

INSTALLATION INSTRUCTIONS

SUBJECT: ALLISON TRANSMISSION COOLER LINES FOR 2011-14 LML DURAMAX

FPE-2022-76
October, 2023
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FITMENT: 2011-2014 CHEVY/GMC LML pickup trucks with 6.6L Duramax and Allison Transmission

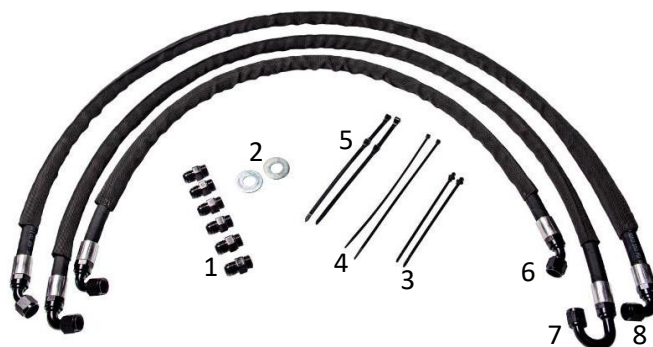
KIT P/N: FPE-TL-LML-1114

EST INSTALL TIME: 4 Hours

TOOLS REQUIRED: Diagonal Cutters, Flat head screwdriver or pick, pry bar, socket wrench, 1-1/8" wrench, 1-1/4" socket or wrench, -10AN wrench

KIT CONTENTS:

Item	Description	Qty
1	7/8"-14 o-ring to -10AN fitting	6
2	Large OD washer	2
3	Fir tree push mount cable tie	2
4	Locking cable ties	2
5	Double hose clamps	2
6	Transmission cooler line – (short, 45/90 deg)	1
7	Transmission cooler line – (med, 180/90 deg)	1
8	Transmission cooler line – (long, 45/90 deg)	1



IMPORTANT NOTES:

It is critical that you **DO NOT** over-torque AN fittings, as damage can occur. Refer to the last two pages of this document for the torque specifications required for aluminum AN fittings used in this kit.

WARNINGS:

- Use of this product may void or nullify the vehicle's factory warranty.
- User assumes sole responsibility for the safe & proper use of the vehicle at all times.
- The purchaser and end user releases, indemnifies, discharges, and holds harmless Fleece Performance Engineering, Inc. from any and all claims, damages, causes of action, injuries, or expenses resulting from or relating to the use or installation of this product that is in violation of the terms and conditions on this page, the product disclaimer, and/or the product installation instructions. Fleece Performance Engineering, Inc. will not be liable for any direct, indirect, consequential, exemplary, punitive, statutory, or incidental damages or fines cause by the use or installation of this product.

PROCEDURE:

STEP 1: Allow the coolant system and transmission to cool. Relieve the coolant pressure from the coolant system by removing the coolant cap.



STEP 2: Remove the engine bay plastic cover panel by removing the plastic expansion fasteners that retain it to the front grill and body. Remove the front grill retention bolts located along the top of the grill.



STEP 3: Using a long pry bar, release the lower retaining clips for the front grill. Remove the grill.



STEP 4: Remove the bumper by removing the upper retaining bolts with an 18mm socket.



STEP 5: From the underside of the truck, disconnect the harness for the fog lights.



STEP 6: Remove the lower supports for the front bumper from the left and right sides of the vehicle.



STEP 7: Remove the front bumper assembly to provide for clear access to the transmission oil cooler.



STEP 8: Remove the lower engine shroud.



ENGINE BAY

STEP 9: To allow for removal of the existing OE lines and installation of the new lines

Remove the passenger side fender liner

Remove the engine air intake

Remove the coolant reservoir support brace

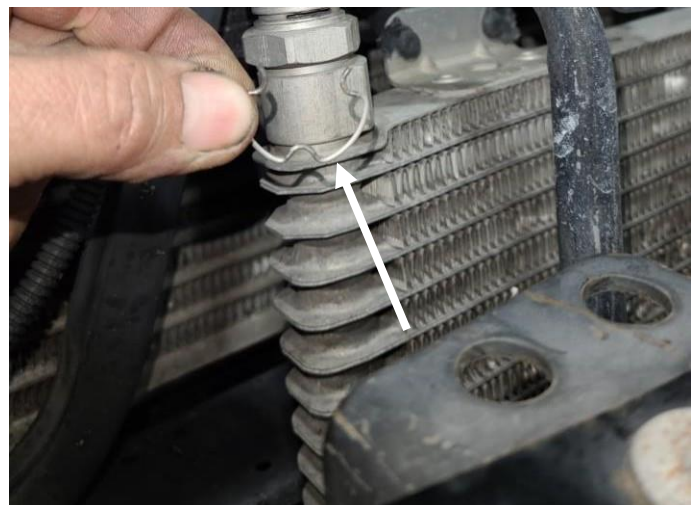
Remove the passenger side CAC pipe



OEM TRANSMISSION LINE REMOVAL

STEP 10: Remove the clips that retain the transmission lines to the transmission, radiator, and transmission cooler with a small pic or screwdriver. Disconnect the OE lines at each location and remove the OE line assemblies from the truck.

NOTE: Removal of the lines is most easily performed by cutting and removing one section of lines at a time



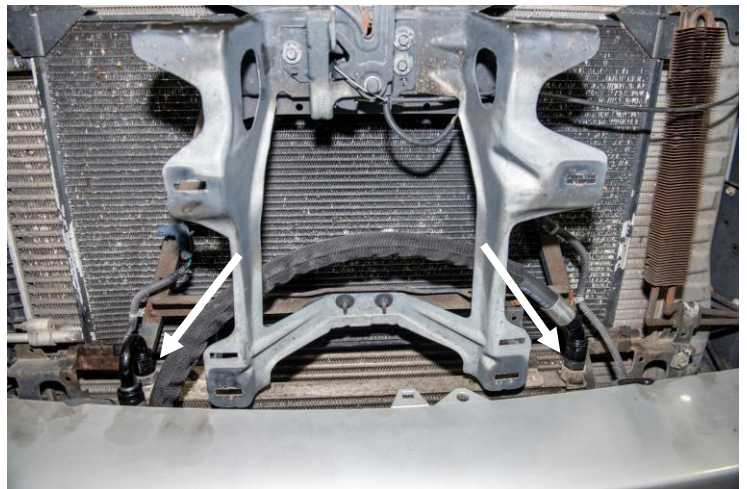
STEP 11: With the OE transmission lines removed from the truck, use a 1 1/8" back up wrench and 1 1/4" socket or wrench to remove the factory fittings from each side of the transmission cooler.



NEW FITTING INSTALLATION

STEP 12: Use a backup wrench when removing the factory fittings from the transmission cooler and when installing the new fittings included with the kit.

Install one of the 7/8"-14 O-ring to -10AN fittings into the left and right-side ports of the oil cooler.

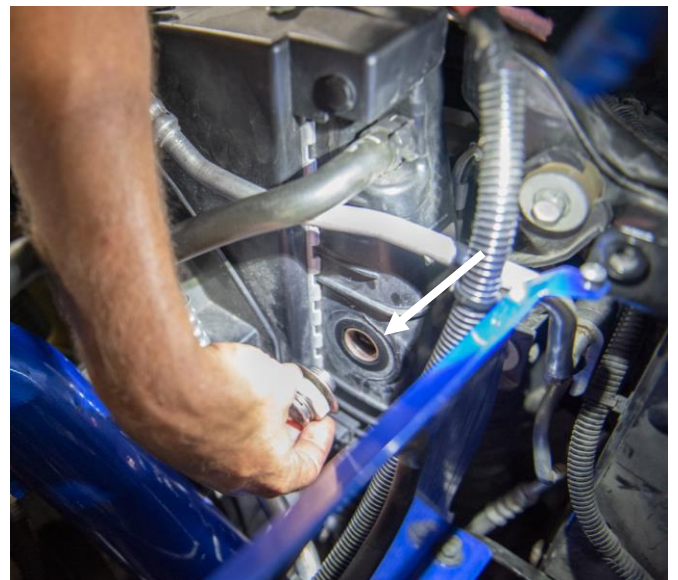


STEP 13: Assemble the large flat washers onto two of the 7/8"-14 O-ring to -10AN fittings.

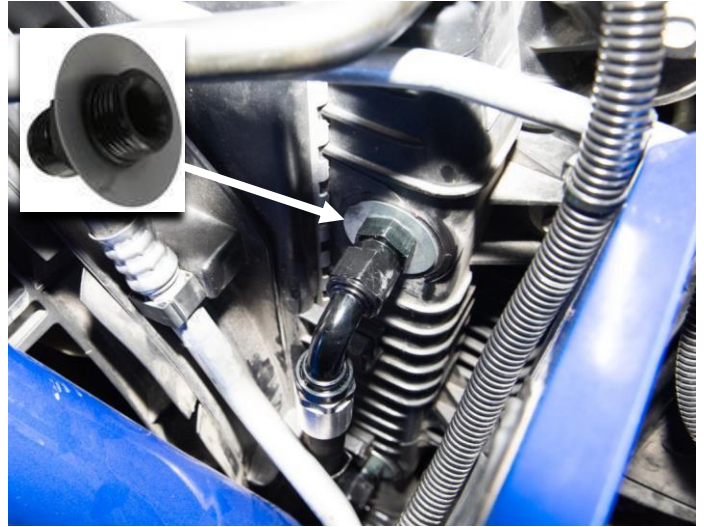
- A. **Remove** the O-ring from the fitting.
- B. Place the large flat washer on the side where you removed the O-ring and **replace** the O-ring onto the fitting with the washer below it.
- C. Install into the radiator, removing and replacing one fitting at a time.



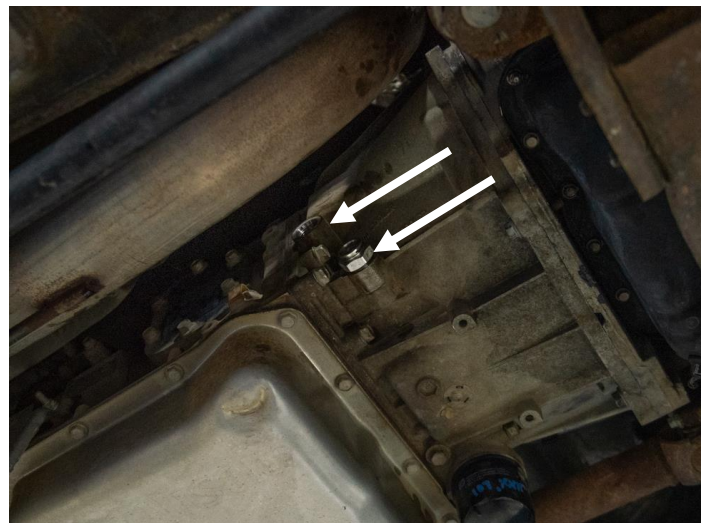
IMPORTANT NOTE: Install and remove ONE FITTING AT A TIME on the radiator, removing both fittings at the same time may result in the internal cooler coming loose on the inside of the tank.



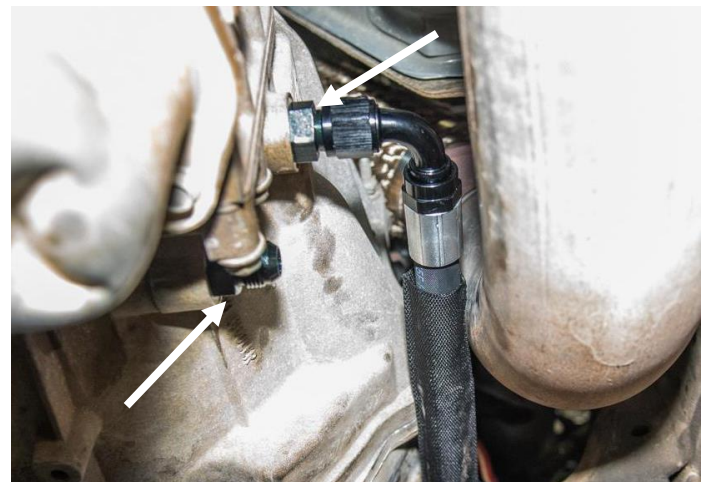
STEP 14: Install the two fittings into the radiator, removing and replacing one fitting at a time.



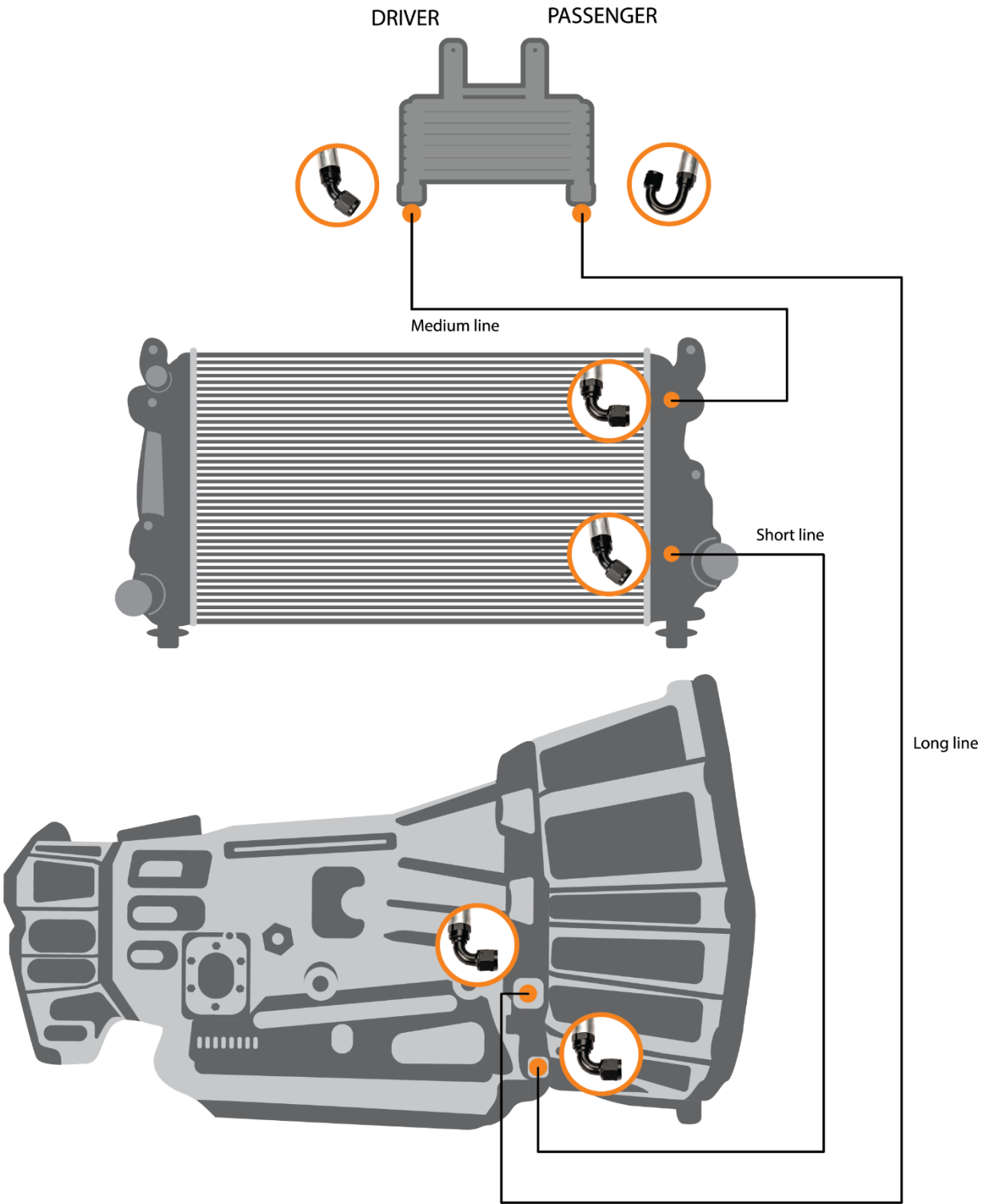
STEP 15: Remove the two OE fittings from the transmission using a 1 1/4" socket or wrench.



STEP 16: Install two of the 7/8"-14 O-ring to -10AN fittings into the "To Cooler" and "From Cooler" ports on the transmission



ROUTING DIAGRAM



RECOMMENDED LINE ROUTINGS

Route the long and short length lines to the transmission closely alongside the transmission bell housing, above the engine oil pan split line. Use zip ties to retain the hose assemblies.

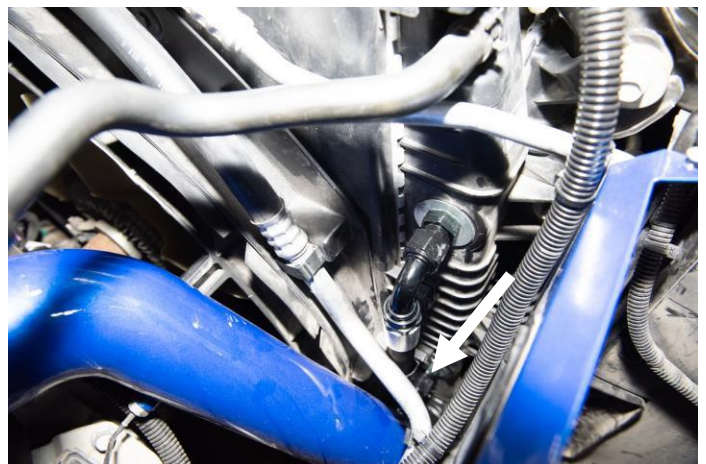


Route the long and short length lines over the main chassis members and suspension anti-roll bar.

Route the lines uniformly along the passenger side of the chassis, just inside the frame rails by approximately 6".



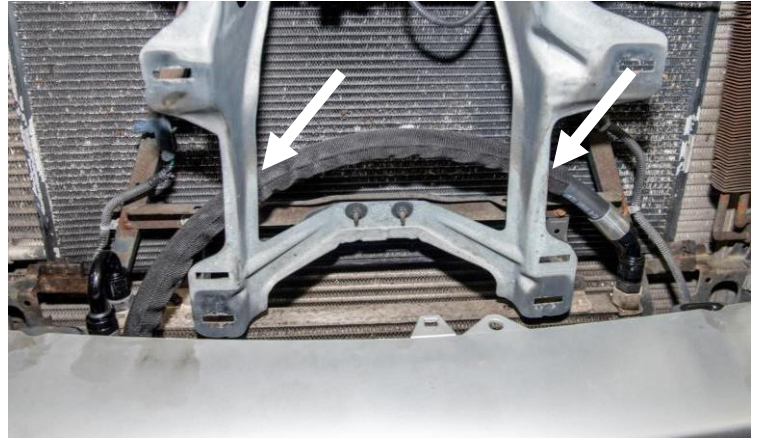
The short length hose is routed from the transmission "TO COOLER" to the bottom-side radiator fitting. The 45 degree fitting is utilized on the radiator side, aligned slightly downward and toward the center of the chassis



RECOMMENDED LINE ROUTINGS

The longest line should be routed to the right-hand side (driver side) of the transmission cooler. Route the line behind the grille support bracket and downwards. Both the left and right-side lines will route under the radiator.

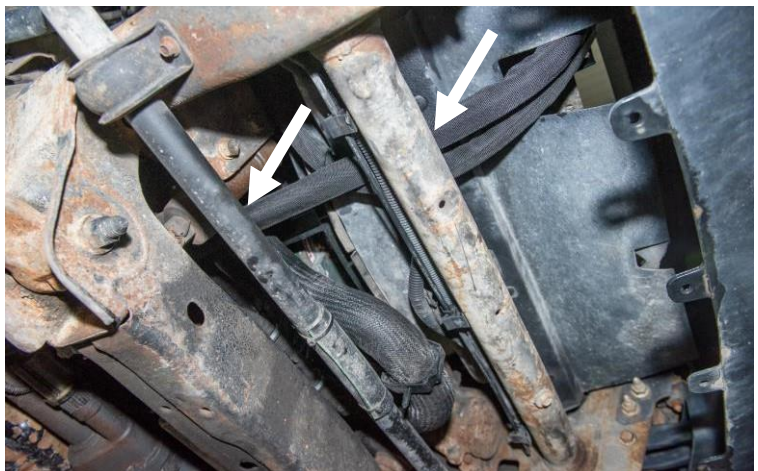
The medium length line is routed from the left side (passenger side) of transmission cooler to the top-side radiator fitting.



The medium length hose (with the 180-degree fitting) is routed to the left (passenger side) of the transmission cooler. Use the fir tree wire tie to secure the longest hose to the cooler bracket at the hole location shown at right.



Route the lines over the top of the chassis cross-tube. Use the double hose clamps provided in the kit to secure the hoses together.



Installation Guidelines for Aluminum AN Fittings

IMPORTANT NOTES:

DO NOT overtighten AN fittings. Damage will occur, resulting in leaks. Always follow recommended torque specs and torquing procedures as given by the manufacturer.

When connecting an AN fitting to an AN adapter, be sure to use a backup wrench to keep the adapter from overtightening.

Torque Specs for Aluminum AN Fittings

AN (Army-Navy) Fitting Thread Size Chart				
AN Size	Hose Size	Thread Size	Minimum Torque (in-lbs)	Maximum Torque (in-lbs)
-3	3/16"	3/8-24 SAE	70	105
-4	1/4"	7/16-20 SAE	100	140
-6	3/8"	9/16-18 SAE	150	195
-8	1/2"	3/4-16 SAE	270	350
-10	5/8"	7/8-14 SAE	360	430
-12	3/4"	1-1/16 SAE	460	550
-16	1"	1-5/16 SAE	700	840
-20	1-1/4"	1-5/8 SAE	850	1020



ALTERNATIVE METHOD FOR TORQUING ALUMINUM AN FITTINGS:

If a torque wrench cannot be used in your application, you can also properly torque your AN fittings using the flats method.

- 1. Tighten the nut by hand until it becomes snug, and the fitting is seated.
- 2. Use a marker to draw a line between the nut and its connection (see image below)
- 3. Using two wrenches (one for the nut and the other for the connection), tighten the nut to the amount shown in the chart.

AN Fitting Size	# of Hex Flats Rotations
-4	1 ½ to 1 ¾
-6	1 to 1 ½
-8	1 ¼ to 1 ¾
-10	1 ¼ to 1 ¾
-12	1 to 1 ½
-16	¾ to 1
-20	½ to ¾

Note: Do not exceed the number of hex flat rotations outlined, as damage to the fitting can occur.

