



## Audi B6 A4 Thermostat/ECS Billet Aluminum Coolant J-Plug Installation Tutorial

ES2763232

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Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

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## TORQUE SPECIFICATIONS

- Thermostat to engine block
- 11 Ft-lbs. (15 Nm)
- Alternator
- 18 Ft-lbs. (24.5 Nm)

## REQUIRED TOOLS

- [Flathead screwdriver](#)
- Spring clamp pliers
- Needle nose pliers or channel locks (optional)
- [Phillips head screwdriver](#)
- Ratchet and long extension
- 17mm wrench
- 13mm hex socket
- 10mm hex socket
- 6mm hex socket
- 5mm hex socket
- Catch pan
- [Schwaben Connector Removal Tool](#)

## INSTALLATION NOTES

- RH refers to the passenger side of the vehicle.
- LH refers to the driver side of the vehicle.
- Always use the proper torque specifications.
- Torque specifications will be listed throughout the document and at the end as well.
- Please read all of these instructions and familiarize yourself with the complete process before you begin.

## PREPARATION AND SAFETY

- Park your car in a safe, well lit, level area.
  - Shut the engine off and remove the key from the ignition switch.
  - Make sure any remote start devices are properly disabled.
  - Always wear safety glasses.
  - Make sure the parking brake is applied.
  - When lifting a vehicle using a jack, always support the vehicle with jack stands.
  - Disconnect the positive battery terminal before beginning the procedure.
- Note: The alternator will be removed during the procedure, making this step critical.

### CAUTION

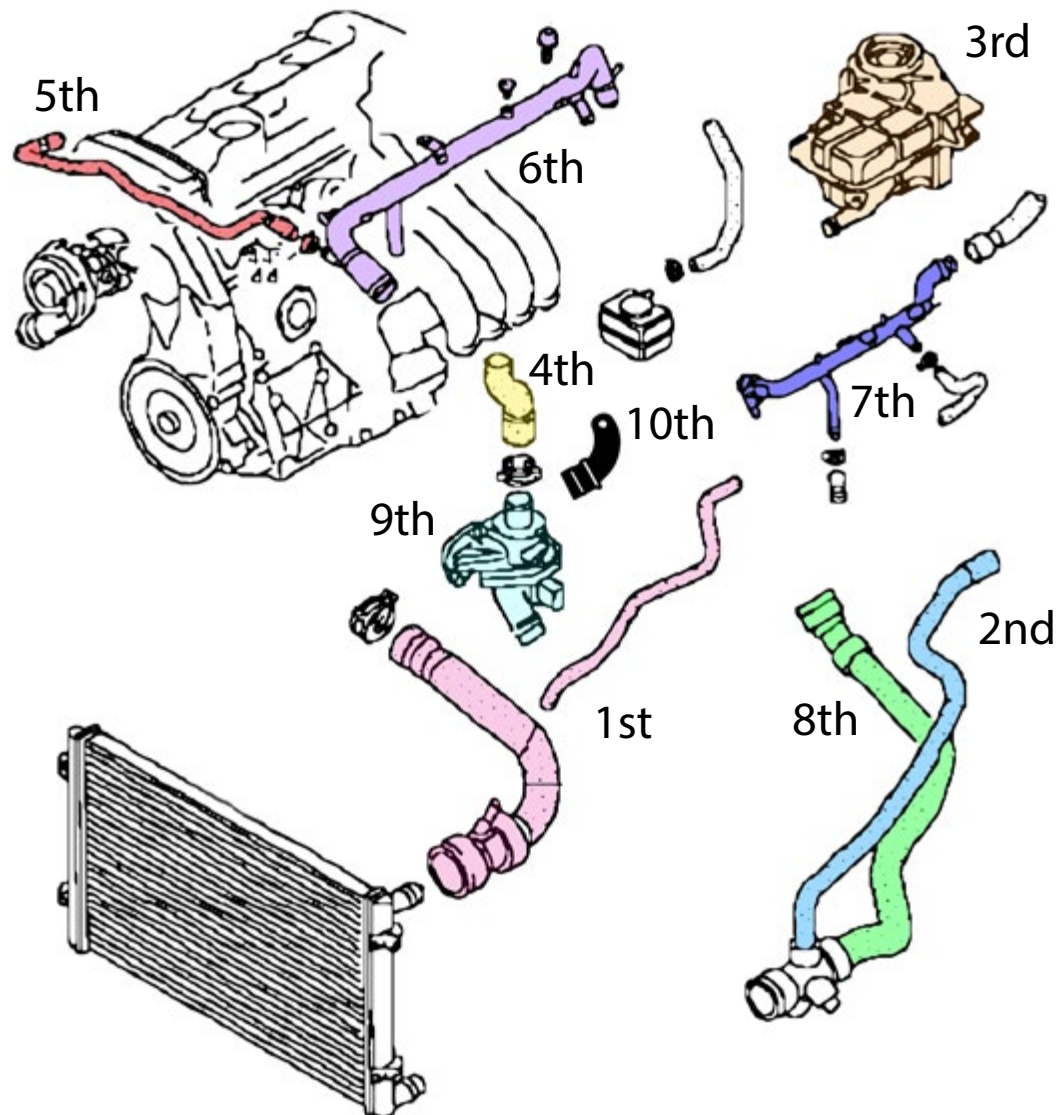
Never work underneath a vehicle that is supported only by a jack. Always make sure that the vehicle is securely supported on jack stands.

### NOTE

When lifting a vehicle, we recommend the use of an automotive lift, utilizing the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear.

## Order of Cooling System Part Removal

1. Soft radiator hose
2. Soft coolant expansion tank hose
3. Coolant expansion tank
4. Upper thermostat hose
5. Soft hose to hard water pipe
6. Hard upper water pipe
7. Hard water pipe to thermostat
8. Soft hose to lower thermostat
9. Thermostat
10. J-plug





### Step 1

Remove the belly pan from the vehicle. This allows access to the coolant temperature sensor drain plug.

Use a flathead screwdriver to turn the attachment fasteners one quarter turn counter-clockwise.



### Step 2

Unclip the electrical connector from the coolant temperature sensor.



### Step 3

Using a flathead screwdriver, release the metal retainer clip from the coolant temperature sensor.



### Step 4

Twist the sensor out of its housing and let the coolant drain into a catch pan.

#### NOTE

A large amount (~5.5 litres) of coolant will spill out at this time; use a large enough catch pan to ensure your work-place stays safe and clean.

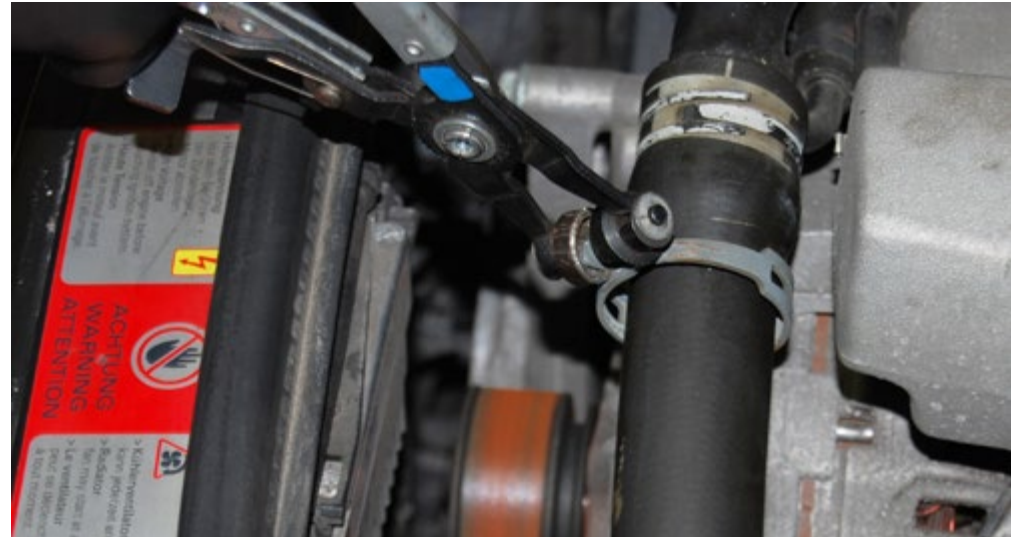


### Step 5

Remove the upper retainer clip on the upper radiator hose using spring clamp pliers or a similar tool.

#### NOTE

If using needle nose pliers or channel locks, take extra caution so that the tool does not slip off of the clamp damaging the vehicle or causing personal injury.



### Step 6

Remove the hose from the hard upper coolant line.





### Step 7a

Remove upper radiator hose at the lower location by first unclipping the securing clip.



### Step 7b

To fully remove the hose at the lower location, you must press on the hard molded end of the hose past the radiator with a flat head screwdriver or another similar tool.





**Step 7c**

Pull on the hose while pressing firmly on the location shown. This may take considerable effort - make sure to avoid damaging the hose while working on it.

**Step 7d**

By pulling gently on the hose while pushing on the side of the connector, the hose will eventually free from the radiator. Pull the hose off of the radiator and set it aside.



**Step 8**

Remove the phillips head screw securing the coolant expansion tank.

**Step 9**

Release the clamps for the soft coolant lines to the expansion tank and remove the hoses from the tank.



**Step 10**

Lift the tank out from under the vehicle's rain tray. Tilt the front upwards, unseating it at the rear.

**Step 11**

Remove the electrical connector from the bottom of the expansion tank, and remove the tank from the vehicle.

We've used a [Schwaben connector removal tool](#), though a flathead screwdriver may be adequate.





**TECH TIP**

This is an opportune time to check your coolant expansion tank for leaks due to cracks.

[Replacement coolant expansion tanks](#) are available from ECS tuning.

**Step 12**

Remove the throttle body hose by first releasing the steel clamp from the hose using a flat head screwdriver.





**Step 13**

Slide the throttle body inlet hose off of the throttle body.

**Step 14**

Find the lower connecting point for the throttle body hose.

You will see that you can reach the hose clamp with a flat head screwdriver down through the back of the headlight assembly.



**Step 15**

Remove the throttle body hose from the engine bay.

**Step 16**

Unclip the throttle body actuator electrical connector from the throttle body.

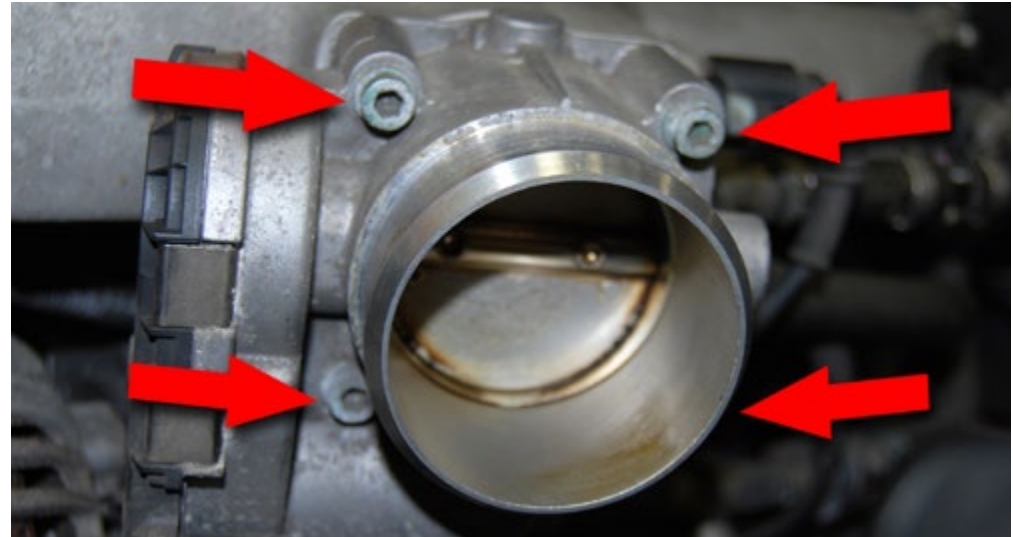


**Step 17**

Remove the four 5mm Hex bolts that secure the throttle body to the intake manifold using a ratchet with short extension.

**TECH TIP**

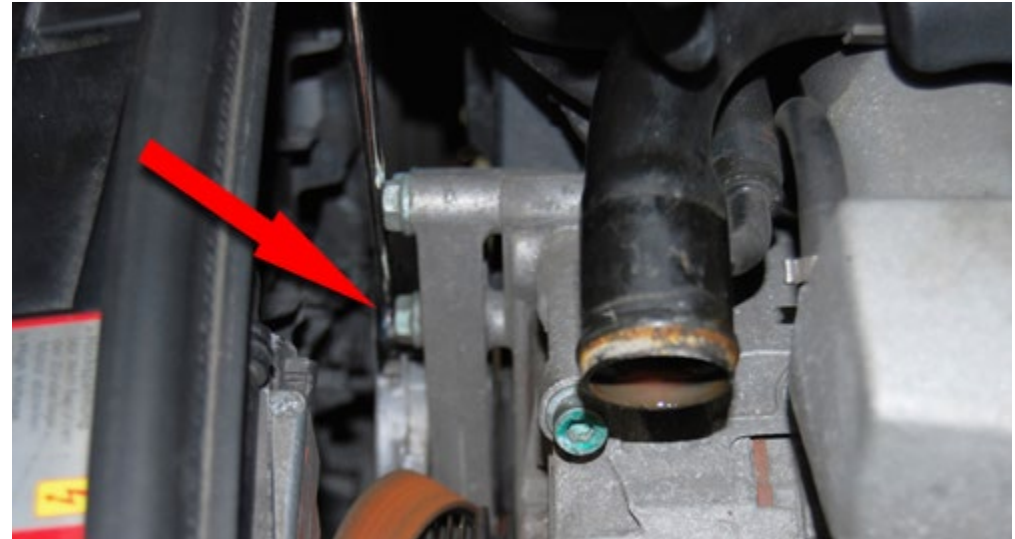
As you remove the throttle body, inspect the [throttle body gasket](#). If the gasket is not in one piece, or if it has worn thin at certain areas, consider replacing the gasket.



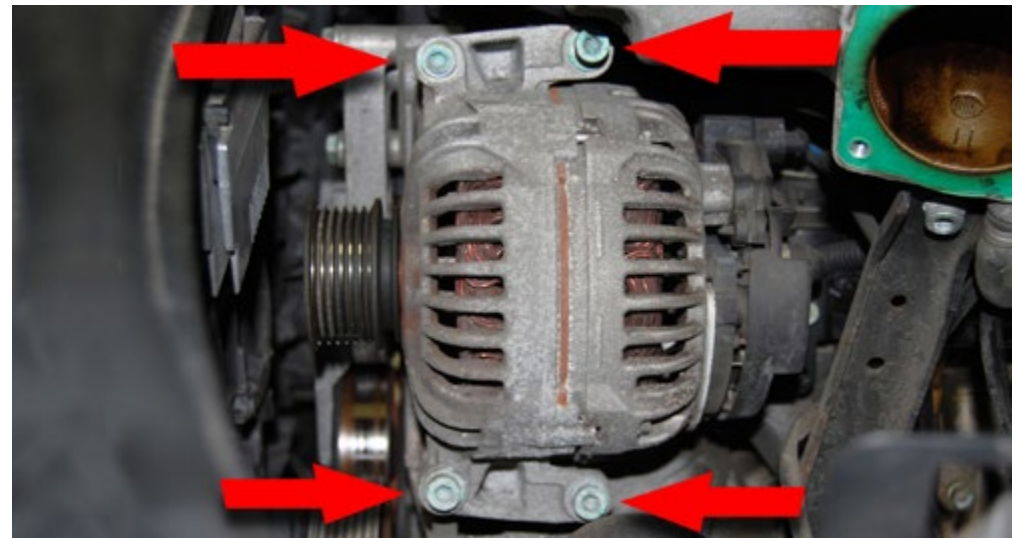


**Step 18**

Using a 17mm wrench, turn the belt tensioner clockwise until enough slack is produced in the accessory belt to remove it from the alternator.

**Step 19**

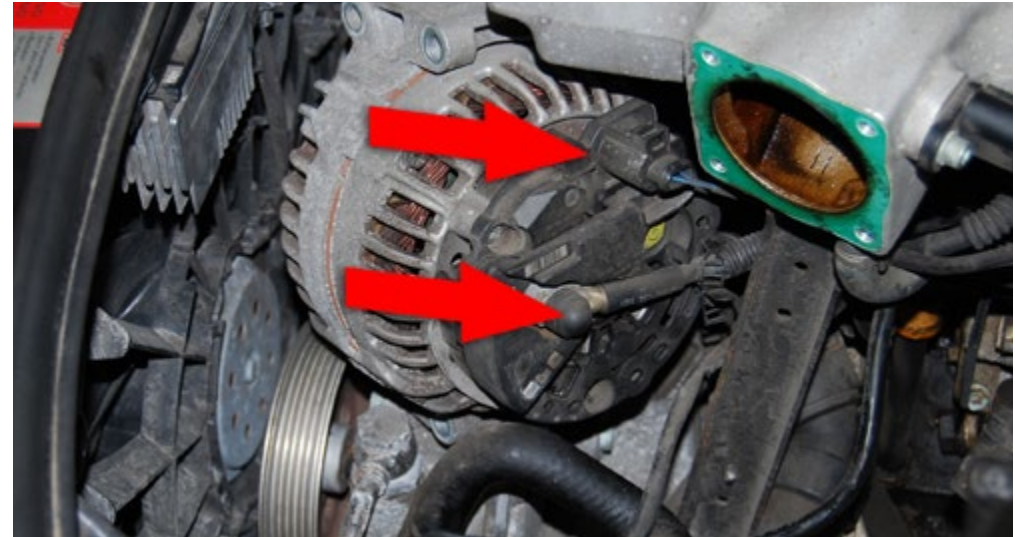
Use a ratchet on an extension to remove the four 6mm bolts that secure the alternator to the alternator bracket.





**TECH TIP**

Once the alternator is removed from its bracket, note the locations of the electrical connector and electrical ground at the rear of the alternator. These must be removed prior to removal.

**Step 20**

Use the [Schwaben connector removal tool](#) or flat head screwdriver to release the clip and pull it out from the alternator.



### Step 21

A plastic cap protects the electrical ground for the alternator from making contact with any other metal parts in the engine bay.

#### NOTE

Keep this small cap in a secure location; it must be reused when reinstalling the alternator.



### Step 22

Use a 13mm socket to remove the nut from the electrical ground wire.



**Step 23**

Remove the alternator from the vehicle and set aside.

**Step 24**

The intake manifold is secured to the chassis of the vehicle using a support beam. The beam must be removed to provide room to replace the thermostat.

Begin by removing the top 6mm bolt from the beam.





**Step 25**

Remove the lower 6mm bolt, and remove the support beam from the vehicle.

**Step 26**

Remove the thermostat electrical connector using either the [Schwaben connector removal tool](#) or flathead screwdriver.





**Step 27**

To keep your workspace more tidy and manageable, tie the electrical wiring together and relocate away from your workspace.

**Step 28**

Remove the steel clamp for the hard upper water pipe connected to the thermostat.



**Step 29**

To fully unseat the top water pipe from the thermostat, first remove the steel clamp from the soft hose to hard water pipe and pull away to the side.

**Step 30**

The water pipe is secured to the intake manifold on a bracket with two 10mm hex bolts.

Remove the frontmost 10 bolt.



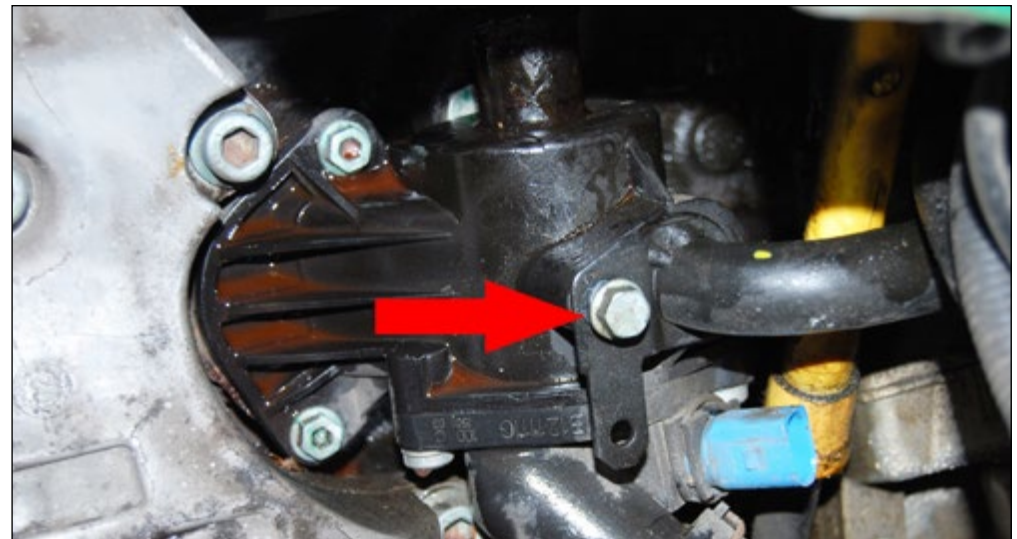
**Step 31**

Remove the rear 10mm bolt.  
The water pipe will now fully unseat from the thermostat.

**Step 32**

A single 10mm bolt secures the hard coolant pipe to the front of the thermostat.

Remove the bolt using a ratchet and long socket.

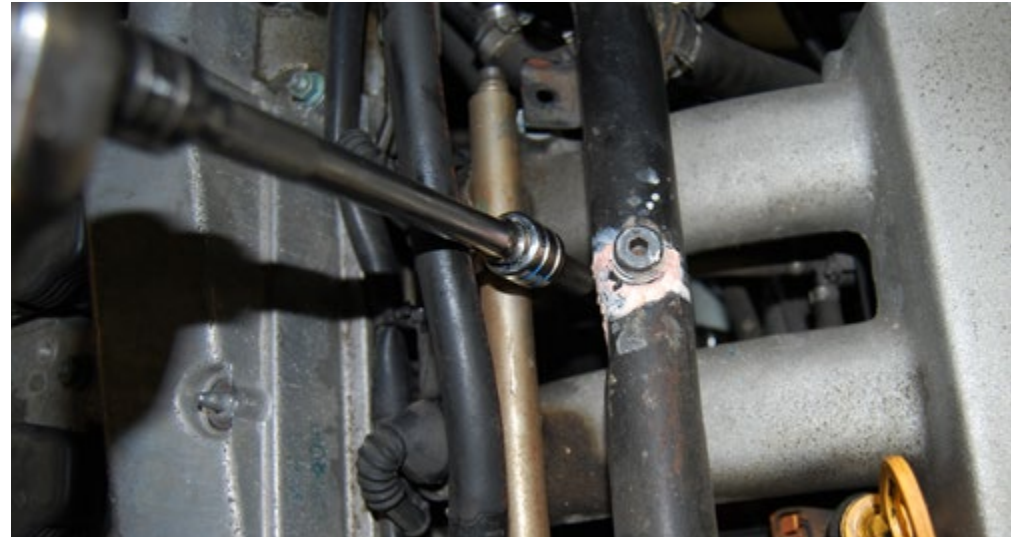




**Step 33**

The hard pipe will not slide away from the thermostat until it is unbolted from its bracket. Use a flashlight to look down in between the 3rd and 4th intake runner, and locate the 13mm bolt securing the pipe to the bracket.

Use a long extension and 13mm socket to remove the bolt.

**Step 34**

Now that the pipe is separated from the bracket, use a flat head screwdriver to very gently pry the pipe mounting tab away from the thermostat.

**NOTE**

Use extra caution not to bend the mounting tab when removing the hard coolant pipe.





**Step 35**

Pull the pipe off of the thermostat, and gently slide it outwards away from the thermostat and to the side.

**Step 36**

Use a flat head screwdriver to remove the retainer clip from the lower coolant hose connector, and pull the hose out and away from the thermostat.



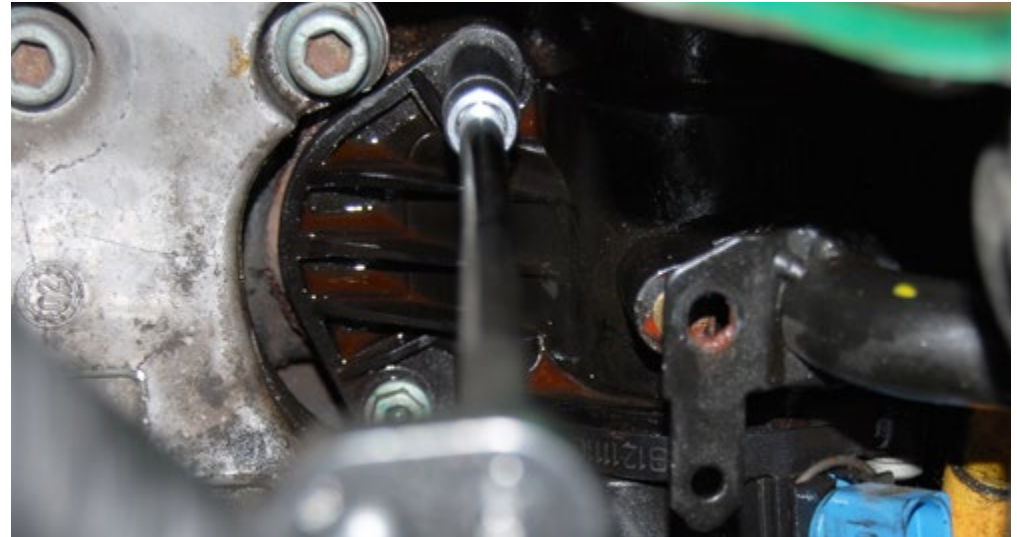
**Step 37**

Two 10mm bolts secure the thermostat to the engine block. Use a ratchet on an extension to remove both bolts.

As the second 10mm bolt is removed, the thermostat will separate from the engine block, allowing coolant to flow out from underneath it.

**CAUTION**

Strategically place a catch pan to collect the spill, keeping your workplace safe and clean.



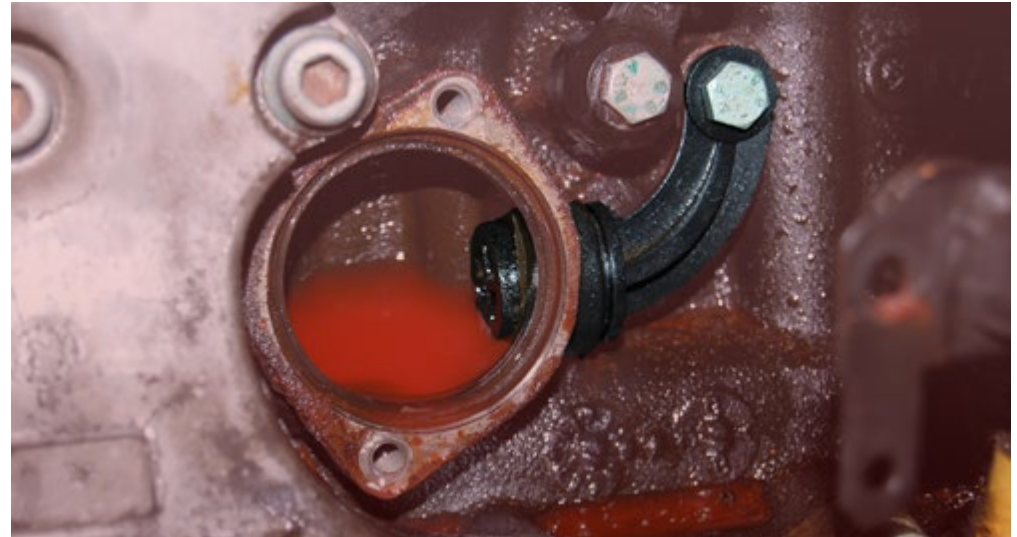
## Installing the ECS Aluminum J-Plug

### Step 1

Now that the thermostat has been removed from the vehicle, note the location of the j-plug.

A single 13mm bolt holds the j-plug against the engine block.

Remove the 13mm bolt using a socket on an extension, and gently pull the j-plug mounting tab away off of the engine block.





**TECH TIP**

To help remove the j-plug from the thermostat housing inlet body, use a ratchet extension or similar tool to push on the j-plug from inside the inlet while gently twisting the plug outwards. The factory j-plug o-ring may be swollen making the plug difficult to remove. Use caution and patience to slowly unseat the j-plug from the engine block, while pressing on it from inside the thermostat inlet body.

**Step 2**

Press the new ECS aluminum j-plug into the thermostat inlet until it is fully seated. Rotate the mounting tab up towards the engine block and secure it using the 13mm bolt.

**NOTE**

The ECS j-plug should come pre-installed with a new o-ring; make sure it is used when the new j-plug is installed.



## Reassembling the Cooling System

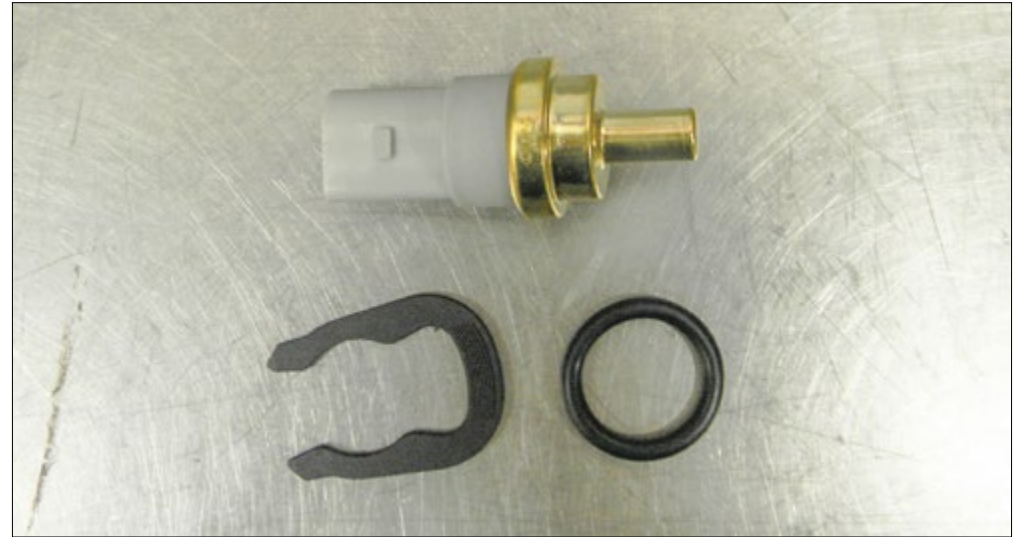
- Reinstall the new thermostat onto the engine block, lining up the mounting holes to their correct locations. Make sure that each hard line and soft hose will mate up with the thermostat once installed.
- Reinstall the two 10mm bolts for the thermostat and torque to 11Ft-lbs (15 Nm).
- Reinstall the soft hoses and hard pipes in the reverse order that they were removed.
- Reinstall the four 6mm bolts for the alternator and torque to 18 Ft-lbs. (24.5 Nm).
- Reinstall the accessory belt by turning the belt tensioner clockwise until the belt can slide over the accessories.



## Installing the new coolant temperature sensor

### Step 1

It is important to use a new coolant temperature sensor with a new o-ring when refilling the vehicle with coolant.



### Step 2

Install the new coolant temperature sensor and o-ring.





### Step 3

Reconnect the coolant temperature sensor electrical connector.



### Step 4

Reinstall the belly pan by turning the attachment fasteners one quarter turn clockwise.

Refill with coolant.

5.2-5.5 litres are typically required.



## The Thermostat/ECS J-Plug Installation is Complete!



This tutorial is provided as a courtesy by ECS Tuning.

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