

Detroit Tuned Bypass Valve Installation Instructions:

To combat a supercharged engine's tendency to use fuel, a bypass valve is implemented to de-baffle the supercharger. By not allowing boost to be created, the engine acts as if it is naturally aspirated providing the ability to be fuel-efficient. The bypass valve is vacuum operated and requires a return spring to close when vacuum is not present. The stock MINI return spring is too weak for performance driving. It keeps the bypass valve open too long and does not close it fast enough. The OEM spring also causes the valve to open and close rapidly while in part throttle, which is popularly called the "yo-yo". By retrofitting the valve with our redesigned return spring, it will increase the speed in which the bypass valve closes, and with less throttle angle. This results in quicker boost generation and a better throttle response, as well as a side benefit of eliminating any "yo-yo." While we were retrofitting the new bypass valve, we also readjusted the valve so that it closes fully and the butterfly is centered in the bore. Read on to learn how to install it.

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, YOU FEEL THIS IS WORK YOU CANNOT COMPLETE, YOU SHOULD CONSULT A TRAINED MECHANIC.

Tools Needed:

- *Torx 30 (socket bit or screw driver type)
- *10mm & 11mm socket
- *8mm & 10mm socket
- *Flat-head screwdrivers (several sizes)
- *Pliers (several types)
- *3/8" ratchet w/ 8" extension
- *1/4" ratchet w/ extension & universal joint
- *11mm wrench
- *Magnetic stick



Directions:

1. Open your bonnet.



2. Using the Torx 30, remove the 4 bolts that hold the intercooler cover and remove it. (REINSTALL ~ Torque to 7 ft. lbs.)



3. Still using the Torx 30, remove the 8 bolts that hold the intercooler clamps and remove the tops. Using the 8mm socket, remove the 4 bolts that hold down both intercoolers mounting bracket. Remove the brackets and the intercooler along with both rubber boots and any remaining parts for the clamps. To remove the intercooler, just give a gentle pull up from one side. **(REINSTALL ~ Torque to 7 ft. lbs. all bolts)**



Your engine should now look like this:



4. Using a large flathead screwdriver, loosen the clamps for the air box tube (tube from air box to throttle body) and pull the tube towards the back of the engine bay. Set it in the back out of the way. Then remove the clamps for the cold-air ducting and pull that out of the car. **(REINSTALL ~ use small channel lock pliers)**

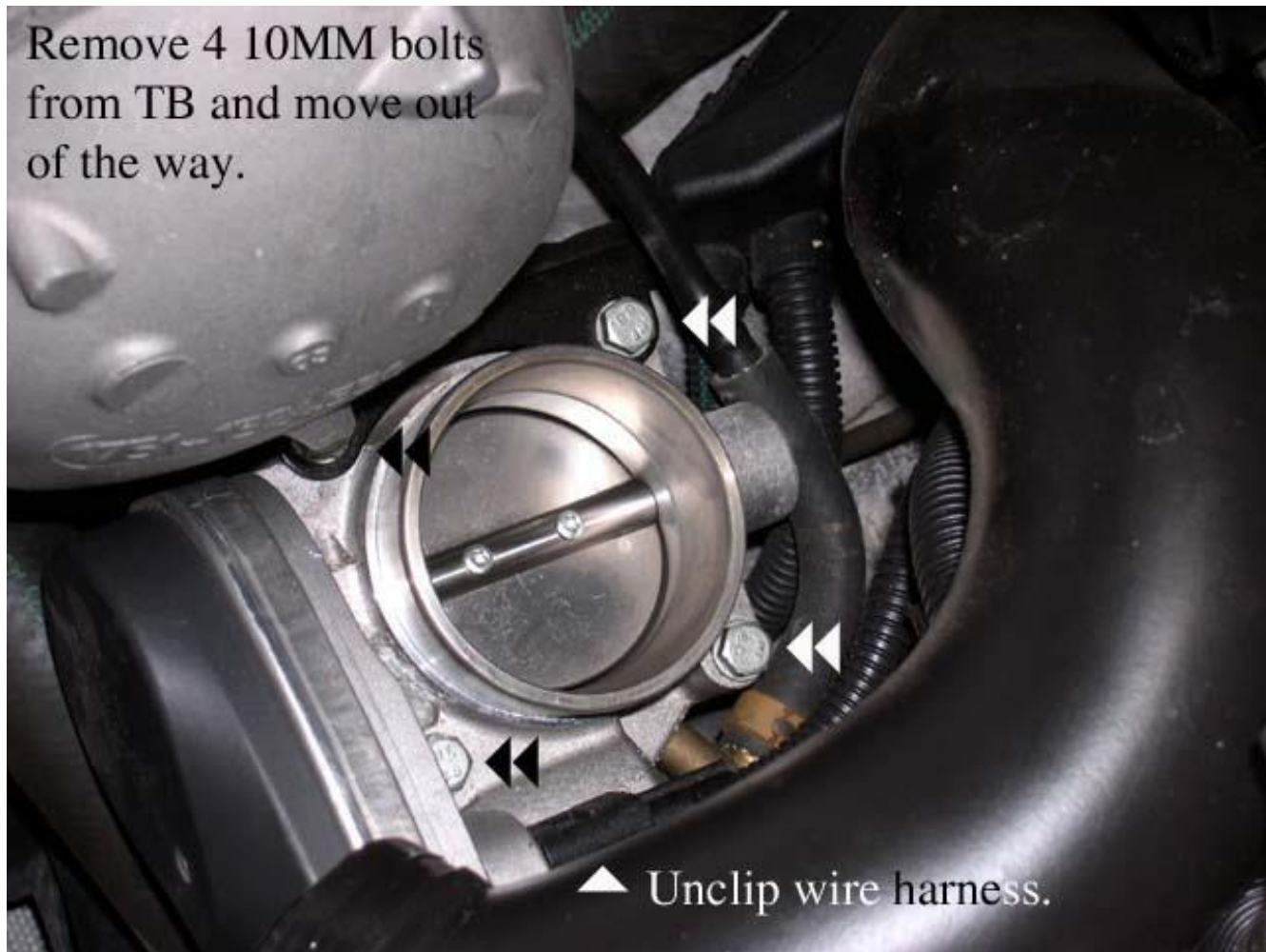


5. Using the 11mm socket & wrench, loosen the three nuts for the left (driver side) intercooler “bullhorn”. Use the magnetic stick to keep from losing the nuts. Using the long screwdriver, unhook the clamp at the bypass valve as shown. You may find that using a new clamp here will be best. Use a #28 hose clamp. **(REINSTALL ~ Torque to 12 ft. lbs.)**



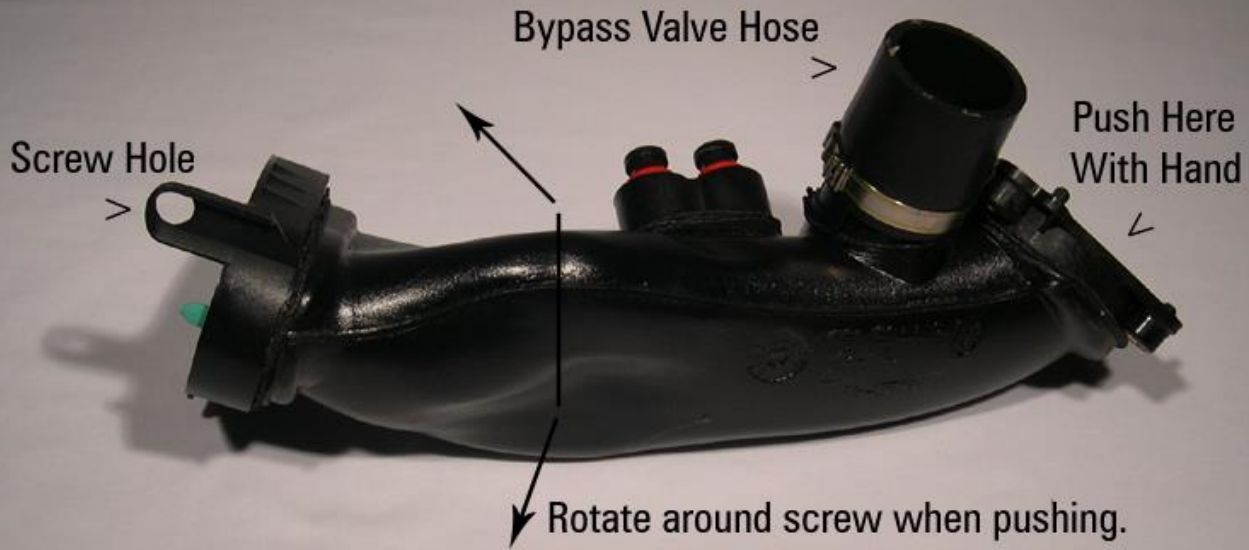
6. Using the 10mm socket with extension & universal joint, remove the 4 bolts that hold down the throttle body and unclip wire harness. Once everything is removed, pull TB out with a small downward motion and move off to the back of the engine bay. There is no need to unhook the vacuum line, but you may if you wish.

(REINSTALL Torque to 7 ft. lbs.)



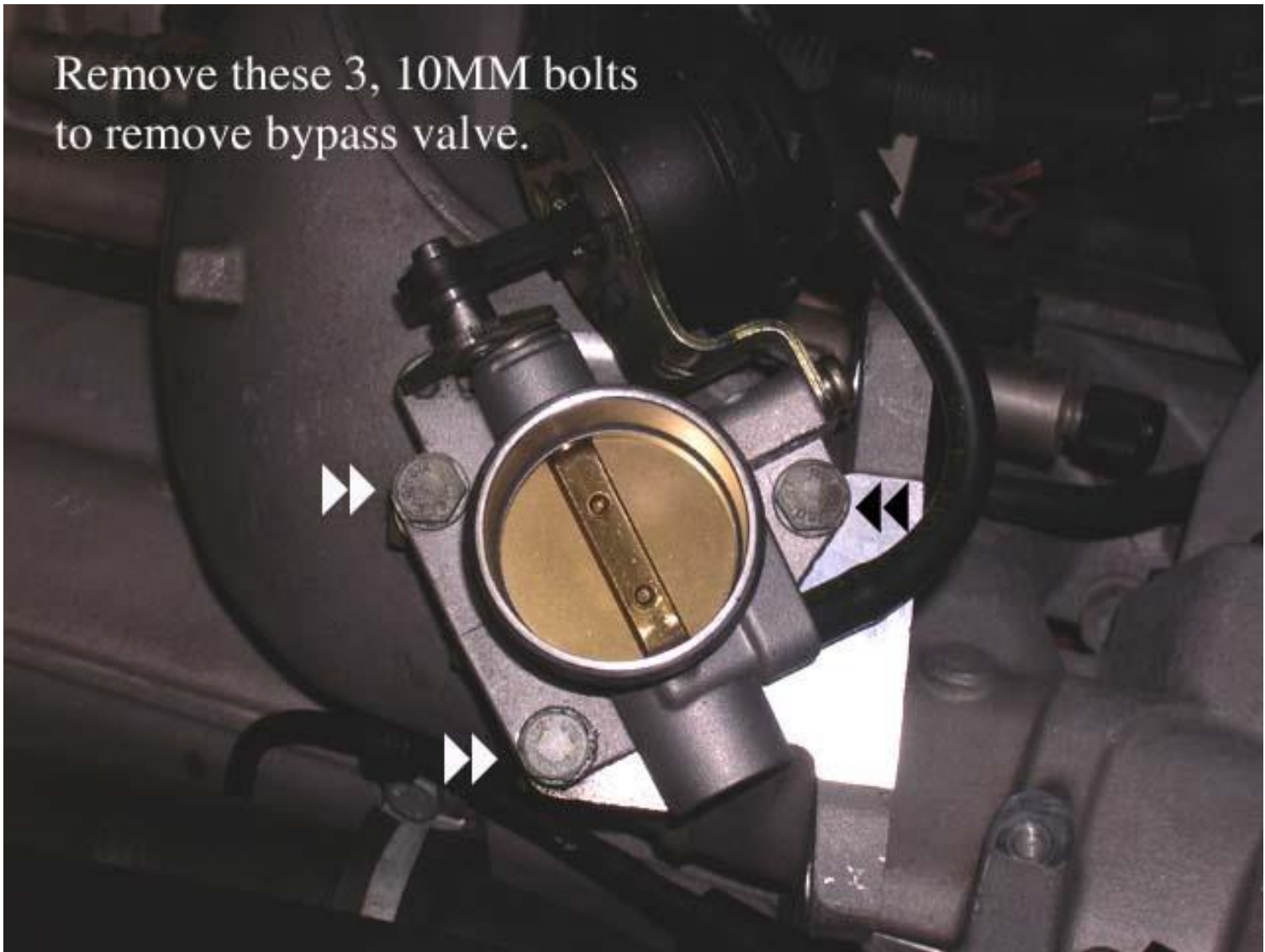
7. Next is the removal of the air horn. First, put the palm of your hand on the black plastic tube that you removed the throttle body from. Put light pressure in a downward motion until the hose connection at the bypass valve slips off. The less you have to move this tube the better. It does not need to be all the way off, just enough to get the horn out. As you push down there will be a tight spot just before it pops off the bypass valve. At this point you should stop pushing. What you are trying to do is pull the hose off the bypass valve by rotating the tube around the only screw still holding the tube in place. **(See photo of tube on next page)** If you should need a new part here are the part numbers: MINI supercharger gasket from supercharger to intake tube part # 11-61-0-020-836 (\$11.00), MINI Cooper S supercharger intake duct for 6 speed car part # 17-51-1-524-439 (\$80.50) (Prices as of 1-28-08 & can change at any time). Any dealer can help you with these parts, or you can buy them from us here at Detroit Tuned. Now pull the bullhorn out with a slight down and out motion and remove it from the car. Be careful not to score the face of the bullhorn-mounting surface on the studs sticking out from the intake manifold. Leave the metal gasket in place. **(See photo next page)**

Supercharger Intake Tube



8. Using the 10mm socket, remove the three bolts holding the bypass valve on the bottom of the bullhorn. You now ready to install your new Detroit Tuned BPV. (**REINSTALL Torque to 7 ft. lbs.**)

Note: If you have a JCW intake, swap the vacuum line on the DT BPV with the one on your stock BPV. The JCW intake needs a vacuum source and this is where it is taken from.



9. Reassemble in reverse order. If you have any questions, please call us.

Detroit Tuned (586) 792-MINI or info@detroittuned.com

(Optional Next Page):

It's always good to reset the ECU any time you do a new mod to your car. Here is a page of info on how to do that.

How to Reset the ECU:

1. With the key in the ignition, but in the off position, press and hold down the odometer reset button with one hand, while holding the button down, switch the key in the ignition to position 1 (first click) with the other hand.
2. The screen will have a number and the word "tESt".
3. Scroll through the numbers by pressing the odometer rest button, through to 19 and wait a moment. (Note: the number order is: 1,2,10,19)
4. The message will say 19 "L i-off", flash to "L i-on", and back to "L i-off" again. When "L i-off" appears, press the odometer rest button again. You are now in the system.
5. Scroll through to 21. tESt and wait a moment. 21.0 rESEt will come up. Press the button once.
6. Your gauges will now make some sounds and have movements. Once the lights come back on start your car. You have now reset your ECU and your MINI is now ready to relearn the new mods and your driving style.
- 7.

Here is a list of all the tests on your MINI:

1.0 Chassis number

1.1 Kilometer count

1.2 Parts number

1.3 Coding-, Diagnostic- and Bus-index

1.4 Production Date (Calendar week/year)

1.5 Hard- and Software status

1.6 Injector status, Cylinder count, Engine factor.

2.0 Comb system Test

3.0 Service interval counter

4.0 Actual fuel consumption in l/100km. eg.0154 = 15,4 liters/100kms.

4.1 Consumption in liters/100kms.

5.0 Distance consumption in l/100kms.

5.1 Actual rest distance with available fuel in Kms.

6.0 Actual amount of fuel in tank. eg. 123321 =12,3liters left 32,1 liters right

6.1 Total amount of fuel in tank.

6.2 Show value of Fuel gauge.

1= both senders OK, 2= sender failure, 3=ti signal implausible (no reading)

7.0 Actual coolant temp.

7.1 Actual outside temp.

7.2 Actual engine revs.

7.3 Actual speed

8.0 Hexadecimal readings of menu 7.0 to 7.3

9.0 Actual on board voltage (Battery)

10.0 Land codes

11.0 Unit codes

12.0 No function

13.0 Gong test

14.0 - 14.4 On board diagnostic codes. eg 000000 = no failures

15.0 - 18.0 No function

19.0 On/Off for Test menu.

20.0 Correction factor for Fuel Consumption Formula for correction:

Shown consumption x 1000 / user defined consumption

Push the trip reset button to begin the correction. Numbers count from 0-9, when correct number shows push trip reset button.

20.1 Sets 10ths. for consumption factor

20.2 Sets 100ths. and 1000ths. For consumption factor

20.3 saves the new consumption factor and shows new value

21.0 Software reset. (Same as disconnecting battery)