

CAMEROTA

TRUCK PARTS

DRIVETRAIN SPECIALISTS

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TCM Computer
NOT Included



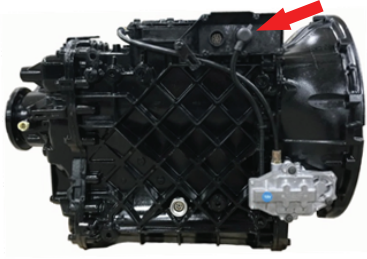
Volvo I-Shift / Mack mDrive

BASIC TRANSMISSION INSTALLATION GUIDE

DO NOT TOW / PUSH VEHICLE WITH DRIVESHAFT INSTALLED

TCM REPLACEMENT (FOR BASIC UNITS ONLY)

1.



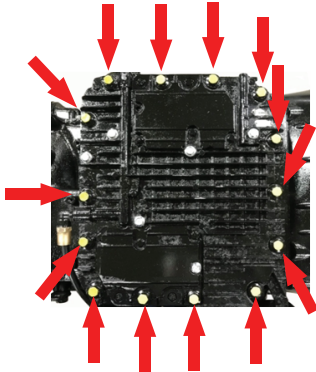
Disconnect the clutch valve wiring connector at the control housing.

2.



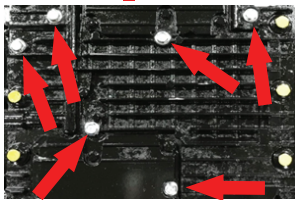
To disconnect the clutch control valve air supply tube at the upper control housing fitting, unscrew the straight Raufoss fitting from the 90 degree fitting in the cover.

3.



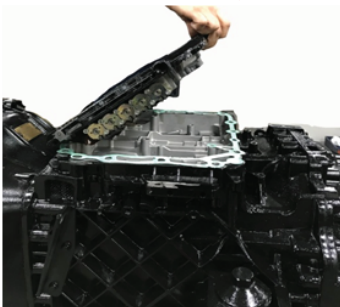
Remove the control housing mounting bolts.

4.



Remove the six upper cover mounting bolts.

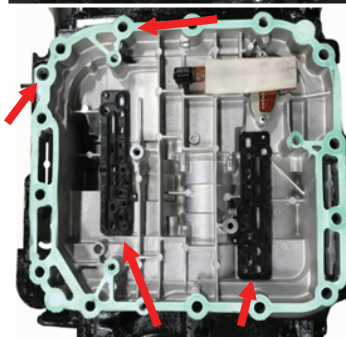
5.



Caution: Electrical components, including the wiring harness inside the TCM housing, are delicate. Handle with extreme care. Failure to do so may result in damage to components.

Gently lift the top edge of the upper cover and angle it down carefully against the clutch housing. Carefully disconnect the electrical connection and remove the top cover.

6.

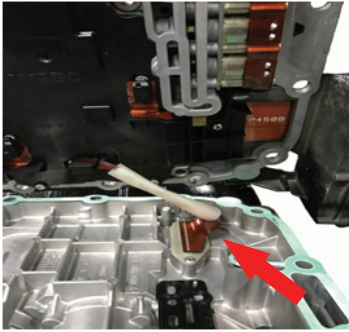


Note: Do not apply tension or weight to the wiring harness or connector.

Install new solenoid valve seals, an O-ring for the countershaft brake and a new upper cover gasket.

TCM REPLACEMENT (FOR BASICS, CONTINUED)

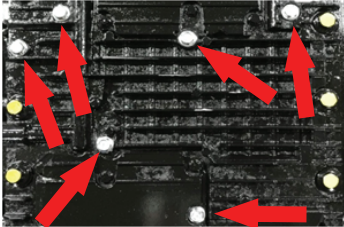
7.



Caution: Electrical components, including the wiring harness inside the TCM housing, are delicate. Handle with extreme care. Failure to do so may result in damage to components.

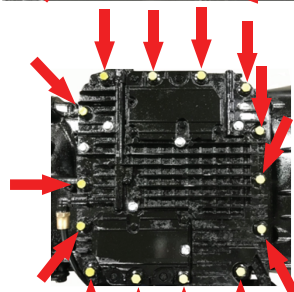
Place the new upper cover in position and carefully connect the electrical harness. Install the upper cover.
Note: Do not apply tension or weight to the wiring harness or connector.

8.



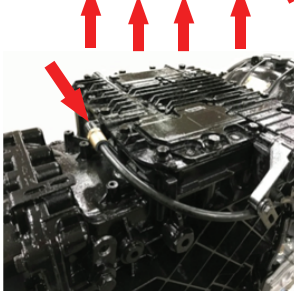
Install and torque the six upper cover mounting bolts with a 13mm head socket to 18 ft lbs +/- 3 ft lbs.

9.



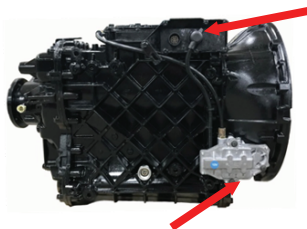
Install the control housing bolts and torque them with a 15mm head in a diagonal pattern to 81 ft lbs +/- 7 ft lbs.

10.



To connect the clutch control valve air supply tube to the upper control housing fitting, screw the straight Raufoss fitting into the 90 degree fitting in the cover.

11.



Connect the clutch valve wiring connector to the control housing.

Install the clutch cylinder and torque the mounting bolts to 33 +/- 4 ft lbs.

12.



Install the air line and electrical connector to clutch control valve.

Install clutch control valve.
Torque bolts to 15 ft lbs +/- 2 ft lbs.

INSTALLATION PROCEDURE



Secure the wiring harness and air hose in position with new tie straps.

To aid transmission installation, remove the service plug on the clutch control valve assembly and push the piston all the way into the clutch cylinder. While holding the piston in, install the plug and torque to 5 ft lbs + /- 1 ft lb.



Note: Failure to perform this step will interfere with installation. The transmission will be installed under clutch cylinder spring pressure and will fail to freely slide forward into place against the engine mating surface.

Carefully install the transmission and align it to the engine. Loosely install two upper and two lower transmission-to-engine mounting fasteners to hold the transmission in place. (Final Torque to 68 ft lbs +/- 6 ft lbs)

Note: The use of an assistant may be necessary to aid installation.

Note: Rotate the input shaft to align the clutch splines.

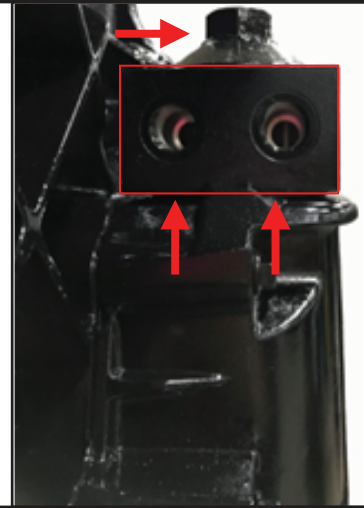
LIMITED WARRANTY: All warranties offered by Camerota Truck Parts for new, rebuilt, and used parts are warranted against defects in material and workmanship under normal use and service. The exclusive remedy under the warranty shall be the repair or replacement of the defective part at Camerota's Option. In no event shall Camerota be liable for special, incidental, direct, indirect, or consequential damages of any kind, including but not limited to lost profits, downtime, labor, or towing charges. For additional warranty information refer to the warranty schedule at www.camerota.com

TRANSMISSION FLUID FILL PROCEDURE

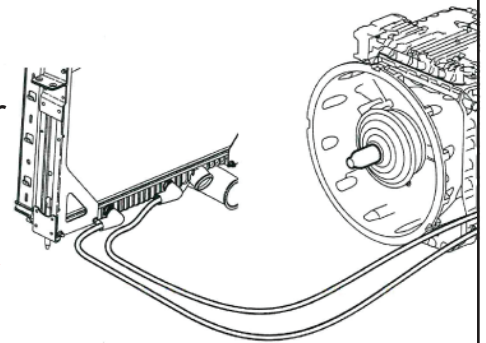
This transmission's oil pump is driven off of the reverse gear. The pump only works while the vehicle is in motion. Fill the transmission to the sight line, then perform a very short road test (a few hundred feet) and refill and repeat as necessary.

Note: The pump is also filling the cooler and cooler lines.
DO NOT run the transmission out of oil.

The top portion of the housing contains the In and Out ports for the oil cooler lines. Install the housing using new O-rings. Torque bolt to 41 +/- 6 ft lbs.

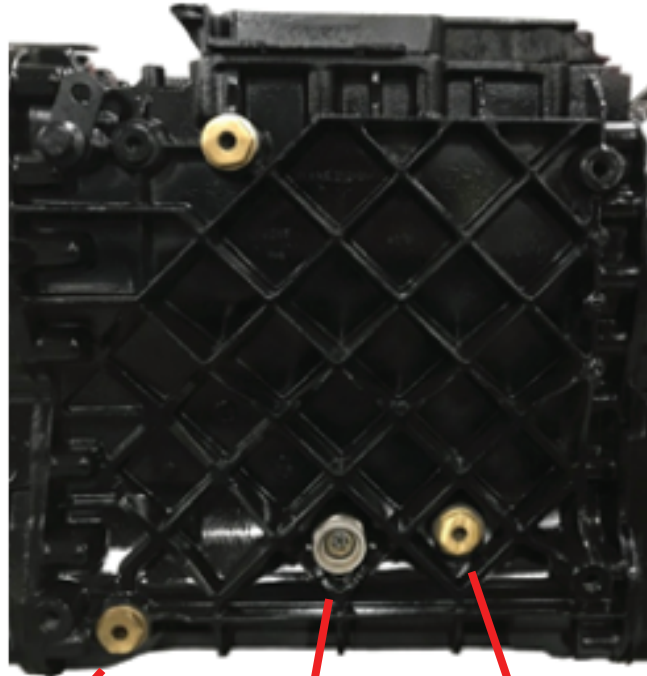


The oil cooler is located inside the lower tank of the radiator. Transmission oil is pumped to the cooler where it can transfer heat and then return to the transmission.



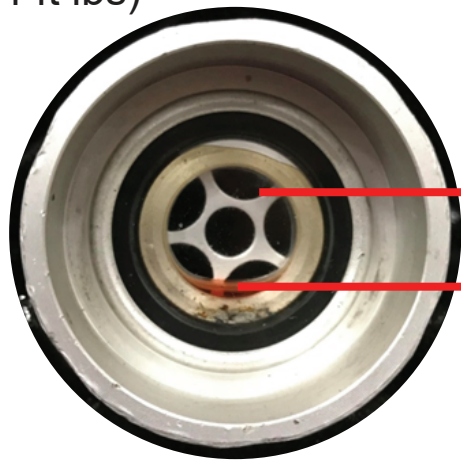
Note: If equipped, the transmission cooler and lines must be flushed.

CHECKING OIL LEVEL



DRAIN PLUG
(26 ft lbs +/- 4 ft lbs)

FILL PLUG + OIL LEVEL
(26 ft lbs +/- 4 ft lbs)



MAX OIL LEVEL

MIN OIL LEVEL

SIGHT GLASS FOR CHECKING OIL
(26 ft lbs +/- 4 ft lbs)

CLUTCH AND TRANSMISSION CALIBRATION

The TCM (Lid) must be swapped from the core to the reman transmission.
A clutch and transmission calibration must be completed.

To complete the transmission installation; the clutch and transmission MUST be calibrated (learned). This step is mandatory. To calibrate the clutch and transmission, an appropriate scan tool or OEM software must be used that has the ability to perform these tasks, e.g. Premium Tech Tool, Autel HD, Jaltest, or Texa. With the purchase of a Camerota Unit within our market area, a Camerota employee may be able to calibrate the clutch and transmission in your vehicle. Please contact the Camerota Truck Parts location that delivered the transmission to set an appointment for programming assistance.

Before starting the calibration, the following steps must be completed:

The batteries must be fully charged. Have a battery charger hooked up to the batteries if needed.

The air system must be charged with a minimum of 105 psi. A shop air line attached to the air tanks is the best option. The air line should be connected to the air tanks until the calibration has been completed. There is a possibility the truck will not start until the calibration has been completed.

Connect to the transmission with the scan tool and follow the steps to complete a clutch and transmission calibration. Once the calibration is successful, check for active codes. Clear any codes.

INITIAL ROAD TEST

Clear codes before road testing.

All codes and modules MUST clear to proceed.

When using the scan tool during the road test, check for:

- Proper TPS function
- Proper charging system voltage
- Proper brake switch function
- Any engine skip codes

If any engine codes become present during the road test, do not operate the vehicle until the proper diagnostics, corrections and repairs are made.

Re-check the fluid level and top off as needed. Re-check for any leaks.

LUBRICATION RECOMMENDATIONS

This transmission is factory filled with Transmission Oil 97318. Transmission Oil 97319 can also be used. For service fill, use Volvo or Mack 75W-80. If this oil is not available, please use the following approved oils:

Extended drains: Transmission oils 97318 and 97319 (500,000 mi)		
Supplied	Brand Name	Viscosity Grade
Volvo Trucks North America	Volvo I-Shift Transmission Fluid	75W-80
MACK Trucks Inc	Bulldog mDrive Transmission Fluid	75W-80
Castrol Ltd.	Syntrans	75W-85
Chevron Lubricants	Chevron Multigear MTF HD	75W-80
Chevron Lubricants	Chevron Multigear MTF HD	75W-90
Chevron Lubricants	Texaco Multigear MTF HD	75W-80
Mobil Branded Lubricants (ExxonMobil)	Mobil Delvac Synthetic Oil V30	75W-80

For Questions or Comments Call 1-800-231-4005

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