the new transmission.



With transmission well supported, raise transmission up to back of engine while simultaneously installing the transmission dipstick tube with the new seal provided.

Slide the transmission onto dowel pins. The torque converter must rotate feely by hand. Ensure the transmission is seated as well as possible and align the bolt holes between the flywheel and the torque converter before threading in any bolts.



Once fully seated, fully insert the transmission dipstick.

Install all **8 x bolts** to attach the transmission to the engine using a **15 mm socket**.

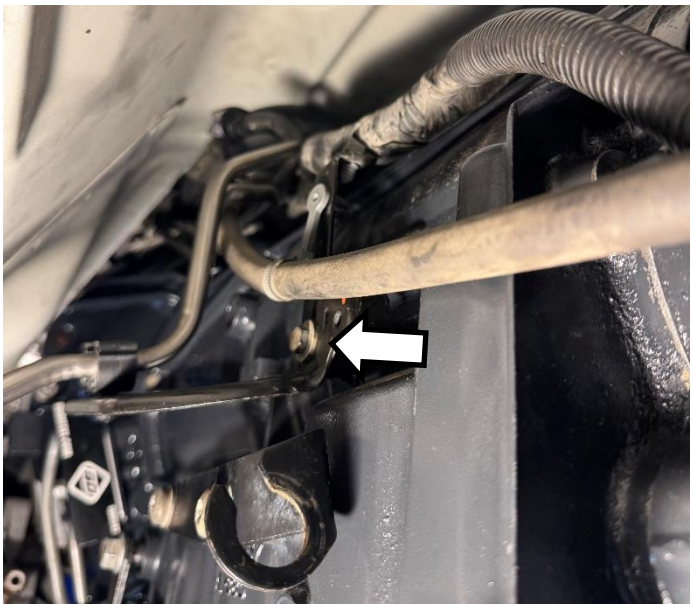
Snug all 8 bolts before torqueing to **37 lb-ft (50Nm).**

Note: The bottom right bolt holds the cooler line bracket in place.

Attach the transmission vent tube to the port on the top of the transmission.

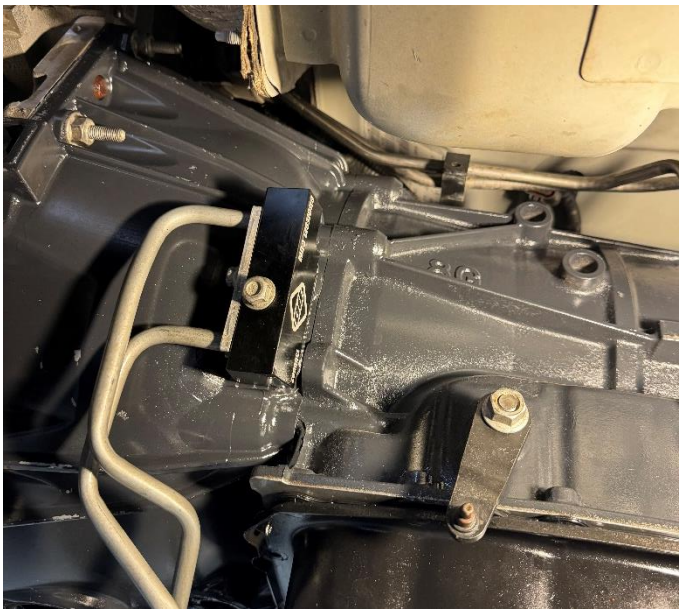
Reposition the fuel line and vent tube to the brackets on the driver's side and install **1 x bolt** using a **10 mm socket.**

Torque bolt to **89 lb-in (10Nm).**



Install the **1 x bolt** that holds on the cooler bypass block using a **13 mm socket**.

Torque down to **16 lb-ft (22Nm).**

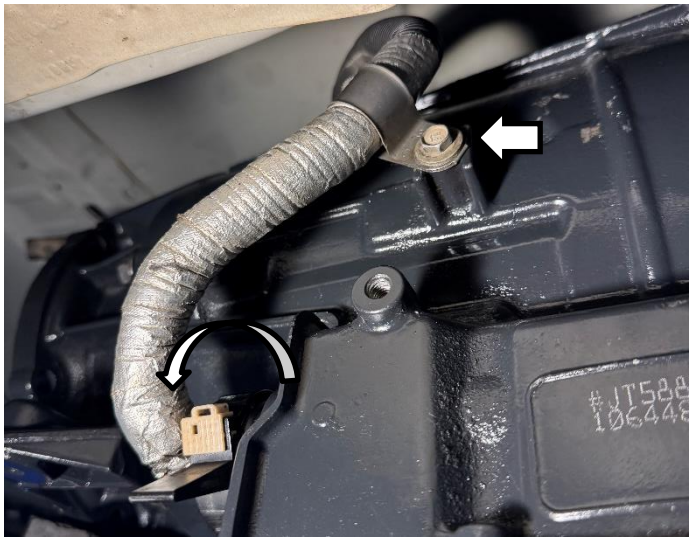


Push in the transmission electrical connector with the black tab facing up and turn clockwise.

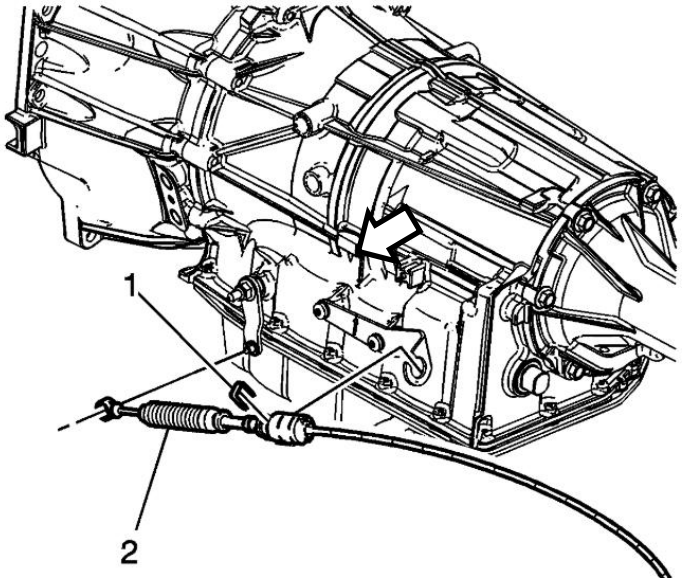
Then push in the white tab to lock it in place.

Install the **1 x bolt** that holds the wire in place using a **10 mm socket**.

Torque bolt to **13 lb-ft (17Nm).**

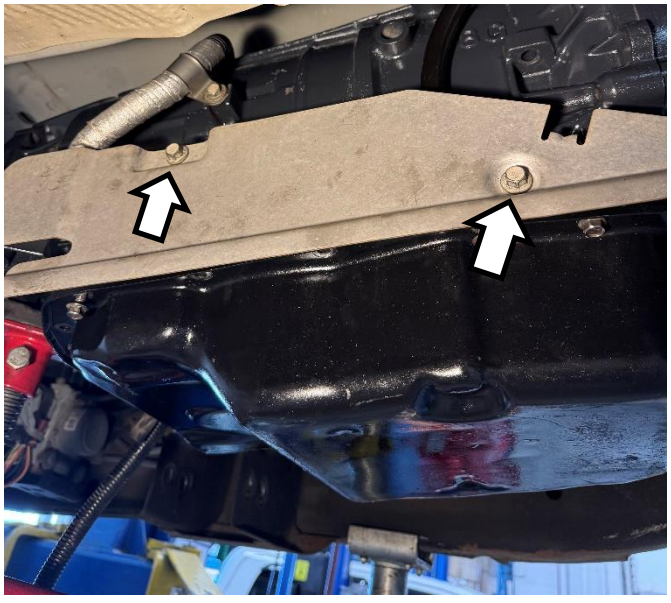


Install the range selector cable (2) to the range selector cable bracket and the range selector lever ball stud. Install the range selector retaining clip (1) to the transmission.



Install the **2 x bolts** that hold on the transmission heat shield using a **10 mm socket**.

Torque bolts to **13 lb-ft (17Nm).**



Position up the front up the exhaust to both collectors on the exhaust manifolds.

Note: It is highly recommended that the exhaust gaskets are replaced when putting back on exhaust.

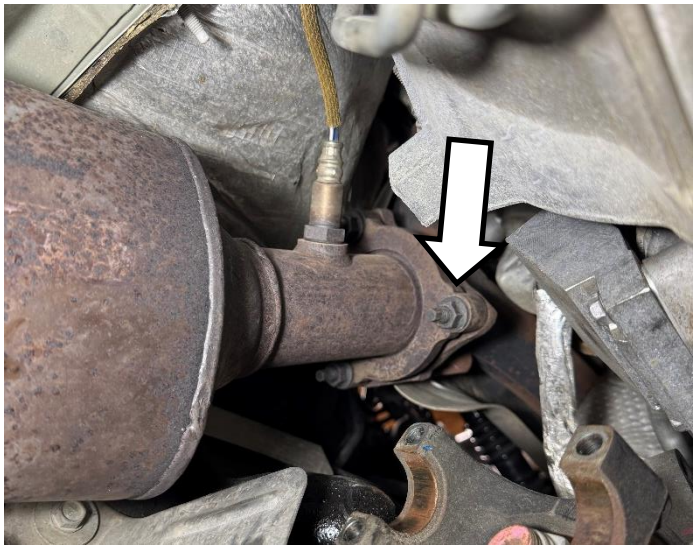
GM Part #:

- 15715548 (ring)
- 15035747 (cone)

Install **3 x nuts** on both sides of the exhaust using a **15 mm socket**.

Torque nuts to **37 lb-ft (50 Nm).**

Connect all four O2 sensor connectors. There are two on each side.



Connect front of exhaust to rear section with the ball flange and install **1 x bolt** using a **13 mm socket**.

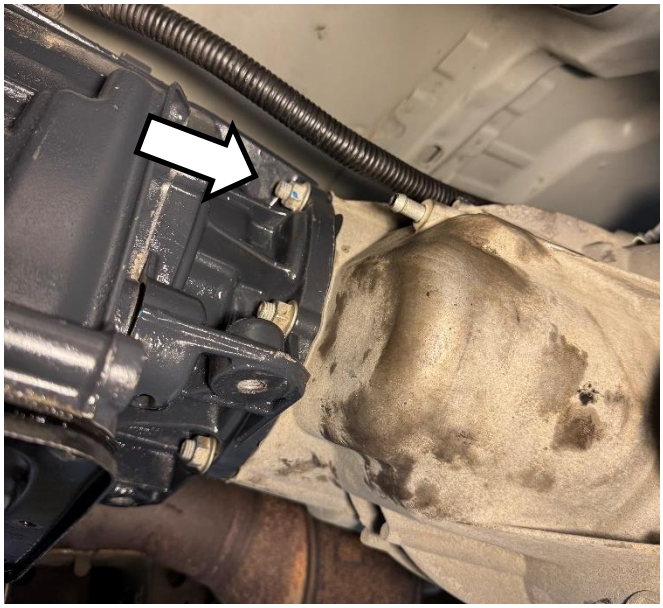
Torque bolt to **21 lb-ft (28Nm).**

With the transmission supported, line up the studs on the end of the transfer case and slide into the holes on the back of the extension housing.

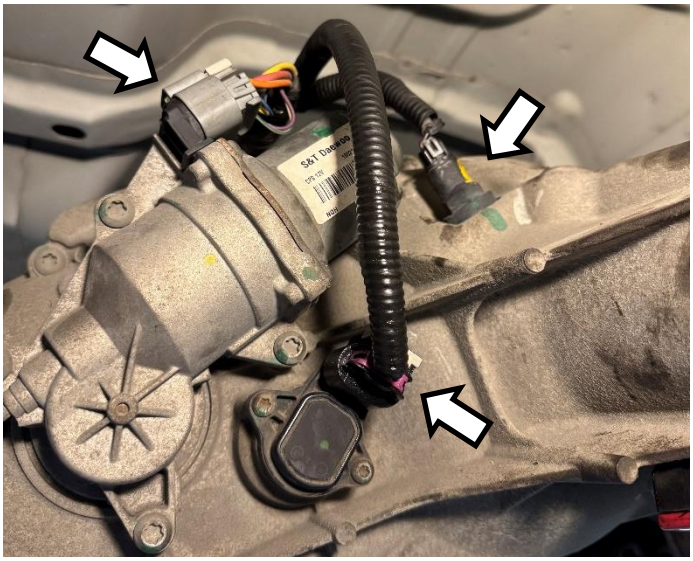
Tighten **6 x nuts** to **37 ft-lb (50Nm)** using a **15 mm socket.**

Note: It is recommended that you replace the paper gasket on the transfer case.

Gm Part # 24245110



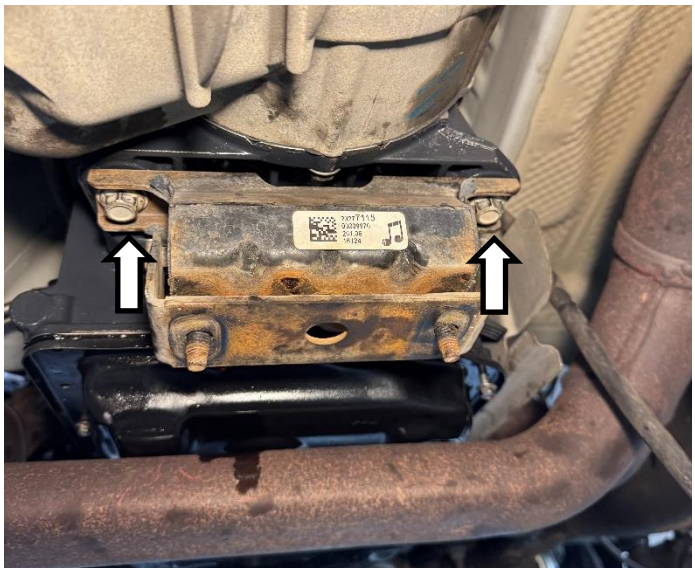
Install all three electrical connectors into back of transfer case.



Install the **2 x bolts** that hold on the transmission mount using a **15 mm socket**.

Torque bolts to:

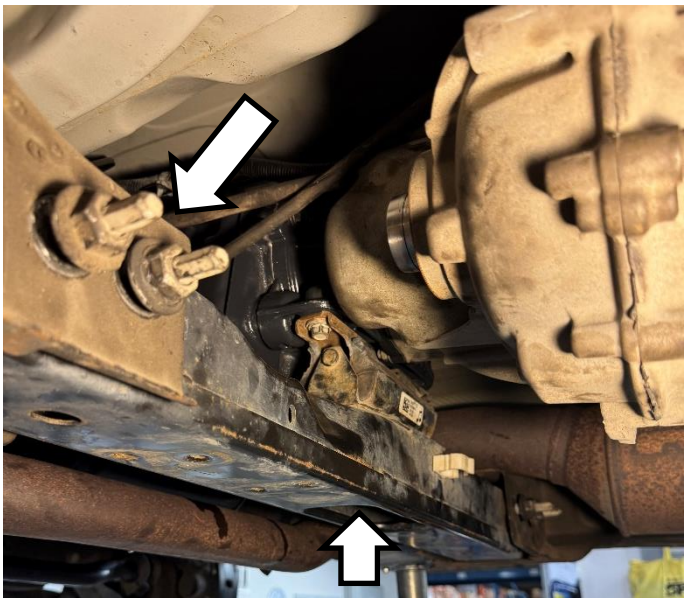
- **40 lb-ft (55 Nm)** for **light duty**
- **79 lb-ft (107 Nm)** for **heavy duty**



Install the transmission cross member with the **4 x bolts and nuts** on the outside using a **21 mm socket** and the **2 x nuts** that screw onto the transmission mount studs using a **15 mm socket**.

For light duty trucks:
Torque **21mm** nuts to **70 lb-ft (95 Nm)**
Torque **15mm** nuts to **41 lb-ft (55 Nm)**

For heavy duty trucks:
Torque **21mm** nuts to **89 lb-ft (120 Nm) + 90 degrees**
Torque **15mm** nuts to **79 lb-ft (107 Nm)**



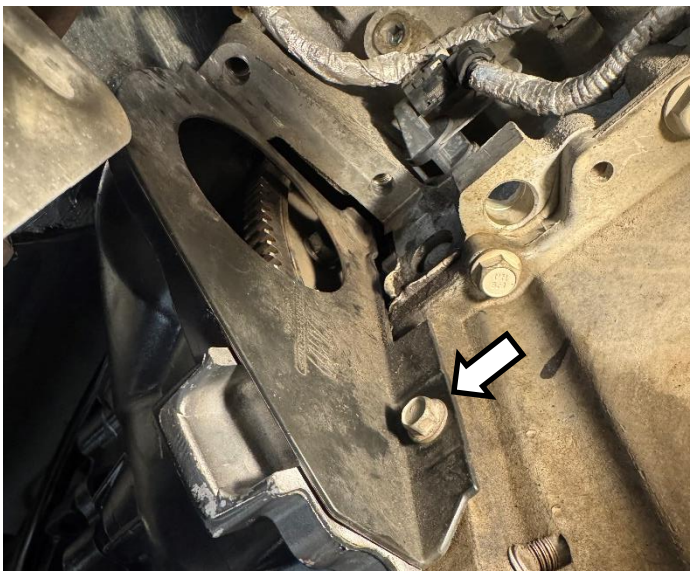
From the torque converter access hole, push the torque converter forward through the access hole to seat the converter pilot into the crank bore.

Apply a thin line of blue Loctite to the converter bolt threads and thread in all bolts by hand before torqueing.

Once all bolts are snug, torque down bolts to **48 lb-ft (65 Nm).**

Install the flywheel inspection cover on the passenger's side with **1 x bolt** using a **10 mm socket.**

Torque bolt **106 lb-in (12Nm).**

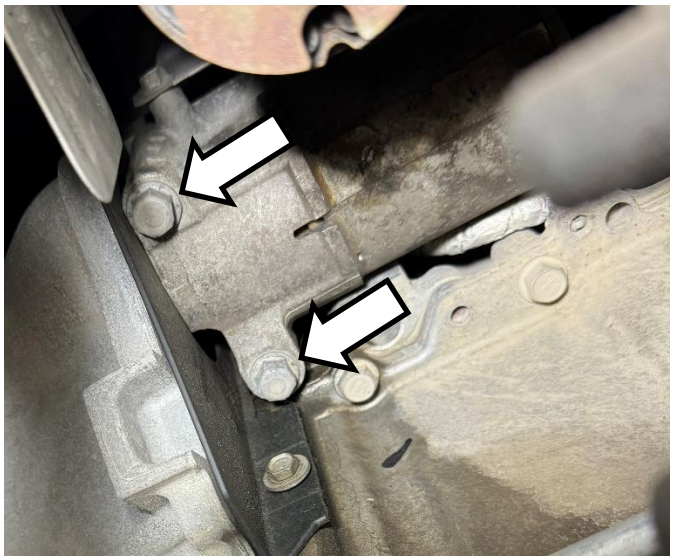


Install the starter motor.

Note: This will vary between vehicle models. The following steps apply to Sierra's and Silverado's.

Position the starter motor in place and install the **2 x bolts** that hold the starter in place using a **13 mm socket**.

Torque bolts to **37 lb-ft (50 Nm).**



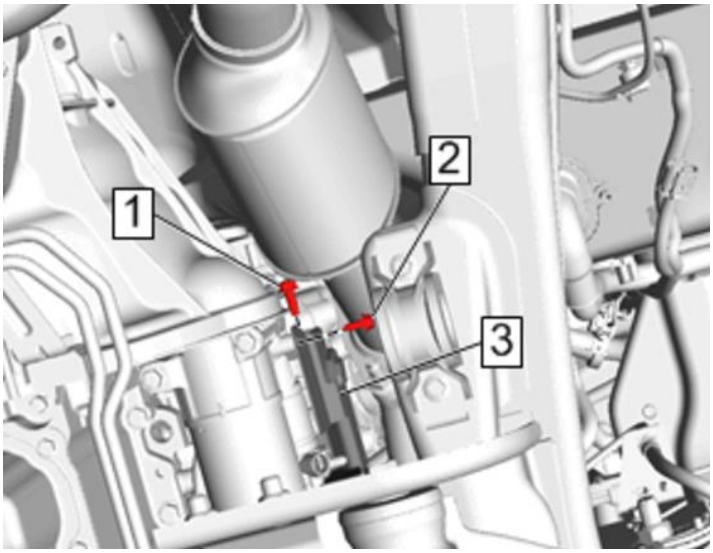
Install the **1 x nut** that holds on the positive battery cable using a **13 mm socket**.

Torque nut to **106 lb-in (12 Nm).**

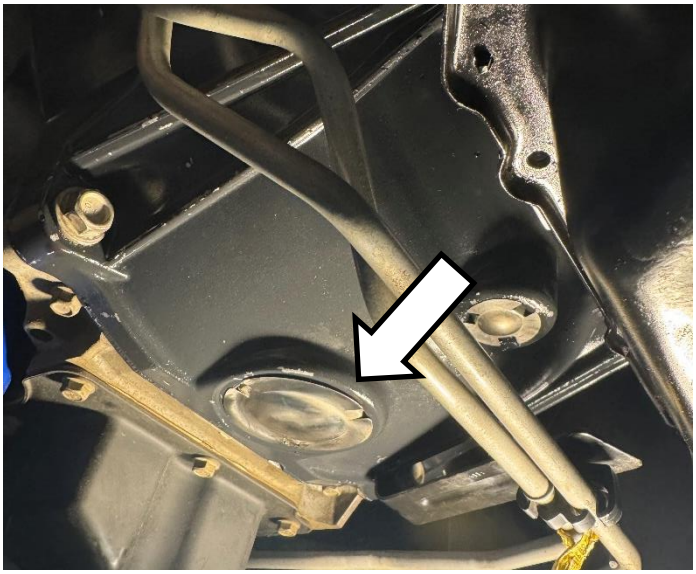
Connect the electrical connector below the battery cable.

Install the 2 bolts that hold on the starter heat shield.

Tighten bolts until snug.

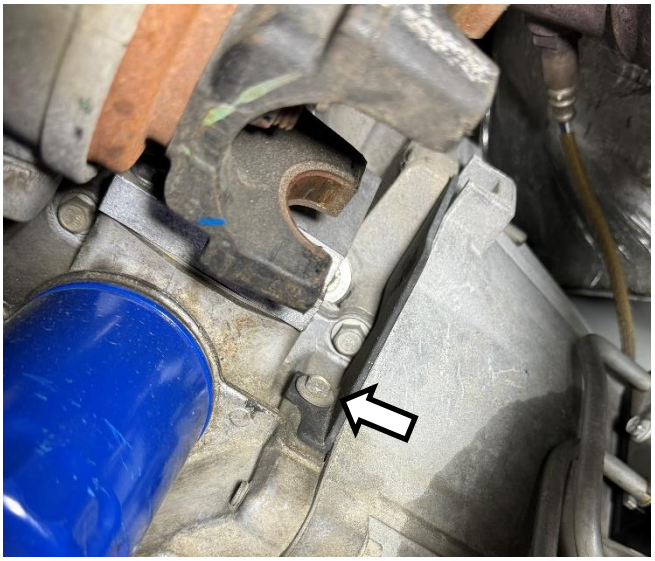


Install the torque converter access plug.



Install the flywheel inspection cover and **1 x bolt** using a **10 mm socket.**

Torque bolt to **106 lb-in (12Nm).**



If the vehicle is equipped with a front drive shaft, install the slip yoke on the front driveshaft into the front of the transfer case.

Use a flathead screw driver or small pry bar to push boot clamp into position.

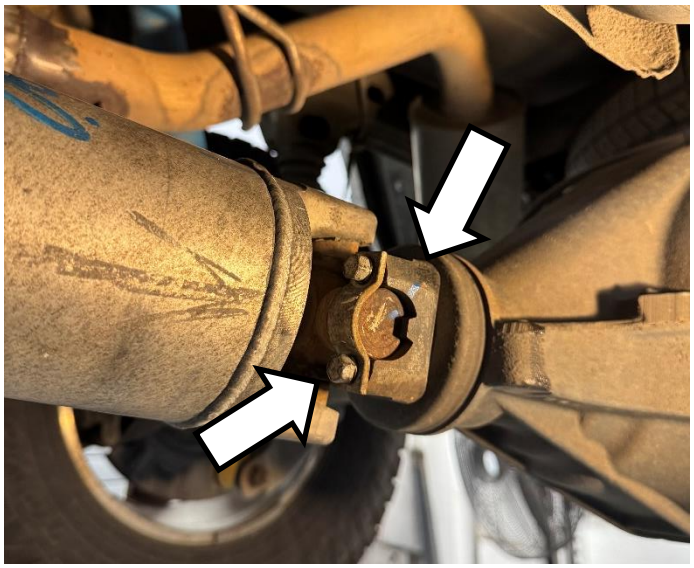
Align the reference marks made during removal and install the 2 yoke retainers and **4 x bolts** using a **11 mm socket.**

Torque bolts to **18 lb-ft (25 Nm).**

Install slip yoke of rear driveshaft into the back of the transfer case.

Align the reference marks made during removal and install the 2 yoke retainers and **4 x bolts** using a **11 mm socket.**

Torque bolts to **18 lb-ft (25 Nm).**

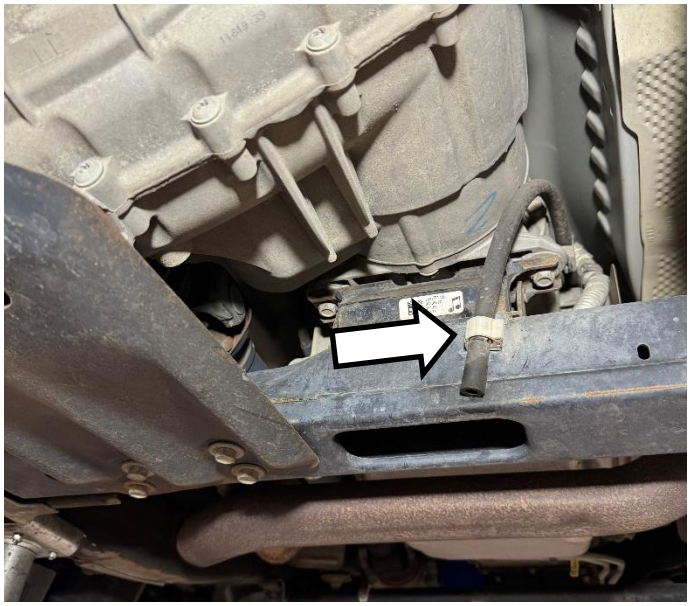


Install the 8 bolts that hold on the steering gear skid shield.

Torque down the top **13mm bolts** to **15 lb-ft (20 Nm).**

Torque down the other **6 bolts** to **80 lb-in (9 Nm).**

Run the transmission vent hose overtop of the transfer case and lock in place with the clip on the transmission cross member.



Install inner fender liner on the passenger's side. Re-install the wheel and torque lug nuts to 140 lb ft (190 Nm).

Reconnect the battery terminals.

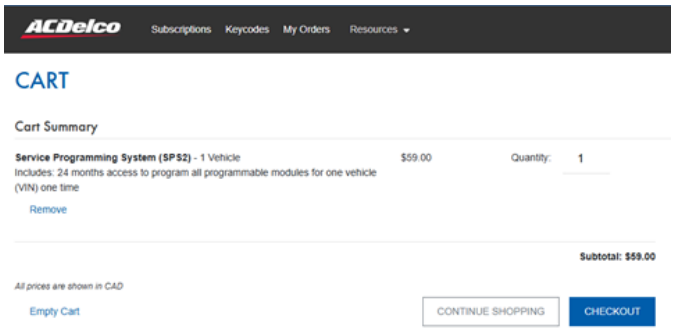
Fill the transmission with 8 quarts of AC Delco Dexron VI fluid.

Note: You will not be able to start or drive the vehicle until the TECHM has been reprogrammed.

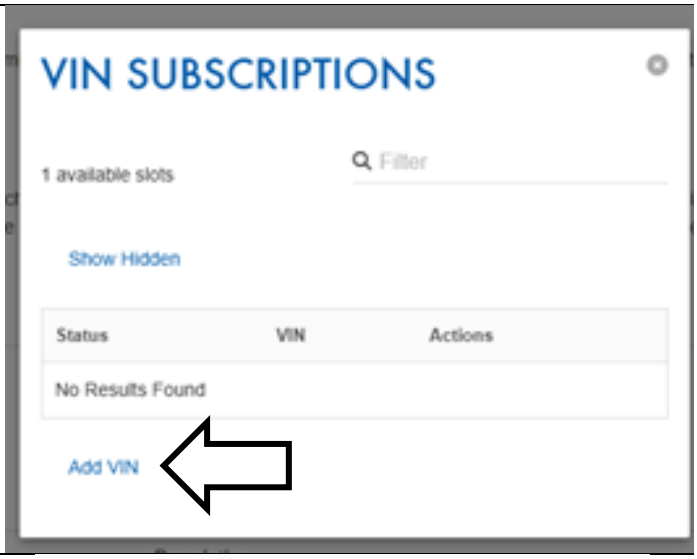
Reprogram the TECHM using either an MDI2 scan tool with J2534 interface and GM Techline Connect (https://www.acdelcotds.com/) or HP Tuners. The following steps outline how to reprogram using GM Techline Connect. For a more detailed procedure, contact BD Diesel Tech Support.

Note: During programing, ensure your battery is hooked up to a battery maintainer so that the voltage stays between 12 and 16 volts.

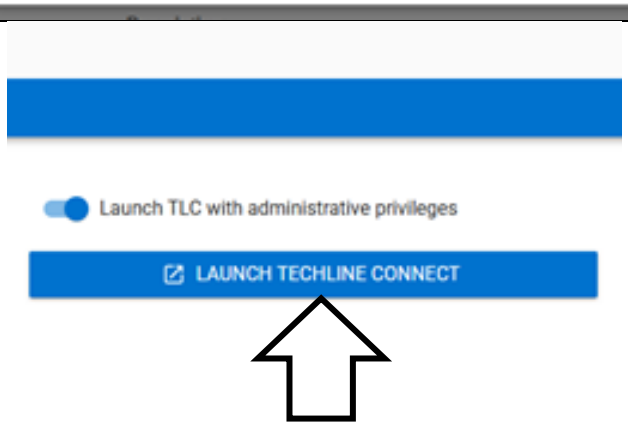
Go to www.acdelcotds.com and purchase an SPS2 license for one vehicle.



In “Subscriptions”, click “View” on the SPS2 and click “Add VIN” on the pop-up.

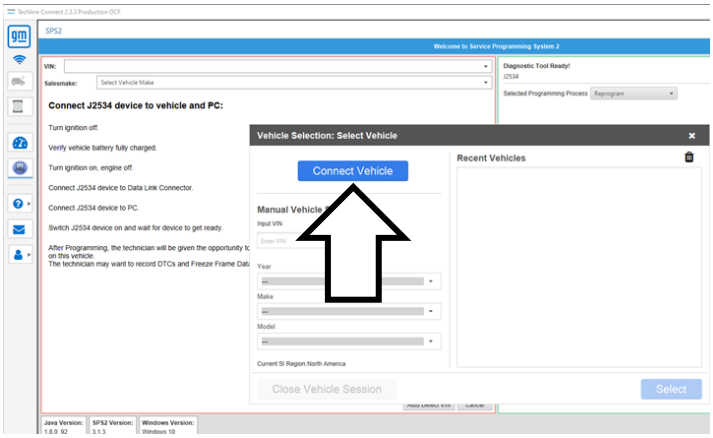


A Techline Connect window will open. Make sure Techline Connect is properly installed. Click “Launch Techline Connect”.



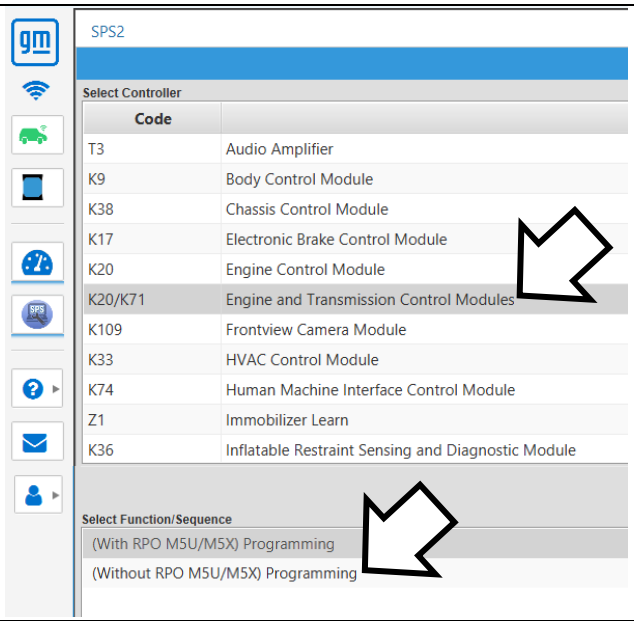
Hook up the vehicle to a battery maintainer and plug in the J2534 device. Turn the ignition on.

In Techline Connect, connect the J2534 device and the vehicle. Ensure the VIN populates correctly. Click “Next”.



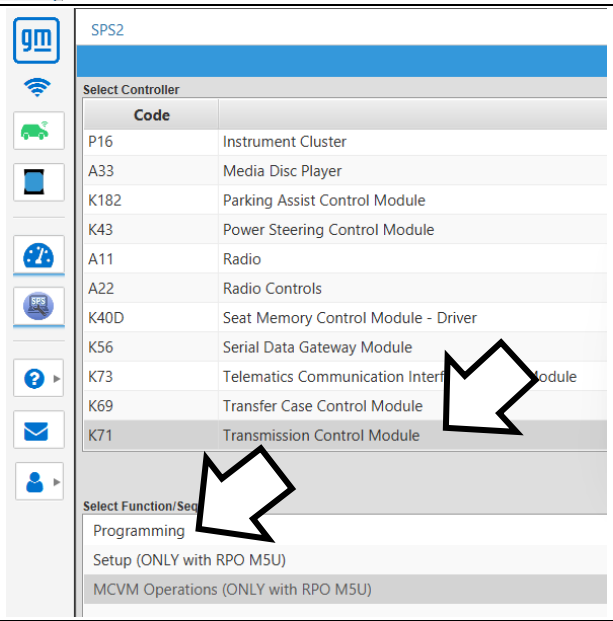
For a vehicle 2016 or older, follow this step.

Click the “Engine and Transmission Control Modules” and select “Without RPO M5U”. Click “Next”.

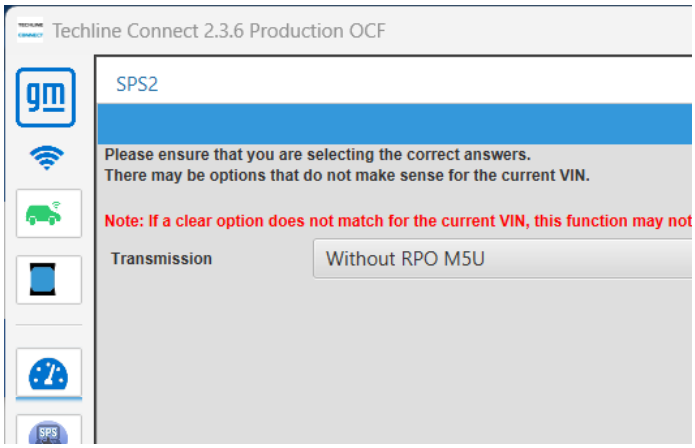


For a vehicle 2017 or newer, Follow the next two steps.

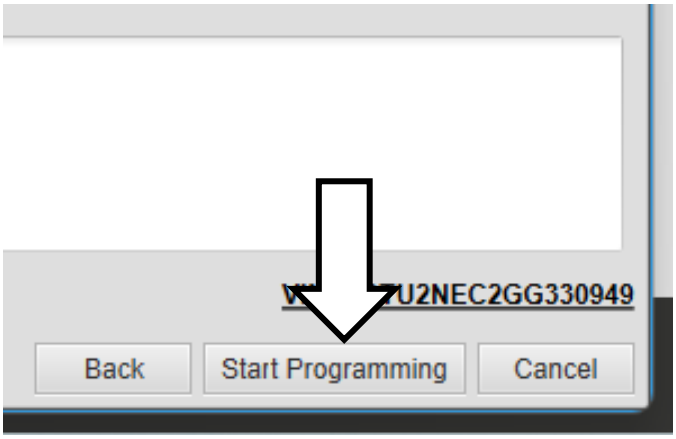
Select “Transmission Control Module” and “Programming”. Click “Next”.



Select “Without RPO M5U”. Then click “Next”.

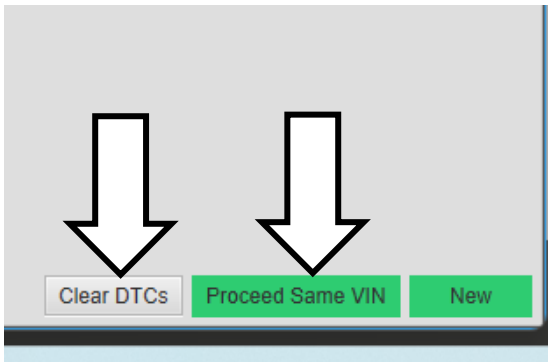


Click through with the “Next” button until you get to the “Start Programming” button and click it. Wait for the programming to finish. A progression bar and estimated time remaining will appear.



Clear DTCs. Then click “Proceed Same VIN”. You will be taken back to the controller selection page.

You are now finished programming.



Start the engine for a few seconds, then turn off ignition. Add 4 quarts of AC Delco Dexron VI fluid then start engine again. Allow engine and transmission to warm up until the transmission temperature is between 160ºF and 200ºF (71ºC and 93ºC).

Shift from drive to reverse a few times then return to park and recheck the fluid level. Top up fluid as necessary.

For a more detailed procedure, refer to your Service Manual.

Use a scan tool to perform Reset Transmission Adapts. For a step-by-step procedure, refer to your service manual or contact BD Diesel Tech Support.

Perform a Road Test. For a step-by-step procedure, refer to your service manual or contact BD Diesel Tech Support 1-800-887-5030 (Press 2) or email techsupport@bddiesel.com

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Recheck transmission fluid level and inspect for leaks.

Installation is complete.
