

Honda EP3 Type R ITB assembly

This guide is to be used alongside the assembly drawing provided on the website (CKHA12 – WEB) to safely install the kit.

Tools required are as follows:



- 3mm, 4mm and 8mm Ball ended Allen keys.
- Needle Nose pliers (for Hoses).
- Torque wrench.
- Ball ended hex socket (For manifold bolts/Fuel injector rail bolts).
- 8, 10, 12, 15, 18mm Spanners.

Universal torque settings:

- M5 Bolts (Air horn, Throttle body, MAP Sensor, Cannister purge mountings) = 4Nm
- M8 Bolts (Manifold flange, Injector rail) = 16 Nm

PLEASE NOTE:

- These instructions assume that the OEM Honda Manifold and throttle body have already been removed.



1. Upon receiving your Honda EP3 Type R ITB kit, please complete a visual inspection of the parts to ensure no damage occurred in shipping.
2. Assemble top side of manifold as shown, placing the MAP sensor with a light amount of grease on the O-ring, ensuring it is properly situated in the manifold and torqued to 4Nm.



3. If the cannister purge is used (not supplied), a 10mm drill will have to be passed through the casting, in the location showed below. Then please clean the manifold area to ensure no swarf could be left in the manifold.



4. Place the injectors in each of the ports on the manifold, lightly greasing the O-rings then bolt on the fuel rail (not included) using supplied bolts, Schnorr washers and spacers. Then install the injector clips. Tighten the M8 x 50mm bolts to 16 Nm.





5. With all the fuel rail clips in place, place the cannister purge into the mounting hole shown below, applying a small amount of grease to the O-ring. Once the O-ring is fully seated, push the cannister purge into place (NOTE: You will need to slightly push one of the injector clips deeper onto the injector, as shown in Picture 1). Once the holes are lined up, then thread in the M5 x 8mm button head screws supplied (NOTE: Use of blue Loctite 243 on these screws is advised).



Injector clip



Picture 1: Placement of cannister purge valve

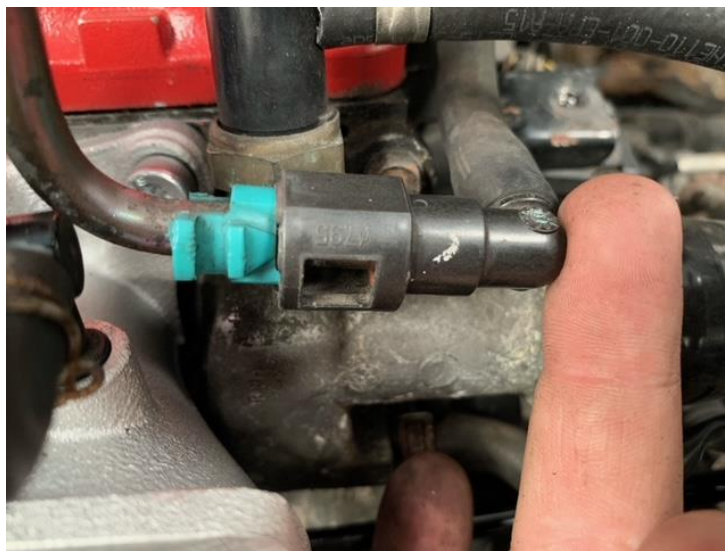
6. Now, make sure that the head mounting flange is free of any debris. Then offer up assembled manifold to intake ports. Ensure original gasket is fitted with this step. Supplied M8 x 25mm bolts with supplied Schnorr washers can now be torqued to 16Nm. If you wish to use the OEM Honda manifold studs, note the nuts aren't included in this kit.



7. Thread in all bolts and torque torque to 16 Nm.



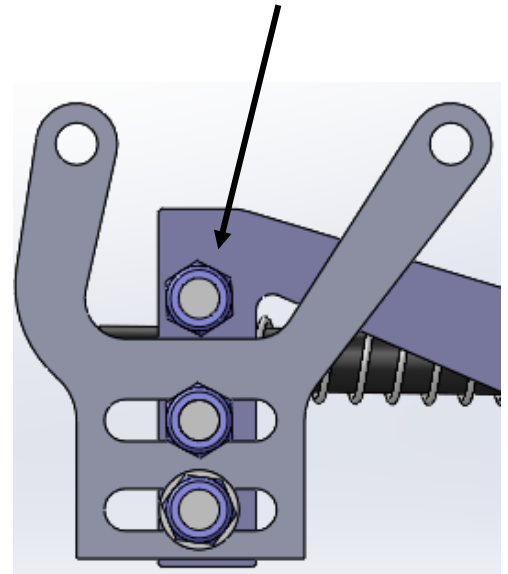
8. Re-attach fuel line to rail, ensuring that the blue tab is fully seated into the clip.



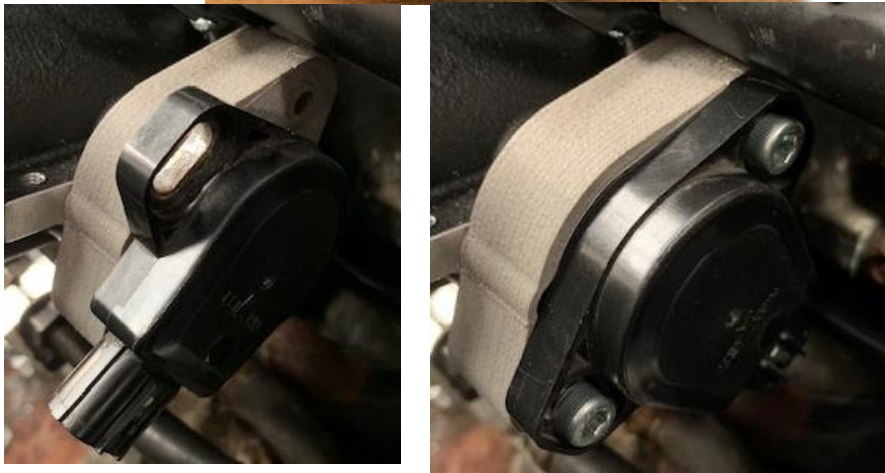
9. The 5/16 hose barb can be threaded into its boss with the included DOWTY washer on the underside of the manifold and tightened.



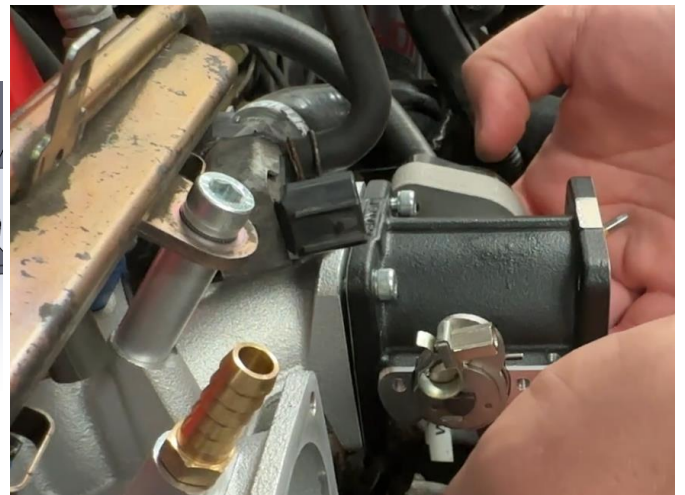
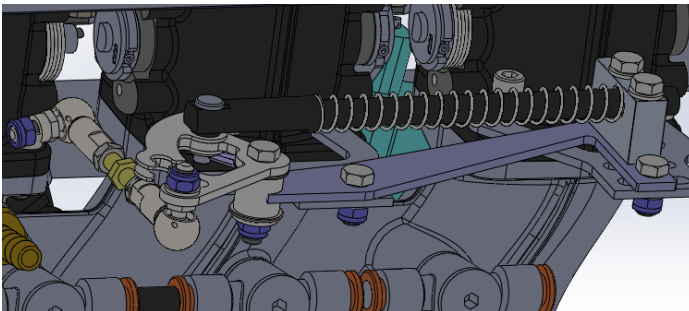
10. Attach the prebuilt throttle cable to linkage assembly. Leave all 3 bolts in the slotted brackets slightly loose (shown below) so that adjustments can be made later, to line up the push rod with the throttle bodies.

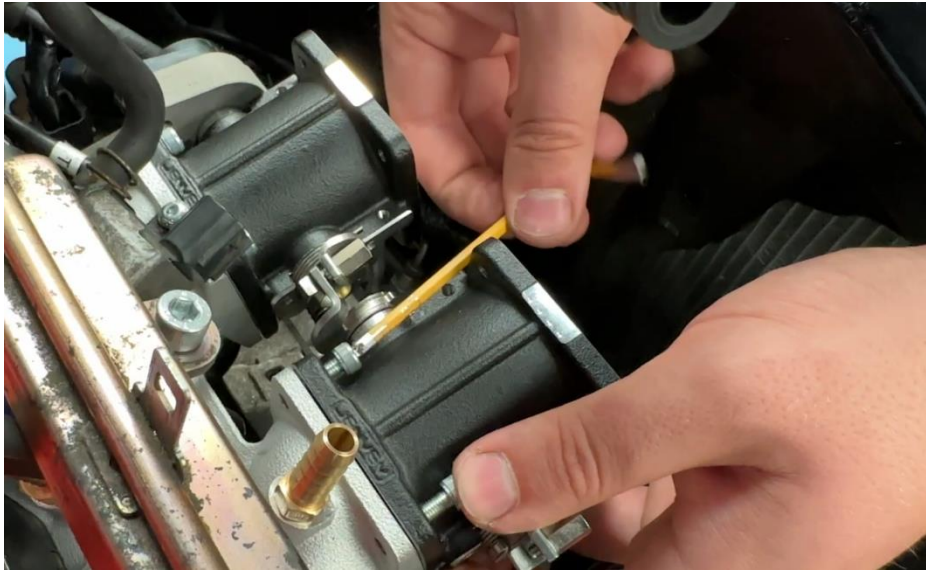


11. Cable clamps with original nuts as shown. Tension should be adjusted before aluminium back plate is installed.
12. Find throttle body with TPAK9-45 fitted as shown and install original TPS with supplied bolts ensuring engagement with spindle and full range of motion can still be achieved with butterfly actuation.



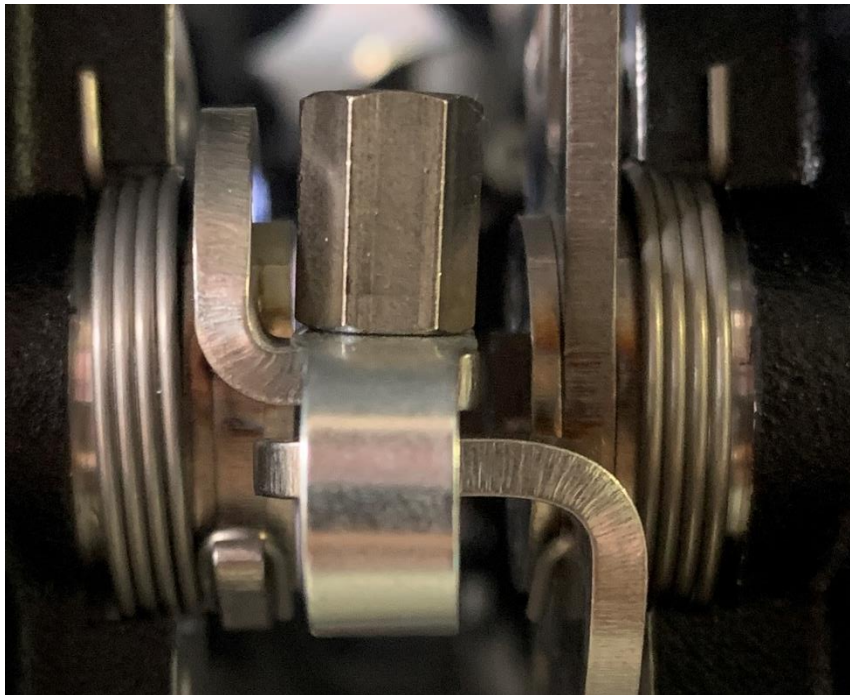
13. Now the right-hand side throttle body can be bolted onto the manifold. The bottom 2 bolts (M5X20, supplied in the kit) must secure the right-hand bracket of the linkage as well as shown in the CAD model below. Also please ensure that the O-ring is correctly seated in its groove when throttle body is mounted to the flange on the manifold. When tightening all the throttle bodies to the manifold, it is recommended that you use Loctite 243 to secure the bolts in place.



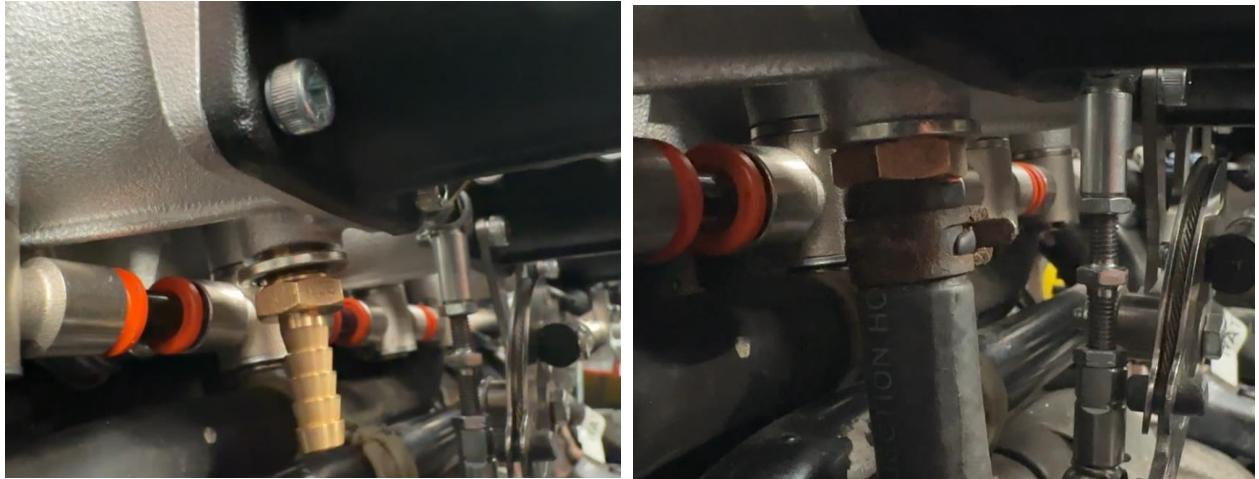


15. Continue to install the bodies individually each time ensuring the leavers and clips slot into place as shown below.

PLEASE NOTE: The throttle bodies will have been balanced before leaving the factory, therefore shouldn't need rebalancing, however this may depend on your specific car.



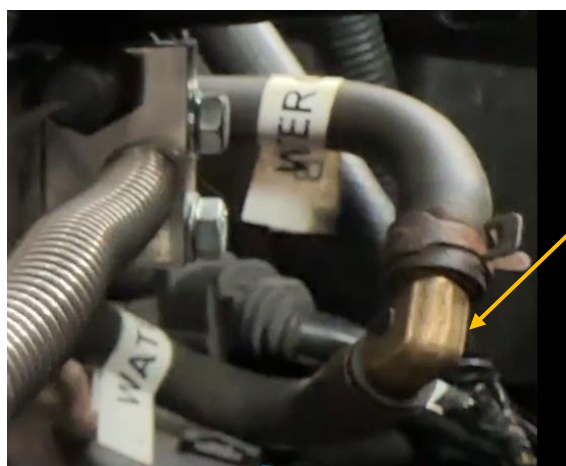
16. Once all 4 bodies are bolted to the manifold and linked up correctly, the PCV pipe can be extended with the pipe supplied and from the left-hand side of the engine bay can be pushed onto the barb connector (PLEASE NOTE: Only cut enough of the rubber hose to make this connection as some will be needed for the breather pipe). Now the linkage rod can be connected to the driver lever located on the middle-left throttle body, the ball and socket joint should be secured with the snap pin provided.



Check throttle actuation with pedal at this point and adjust using the cable mount and ball joint rod if necessary. Ensuring that the throttle pedal hits the stop at the same time as the throttle body to avoid stretching the cable.



Use the supplied 90-degree barbed fitting to join the old throttle body water-cooling lines.



17. The wires for; air temp sensor, canister purge valve, and TPS will need to be cut from the original sheathing and brought up the plastic housing to the top outlet as shown in the picture below. Now the wires will reach their intended locations and can be re sheathed in either electrical tape or heat shrink (Not included).



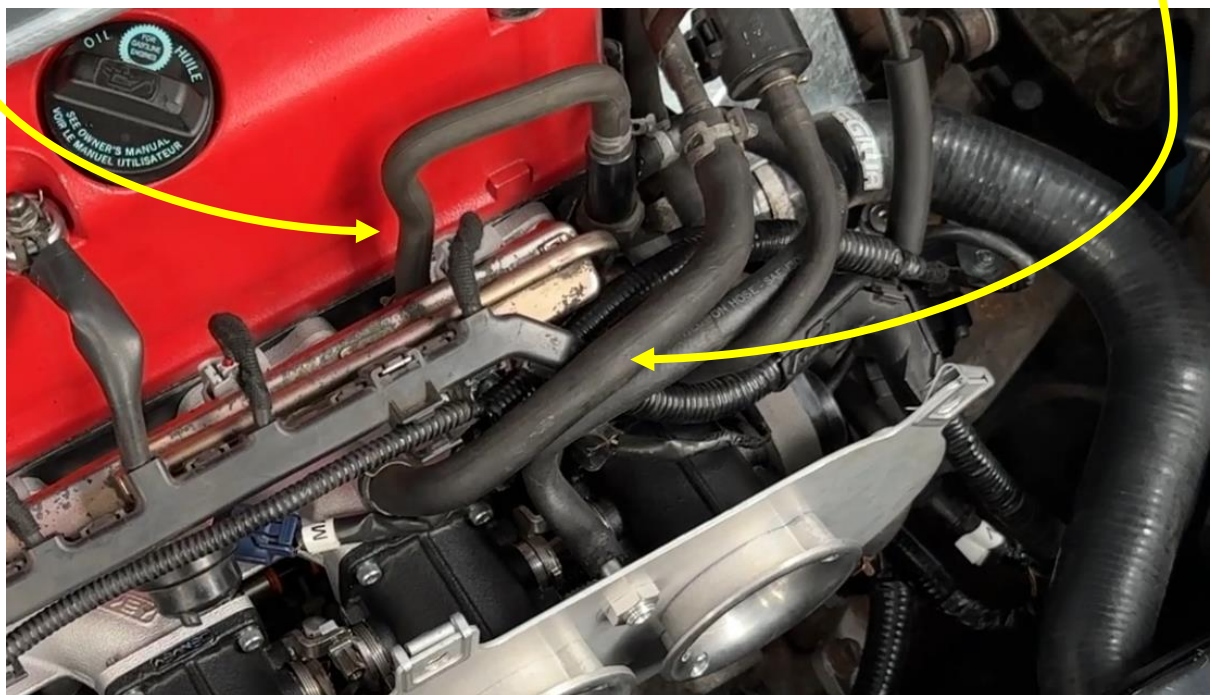
18. The TPS sensor can now be reconnected with its wire and plug. It is close to the cable but should not need to be forced on.



19. The injector loom can now be plugged back in and clipped onto the fuel rail. The ground for the injector loom needs to be attached to the front middle bolt on the cam cover.



20. First connect the low-pressure breather to the barbed fitting, then connect the temperature sensor and MAP sensor, then finally connect the High-pressure breather to its respective location (shown below). The routing should look like the image shown below. Then also reconnect the cannister purge wiring and piping, ensuring that the original clamps are reinstalled.



21. The idle control assembly should look like the pictures below. Ensure the O-ring is reused and the surface on the casting is clean before bolting it up with the sheet metal bracket in place.

PLEASE NOTE: The lower barbed fitting is left blank.



22. Using the top hole in the bracket, bolt the assembly to the old air box mount located just to the right of the engine block. The final air pipe can be connected to the idle air valve, then plug in the wire for the idle valve at this point to finish that section of the system.



23. The aluminium backplate and air horns need to be added at the same time (Making sure to place the Schnorr washers underneath the bolts). The M5X20 cap head bolts along with Schnorr washers go through each air horn flange and the backplate to thread into the top flange on the throttle bodies (We recommend adding Blue Loctite 243to these bolts also). Make sure the offset is to the right to allow room for the backplate and filter up against the engine casting on the left. The grommet for the air temp sensor should then be fitted to the left hole and the barbs on the sensor housing hold it in when inserted. Then please fit the M12 barbed hose fitting and lock nut using blue Loctite 243 to the right-hand side of the backplate.



24. Use the remainder of the rubber pipe provided to make a longer section for the low-pressure breather that will push onto the aluminium barb fitting in the right hole of the backplate. (Routing shown below)



25. Finally, the air filter can be installed. Begin by slotting the filter down between the air horns and front crash structure, this may require a small amount of pressure, but the foam will compress enough to get the plastic flange down in the correct orientation. Once the filter is loosely in position, hook the bottom plastic tab into the recess in the aluminium backplate, the flange will have to be pressed up against the backplate compressing the foam gasket to make slotting the tab in easier. Now the filter is located by the lower tab, it can be rotated back towards the back plate, pressed so that all 3 of the top tabs locate nicely, and the D-ZUS style fasteners can be done up by pushing the pins through to the clips in the back and turning them 45 degrees. Also please then install the crankcase breather filter supplied with the kit that can be installed on the port on the bottom right corner of the cam cover.

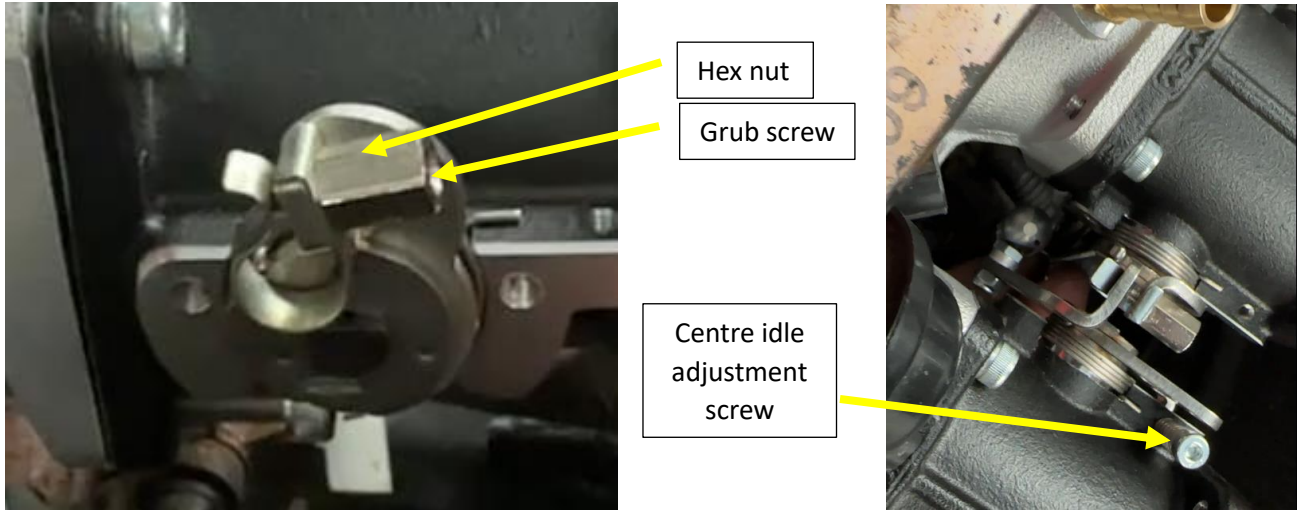


PLEASE GIVE A VISUAL INSPECTION OVER THE INSTALL AND CABLE TIE ANY LOOSE WIRES/CABLES AND TAPE/COVER ANY CUT SHEATHING, AND CHECK FOR ANY FUEL LEAKS WHEN THE VEHICLES FUEL PUMP IS TURNED ON.



26. To balance the bodies, it is recommended to use a “Synchrometer” to ensure that the throttle bodies are balanced across each cylinder:

- A Synchrometer can be purchased through Jenvey Dynamics here: <https://store.jenvey.co.uk/synchrometer-39-55mm-sync10>



1. To do this you must start the vehicle and let the engine get up to temperature.
2. Set the idle speed of the vehicle to approximately 800RPM, using the idle control screw as shown above, using a 3mm Allen key.
3. Place the “Synchrometer” in each air horn checking for equal air flow on all intake runners, if they are out of balance, use the adjustment screws as shown above.
4. To adjust the balance between the throttle bodies, loosen the hex nut with a 7mm spanner and alter the balance by adjusting the grub screw using a 2.5mm Allen key.
5. Repeat step 4 at higher RPM’s, ensuring the throttle bodies remain balanced throughout the rev range. Once the balance has been set, tighten up the hex bar while keeping the grub screw secure.

Now go enjoy your JENVEY throttle body kit!

