

ECS TUNING

Volkswagen MKV MKVI
APR Performance Chip Tune
ECU Removal and Installation



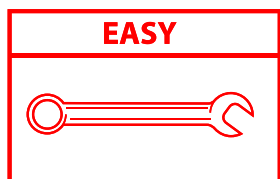
Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times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

INTRODUCTION

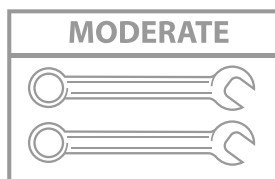
APR Performance Chip Tunes

ECS Tuning offers APR Performance Chip Tunes by mail with an astonishing 3 day turnaround for the complete process to have your car up and tuned! Our smooth, trouble free process works like this:

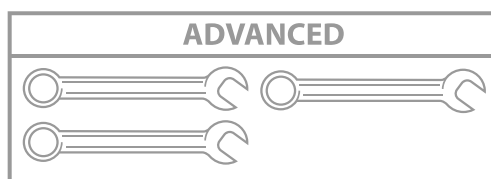
- Once you place your order, our Customer Service Department will contact you to verify information, usually within the same business day.
- We e-mail you a pre-paid next day air label via UPS.com and an APR Chip-n-Ship form to fill out and send along with your ECU.
- You remove your original ECU and ship it to us.
- We flash your ECU with an APR Performance Tune and ship it back out the same day it is received.
- You reinstall your ECU and enjoy your new APR Performance Chip Tune!



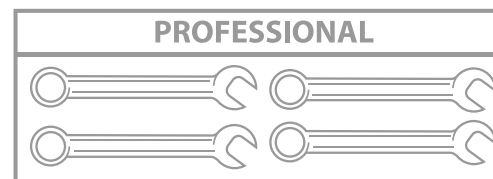
**BASIC SKILLS
REQUIRED**



**SOME EXPERIENCE
RECOMMENDED**



**ADVANCED SKILLS &
EXPERIENCE REQUIRED**



**PROFESSIONAL SKILLS &
SPECIALTY TOOLS REQUIRED**

Looking for a performance upgrade that won't break the bank? Let ECS Tuning professionally flash your ECU with an APR Performance Tune for your Volkswagen MKV or MKVI. With these easy to follow instructions, you will be able to remove and package your ECU for shipping. Drop it in the mail, we'll provide a lightning quick turn around, you reinstall it, and you're back on the street! Thank you for purchasing an APR Performance Chip Tune. We appreciate your business!

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IMPORTANT

Be sure to print and completely fill out the APR Chip & Ship Form to send to us along with your ECU. Complete the entire form including all current modifications and a daytime phone number where you can be reached.

Failure to completely fill out this form can delay the return of your ECU.

The APR Chip & Ship Form has been e-mailed to you by our customer service department.

CAUTION

Be sure that the vehicle will be stored in a covered area while the ECU is disconnected. Cover the ECU connector with a plastic bag as an additional caution. Make sure that the ECU connectors do not get wet or dirty while they are disconnected.

Two security bolts protect the ECU connectors from being tampered with on both the MKV and MKVI Volkswagens. Once removed, they will no longer function as security bolts and must be replaced. The bolts are different between the MKV and MKVI. Be sure to order the correct bolts and have them on hand for reinstallation.



MKV ECU Security Bolts
M6 x 16
[ES#472076](#)



MKVI ECU Security Bolts
M5 x 12
[ES#471999](#)

REQUIRED TOOLS

Note: The tools required for each step will be listed by the step number throughout these instructions.

We recommend that you have a complete selection of tools and equipment necessary for automotive repair. Below is a list of the tools we used to remove and install the MKV and MKVI ECU. Additional tools may be required for any issues that arise during installation such as rust, corrosion, or broken and stripped fasteners.

- Flat Blade Screwdriver(s) Available at ecstuning.com..... [ES#2225921](#)
- Torx Drivers: T30 Available at ecstuning.com..... [ES#11417](#)
- 3/8 Drive Torque Wrench..... Available at ecstuning.com..... [ES#2221245](#)
- Open/Boxed End Wrenches: 10mm Available at ecstuning.com..... [ES#2765907](#)
- Wiper Arm Puller Available at ecstuning.com..... [ES#2190252](#)
- 1/4" Ratchet, Extensions
- 1/4" Drive Sockets: 5.5mm, 10mm
- 3/8" Sockets: 13mm Deep
- 3/8" Drive Ratchet, Extensions
- Dremel Tool
- Dremel #426 1 1/4" Fiberglass Reinforced Cutoff Wheel

SHOP SUPPLIES AND MATERIALS

- Hand Cleaner/Degreaser..... Available at ecstuning.com..... [ES#2167336](#)
- Shop Rags Available at your local auto parts store
- Masking Tape Available at your local auto parts store

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.

ECU TROUBLE CODE INSPECTION

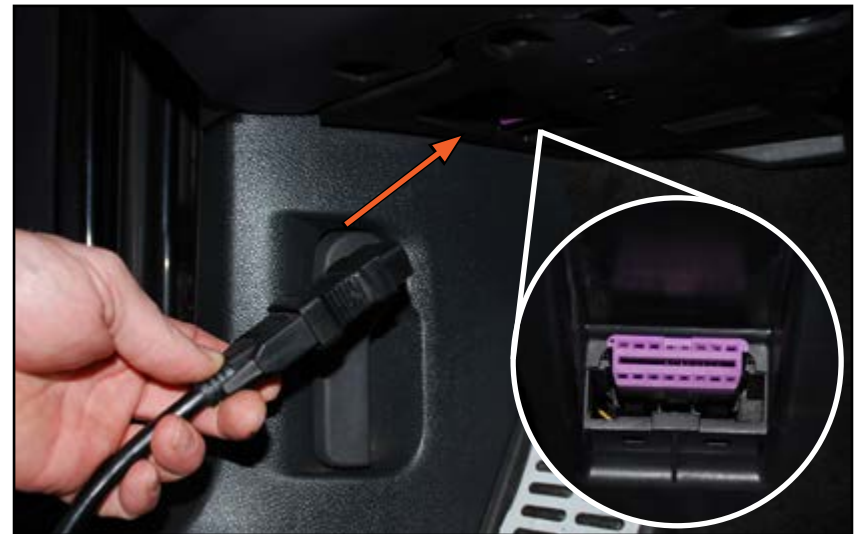
Step 1:

In order for your chip tune to be successful, you must send us an ECU from a running, driving vehicle that has no trouble codes and no driveability issues. To begin your inspection, turn the ignition "on" without starting the engine. The check engine light should illuminate. Start the engine. The check engine light should go out. This indicates that the PCM is properly powered up and communicating. If either of these checks fail, you must have them properly repaired before a chip tune can be performed on your vehicle.



Step 2:

Connect a scanner to the OBDII port on your vehicle (located in the driver's footwell just above the foot rest) and check for trouble codes. If you do not own a scanner, many auto parts stores will scan your vehicle free of charge. Any trouble codes must have the root cause repaired before a chip tune can be performed on your vehicle. Simply clearing any trouble codes will not be sufficient.



ECU REMOVAL MKV AND MKVI

Step 1:

Open the hood and remove the battery cover by pushing the release tab (arrow) towards the cover, then pivoting it up and unhooking it at the rear.



Step 2: 10mm Socket, Ratchet

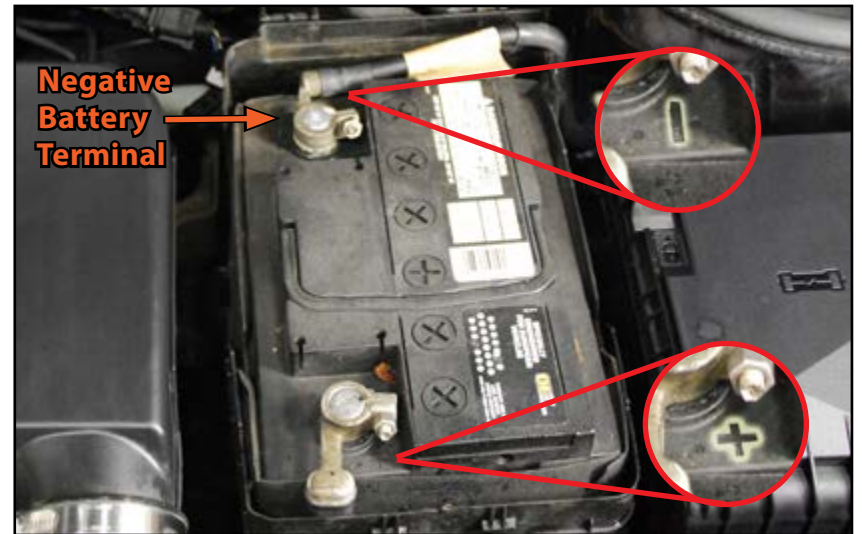
Disconnect the negative battery terminal and isolate it so it does not accidentally swing over and contact the negative battery post.

NOTE

If you have *any* doubt as to which terminal is the negative, every battery should have clear markings molded in the case. Clean the battery if necessary for identification.

CAUTION

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



ECU REMOVAL MKV AND MKVI

Step 3: Flat Blade Screwdriver

Pry off both plastic wiper arm caps to access the nuts underneath.



Step 4: 13mm Socket, Ratchet

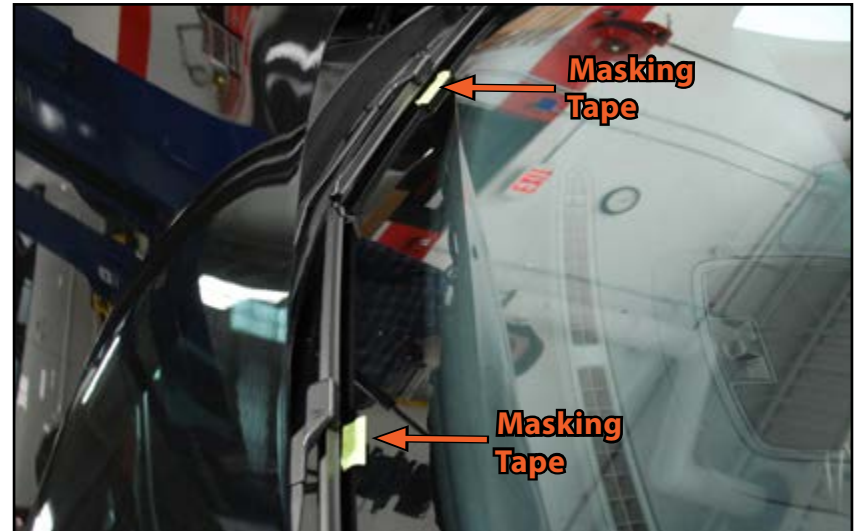
Remove both wiper arm nuts.



ECU REMOVAL MKV AND MKVI

Step 5: Masking Tape

Apply a piece of tape to the windshield above each wiper blade to mark their installation positions. This will allow you to position them exactly where they need to be during reassembly.



Step 6: Wiper Arm Puller

One at a time, install a wiper arm puller over the end of each wiper arm and thread the pressing screw in by hand until it contacts the wiper shaft.



ECU REMOVAL MKV AND MKVI

Step 7: 13mm Socket, Ratchet

Turn the pressing screw of the wiper arm puller in a clockwise direction until the wiper arm pops loose of the wiper shaft.



Step 8:

Pull each wiper arm up and off of the wiper shafts.

NOTE

The base of each wiper arm is a different length. The RH (Passenger) side is shorter. This is not relevant now but will be important for installation.



ECU REMOVAL MKV AND MKVI

Step 9:

Remove the cowl seal by simply pulling it forward off the lip of the cowl. Also note the starting point for step 10.



Step 10:

Firmly grip the rain tray on the LH (Driver's) side using your thumb and forefinger. Pull it straight up until it pulls out of the channel at the base of the windshield.



ECU REMOVAL MKV AND MKVI

Step 11:

Working from left to right, continue to pull the rain tray out of the channel at the base of the windshield until it is completely free, then remove it from the car.



Step 12: 10mm Socket, Ratchet

In order to access the ECU, we need to remove the panel that spans the cowl from side to side. Begin by removing the bolt on the RH (Passenger) side and the nut on the LH (Driver) side.



ECU REMOVAL MKV AND MKVI

Step 13:

Pull up on the cowl panel to access the ECU wiring harness that is attached to the back side, unclip the harness, then remove the cowl panel from the car.

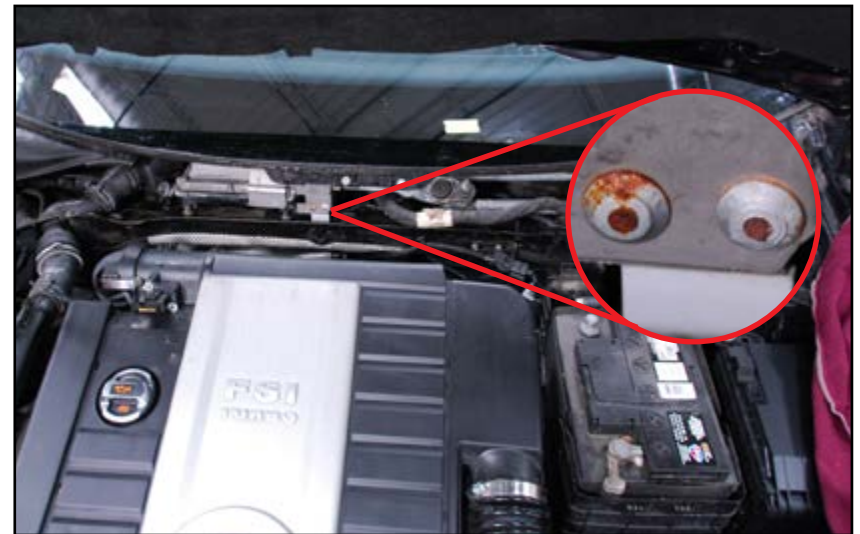


Step 14:

Locate the security bolts on the ECU connector guard. Both of these bolts need to be removed. The procedure we will use to remove them is as follows:

1. Cut a slot into the head of each bolt, creating a regular bolt with a "slotted" head.
2. Remove each bolt using a flat head screwdriver.

Proceed to the next step.



ECU REMOVAL MKV AND MKVI

Step 15: Dremel Tool w/Cutoff Wheel

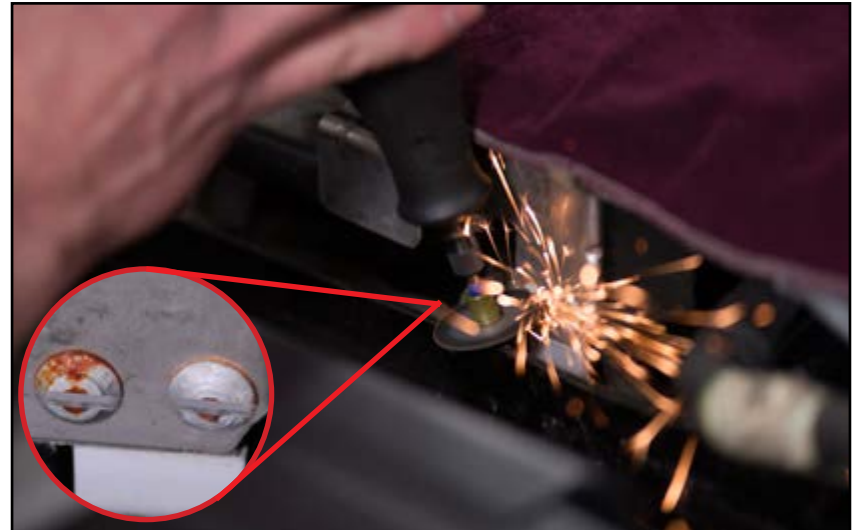
Cut a slot into the head of each security bolt. Take your time and cut the slot as close to the centerline of each bolt as possible.

NOTE

We are using a Dremel#426 1 1/4" Fiberglass reinforced cutoff wheel to make the slots.

CAUTION

Cover the windshield to prevent any sparks or metal chips from landing on the surface.



Step 16: Flat Blade Screwdriver

Remove both of the security bolts and discard them (these bolts should be replaced with new).



If you are removing the ECU on a MKV, proceed with step 17 on the next page. If you are removing the ECU on a MKVI, the procedure is slightly different. Proceed to page 21, MKVI Only ECU Removal.



MKV ONLY ECU REMOVAL

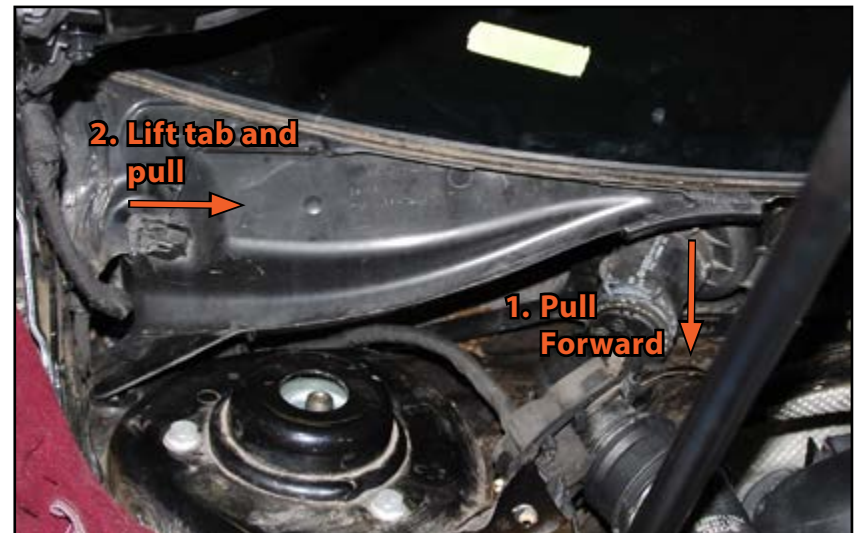
Step 17:

Slide the ECU Connector guard to the right, then tilt it forward and remove it. You may have to push the wiring harness inward slightly to obtain the necessary clearance to remove the shield.



Step 18:

Remove the rain channel on the RH side at the base of the windshield. It is clipped on in two places but can be easily removed by hand.



MKV ONLY ECU REMOVAL

Step 19: T30

Remove the two screws holding the noise generator to it's mounting bracket.



Step 20: Flat Blade Screwdriver

Remove the noise generator pipe retaining clip by prying it up out of the groove.



MKV ONLY ECU REMOVAL

Step 21:

Locate the noise generator pipe seal retainer.



Step 22: Flat Blade Screwdriver

Remove the retainer by pulling it straight up off of the seal.

NOTE

You may have to use a flat blade screwdriver to help release the seal retainer on the ends.



MKV ONLY ECU REMOVAL

Step 23:

Lift the noise generator pipe and separate it from the hose, then remove it from the cowl.



Step 24:

Reinstall the retaining clip (removed on page 16 step 20) onto the end of the noise generator pipe so it does not get lost and will be prepared for reassembly. Make sure to locate the ends of the clip in the corresponding cut out on the pipe as shown in the picture.



MKV ONLY ECU REMOVAL

Step 25: 10mm Wrench

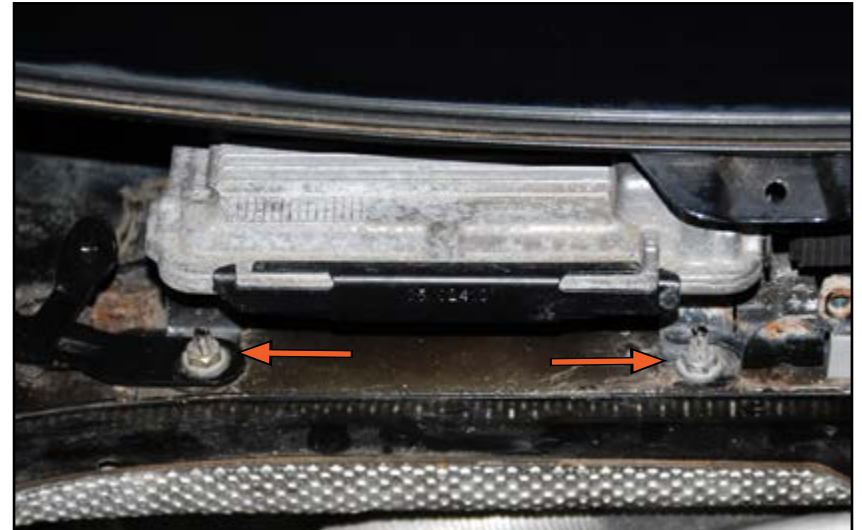
Remove the two hold down nuts on the front of the ECU bracket.

CAUTION

Be sure that the vehicle will be stored in a covered area while the ECU is disconnected. Cover the ECU connector with a plastic bag as an additional caution. Make sure that the ECU connectors do not get wet or dirty while they are disconnected.

Step 26: 10mm Socket, Ratchet

Remove the two nuts on the noise generator bracket and remove the bracket.

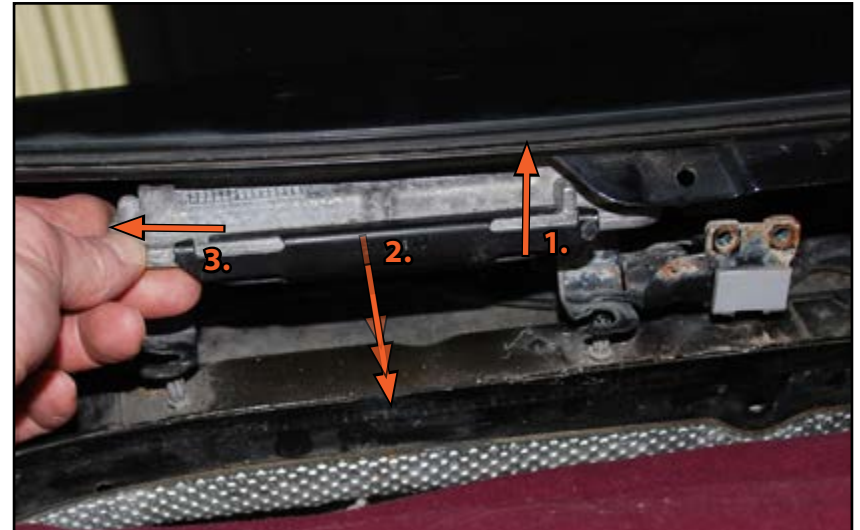


MKV ONLY ECU REMOVAL

Step 27:

Now it's time to remove the ECU from the cowl. First place a protective cover over your engine so the ECU brackets will not scratch the engine cover. Remove the ECU in the following manner:

1. Lift up on the ECU so the mounting bracket clears the studs.
2. Pull the ECU forward slightly to disengage it from the rear bracket mount.
3. Move the ECU towards the RH (Passenger) side of the vehicle, then pull it out of the cowl and rest it on the top of the engine.



Step 28:

Disconnect both of the ECU electrical connectors by pulling out the connector slide on each one. The slides are designed to push the connector off of the ECU as you pull them out. These tend to get a little dirty and you may have to pull fairly hard. It can also help to push on the connector as you pull out the slide.

Slide your MKV ECU out of it's mounting bracket.

CAUTION

Do not attempt to connect the battery or start the engine while the ECU is removed from the vehicle.

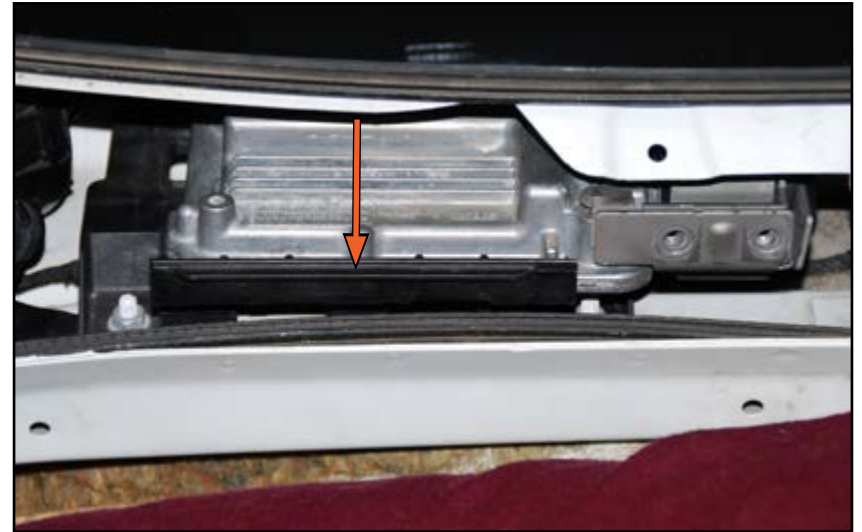
You are now ready to pack and ship your ECU! (Page 25)



MKVI ONLY ECU REMOVAL

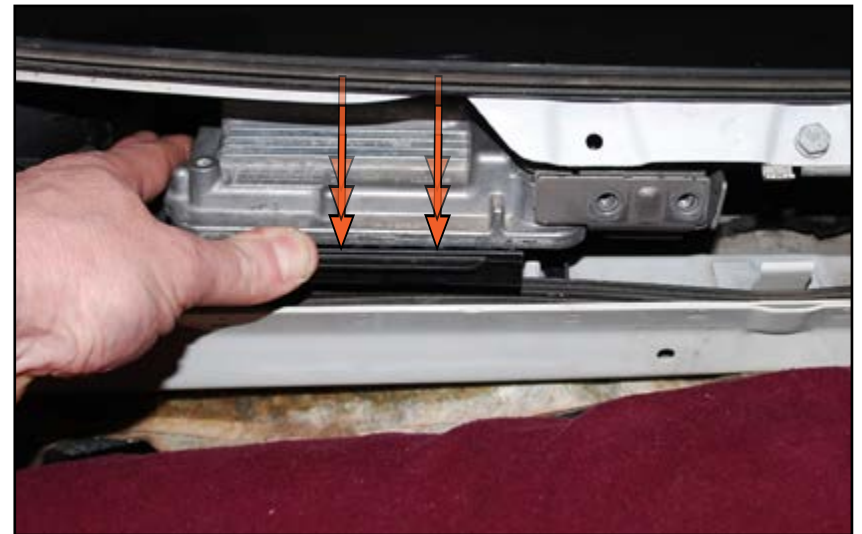
Step 1:

Once you have removed the security bolts on your MKVI Volkswagen, your ECU will look like this: The only thing holding it in place is a plastic clip support across the front.



Step 2:

Press down on the plastic clip support across the front until it pops under the front edge of the ECU. You may have to use both hands to do this, but no tools will be required.



MKVI ONLY ECU REMOVAL

Step 3:

Slide the ECU out the front of the cowl.



Step 4: Flat Blade Screwdriver

Gently pry between the the two halves of the connector guard as shown.



MKVI ONLY ECU REMOVAL

Step 5:

The connector guard will spring open like this.



Step 6:

Using your hands, spread the connector guard as shown.



MKV ONLY ECU REMOVAL

Step 7:

Remove the connector guard from the ECU.

CAUTION

Be sure that the vehicle will be stored in a covered area while the ECU is disconnected. Cover the ECU connector with a plastic bag as an additional caution. Make sure that the ECU connectors do not get wet or dirty while they are disconnected.

Step 8:

Disconnect both of the ECU electrical connectors by pulling out the connector slide on each one. The slides are designed to push the connector off of the ECU as you pull them out. These tend to get a little dirty and you may have to pull fairly hard. It can also help to push on the connector as you pull out the slide.

CAUTION

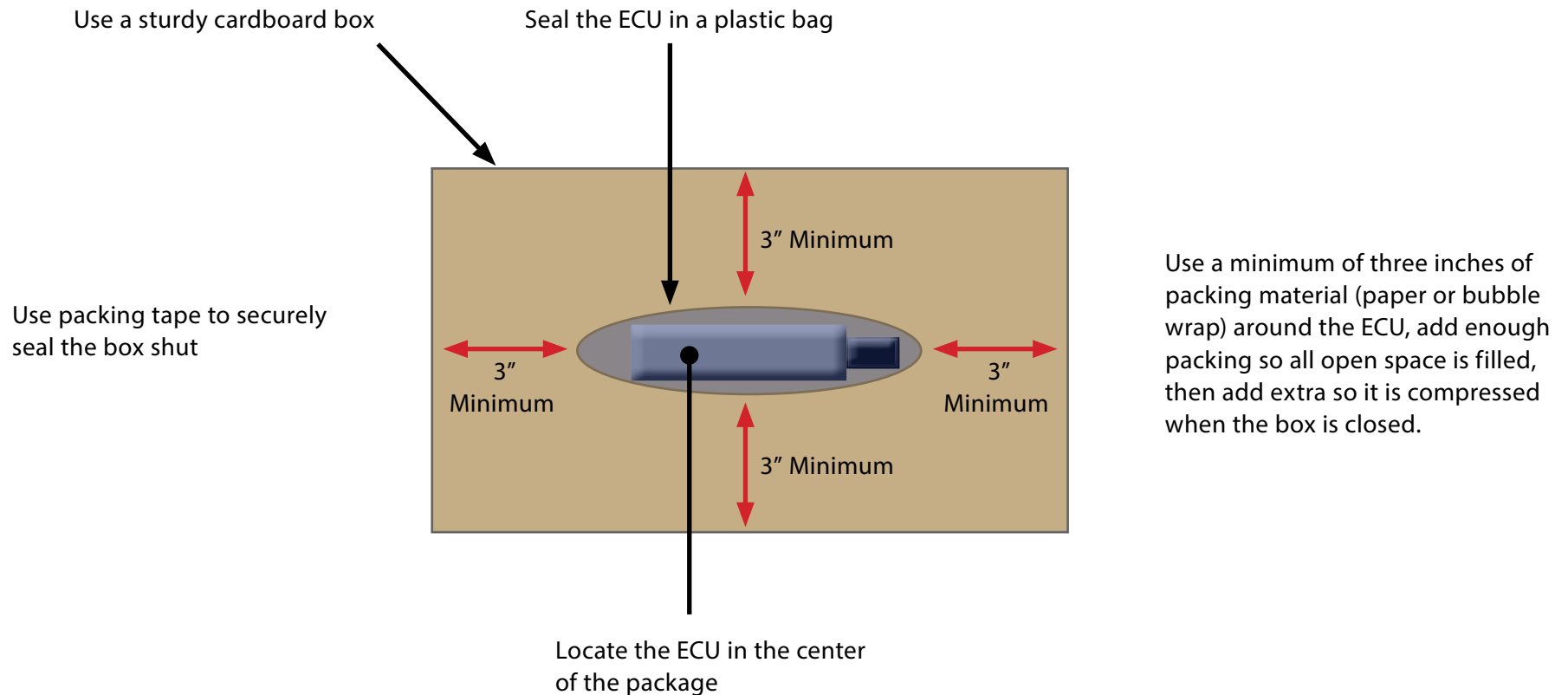
Do not attempt to connect the battery or start the engine while the ECU is removed from the vehicle.

You are now ready to pack and ship your ECU! (Page 25)



PACKING AND SHIPPING YOUR ECU

Inspect the diagram below for proper packing guidelines, then follow the steps on pages 26 through 28 to pack your ECU.



PACKING AND SHIPPING YOUR ECU

Step 1:

Seal the ECU in a plastic bag to keep it dry.



Step 2:

Use a box that is large enough to allow for the required amount of packing material around the ECU. Paper or bubble wrap works best. Put at least three inches of packing material in the bottom of the box then place the ECU on top.



PACKING AND SHIPPING YOUR ECU

Step 3:

Put at least three inches of packing material on top and around the sides of the ECU. Fill all additional space, then add extra packing material so when you close the box, you will have to push and compress the additional packing material. This will ensure that the ECU will not move around in the box and that the packaging will absorb all the shock if the box gets dropped.

Step 4:

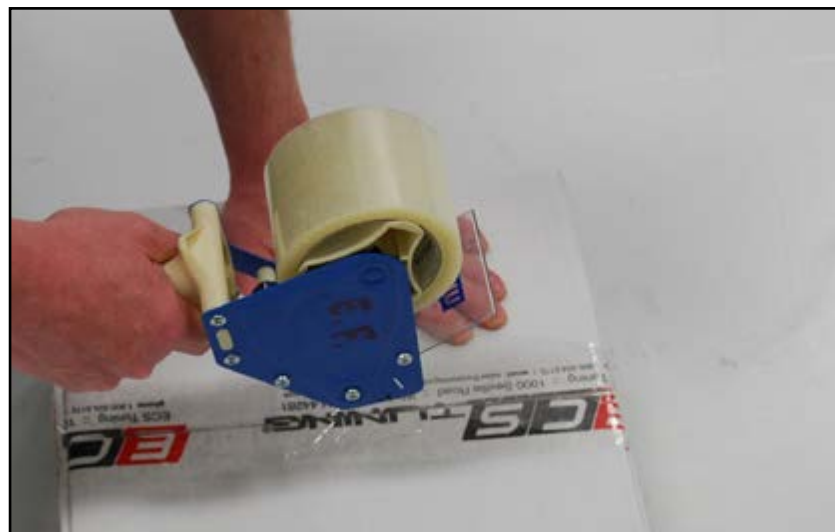
Put your completed APR Chip & Ship form in with your ECU.



PACKING AND SHIPPING YOUR ECU

Step 5:

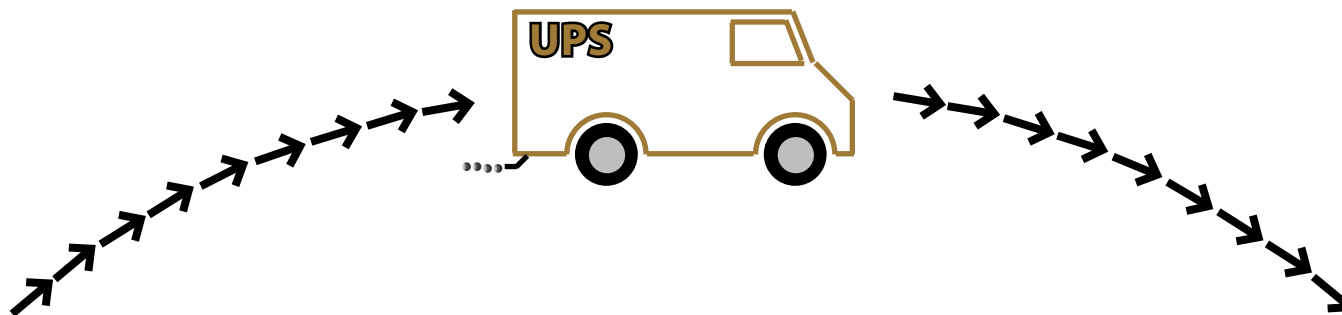
Seal the box shut with packing tape.



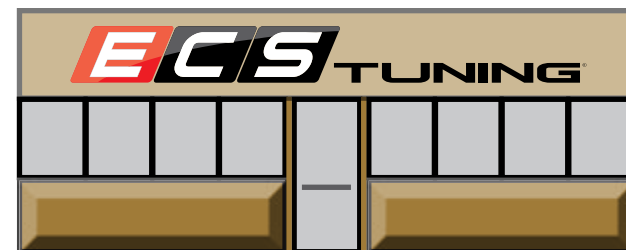
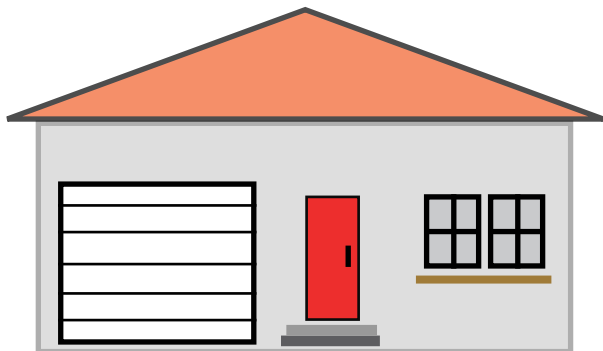
Step 6:

Tape your pre-paid label to the box and drop it off at the nearest UPS location.



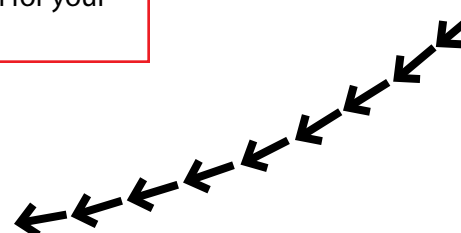
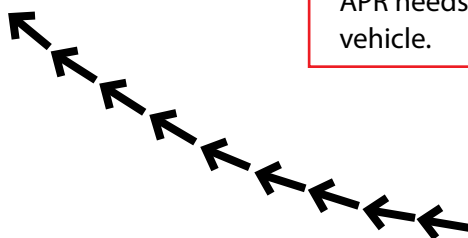


3 Day Turnaround



ATTENTION

In occasional cases it may take longer in the event that APR needs to create a new software program for your vehicle.



REINSTALLING THE ECU

Reverse the removal steps to reinstall your ECU, paying particular attention to the following steps:

Install new security bolts as described on pages 31 and 32.

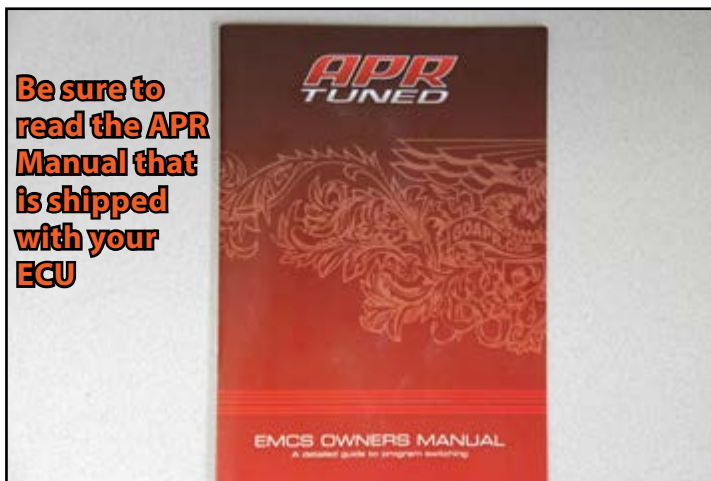
Make sure the seal on the cowl panel stays in place during installation.

Make sure the cowl panel is positioned between the retaining tabs and the lip of the cowl as shown in the picture.

Don't forget when installing the wiper arms they are different on the left and right. The RH (passenger) side base is shorter. Line the blades up with the tape marks on the windshield and torque them to 20 Nm (15 Ft-Lbs).

Scan and clear any fault codes after reinstalling your ECU.

Contact ECS Tuning Customer Service with any tech support questions.



Be sure to read the APR Manual that is shipped with your ECU

INSTALLING THE NEW SECURITY BOLTS

Step 1:

Line up the connector guard as needed and start one of the new security bolts.



Step 2:

Start the second bolt. You can thread them both in as far as you can by hand.



INSTALLING THE NEW SECURITY BOLTS

Step 3: 5.5mm Socket, Ratchet

Tighten both bolts until the head of each one shears off.



Step 4:

The installed security bolts will look like this.



Your APR Performance Chip Tune is complete!



These instructions are provided as a courtesy by ECS Tuning.

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