

## INSTALLATION INSTRUCTIONS

### SUBJECT: ALLISON TRANSMISSION COOLER LINES

FPE-2019-26  
Revised November, 2023  
Page 1 of 8

**FITMENT:** 2001-2010 GM Silverado/Sierra 2500/3500 6.6L LB7/LLY/LBZ/LMM Duramax with Allison Transmission

**KIT P/N:** FPE-TL-LB7-LLY, FPE-TL-LBZ-LMM

**ESTIMATED INSTALLATION TIME:** 3-4 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:

- Kit contents will vary based on the kit P/N.
- Not all parts included will be utilized, as each kit contains extra fittings to allow for a variety of model years and cooler style configurations.

Item	Description	Qty
1	M22x1.5 to -10AN Setrab fitting (some oil coolers)	2
2	7/8"-14 O-ring to -10AN fitting	6
3	½" NPT to -10AN fitting (LB7/LLY only)	2
4	¾" -16 O-ring to -10AN fitting (LB7/LLY only)	2
5	Large OD washer	2
6	Double hose clamp ties (Qty 1 for LB7/LLY)	2
7	Locking cable ties	2
8	Transmission cooler line – short, straight/90 deg (LB7/LLY only)	1
9	Transmission cooler line – short, 90/90 deg (LBZ/LMM only)	1
10	Transmission cooler line – (medium, 45/90 deg)	1
11	Transmission cooler line – (long, 90/90 deg)	1



#### IMPORTANT NOTE:

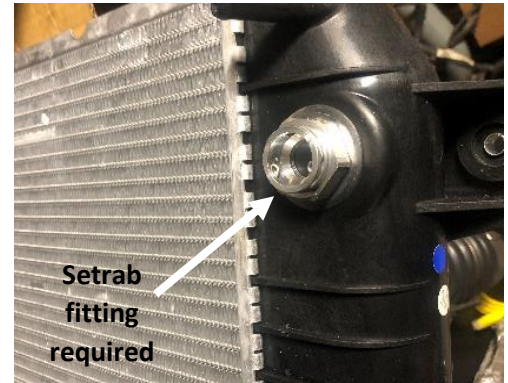
It is critical that you **DO NOT** over-torque AN fittings, as damage can occur. Please refer to the last two pages of this document for the torque specifications required for this application.

#### 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,

## PROCEDURE:

**STEP 1:** Identify whether the radiator fittings on your truck are Setrab fittings or standard OEM fittings. The presence of a large integral nut on the radiator indicates that a Setrab fitting is required. Refer to the images at right for reference.



*NOTE: Setrab fittings use a finer metric thread pitch (M22x1.5) and a flat washer is NOT necessary for step 2. The Setrab fittings included in this kit can also be identified by their thinner hex size as well as a shoulder below the hex.*



**STEP 2:** For trucks with standard OEM radiators assemble the large flat washers onto two of the 7/8"-14 O-ring to -10AN fittings (items 2 & 5).

- 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 on the fitting.
- C. Install into the radiator, removing and replacing one fitting at a time.

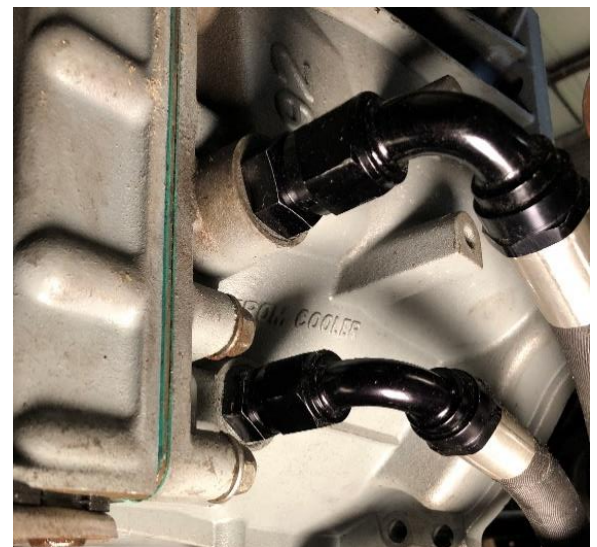


*NOTE: Install and remove one fitting at a time on the radiator, removing both fittings at the same time may result in the internal cooler coming loose on the inside of the tank.*

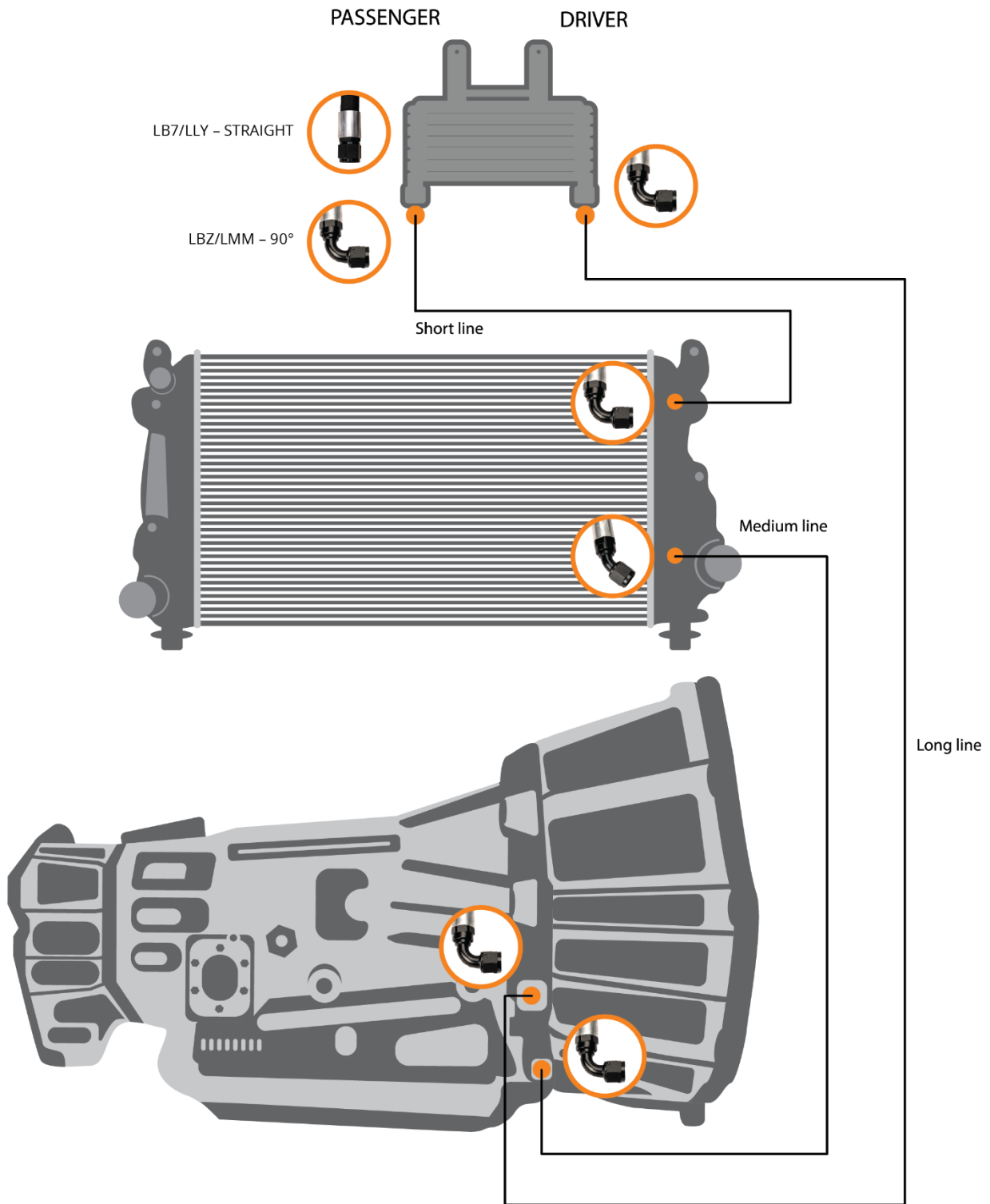


**STEP 2:** Install each of the fittings in the transmission and front mounted auxiliary cooler. Image shown at right is of an LB7/LLY vehicle.

*NOTE: For early LB7 trucks with 3/4"-16 ports on the passenger side of the transmission, use the supplied 3/4"-16 O-ring to fittings (item 4). Some LB7-LLY transmission coolers use (2) 1/2" NPT to -10AN fittings (item 3) which are included in the LB7-LLY kits. All other applications use the 7/8"-14 O-ring to -10AN fittings (item 2).*



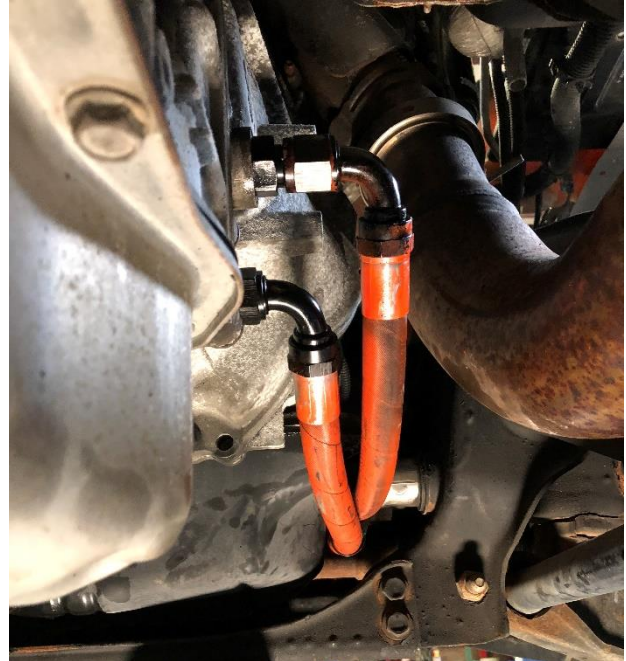
**STEP 3:** Install the transmission lines according to the figure on page 3 and routings shown on pages 5 & 6. Use the double hose clamp ties (item 6) and zip ties (item 7) to retain the hoses and prevent contact with rotating or high-temperature components.



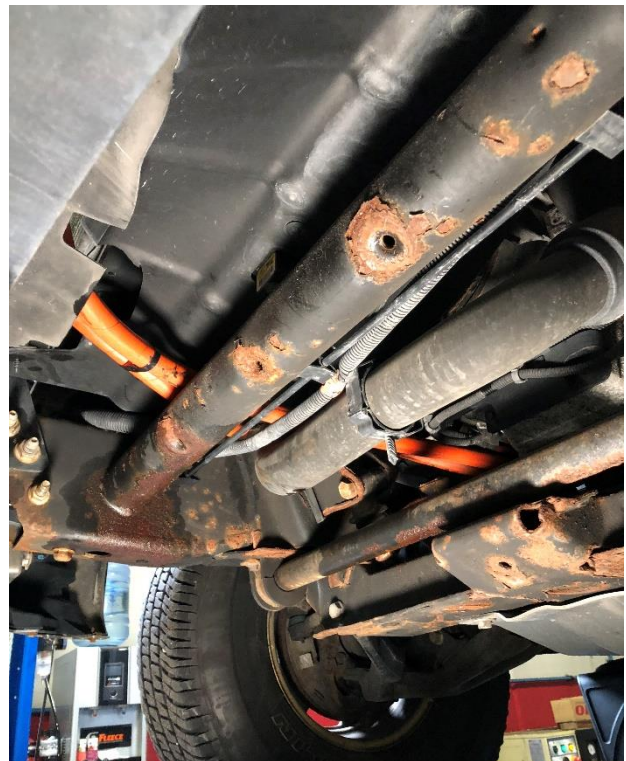
## RECOMMENDED LINE ROUTINGS

NOTE: Lines are painted orange in the pictures for clarity

Lines should be routed with some droop to reduce any strain on the connections at the transmission. Route the lines along the passenger side of the engine oil pan, below the split-line. Use the provided dual hose ties to retain the hoses together.



Route the lines uniformly along the passenger side of the chassis, just inside the frame rails by approximately 6-12”.



## RECOMMENDED LINE ROUTINGS

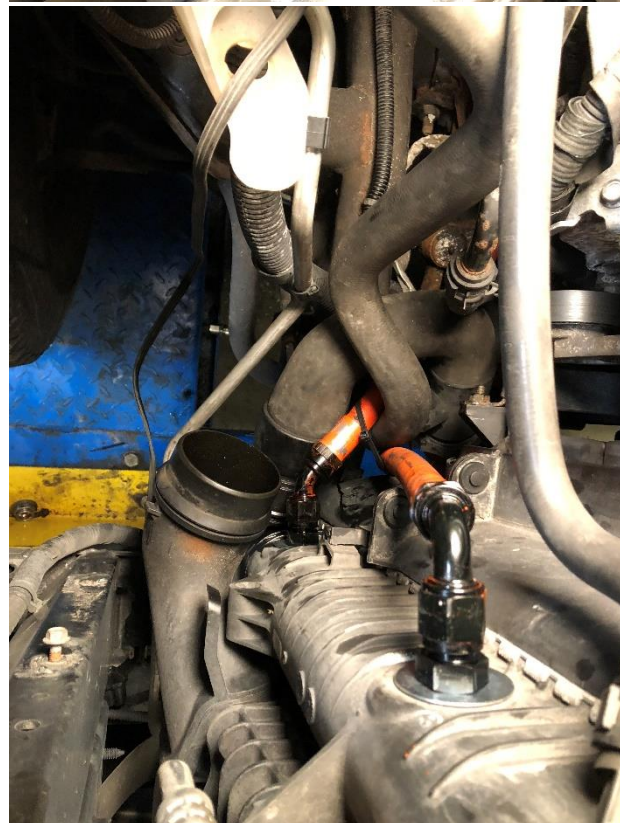
NOTE: Lines are painted orange in the pictures for clarity

The longest line should be routed to the driver's side of the transmission cooler.

The shortest line is routed from the passenger side of transmission cooler to the top-side radiator fitting – see bottom image.



The medium length hose is routed from the transmission 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.



## Installation Guidelines for AN Fittings

### IMPORTANT NOTES:

**DO NOT** overtighten AN fittings. Damage can 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.

