

This is a DIY for removal and replacement of the E85/86 N52 Thermostat-to-Head coolant hose aluminum hose bib. Cutting the band clamp securing the hose bib risks compromising the hose. Breaking up the old, weak plastic hose bib is a better in-car solution using the right tools and does not require complete removal of the hose from the engine.

This procedure includes replacement of the following:

Parts needed:

1. Aluminum replacement hose bib: DEF 11537541992 or 11537544638. Note, there are several different brands of this part. The part I used was from GKFY Automotive
2. BMW coolant mix – about 1 and ½ gallons total (i.e. 1.5 gallons).



Tools needed:

- Large Channel Lock pliers
- Hose crimping tool
- Sockets: 8MM, 10MM
- Torx screwdriver T30
- Torx socket T25
- Flat-blade screwdriver
- Panel-button removal tool
- Flashlight
- Shop rags and shop paper towels
- Penetrating oil (I recommend Kroil)

Procedure Overview:

- 1) Remove the radiator cover
- 2) Drain coolant
- 3) Remove cooling fan
- 4) Remove T-stat hose at the cylinder head
- 5) Remove old plastic hose bib from hose
- 6) Install New Hose Bib
- 7) Attach the T-stat hose to the New Bib
- 8) Refill and bleed the cooling system
- 9) Finishing up (reassembly)

Notes: For nomenclature purposes, the right side of the engine is the passenger side and the left side is the driver's side. Note: you will be wrenching on small bolts, plastic screws, and small hose clamps, so

don't over torque them when tightening! Apply some penetrating oil to the two bolts holding the hose to the cylinder head now, so it can soak in while doing the other preliminary steps.



The procedure is for removing the old hose bib from the hose without the need to cut the band clamp off the hose. You will be crushing the old, plastic hose bib to remove it from the hose. You must be very careful not to allow any broken plastic to fall down the hose because it will eventually jam the water pump. The bib holddown bolts are steel and are reusable.

If the coolant is relatively fresh, you can reuse it if it is drained into a clean drain pan.

Detailed instructions:

- 1) **Remove the radiator cover.** It is attached to the chassis with two metal button Torx screws and eight (8) plastic pin-rivets (reusable). The Torx screws require a T30-Torx driver or socket. The plastic rivets need to be turned with a Phillips screwdriver while being lifted from underneath using a panel-button removal tool.



- 2) **Drain Coolant.** You only need to drain the radiator.
 - a) Open the hood and open and remove the coolant reservoir cap.
 - b) Just for good measure, open the coolant reservoir bleed screw (it is the cross-headed button next to the cap on top of the reservoir).
 - c) Some of the work is performed from underneath the car. Lift the car off the ground so you can get underneath it. For safety purposes, lift the front and rear of the car so it is level in the air on four (4) jack stands with the wheels off the ground.
 - d) Remove the engine under pan (the big plastic cover under the engine compartment). It is held in place by 10 ea., 8mm-head bolts.

- e) Place a large catch pan under the left side of the radiator. There are two drain screws. (1) Attach a small clear hose to the hose nipple on the bottom of the coolant reservoir to have the reservoir drain into the catch pan. (2) Remove the blue drain screw on the bottom of the radiator to drain the radiator. You need only to remove the blue screw (it threads into a large black nut – do not remove the nut!). Note some aftermarket radiators may have different style drains.



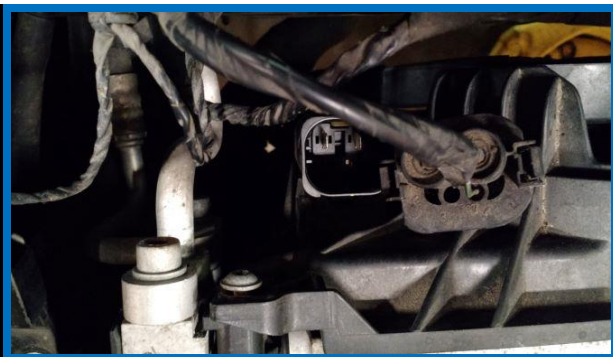
- f) Let coolant drain. It takes about 6 minutes.
g) Reinstall and tighten the drain screws now, so you don't forget later. Just tighten until they are snug, you only need to seat the O-ring on the plug; they break easily, so use caution.

3) Remove Cooling Fan.

- a) Under the car, note how the bottom of the fan slots into the bottom of the radiator and note the two J-clips on the middle of the right side of the radiator that the fan slides into. You need to be familiar how the fan slots into the radiator.
b) There are two electrical connectors: (1) a large connector on the right side, squeeze the side tabs. (2) A small connector on the left side. Squeeze the single-sided tab to release the connector.
c) One (1) Torx head screw, on the upper right corner of the fan and one (1) plastic pin-rivet on the upper left side affix the cooling fan to the radiator. The Torx screw requires a T25 socket. The rivet is pried out using a panel button removal tool.

Pin-rivet

Torx screw and connector



- d) There is a hood cable that sits in clips on the fan; pop the cable out of these clips.
e) Pull the fan straight up out of the car.

4) Remove T-stat hose at the cylinder head:

- a) There is a coolant temp sensor on the oil filter housing that is in the way. Unplug the coolant temp probe electrical connector by squeezing down on the metal spring clip and pulling the connector off. Move the harness pigtail out of the way.



- b) Remove the two 10MM-head bolts that hold the t-stat hose to the cylinder head. Pry the hose from out of the cylinder head.
- c) There are two hose brackets holding the hose to the engine. The upper bracket unclips and swings down, use a mechanic's pick or screwdriver to open the clamp. The second, lower bracket is just a c-clip. Squeeze the hose and pull it straight out. Be careful, these plastic brackets get brittle with age and easily break.
- d) Move the end of the hose down between the front of the engine and core support so you can perform the next step from under the car. Working from under the car gives more working room and keeps the end of the hose pointed downwards, which reduces the risk of any broken plastic getting into the cooling system.

5) Remove Old Plastic Hose bib from the Hose:

- a) Working from under the car, stuff a shop rag into the hose through the plastic hose bib. This will allow the plastic hose bib to not break into small pieces and the pieces will pull from the hose when the rag is removed.
- b) If you want to be extra cautious, use the hose crimping tool to crimp the hose a few inches below the hose bib. Crimp the hose tightly so no plastic can get past the crimped hose. No worries, the hose will not get damaged.



- c) Use the big Channel Lock pliers to crush the band clamp. Crush the clamp at 90-degree angles to break apart the old hose bib. Pull the old hose bib flange out the hose (i.e. don't pull the rag out first) so it pulls most of the broken plastic with the rag.



- d) Remove all the plastic from the hose. MAKE SURE ALL OF THE PLASTIC IS OUT. Double check with a flashlight and use a finger to pull any left-over plastic out. Pull the old band clamp off the hose; it may be fused to the rubber hose and take some effort to break the stiction.



6) Install the New Aluminum Hose Bib:

This is the most difficult part of the procedure. The new aluminum bib is manufactured to tight tolerances and has a thick O-ring, which makes it difficult to push all the way into the opening in the cylinder head. The bib also must be correctly indexed to the cylinder head mounting bolt holes; having it rotated a few degrees either way can lead to stripping the cylinder head mounting bolt holes. Practice threading in the mounting bolts without the new hose bib in place so you can get the *feel* for how easily the mounting bolts thread into the cylinder head.

- a) Insert the new aluminum hose bib into the cylinder hear opening with the mounting ears aligned with the cylinder head bolt holes. Do not try and force the new bib fully into the cylinder head so it seats (i.e. past the O-ring), just get it properly aligned and indexed with the cylinder head bolt holes. You will seat it using the mounting bolts.

- b) Thread the mounting bolts into the cylinder head using your fingers to insure they are threading in straight. They should thread in very easily as if no hose bib is there. If they are not threading in easily then they are possibly stripping the cylinder head bolt holes. If so, then slightly re-orient the new bib so the holes in the ears line up straight with the bolt holes in the cylinder head.



- c) Once properly aligned, tighten the mounting bolt finger tight. Then use the 10MM ratchet to slowly and evenly seat the new aluminum bib flush with the cylinder head by alternately tightening each bolt a few turns. The bolt torque is low, just 7 pound-foot (10NM), so don't over-tighten them. Again, you just need to seat the O-ring, not crush it into place.



7) Attach the T-stat Hose to the New Bib:

- a) The new hose clamp that comes with the new bib can be turned in a few times to make it smaller in diameter. Then slide the new hose clamp over the hose.
- b) Slide the t-stat hose over the new aluminum bib and locate the hose into its two mounting brackets: the lower c-clip one and the upper snap-close bracket.

- c) Practice the orientation of the hose clamp worm-gear box so it doesn't interfere with the bolts on the new bib, and that allows easy purchase of the bolt head on the clamp. Slide the clamp up to the new hose bib face so that it will clamp on the T-stat hose in the center of the hose bib between the bib face and the flare-bump at end of the bib (inside the hose). There should be a few millimeters of hose end past the clamp on the cylinder head side of the hose. The hose clamp only needs 22 inch-pounds (2.5NM) of torque, so don't over tighten it.



8) Refill and Bleed the Cooling System:

- a) Make sure the radiator drain screws are closed.
- b) If you didn't open the bleed screw on the coolant reservoir, open it now (about 4 turns)
- c) Slowly fill the system with a premixed 50/50% mix of BMW coolant and distilled water, or reuse the old coolant if it is recently fresh (note: BMW does not recommend reusing the old coolant).
- d) Fill the reservoir all the way up to the bottom of the filler neck. The bleed screw will bleed air as it gets trapped in the reservoir. Keep filling until the bleed screw is passing coolant with no bubbles in it. (Keep a paper towel handy to soak up the coolant coming out of the bleed screw).
- e) Close the bleed screw. Caution!!! It takes only 18 inch-foot (2NM) of torque!
- f) Once the reservoir (system) is full (it will take about 1.5 gallons of antifreeze) fully close the reservoir cap.

Bleed Procedure (to get the trapped air out of the system)

- g) Insert the key into the ignition switch and turn the ignition on (i.e. dash lights up).
- h) When the ignition is on, set the heater to the highest temp (84 deg.) and set the fan on low.
- i) Hold down the accelerator pedal for 10 seconds then release. This activates the water pump and it will cycle for 12 minutes to vent all the trapped air into the coolant reservoir. You will hear the water pump cycling (it sounds like a mini washing machine). Do not open the reservoir cap or bleed screw during the venting process! (or you will have start the process over). You may want to hook up an extra battery to the under-hood jumper points to keep the car's battery from running down, but it is not necessary if the battery is in good shape.
- j) Once the water pump stops after 12 minutes, open the reservoir cap (it will hiss a little) and add coolant until the measuring stick (ball indicator) is 6 mm above the top of the filler neck.
- k) Close the cap and check for leaks in the system at the drain screws and the new hose bib connection.

9) Finishing Up:

- a) Reinstall the cooling fan in reverse of removal. Drop it in and make sure it is seated properly at the bottom of the radiator. You can reuse the plastic-pin rivet by pushing the plastic pin out of the rivet body. The screw screws into plastic so there is no need to over tighten it. Connect the small and large connectors.
- b) Reinstall the radiator cover. First, screw out the hard-rubber radiator top-mount isolators. The isolators locate the top of the radiator so it doesn't move around. They need to be all the way out so the radiator cover seats correctly. Reinstall the eight (8) plastic rivets and the two Torx button-screws. Then screw down the isolators.



- c) Start the engine and check for leaks.
- d) Reinstall the bottom engine cover using the ten (10) 8MM-head screws.