INSTALLATION INSTRUCTIONS

SUBJECT: TRANSMISSION COOLER AND LINE KIT FOR 2003-2007 DODGE RAM 2500/3500

FITMENT: 2003–2007 Dodge Ram with 5.9L 24V Cummins and 48 RFE Automatic Transmission
KIT P/N: FPE-TC-CUMM-0307
ESTIMATED INSTALLATION TIME: 1.5 - 2 Hours

TOOLS REQUIRED: 1” open end wrench, 10 mm socket, 13 mm socket, 14 mm socket, small flathead screw driver

KIT CONTENTS:

Item	Description	Qty
1	Transmission cooler	1
2	Transmission line (long, 45/90 deg)	1
3	Transmission line (short, 90/ 120 deg)	1
4	-8AN to ¾”-16 o-ring fitting	2
5	-8AN male to ¼ NPT male fitting	2
6	Zip ties	8
7	Heat exchanger cap	2
8	P-clamp	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.

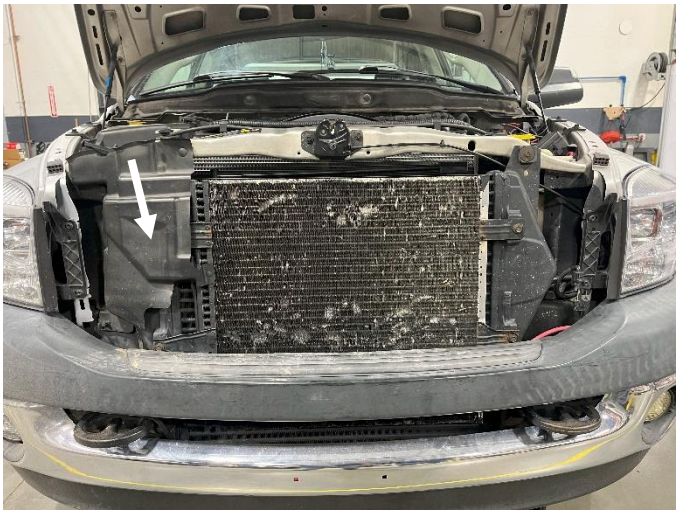
WARNINGS:

- 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.

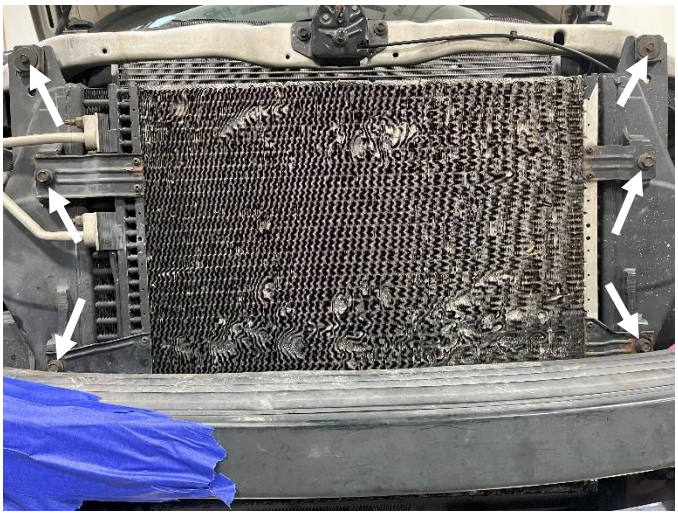
PROCEDURE:

STEP 1: Disconnect the batteries on the vehicle.

STEP 2: If your vehicle has a shroud over the passenger side of the ac condenser, remove the shroud using a trim tool or flat head screwdriver.



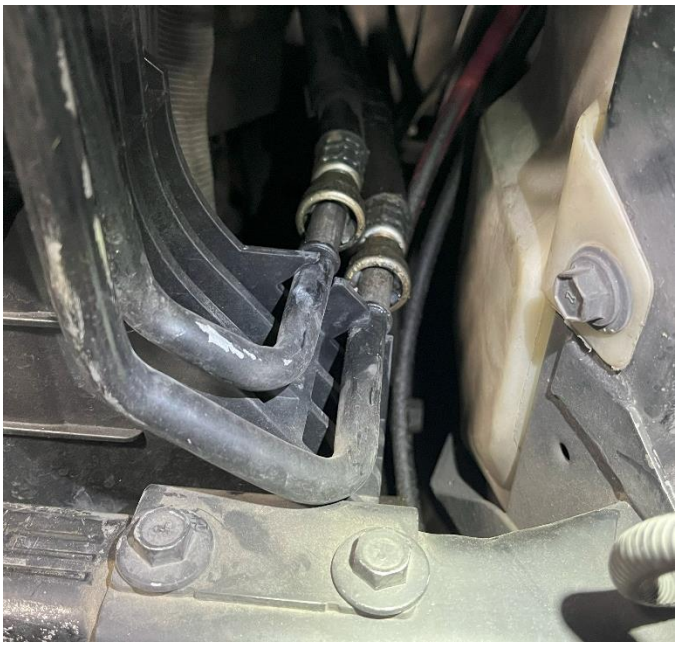
STEP 3: Remove the four bolts retaining the AC condenser to the front of the intercooler using a 13mm wrench or socket. Rest the condenser on the front bumper and use painter's tape to protect the bumper.



STEP 3: Loosen the hose clamps on both sides of the intercooler using an 11mm socket or wrench. Remove the two bolts retaining the intercooler to the frame using a 10mm socket or wrench. Remove the intercooler.

STEP 4: Remove the charge tube connecting the intercooler to the intake horn using an 11mm socket or wrench.

STEP 5: Using a ½" quick disconnect tool, disconnect both lines routed on the driver's side of the transmission cooler.



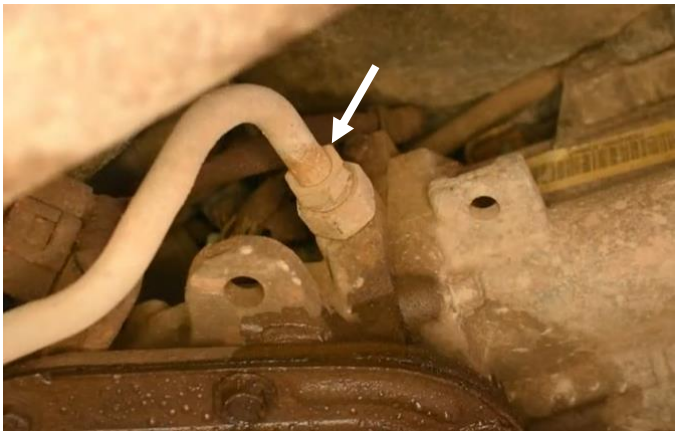
STEP 6: Remove the two bolts retaining the transmission cooler. Remove the transmission cooler from the vehicle.

STEP 7: Using a 22mm wrench, disconnect both transmission lines from the heat exchanger. Using the included rubber caps, cover the open ports on the heat exchanger.

NOTE: The heat exchanger will not be removed as coolant is still routed through it.

STEP 8: Use a 19mm wrench to remove the transmission lines from the fittings on the transmission. Remove the lines from the vehicle

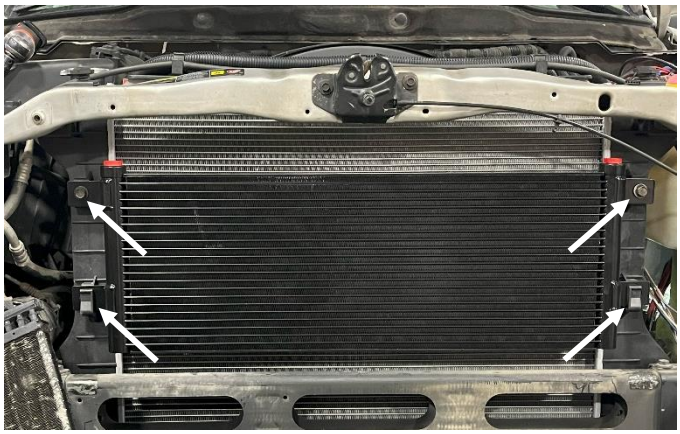
NOTE: You may have to bend the lines for them to be removed.



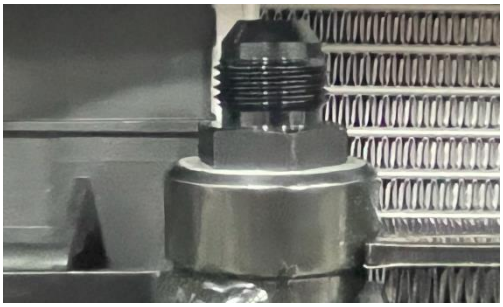
STEP 9: Use a 15/16” wrench to remove the two fittings from the transmission.

STEP 10: Place a bead of thread sealant around the lowest threads and install the two -8AN to ¼” NPT fittings (item #5) into the transmission ports using a 13/16” wrench. Tighten to 22 ft-lbs. DO NOT OVERTIGHTEN THESE FITTINGS.

STEP 11: Install the new Fleece Performance transmission cooler assembly. Insert the two tabs into the slots, then use a 15mm wrench or socket to install the two bolts retaining the cooler.

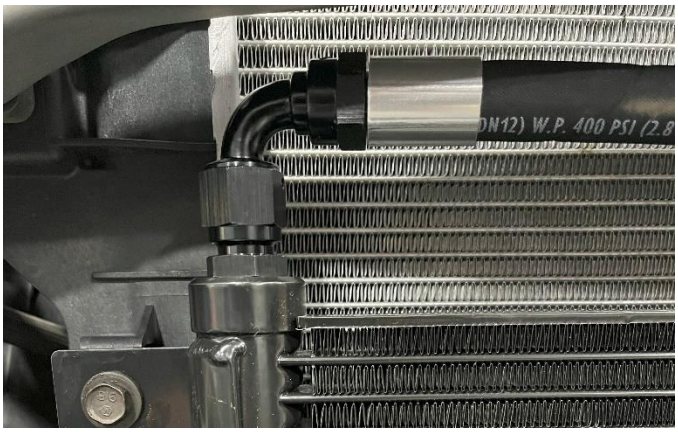


STEP 12: Remove the red caps over the ports on the transmission cooler and install the two -8AN to ¾”-16 adapters (item #4) into the assembly using a 7/8” wrench. Tighten the fittings to 22 ft-lbs.



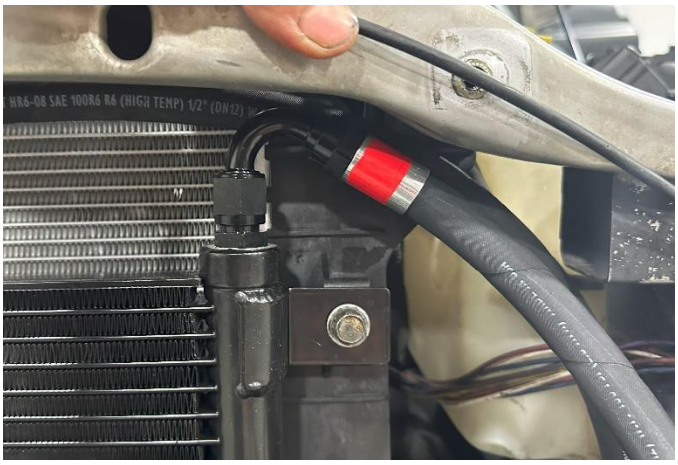
STEP 13: Install the 90-degree fitting on the long transmission cooler line onto the passenger side port of the transmission cooler using a 1” wrench. Do not tighten the fitting. Route the line parallel to the top of the transmission cooler assembly.

NOTE: Refer to the graphic on page 7 for transmission line connections made with this kit.

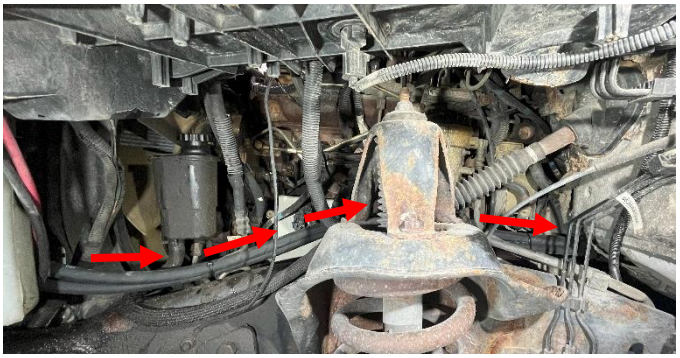


STEP 14: Install the 120-degree fitting on the short transmission cooler line onto the driver’s side port of the transmission cooler using a 1” wrench. Do not tighten the fitting.

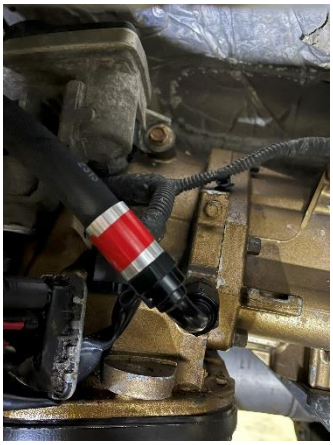
NOTE: It may be helpful to identify one of the lines using a piece of tape to ensure the proper connections are made after routing the lines through the engine bay – an example is shown at right by identifying the hose ends on one line with red tape.



STEP 15: Route the transmission cooler lines around where the charge air pipe will be installed and through the engine bay as shown at right.



STEP 16: Connect the transmission lines to the transmission using a 1” wrench. Do not tighten the fittings. The line routed from the passenger side of the cooler will connect to the front port on the transmission. The line routed from the driver’s side of the transmission cooler will connect to the rear port on the transmission. Use a backup wrench when tightening the fittings to prevent overtightening of the AN adapters on the transmission.



STEP 17: Using four double-hose zip ties (item 4), space them evenly along the length of the cooler lines. Tighten the ties to retain the hoses together.

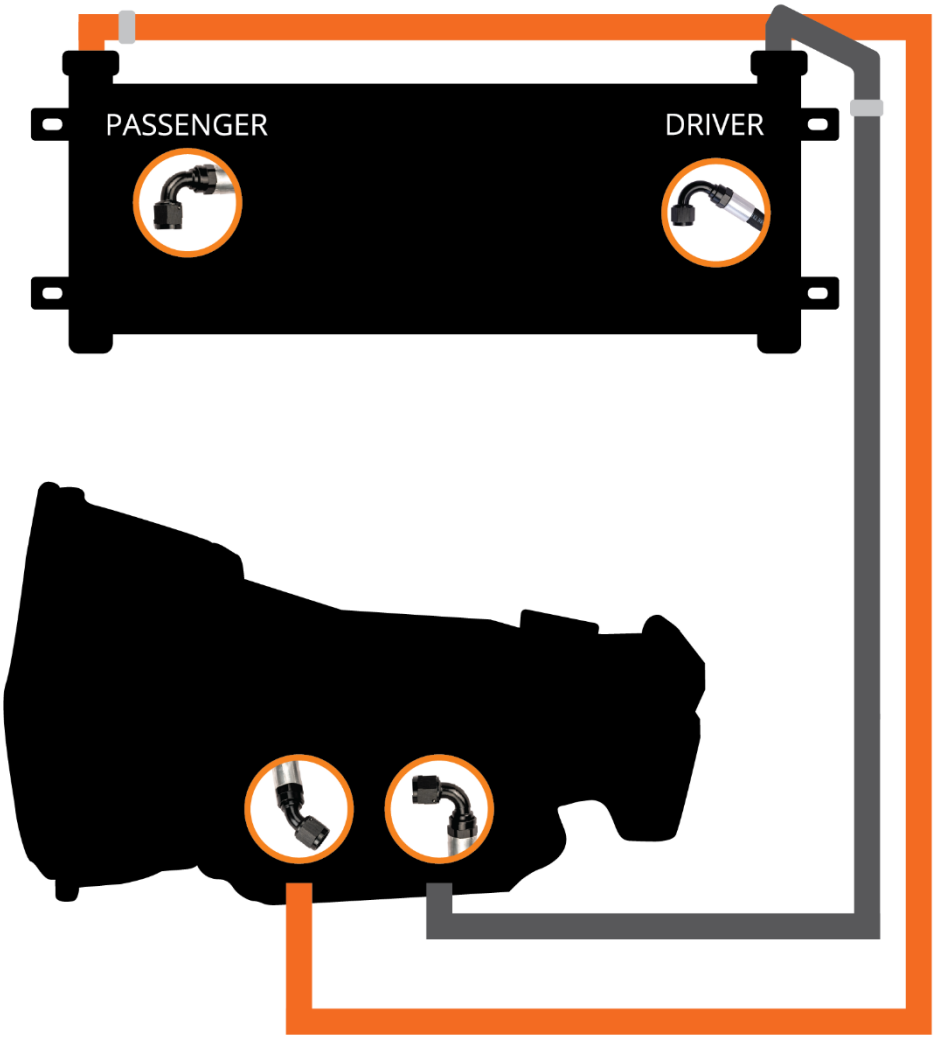
STEP 18: With the cooler lines routed and retained, tighten each of the four cooler line fittings to 270-350 in-lbs using a 1” wrench. Use a backup wrench on the AN adapters installed in the housings of the transmission cooler and transmission to prevent overtightening.

STEP 19: Install the intake charge tube onto the intake horn using an 11mm socket or wrench.

STEP 20: Install the intercooler and tighten the charge tube clamps using an 11mm socket or wrench. Install the two bolts that retain the intercooler using a 10mm socket or wrench.

STEP 21: Install the AC condenser. Use a 13mm socket or wrench to install the four bolts retaining the condenser.

STEP 22: Start engine and verify the installation is leak-free. Check and confirm transmission fluid level is within specification. Add fluid as necessary with the OEM’s approved transmission fluid.


PASSENGER
DRIVER

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 supporting 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 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.