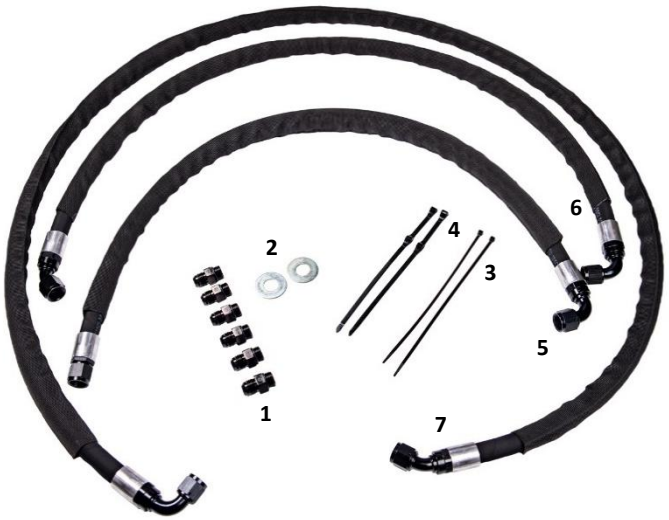
INSTALLATION INSTRUCTIONS

SUBJECT: ALLISON TRANSMISSION COOLER LINES FOR 2017-19 L5P DURAMAX

FITMENT: 2017-2019 CHEVY/GMC LML pickup trucks with 6.6L Duramax and Allison Transmission
KIT P/N: FPE-TL-L5P-1719
ESTIMATED INSTALLATION TIME: 4 Hours
TOOLS REQUIRED: Flat head screwdriver, long pry bar, T15 torx socket, 18mm socket or wrench, diagonal cutters, 1-1/4" wrench, 1-1/8" wrench, -10AN wrench.

KIT CONTENTS:

Item	Description	Qty
1	7/8"-14 O-ring to -10AN fitting	6
2	Large OD washer	2
3	Locking cable ties	2
4	Double hose clamps	2
5	Transmission cooler line – (short, Straight/90 deg)	1
6	Transmission cooler line – (medium, 45/90 deg)	1
7	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. Please refer to the last two pages of this document for the torque specifications required for this application.

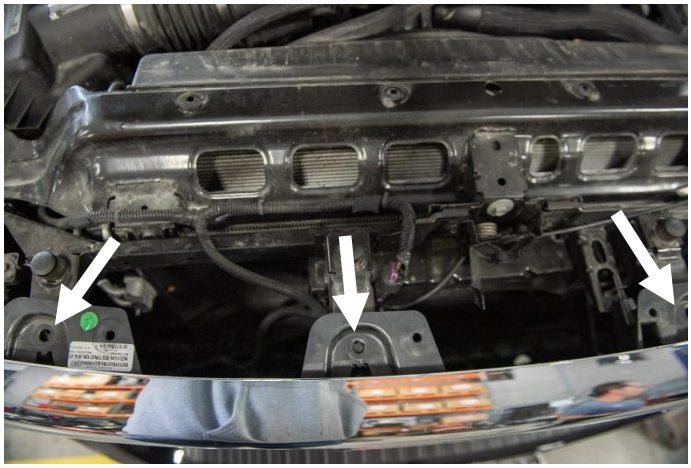
WARNINGS:

- 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, exemplary, punitive, statutory, or incidental damages or fines cause by the use or installation of this product.

PROCEDURE:

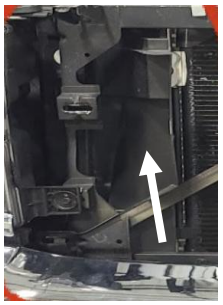
STEP 1: Allow the coolant system and transmission to cool. Relieve the coolant pressure from the coolant system by removing the coolant cap.

STEP 2: Remove the engine bay plastic cover panel by removing the plastic expansion fasteners that retain it to the front grill and body.



STEP 3: Remove the front grill retention bolts located along the top of the grill.

STEP 4: Using a long pry bar, release the lower retaining clips for the front grill.



STEP 5: Remove the passenger side air deflector located between the core support and radiator.

STEP 6: To allow for removal of the existing OE lines and installation of the new lines remove the passenger side fender liner.

ENGINE BAY

STEP 7: To allow for removal of the existing OE lines and installation of the new lines:

Disconnect sensors and remove the engine air intake.

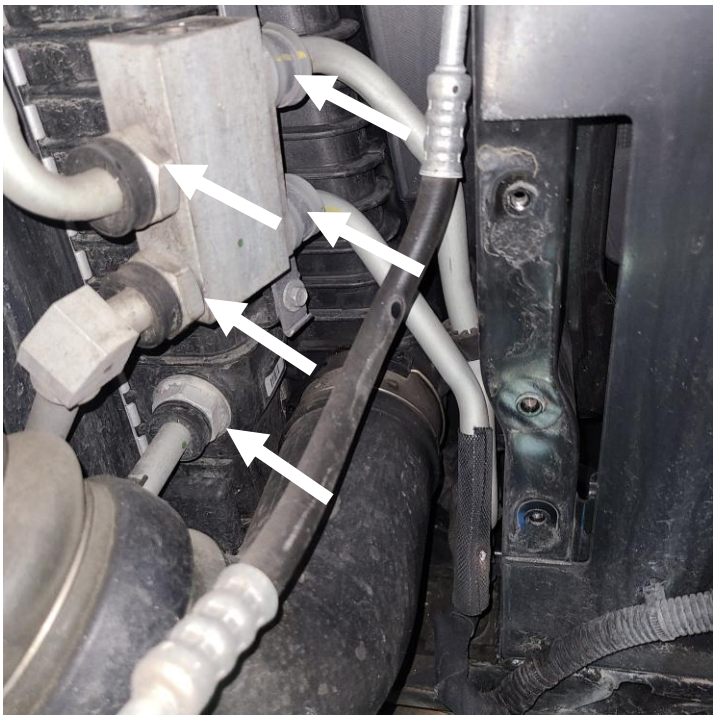
Remove the coolant reservoir support brace.

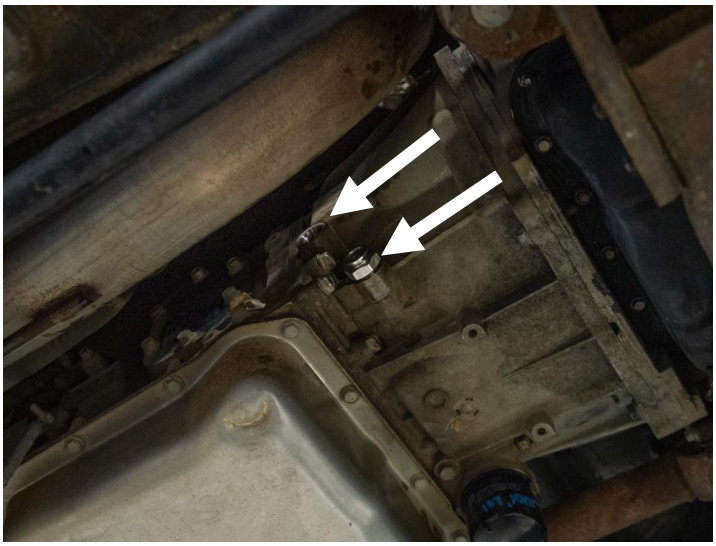
Remove the passenger side CAC pipe.

OEM TRANSMISSION LINE REMOVAL

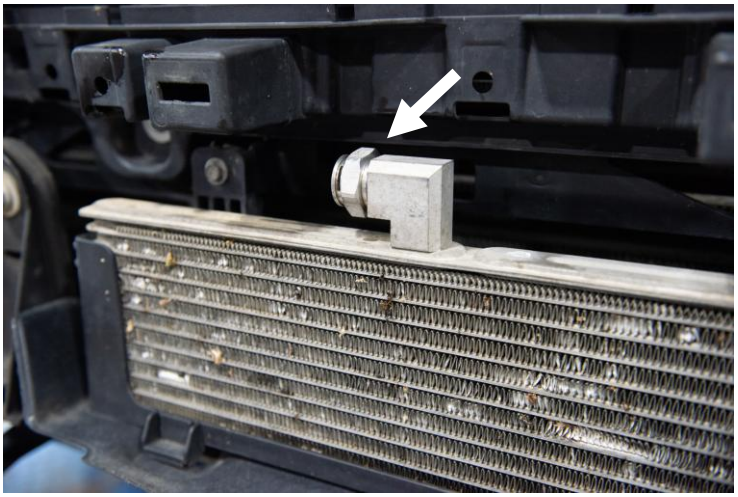
STEP 8: Remove the clips that retain the transmission lines to the transmission, radiator, and transmission cooler with a small pic or screwdriver. Disconnect the OE lines at each location and remove the OE line assemblies from the truck.

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





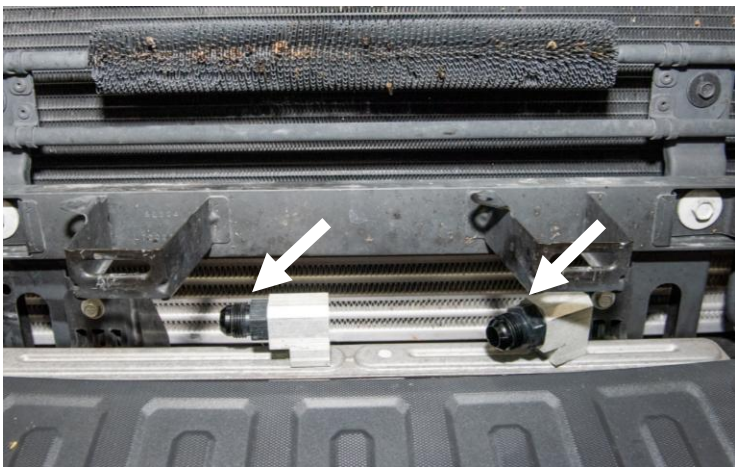
STEP 9: With the OE transmission lines removed from the truck, use a 1 1/8” back up wrench and 1 ¼” socket or wrench to remove the factory fittings from each side of the transmission cooler.



NEW FITTING INSTALLATION

STEP 10: Use a backup wrench when removing the factory fittings from the transmission cooler and when installing the new fittings included with the kit.

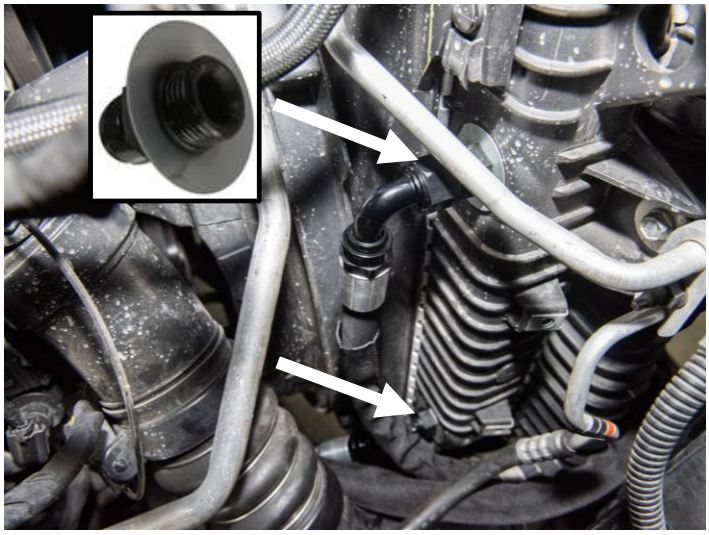
STEP 11: Install two of the 7/8”-14 O-ring to -10AN fittings into the left and right side ports of the oil cooler.



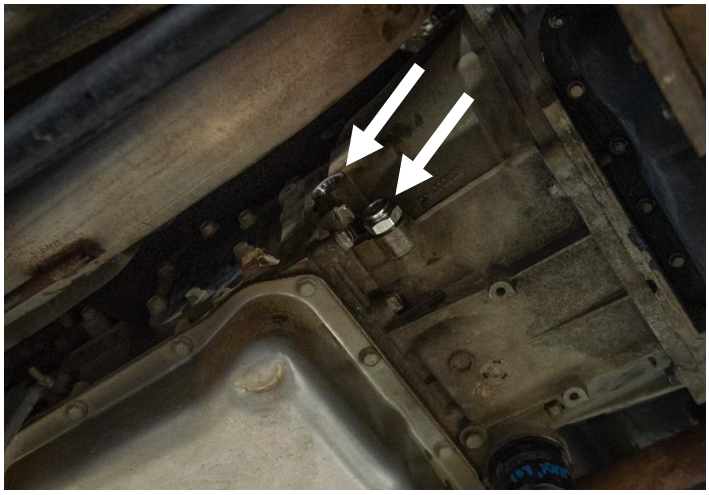
STEP 12: Assemble the large flat washers onto two of the 7/8”-14 O-ring to -10AN fittings.

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.

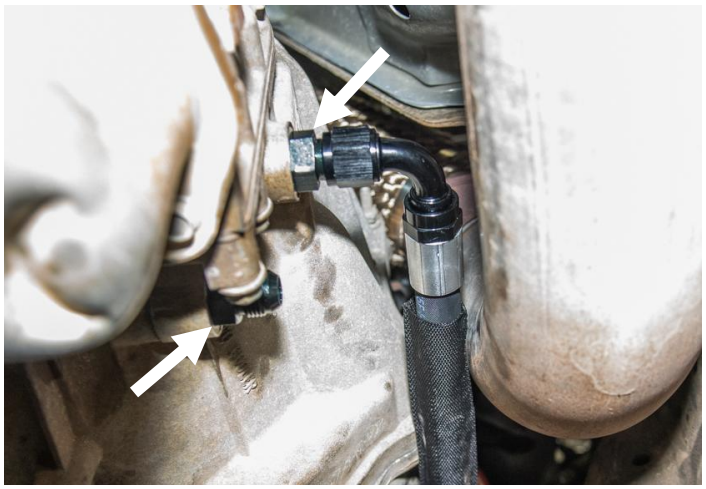
IMPORTANT NOTE: Install and remove ONE FITTING AT A TIME on the radiator, removing both fittings at the same time may result in the internal cooler coming loose on the inside of the tank.



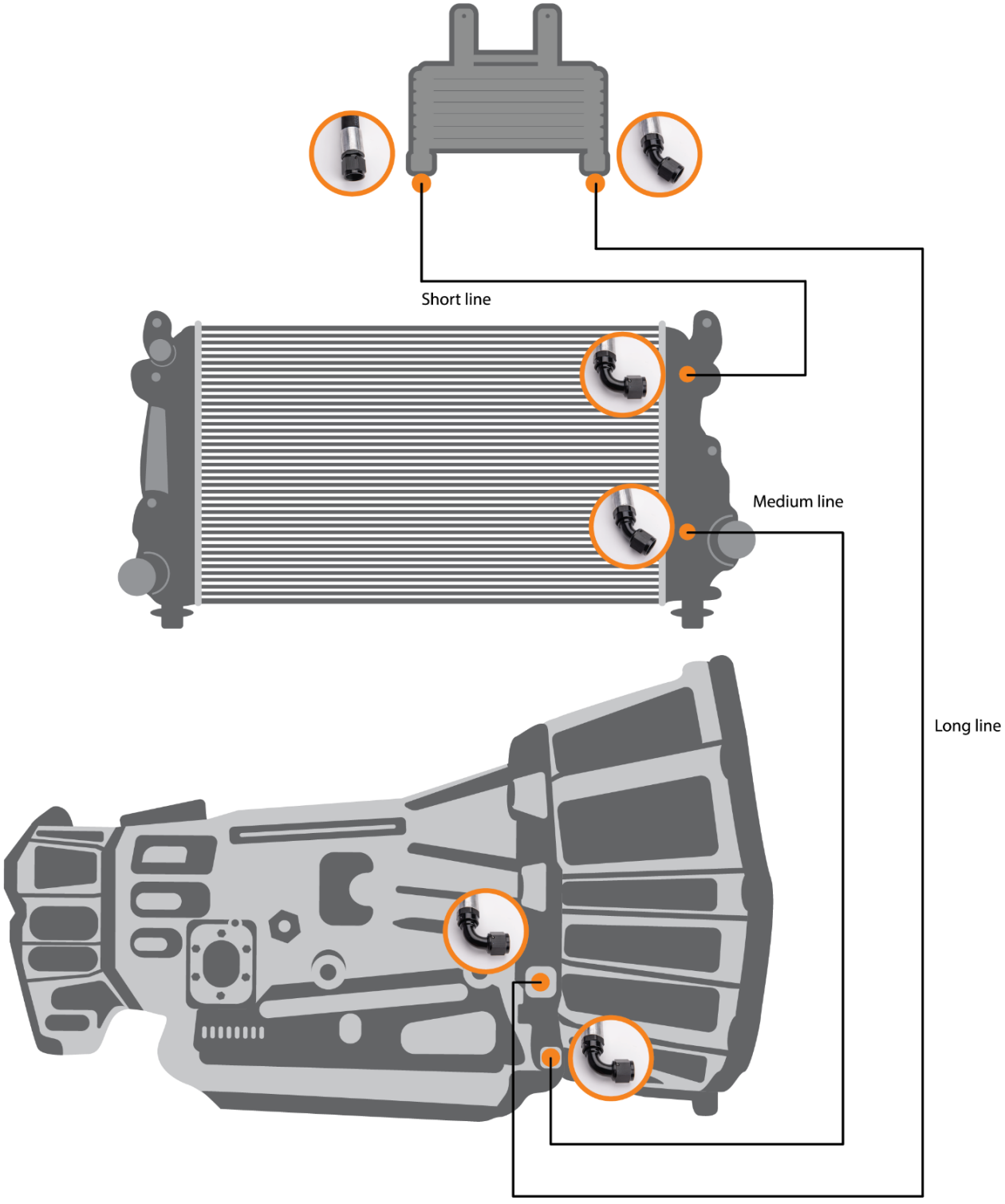
STEP 13: Remove the two OE fittings from the transmission using a 1 ¼” socket or wrench.



STEP 14: 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



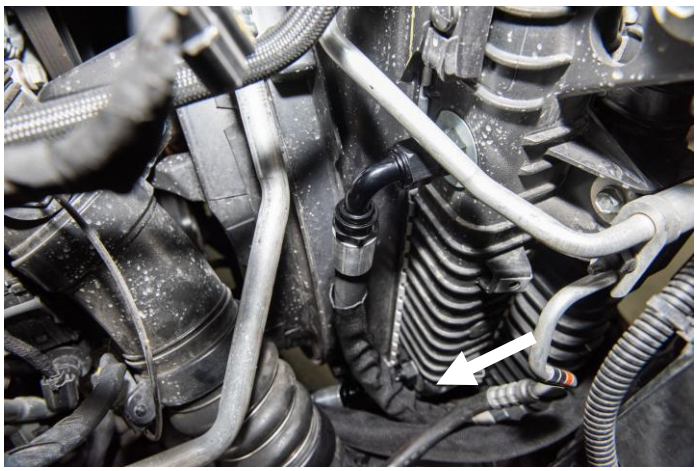
RECOMMENDED LINE ROUTINGS

Route the long and medium length lines to the transmission closely alongside the transmission bell housing, and below the engine oil pan along the passenger side. Use a double hose clamp and zip ties to retain the hose assemblies.

Route the long and medium 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 medium 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.

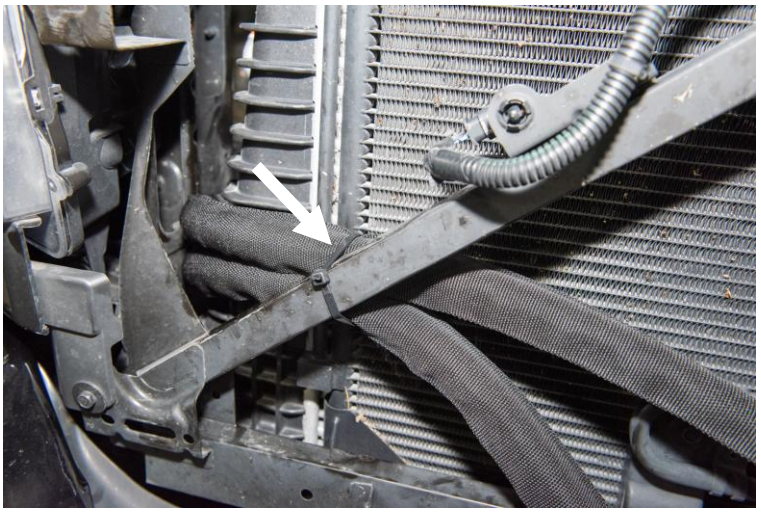


RECOMMENDED LINE ROUTINGS

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

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

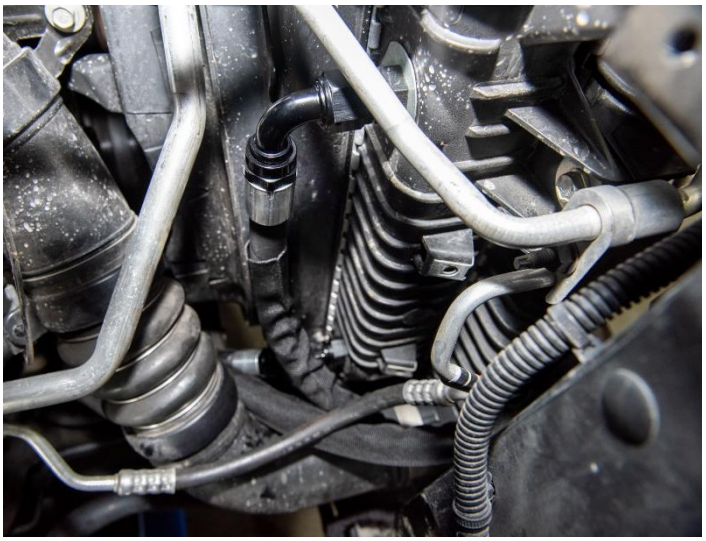
Use one of the zip ties provided in the kit to secure the hoses together and to the cross-member.



RECOMMENDED LINE ROUTINGS

The shortest line is run from the left side of the transmission cooler, around the passenger side of the radiator, and up to the top side fitting.

The medium length line is run from the bottom radiator fitting to the “FROM COOLER” port on the transmission. The 45 degree fitting will be pointed slightly inward toward the center of the vehicle and downward



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, 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.