



## Audi B6 1.8T Billet Aluminum Coolant J-Plug and Thermostat Installation



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.

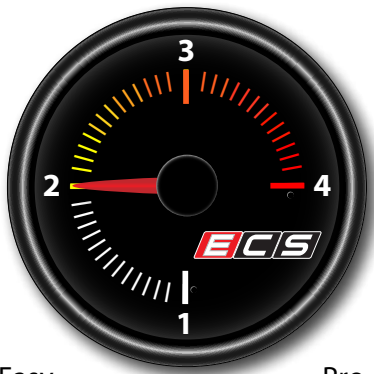
## INTRODUCTION

### ECS Tuning Billet Aluminum Coolant J-Plug

The ECS Tuning Billet Aluminum J-Plug offers the following features:

- Machined from strong yet lightweight 6061 aluminum
- Direct fit replacement piece
- Permanent solution for short lived plastic J-plugs
- Fantastic looks with a laser etched logo

### ECS Difficulty Gauge



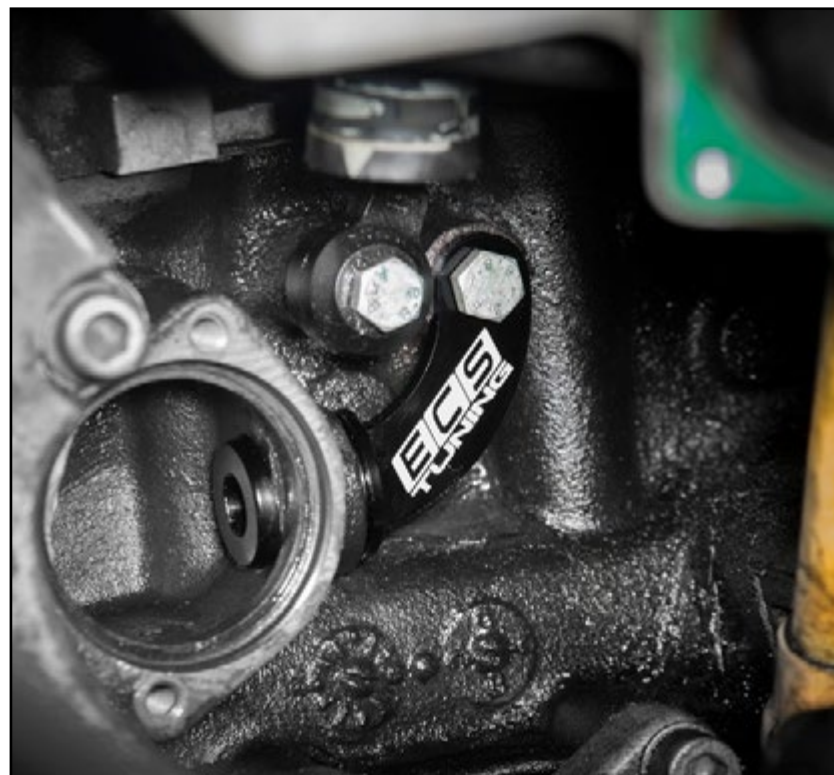
1 - Easy                      Pro - 4

**2 - Moderate**      Advanced - 3

Installing an ECS Tuning Billet Aluminum Coolant J-Plug is a weekend project that will not only resolve a coolant leak and prevent future ones, but will also give you the opportunity to perform routine cooling system maintenance all at the same time. Before you begin, read and familiarize yourself with these instructions and make sure you have all the required tools and supplies on hand. Thank you for purchasing our ECS Tuning Billet Aluminum J-plug and cooling system products. We appreciate your business!

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## REQUIRED TOOLS

### Standard Automotive Tools

- Protecta-Sockets (for lug nuts)..... [ES#2221243](#)
- **3/8" Drive Ratchet** ..... [ES#2765902](#)
- **3/8" Drive Torque Wrench** ..... [ES#2221245](#)
- **3/8" Drive Deep and Shallow Sockets** ..... [ES#2763772](#)
- **3/8" Drive Extensions** ..... [ES#2804822](#)
- Hydraulic Floor Jack ..... [ES#240941](#)
- Torx Drivers and Sockets ..... [ES#11417/8](#)
- 1/2" Drive Deep and Shallow Sockets ..... [ES#2839106](#)
- 1/2" Drive Ratchet
- 1/2" Drive Extensions
- 1/2" Drive Torque Wrench ..... [ES#2221244](#)
- 1/2" Drive Breaker Bar ..... [ES#2776653](#)
- File Set
- Air Nozzle/Blow Gun
- **Drain Pan** ..... [ES#2748892](#)
- Bench Mounted Vise
- Crows Foot Wrenches
- Hook and Pick Tool Set..... [ES#2778980](#)

### Required For This Install

### Available On Our Website

- **1/4" Drive Ratchet** ..... [ES#2823235](#)
- **1/4" Drive Deep and Shallow Sockets** ..... [ES#2823235](#)
- **1/4" Drive Extensions** ..... [ES#2823235](#)
- 1/4" Drive Torque Wrench
- Plier and Cutter Set..... [ES#2804496](#)
- **Flat and Phillips Screwdrivers** ..... [ES#2225921](#)
- Jack Stands ..... [ES#2763355](#)
- Ball Pein Hammers
- Pry Bar Set..... [ES#1899378](#)
- Electric/Cordless Drill
- Wire Strippers/Crimpers
- Adjustable (Crescent) Type Wrenches
- Drill Bits
- Punch and Chisel Set
- **Hex Bit (Allen) Wrenches and Sockets** ..... [ES#11420](#)
- Thread Repair Tools ..... [ES#1306824](#)
- **Open/Boxed End Wrench Set** ..... [ES#2765907](#)

### Specialty Tools

- **Locking Hose Clamp Pliers** ..... [ES#2702616](#)

## SHOP SUPPLIES AND MATERIALS

**Standard Shop Supply Recommendations:** We recommend that you have a standard inventory of automotive shop supplies before beginning this or any automotive repair procedure. The following list outlines the basic shop supplies that we like to keep on hand. Shop supplies with a hyperlink are available on our website.

- Hand Cleaner/Degreaser - [Click Here](#)
- Pig Mats - for protecting your garage floor and work area from spills and stains - [Click Here](#)
- Spray detailer - for rapid cleaning of anything that comes into contact with your paint such as brake fluid - [Click Here](#)
- Micro Fiber Towels - for cleaning the paint on your car - [Click Here](#)
- Latex Gloves - for the extra oily and dirty jobs - [Click Here](#)
- Medium and High Strength Loctite Thread lock compound - to prevent bolts from backing out - [Click Here](#)
- Anti-Seize Compound - to prevent seizing, galling, and corrosion of fasteners - [Click Here](#)
- Aerosol Brake/Parts Cleaner - for cleaning and degreasing parts
- Shop Rags - used for wiping hands, tools, and parts
- Penetrating oil - for helping to free rusted or stuck bolts and nuts
- Mechanics wire - for securing components out of the way
- Silicone spray lube - for rubber components such as exhaust hangers
- Paint Marker - for marking installation positions or bolts during a torquing sequence
- Plastic Wire Ties/Zip Ties - for routing and securing wiring harnesses or vacuum hoses
- Electrical tape - for wrapping wiring harnesses or temporary securing of small components

## 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.
- If applicable to this installation, 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.

## GENERAL PREPARATION AND SAFETY INFORMATION

ECS Tuning cares about your health and safety. Please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

- 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 until the vehicle is safely lifted and supported.
- If using an automotive lift, be sure and utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear.
- When lifting a vehicle using a jack, always utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear. **ALWAYS** support the vehicle with jack stands.
- **ALWAYS** read and follow all safety information and warnings for the equipment you are using.

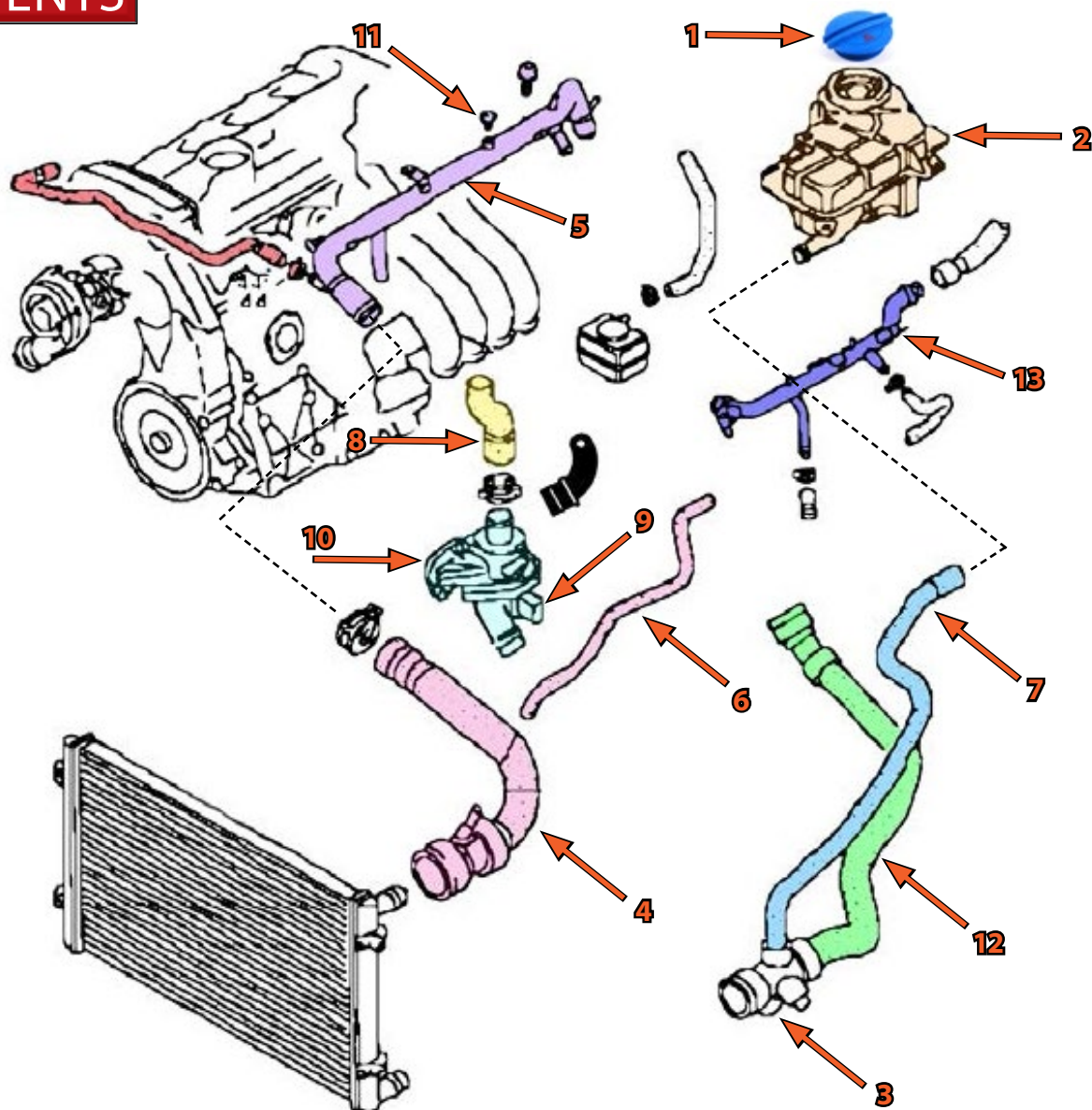


**Never get underneath a vehicle that is supported only by a jack. Always make sure that the vehicle is securely supported on jack stands.**

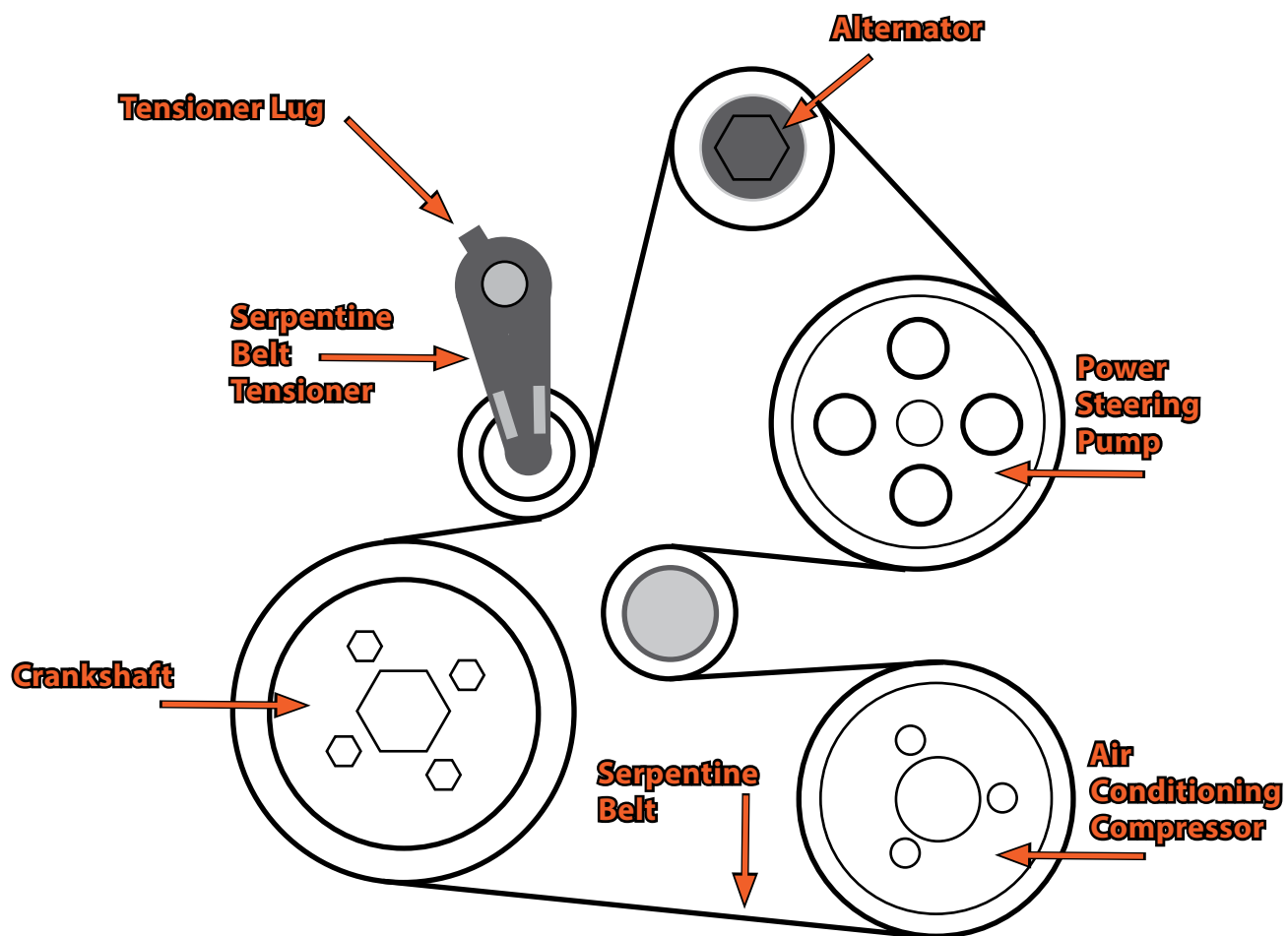


## COOLING SYSTEM COMPONENTS

1. Coolant Reservoir Cap
2. Coolant Reservoir
3. Coolant Temp Sensor or Drain Plug
4. Upper Radiator Hose
5. Upper Coolant Pipe
6. Air Bleed Hose
7. Coolant Reservoir Hose
8. Thermostat Bypass Hose
9. Electrical Connector on Thermostat Housing
10. Thermostat Housing
11. Bleeder Screw
12. Lower Radiator Hose
13. Heater Pipe



## SERPENTINE BELT ROUTING





## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 1:

Using a 10mm socket, disconnect the negative battery terminal. (The battery is located in the cowl under the access cover). Isolate the terminal so it does not accidentally contact the negative battery post.



To reduce the risk of fire, explosion, or personal injury, **ALWAYS** disconnect the battery by removing the negative battery terminal.



### Step 2:

Remove the cap from the coolant reservoir.



A hot cooling system is under pressure and hot coolant can cause severe burns and personal injury. Make sure the engine is completely cooled and there is no pressure in the cooling system before removing the cap.



## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 3:

Remove the upper engine cover using a flat blade screwdriver to release the fasteners, then safely lift and support the vehicle and remove the lower insulation panel or skid plate, depending on what you have installed.

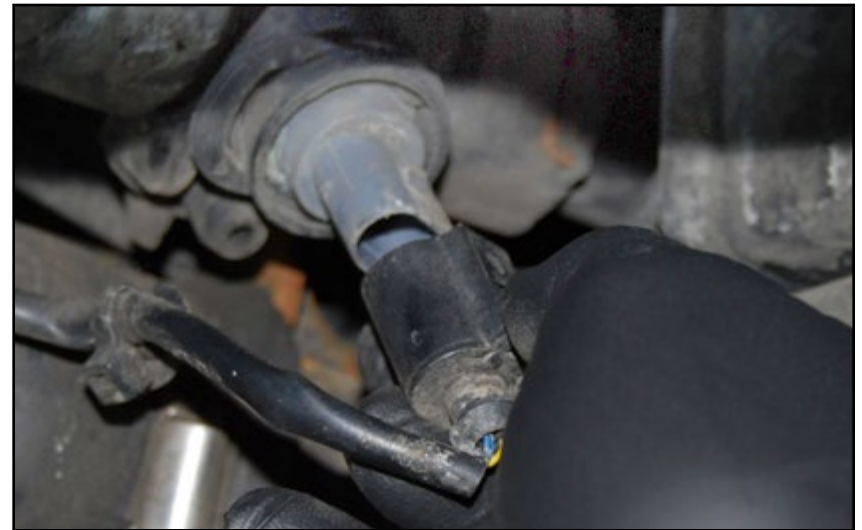


### Step 4:

Locate the coolant temperature sensor in the lower radiator hose, near the front where it connects to the radiator. Remove the electrical connector from the sensor.



You will be draining the coolant by removing this sensor. Some vehicles, depending on production date, may have a coolant drain located at the same point in the hose. If your vehicle has a drain valve installed, you can use this drain valve instead and you do not need to remove the sensor.



## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 5:

Using a flat blade screwdriver, remove the temperature sensor retaining clip.

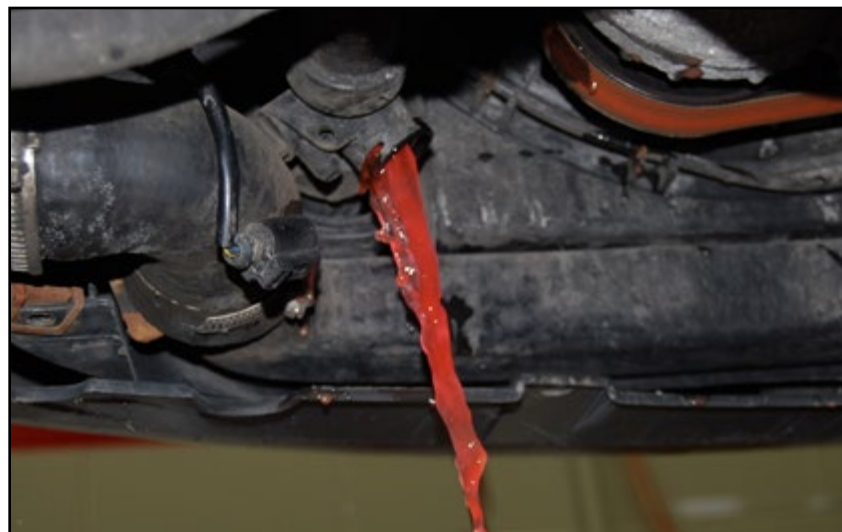


### Step 6:

Pull the temperature sensor out of the lower radiator hose and drain the coolant into a catch pan.



The temperature sensor seal may be stuck. Twisting the sensor back and forth in the hose will help loosen the seal and allow you to pull the sensor out.



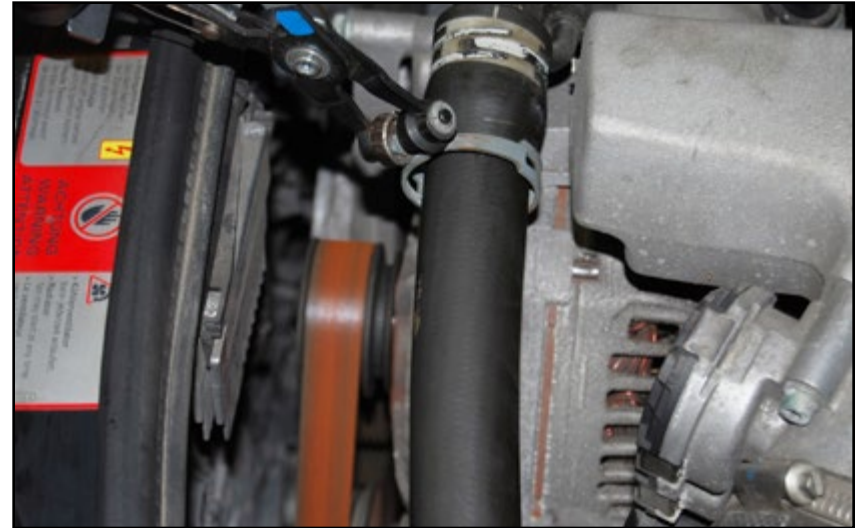
## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 7:

Using spring clamp pliers, loosen the tension on the clamp securing the upper radiator hose to the upper coolant pipe, slide the clamp back onto the hose, then carefully release the tension on the clamp.



If you do not have spring clamp pliers, channel locks work well to remove these clamps, but be careful not to allow the clamp to slip off the pliers. The sudden release of the spring tension can cause personal injury or damage to the vehicle.



### Step 8:

Remove the upper radiator hose from the upper coolant pipe.





## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 9:

Using spring clamp pliers, loosen the clamp and remove the air bleed hose from the coolant reservoir.



### Step 10:

Disengage the retaining clip from the end of the upper radiator hose by prying it up with a flat blade screwdriver.



The clip will remain trapped in place on the end of the upper radiator hose. (See inset photo of removed hose)





## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 11:

Pull the upper radiator hose off the radiator. The rubber seal may be stuck, making this difficult. The easiest way, as shown here, is to pull back and twist while pushing on the rigid plastic end of the hose with a screwdriver inserted between the headlight and the radiator.



### Step 12:

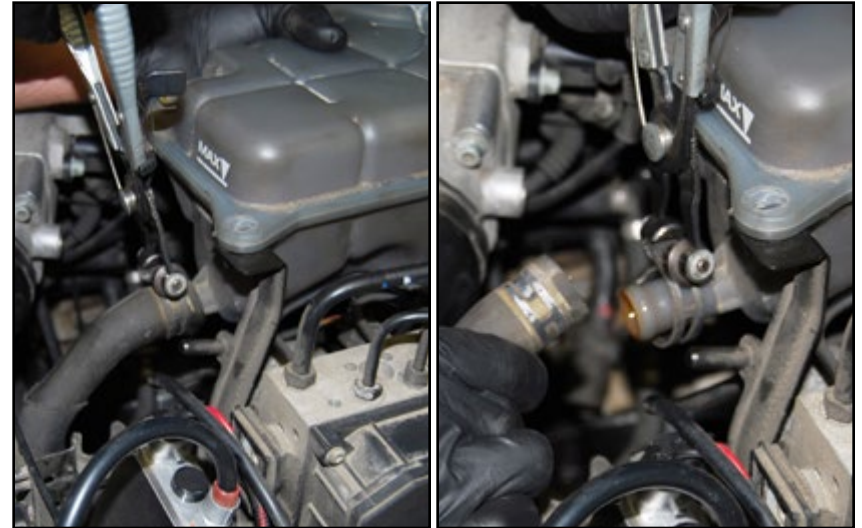
Remove the Phillips head screw holding the coolant reservoir in place.



## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 13:

Remove the coolant reservoir hose using spring clamp pliers.



### Step 14:

Lift the coolant reservoir carefully to access the under side, and disconnect the electrical connector underneath. You can use either a Schwaben connector release tool or a flat blade screwdriver to release the locking tab, then pull the connector off by hand.



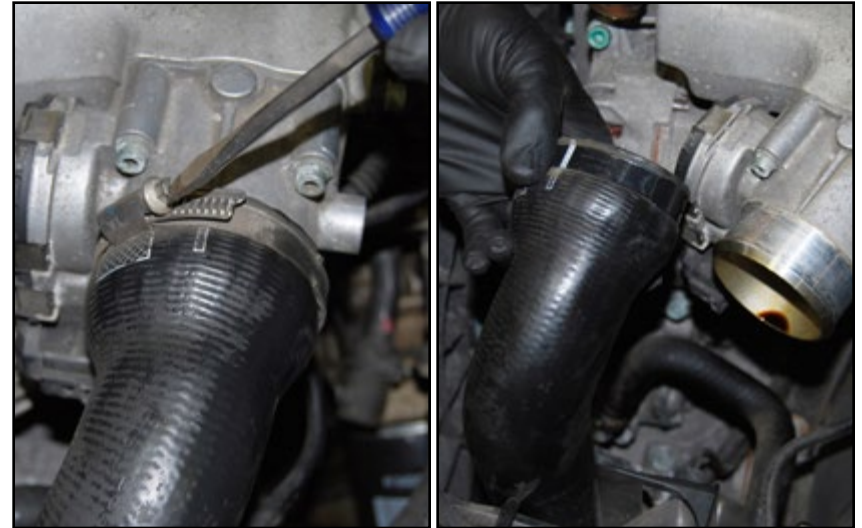
Closely inspect the coolant reservoir for cracks or excessive sludge buildup inside. Replace the reservoir if necessary.



## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

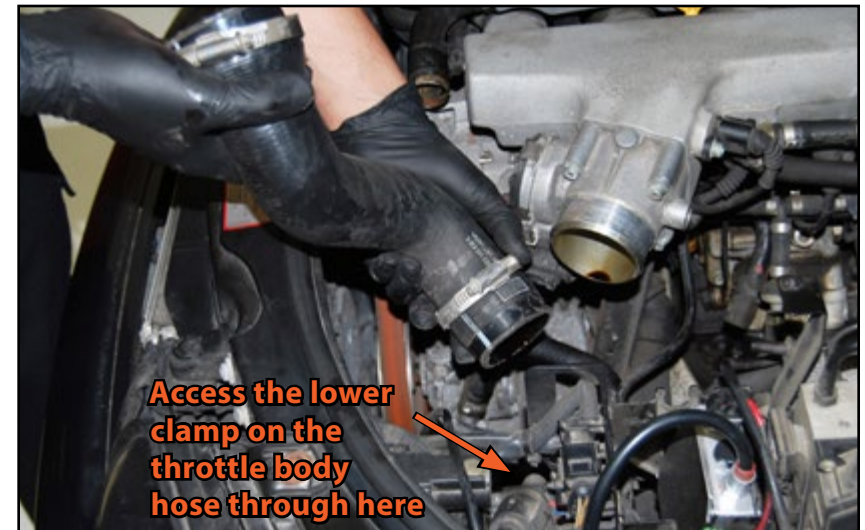
### Step 15:

Using a flathead screwdriver, loosen the clamp for the throttle body hose and pull it off the throttle body.



### Step 16:

Loosen the clamp on the bottom of the throttle body hose where it connects to the intercooler pipe. You can access this clamp using a long screwdriver down past the back of the headlight on the LH side. Pull the hose off the intercooler pipe.





## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 17:

Disconnect the electrical connector from the throttle body.



### Step 18:

Using a 5mm Allen socket, remove the four screws holding the throttle body to the intake manifold.



## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 19:

Carefully remove the throttle body from the intake manifold. Inspect the throttle body gasket for damage or breaks. Replace the gasket if necessary.



### Step 20:

Engage the square lug on the end of the serpentine belt tensioner with a 17mm open end wrench. Push or pull the wrench in the direction of the alternator. This will release the tension on the belt. Lift the belt off the alternator pulley, then slowly release the tensioner until it returns to its rest position. (Reference page seven for component location).

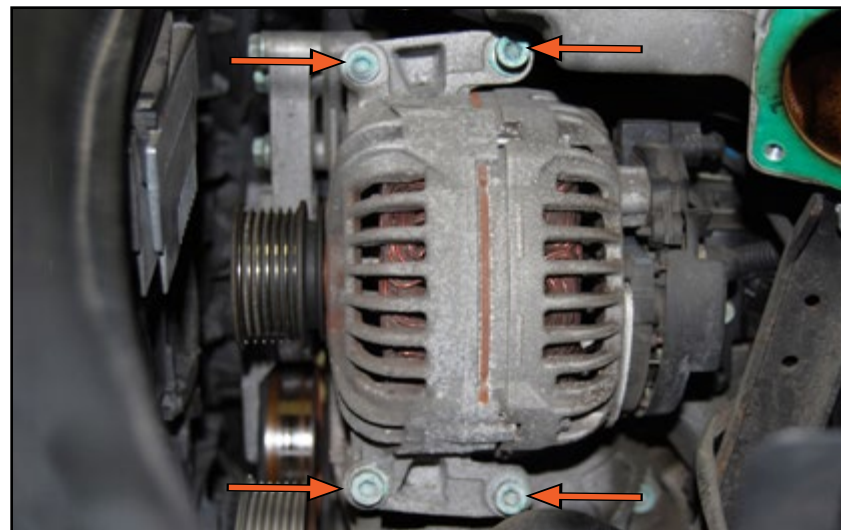




## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 21:

Using a 6mm Allen socket, remove the four bolts (arrows) securing the alternator in place.



### Step 22:

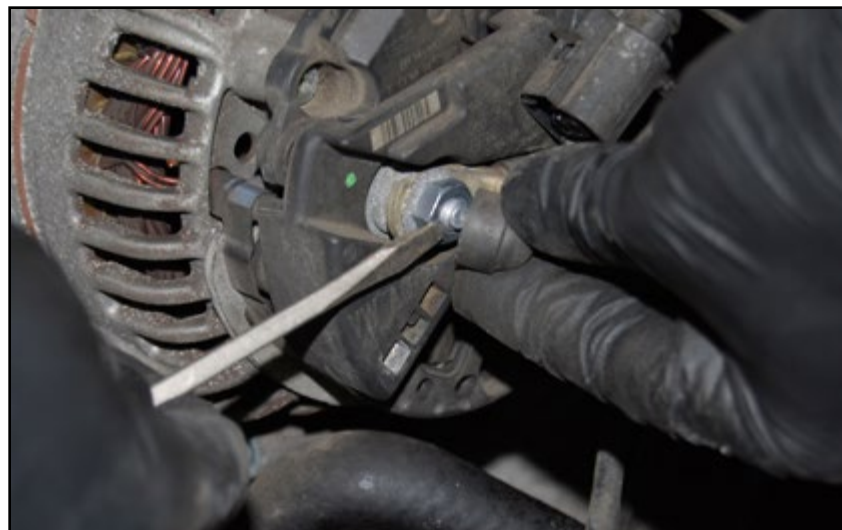
Pull the alternator slightly forward to access the connections on the back. Remove the electrical connector at the top using the Schwaben connector removal tool.



## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 23:

Using a small flat blade screwdriver, pry the protective cap off the alternator positive cable connection.



### Step 24:

Using a 13mm socket, remove the nut holding the positive cable on the back of the alternator, remove the cable, then remove the alternator from the car.



## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 25:

Remove the intake manifold support brace by removing the two bolts, one upper and one lower, using a 6mm Allen socket.



### Step 26:

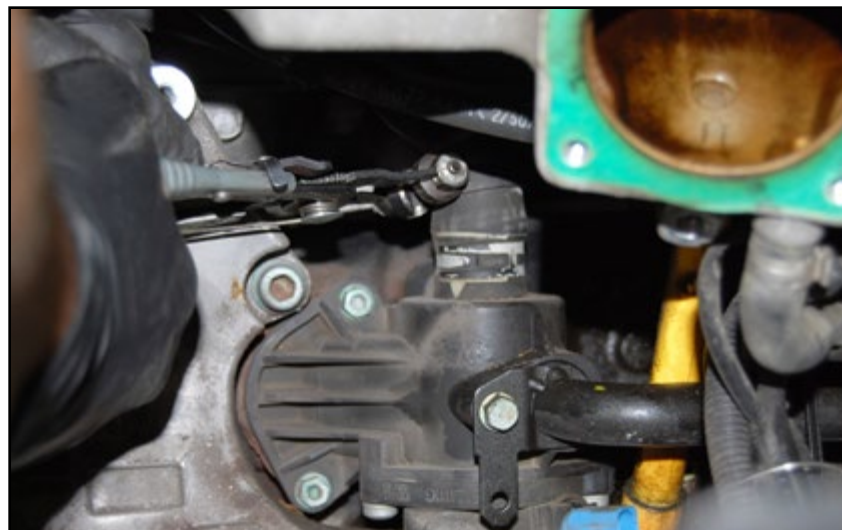
Disconnect the electrical connector from the side of the thermostat housing.



## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 27:

Remove the spring clamp securing the thermostat bypass hose to the thermostat housing. Slide the clamp up the hose, then release the tension.



### Step 28:

Using a 10mm socket, remove the bolt (arrow) securing the heater pipe to the front of the thermostat housing.





## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 29:

Remove the heater pipe bracket bolt. This bolt is difficult to see. You can access it down through the third and fourth runners of the intake manifold using a long extension and a 13mm swivel socket.



### Step 30:

Separate the heater pipe from the thermostat housing by gently prying between the pipe bracket and housing using a flat blade screwdriver.





## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 31:

Disengage the retaining clip for the lower radiator hose, then pull the hose off the thermostat housing.



### Step 32:

Be prepared to catch some additional coolant, then using a 10mm socket, remove the two bolts holding the thermostat housing to the engine block. Remove the housing by pulling it downward out of the thermostat bypass hose.



You may need to use a pair of needle nose pliers or a similar tool to help separate the by pass hose from the thermostat housing.



## REMOVING THE ORIGINAL J-PLUG AND THERMOSTAT

### Step 33:

Remove the bolt (arrow) for the original J-plug using a 13mm socket.

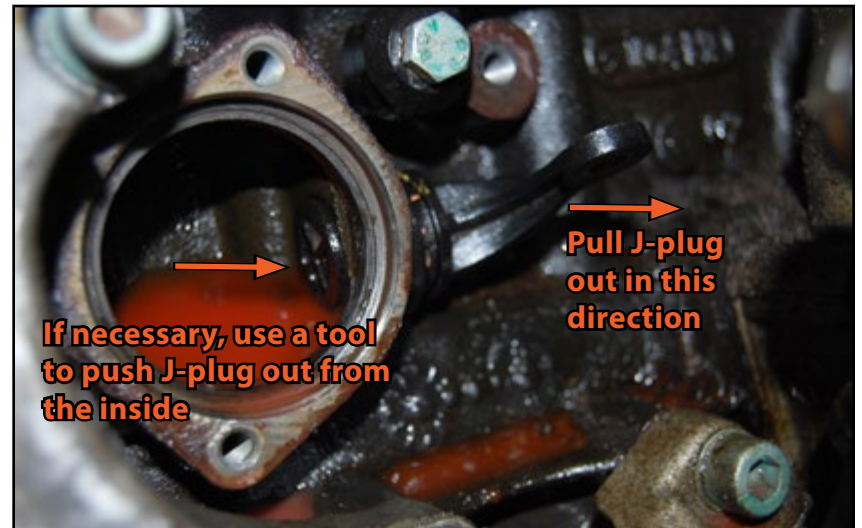


Be careful not to loosen or remove the bolt for the knock sensor next to the J-plug.



### Step 34:

Remove the J-plug by rotating it downward and pulling it out of the engine block. If the J-plug is stuck, you may need to push on it from the inside using an extension or similar tool while rotating the J-plug back and forth.



## INSTALLING THE NEW J-PLUG AND THERMOSTAT

### Step 1:

Thoroughly clean the hole for the J-plug and the mounting surface for the thermostat housing seal. Emery paper or a wire brush works well for this, make sure both locations are completely free of rust or corrosion before proceeding. Lubricate the seal of the new J-plug with a light grease, then install it in place. Install and tighten the bolt.



### Step 2:

Make sure the o-ring is in place on your new thermostat housing, then insert it into the bypass hose and seat it into place on the engine block. Install and torque the thermostat housing bolts to 15 Nm (11 Ft-lbs).





## INSTALLING THE NEW J-PLUG AND THERMOSTAT

### Final Installation Steps:

Re assembly is basically the reverse of removal but for convenience we have provided this checklist. Be sure to follow the bleed procedure on page 28.

Install the clamp for the bypass hose.

Replace the heater pipe seal.

Push the heater pipe into the thermostat housing.

Install the heater pipe bracket bolt.

Install the heater pipe to thermostat housing bolt.

Attach the lower radiator hose.

Connect the sensor on the thermostat housing.

Install the intake manifold brace.

Connect and install the alternator.

Install the serpentine belt.

Install and connect the throttle body.

Install the throttle body hose.

Install the coolant reservoir and connect the sensor.

Install the upper radiator hose.

Install and connect the coolant temperature sensor.



**We recommend installing a new coolant temp sensor, clip, and o-ring**



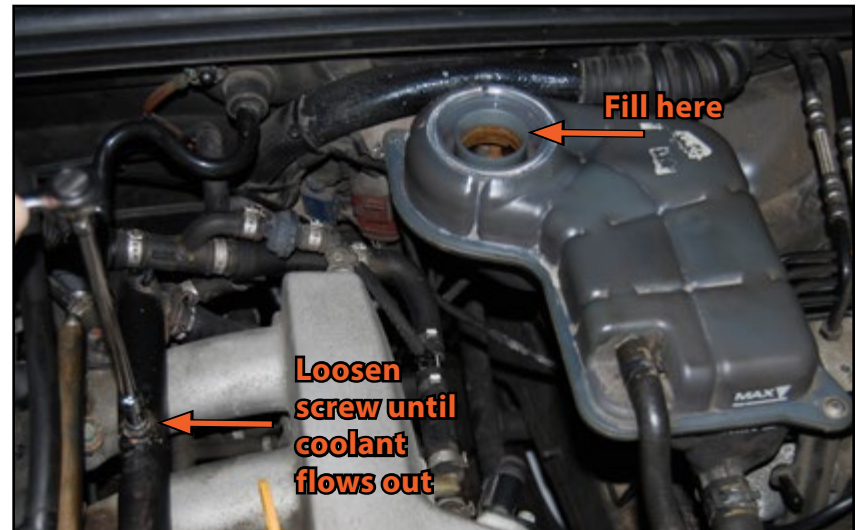
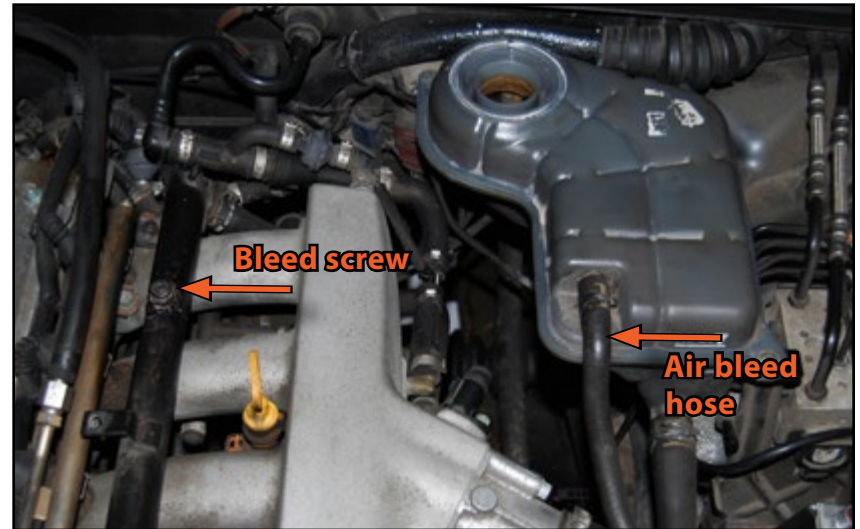
## BLEEDING THE COOLING SYSTEM

### Explanation:

The complexity and component location of these cooling systems causes air to become trapped, which can cause overheating and engine damage. For this reason, bleeding the air from the system is extremely important. The picture on the right shows the air bleed hose for the reservoir and the bleed screw in the upper coolant pipe. During regular cooling system operation, the air bleed hose will allow small amounts of air to rise to the high point of the reservoir, and subsequently be replaced in the system with coolant. It is not able, however, to bleed air quickly enough in a system that has ingested a large amount of air (such as during a repair). Air will naturally rise to the top, but in this system there are two points in which it will become trapped because they are higher than the coolant level in the reservoir; the upper coolant pipe and the heater core inlet.

### Step 1:

Loosen the bleed screw on the upper coolant pipe. Fill the reservoir with coolant until a steady stream runs out, then tighten the bleed screw. You will need to keep the reservoir completely full for this to happen.





## BLEEDING THE COOLING SYSTEM

### Step 2:

Here you can see a view of the heater hoses. Removing the cowl seal and gently lifting the cowl panel will give you the best access to them. The upper hose has a small hole in it just forward of the clamp (arrow). This is the highest point in the cooling system.

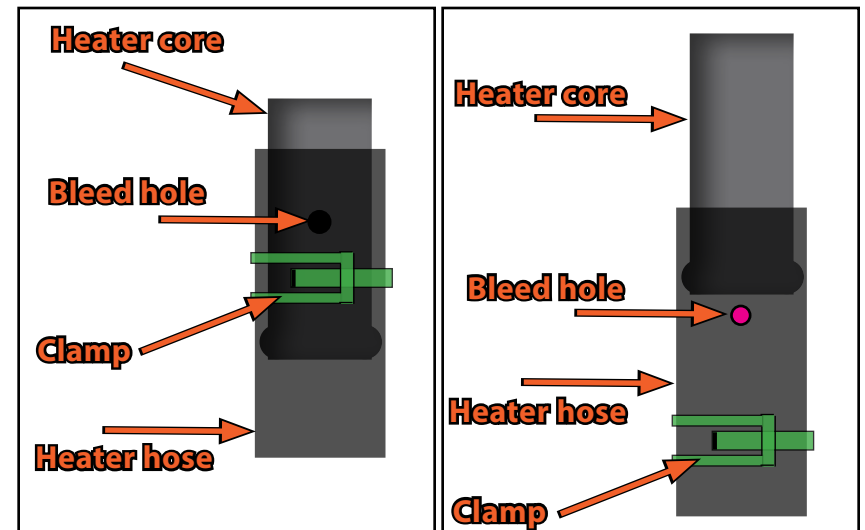


### Step 3:

Using spring clamp pliers, loosen the clamp on the upper heater hose then slide it back far enough so it is not securing the hose to the heater core. Next, slide the heater hose off the heater core just until the bleeder hole is exposed. The end of the hose is long enough so it will remain on the heater core with the bleed hole exposed.

The illustration on the left shows the heater hose in its installed position. Notice that the clamp secures the hose to the heater core in front of the bleed hole so the system is sealed.

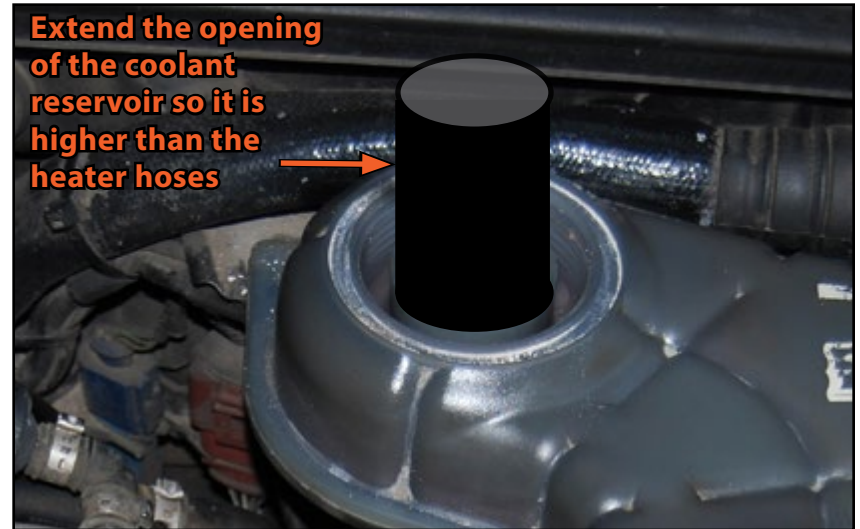
The illustration on the right shows the heater hose pulled back so the bleeder hole is unobstructed, allowing air to escape, yet the hose is still pushed over the end of the heater core.



## BLEEDING THE COOLING SYSTEM

### Step 4:

Fill the coolant reservoir until coolant runs out the hole in the heater hose. Since the opening of the coolant reservoir is lower than the heater hoses, you will need to extend the opening using, for example, an old coolant hose, so the "high point" of the reservoir is higher than the heater hoses. This will force all the air out. Once coolant flows from the hole in the heater hose, re install the hose.



### Final Bleeding Procedures

Remove the coolant reservoir "extension".

Install the coolant reservoir cap.

Start the engine and run it at 2000 RPM for 3 minutes.

Allow the engine to idle until it reaches operating temperature (both the upper and lower radiator hoses will be hot).

Shut the engine off and allow it completely cool.

Top off the coolant reservoir.

## SCHWABEN - BUILD THE ULTIMATE TOOL COLLECTION

At ECS Tuning, we carry a line of high quality Schwaben tools and equipment to help you build your ultimate tool collection. Never before has affordability and quality been so closely related. Our entire Schwaben line is subjected to strict in house testing for strength and durability. See what we have to offer and equip your garage without breaking the bank.





Your Audi B6 1.8T Thermostat and J-Plug installation is complete!



These instructions are provided as a courtesy by ECS Tuning.

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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