Transmission Cooler Installation Instructions

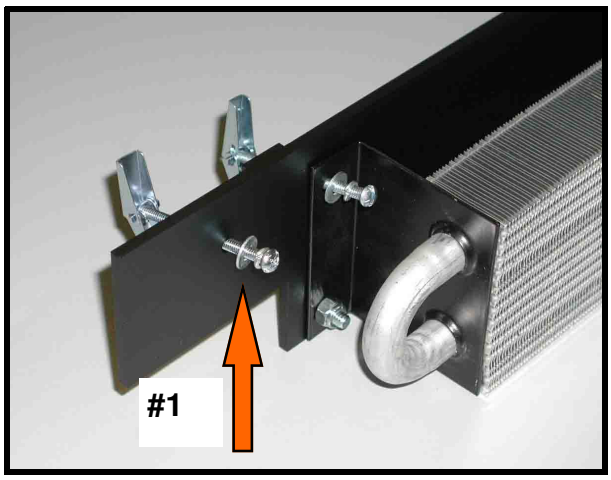
1. Before starting the transmission cooler installation, read all instructions thoroughly and look over all cooler assembly photographs closely. Except for the two clamps used on the hoses you will mount on to the barbed cooler fittings, all cooler fittings and hose clamps have been pre-tightened for you. Do not tighten them any further. You will need to purchase a quart of Sprinter factory transmission fluid or Amsoil ATF. The following tools are required for the installation: straight blade screw driver, 7/16 open end wrench, 17mm and 19mm open end wrenches, 19mm short open end wrench (optional), 3/8" hand ratchet, 7/16 socket, 10mm deep socket and a clean oil drain pan. The cooler installation is easiest to perform if the Sprinter front end is raised until the tires are about 4-5 inches off the ground. If you choose to raise the vehicle, be sure to set the hand brake and use properly weight rated jack stands under the vehicle's front suspension cross member. It is also helpful to have at least one utility lamp available for plenty of viewing light.
2. If the transmission cooler has not been bolted to the mounting bracket prior to shipping, bolt it on the bracket now. Check to make sure the is no debris in the cooler assembly before installation. Using the three 1/4" bolts and Nyloc nuts, mount the cooler on the bracket. Refer to figure #1 for the left side cooler mounting points and bolt orientation. Note that one of the four toggle bolts goes through the upper left cooler mounting hole. Using a creeper (or by crawling), roll under the front the Sprinter. Look up and just behind the front plastic bumper cover. You will see a heavy steel body cross member. In the cross member, located about 6" from where the cross member meets the front to rear uni-body rails, you will find two, 1½ "x 3" oval holes, see page 6. Install the 4 toggle bolts in the cooler mounting bracket making sure the lock and flat washers are on the front side of the bracket (the side the cooler mounts on, see fig. #1). Install the cooler bracket with the 4 toggle bolts going through the ovals and tighten the toggle screws. As you position the cooler mounting bracket and tighten the toggle screws, make sure the toggle screws are spread to each corresponding side of the oval, that the toggles are spread open and are perpendicular to the oval (fig. #3). Tighten toggle screws until secure or approximately 20 pounds torque.
3. Check to make sure the is no debris in the cooler lines before installation. Using the supplied fuel line hose clamps, install the cooler lines on to the cooler. The longer hose assembly mounts on the upper cooler line. You will find that using a Teflon lubricant will help when installing the hose clamps. They are a very tight fit. Do not over tighten the hose clamps or you will strip the bolts. Locate the "S" shaped supply transmission fluid line pipe. See photo of what this pipe looks like in the photo section on page 5. This is the lower pipe attached to the far lower right portion (passenger side) of the radiator. Using a 10mm deep socket, remove the mounting bracket that bridges between the metal supply pipe and the metal return pipe. The return pipe is the longer pipe that attaches to the radiator about 10" above the "S" shaped supply pipe.
4. Using 17 and 19mm end wrenches, loosen and separate the flex line fitting

where the transmission hose flex line-fitting attaches to the “S” shaped metal supply pipe from the radiator. Allow the system to drain the excess trani fluid. Fluid loss will be approximately 4-5 oz. If possible, use a oil drain pan to catch and measure fluid loss once the installation is complete. Working from above and looking down into the engine compartment on the backside of the radiator, locate the lower supply transmission fluid pipe where it attaches to the radiator. Looking down from the top of the radiator, it is the lower of the two transmission fluid pipes. To facilitate removing the pipe, remove the turbo intercooler to turbo housing hose. The hose clamp nuts are 8mm. Removing the upper turbo heat shield will also help with accessibility. It is attached with 2-10mm nuts and 1-10mm bolt. Using a 19mm end wrench, remove the “S” shaped supply transmission fluid line pipe. The other end of this pipe attaches to the flex line that you disconnected earlier in this step. You will find using a 6” short 19mm wrench easiest for the pipe removal. This pipe is not used as part of the cooler installation and you should consider keeping it in case you decide to remove the cooler. Allow traini fluid to finish draining and remember, catch this fluid if possible.

5. When working with and around the cooler, be careful to avoid damaging the VERY soft Aluminum cooler fins. Route the upper line of the transmission cooler (fig. #6) to the lower radiator transmission fluid fitting. To get to the transmission fluid supply fitting in the radiator, it will take some fishing and maneuvering to work the pipefitting up and around the cooling hose. Install pipefitting into the radiator fitting and thread seat nut (fig. # 11). TAKE your time and patience when threading the seat bolt on to the radiator fitting and BE SURE to not cross thread it. The bolt threads are designed in a manner that may not allow partial finger tightening. As the supply pipefitting is close to being tight, be sure the tapered tip of the pipefitting (fig. #12) is seated squarely against the radiator fitting. Tighten seat bolt to 15-20 pounds torque. Take the lower trani cooler hose (fig. #7) and bring it up and attach it to the transmission fluid supply flex hose female fitting (fig. #8). AGAIN, take care when threading the seat nut on to the cooler line fitting. As before, make sure that when the pipefitting is close to being tight, the tapered tip of the pipefitting is seated squarely against the flex line fitting. Using the 19 mm and 17 mm end wrenches, tighten seat bolt to 15-20 pounds torque.
6. Take the supplied vertically cut 2” coolant hose section and wrap it around the metal return transmission fluid pipe (the long metal return pipe attached to the upper radiator transmission fitting). This hose section will act as a vibration dampener. Since the return pipe alignment may be slightly different than prior to the cooler installation, it may vibrate slightly against the radiator. It is easiest to wrap the 2” hose section around the return pipe near the upper fitting into the radiator. Side the hose section down the return pipe until the gap between the return pipe and the radiator is eliminated. This should be about 6-8” up from the bottom of the radiator. Make sure the cut section of the 2” hose is facing 180° away from the radiator. Install one side of the supplied pull tie spacer around the new cooler supply fluid hose and the other side around the existing fluid return metal pipe in a fashion similar to the hose clamp you removed earlier. Using the second hose spacer pull tie, secure the spacer between the two trani cooler hoses ,see fig.#9. You may need to adjust the factory hose standoffs along the flexible transmission supply line

to avoid the flex hose from touching the trani cooler cooling fins (fig #10). Clean the transmission fluid mess from the install as well as possible with paper towel. We DO NOT recommend using cleaners, especially caustic carburetor type cleaners. Be sure to re-install the turbo intercooler to turbo housing hose.

7. Take vehicle off jack stands and lower to ground. Before starting engine, BE SURE TO ADD 12 oz of FACTORY transmission fluid to replace fluid lost during installation and to add fluid needed to fill the cooler and hoses. The transmission cooler assembly and hoses hold 7 oz of transmission fluid. If the fluid loss during your installation is more that 4-5 oz, then measure the amount of fluid lost during your installation and add that amount to the 7 oz needed for the cooler and hoses. Adjust the amount of transmission fluid that you will need to add accordingly. To add trani fluid, you will need to break the red lock tab on the trani fluid fill tube cap with a small screwdriver. Push the remaining broken tab through the filler cap housing and remove filler tube cap. Add the required amount of trani fluid and temporarily replace the filler tube cap.
8. With the hand brake set and your foot on brake pedal, start the engine and run the transmission through all gears. DO NOT move or drive the vehicle. Stop engine within 20-30 seconds and crawl back under to recheck ALL fittings for any possible leakage. If leakage occurs, slightly tighten any leaking fitting. If trani fluid leakage occurs, it will most likely be at the lower supply pipe fitting at the radiator. You may find using a small mirror will help when checking the radiator fitting for leaks. DO NOT over tighten fittings. It is better to go through the engine start/stop and trani shift recheck procedure several times than to over tighten and damage the fittings. Any time you find a leak or a slight weep at any fitting, tighten fittings in very small increments. Over tightening fittings WILL void the product and factory warranties.
9. Once you are sure there are no trani fluid leaks or weeps, test drive the vehicle for several miles or until fully warm. Recheck all fittings for any signs of fluid leaks or weeps and install transmission filler tube cap lock tab supplied with the installation kit.



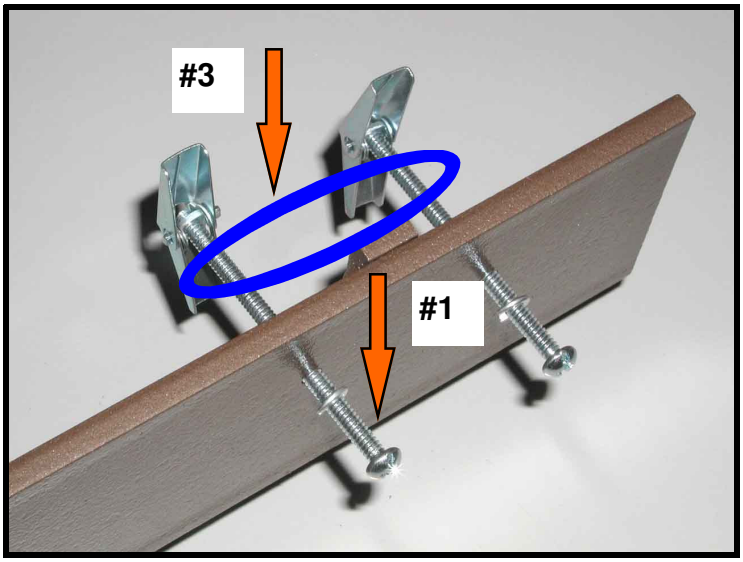
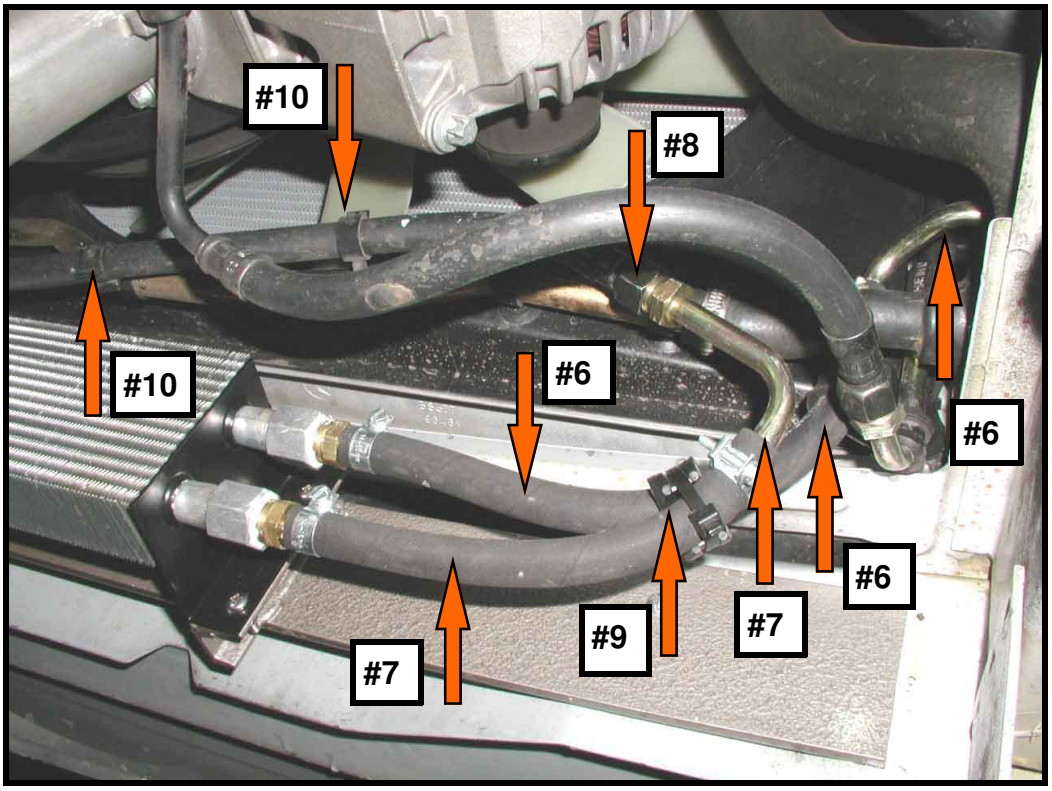
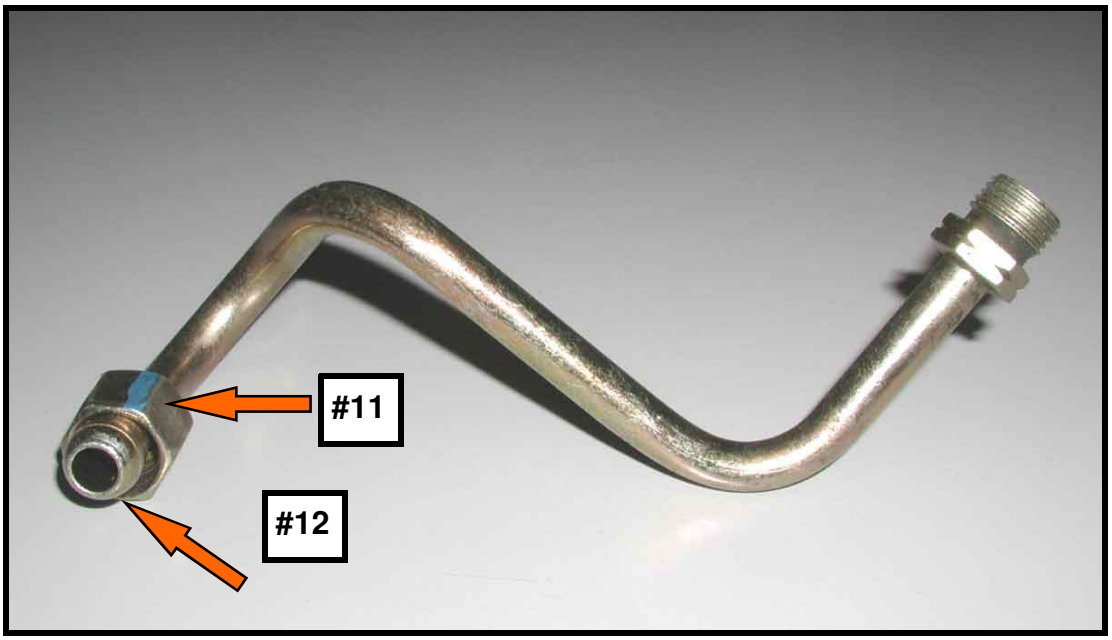


Figure #3 represents the oval in the body cross member and shows how you need to be sure the toggle screws are spread apart to the corresponding outer edges of the oval and how the toggles should be open and perpendicular to the oval opening.

Above is a cooler installation on a 2006 Passenger Sprinter with factory rear A/C. Note the factory transmission flex hoses are routed in a slightly different position than Sprinters without factory rear A/C.



Above is a cooler installation on a 2003 Cargo Sprinter without factory rear A/C. Note the factory transmission flex hoses are routed in a slightly different position than Sprinters with factory rear A/C. Also note the cooler mounting bracket in this picture is an older version that has been discontinued.



This is a picture of the factory “S” pipe that is remove during the cooler installation.

Oval mounting holes for cooler mounting bracket used in step #2
and relating to figure #3