

Detroit Tuned Turbo Oil Line Installation Instructions:

Our Turbo Oil Feed Line Kit will fit both the N14 or N18 Prince Engine installed in all Cooper S's (R55, R56, R57, R58, R59, R60), of any year. This will solve the problem of the o-ring failure due to turbo heat.

We will cover the actual install of the Turbo Oil Feed Line here in the directions. Some parts of the installation process are left out due to time and space. It is recommended to have a Bentley service manual on hand for reference as needed. This job can take about 4 to 5 hours, or even more depending on skill level.

READ ALL DIRECTIONS THOROUGHLY BEFORE YOU START!!!

NOTE: WHENEVER WORKING IN THE ENGINE BAY, YOU SHOULD WEAR SAFETY GLASSES AND THE ENGINE SHOULD BE COOL. IF AFTER READING THESE DIRECTIONS, IF YOU FEEL THIS IS WORK YOU CANNOT COMPLETE, YOU SHOULD CONSULT A TRAINED MECHANIC.

Tools Needed:

*10mm, 15mm, & 7/8 Wrench
*10mm, 16mm, & 17mm 3/8" socket
*8mm & 10mm 1/4" socket
*Flat-head screwdrivers
*Torque Wrench
*O2 Sensor socket can be helpful

*3/8" ratchet w/ 8" extension
*1/4" ratchet w/ extension(s)
*Long Pry Bar
*Magnetic stick
* Flash Light
*Other Basic Tools

Directions:

1. Place the car where you are going to be doing the work, and put it up on ramps or jack stands, if you do not have a lift. You will need to get to both the top and the bottom of the motor during the install. Once the car is in place, open the hood and **disconnect the battery**. During removal of the lower heat shield, it can and will contact a hot terminal on the alternator. You **MUST DISCONNECT THE BATTERY**. With the car up in the air and the battery disconnected, open the hood, point a fan at the car to cool the engine quickly. Let it sit until the car is completely cool. Not only are you working with a hot exhaust system, but also a very hot turbo and even hotter oil. Chances of burning your self are very high, so **please** let the engine cool down before starting this repair.
2. You will now need to remove both of the upper and lower oxygen sensors, both upper and lower heat shields, the entire down pipe w/brackets, the turbo support bracket, and the heat shield behind the down pipe. You will now be able to see both of the banjo fittings for the turbo oil feed line. Here is where a service manual can come in handy. **(REINSTALL ~ Torque specs on last page.)**

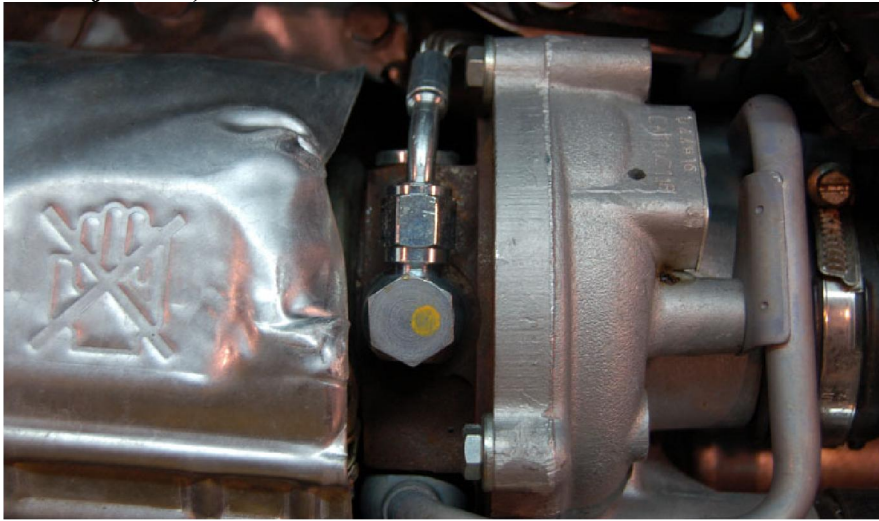
Upper:



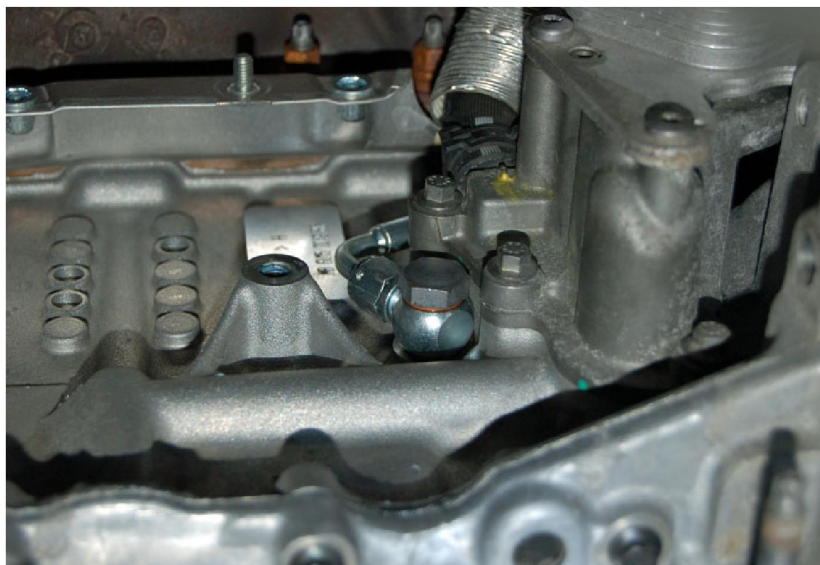
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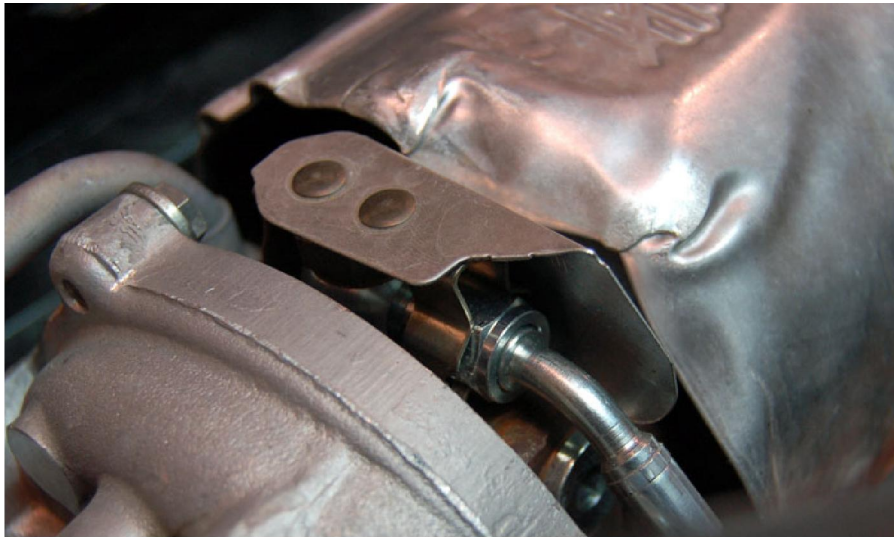
3. Remove both of the banjo bolts. Make sure you have a small pan ready to catch any of the oil that may drain out of the line. Since the car has been sitting for an hour or more it should have drained back into the oil pan and be almost empty. Take care in the removal of these bolts, as these parts may be reused. You may end up dropping the washers, but this is o.k. as we have supplied you with new crush washers in the kit. It is always best to know where all of the parts are so you do not have any extra hardware floating around in the engine bay. Take note of how the current line is routed, as the new line will need to go the same way. Remove the line from the bottom. It will take some finesse to get it out. You may have to apply a bit of force, but should not have to bend or cut anything to remove it. If you end up breaking the old line or have to cut it out, remember to cover any items you do not want metal shavings in.
4. Install the top fitting to the turbo first. Make sure both the area and the bolt are thoroughly cleaned and also install a **new** crush washer on each side of the fitting. Make sure that one of the old crush washers is not still on the bolt. Install it straight back and torque to proper setting. **(REINSTALL ~ Torque to 22 ft. lbs. For both banjo bolts)**



5. Take the line and fish it down thru the engine. Make sure the 90 deg. end is down (against the engine) as shown in the photos. Now loosely install the 15 degrees' end to the turbo banjo fitting.



6. Install the other banjo fitting loosely onto the 90 degrees' end and then install the banjo bolt and crush washers to the cleaned area.
7. Next, make sure the line is routed correctly. You can spin the lower fitting clock wise or counter clock wise to give you more or less slack in the line. Make sure it has as much room to all parts as it can and snug up the bolt to keep things in place while you look it over. Once you are happy with how the new line is routed, tighten the banjo bolt to its proper torque spec and tighten both fitting ends with a wrench. This end is a compression fitting and needs to be tight. You do not have to have it super tight, but tight enough so that it will not leak or loosen up. After being good and snug, it can take another ½ to ¾ of a turn to be tight. Make sure the lines look like the above photos.
8. Spray down the area well with brake cleaner to make sure any oil that was spilled is cleaned up, then reinstall all of the parts removed in step 2 in reverse order with the proper torque specs.
9. Some motors (2011 plus) have a dealer added heat shield over the line to help combat the heat. You can reinstall this if you like or leave it off. Whatever you think looks best to you. It will have no effect on your new line. If you would like a shield and your car doesn't come with one, you can get one from the Detroit Tuned web page. Or you have one with your kit.



Torque Specs:

- Downpipe to turbo: **Stage 1** ~ 61.9 in. lbs. (5.16 ft. lbs.) **Stage 2** ~ 29.5 ft. lbs.
- Downpipe to exhaust system: 18.4 ft. lbs.
- Turbo support bracket to block: 14.7 ft. lbs.
- Downpipe brackets to block: 14.7 ft. lbs.
- Downpipe bracket to downpipe: 14.7 ft. lbs.
- Oxygen sensor to downpipe: 37 ft. lbs.
- Heat shield bolts: 35.4 in-lbs. (2.95 ft. lbs.)
- Oil Return pipe bolt: 70.8 in-lbs. (5.9 ft. lbs.)
- Oil filter housing to block: 9 ft. lbs.



If you have any questions, please call us. Detroit Tuned 586.792.6464 or info@detroittuned.com