INSTALLATION MANUAL

GM LS 92mm Throttle Body

PFETBLS92BK

Included Items	QTY
PFETBLS92BK 92mm Throttle Body	1
PFE790-06BK Male -06AN to 3/8” Barb	1
PFE814-M10 M10x1.0 Plug	1

WARNING: PLEASE READ ALL INSTRUCTIONS BEFORE PROCEEDING. PROFLOW WILL NOT BE RESPONSIBLE FOR ANY DAMAGE AS A RESULT OF THE INCORRECT INSTALLATION OF THIS PRODUCT. IT IS RECOMMENDED THAT A QUALIFIED AUTOMOTIVE TECHNICIAN PERFORMS THIS INSTALLATION.

Typical Installation

Throttle Body Assembly

1. Install the IAC motor onto the Proflow throttle body (PFEQTBIAC - not supplied). Make certain the o-ring is correctly placed on the IAC and is lubricated.
2. Install with the plug orentated as shown in figure 1, using the 2x M4 button head screws supplied with the motor.
3. Torque these screws to 2.5 Nm while using a low strength loctite.

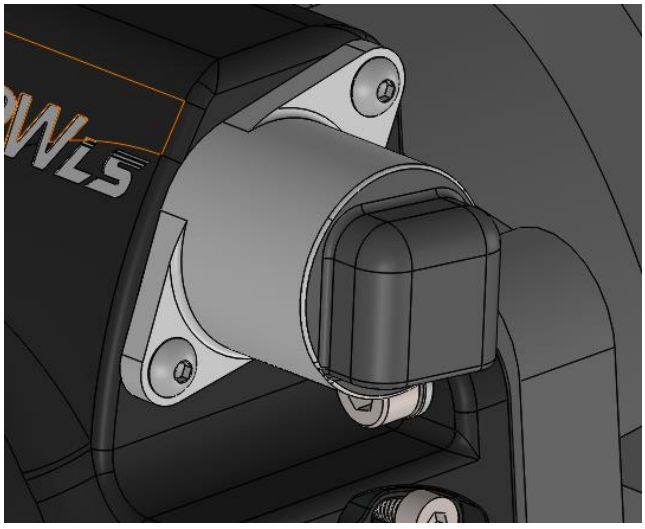

Figure 1: IAC motor configuration

4. Install the TPS (PFETBSTPS - not supplied) onto the Proflow throttle body. Make certain the o-ring is correctly placed on the TPS.
5. Align the D shaped socket in the TPS to the throttle body shaft and lightly press the TPS towards the throttle body.

6. Rotate the TPS slightly counter-clockwise to engage the locator pin into the slot on the TPS adaptor ring. Press inward to seat the TPS to the adaptor ring's face.
7. Fasten the TPS as shown in figure 2 using 2x M4 button head screws and torque to 2.5 Nm while using a low strength loctite.

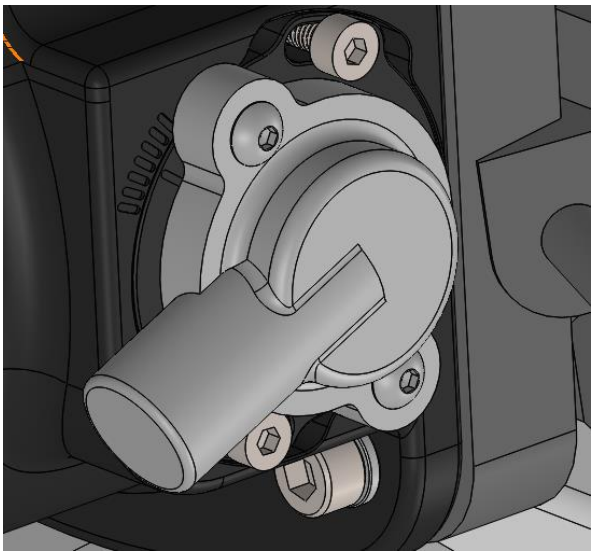

Figure 2: TPS configuration

***NOTE:** If it is required that the TPS be removed from the throttle body, care will need to be taken as the shaft is tight in the sensor's bore. Slowly and evenly work the sensor off the shaft. After removal, inspect the sensor for damage.*

PCV Valve Setting

1. Before installation, determine your PCV requirements. Most applications have a PCV tube that connects to the throttle body.
2. If you have a turbo or centrifugal supercharger, the PCV connection is not typically used and this passage will need to be closed with a plug (PFE814-06BK).
3. If you will be using the PCV valve as with most applications, connect the PCV tube to the barb adaptor on the throttle body when installing. A clamp may be required.

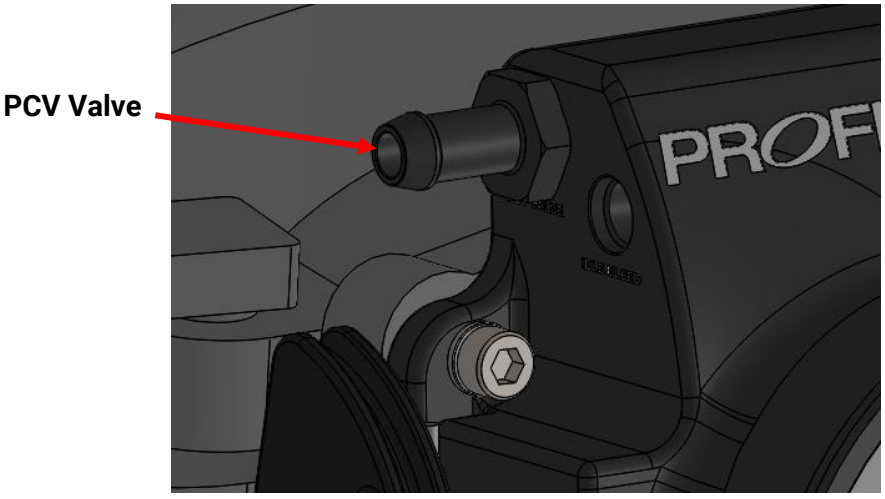

Figure 3: PCV Valve Barb

Throttle Body Installation

1. Disconnect the negative battery cable.
2. Remove the air intake lid and air intake duct.
3. Unplug the Mass Air Flow (MAF) sensor and intake air temp sensors (if applicable).
4. Disconnect the throttle position sensor (TPS) and idle air control (IAC) motor.
5. If there are coolant lines connected to the original throttle body, use a barbed coupler and clamps to join the lines together.
6. Remove the original throttle body bolts and throttle body from the intake manifold.
7. Ensure the intake manifold still has the o-ring in the manifold groove. If mounting to a custom manifold without an o-ring groove, use a gasket (not supplied).
8. Install the new Proflow throttle body to the intake manifold using the supplied bolts and washers. Torque these bolts to 10 Nm.
9. Install the throttle cable and cruise control cables (if applicable). The end of the throttle cable should insert into the hole on the lever arm. Confirm the cable and cable arm is aligned and correct.
10. Install the PCV hose to the throttle body (if suitable for your vehicle).
11. Plug the harness to the TPS and IAC electrical connectors.
12. Reconnect the battery and check the throttle movement at pedal and adjust the cable if required.

On-Engine Adjustments

1. Start the engine and observe the vehicles idle behaviour.
    - If idle is high, confirm the throttle cable is adjusted to allow the lever arm to rest on the blade idle screw and the cable is not holding the blade open excessively.
    - If idle is acceptable, bring the engine to running temperature and check the idle again.
    - If idle is not desireable, turn the key to the off position for 30 seconds. This allows the ECU to relearn the IAC's new position. Restart the engine and re-evaulate the idle.

    NOTE: *The ECU takes time to learn after engine components have been changed. It is recommended that the vehicle be driven for one to two hours to allow the computer to adjust to this throttle body before moving to the following adjustments.*
2. If idle is low or rough, adjust the idle bleed screw (figure 4). Screwing the idle air screw clockwise will decrease idle RPM. Unscrewing the idle air screw will increase idle RPM (detailed instructions on next page).

Idle Bleed Screw Adjustments

The idle bleed screw is an adjustable passage around the throttle blade to increase idle if needed. The bleed screw allows idle adjustment without effecting the blade position and TPS output voltages at idle.

1. Remove the plug covering the idle bleed port and remove the screw completely.
2. Apply a medium strength loctite to the threads before screwing it back into the throttle body (the loctite once set, will ensure the screw will not loosen over time).

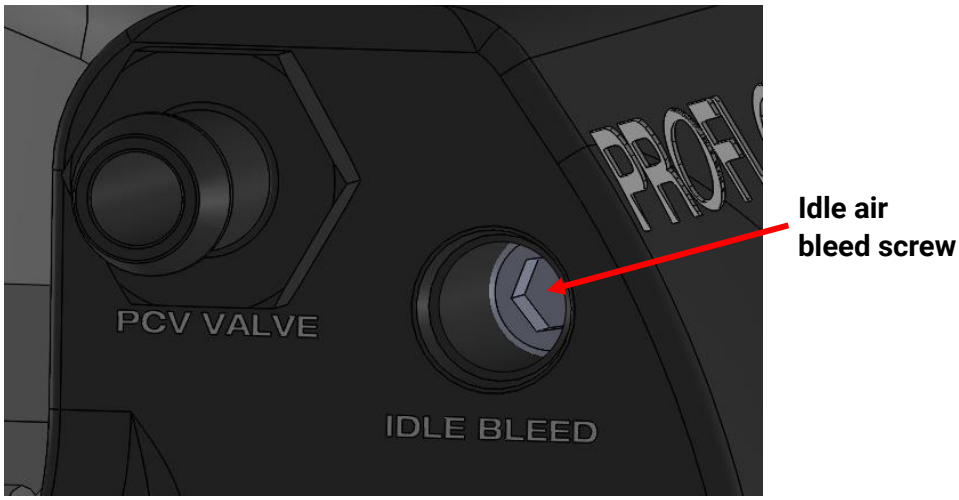

Figure 4: Idle air bleed screw

3. Start with the bleed screw rotated fully clockwise in the port (this is closed and the factory setting).
4. With the engine warm and at running temperature, begin to rotate the bleed screw counter-clockwise slowly to increase idle.
5. Set to preference. The fully open position is when the idle air screw is roughly halfway in the port. Re-install the 6AN port plug once satisfied with idle.
6. If the bleed screw is at its maximum open position and the preferred idle is still not obtained, throttle blade adjustment may be required (figure 5).

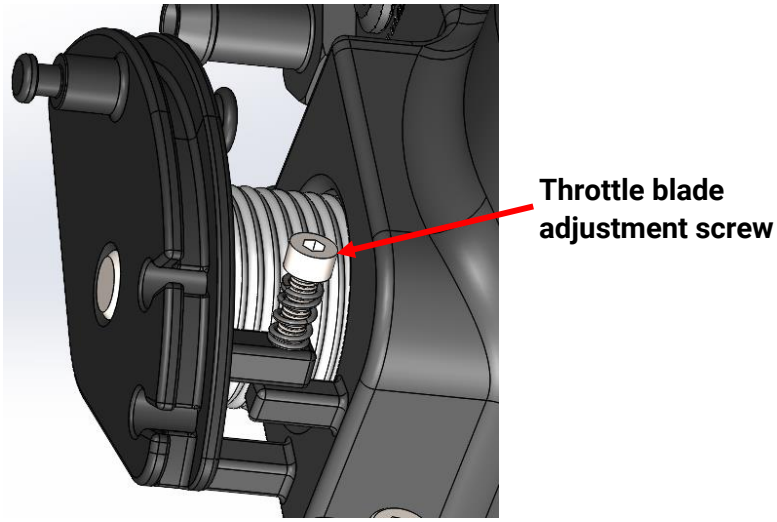

Figure 5: Throttle blade adjustment screw location

Throttle Blade Idle Adjustments

1. If idle is still low after the bleed screw has been adjusted, adjusting the blade screw can further increase idle. This will move the TPS output voltage up and potentially out of the range of what the ECU expects at idle (see TPS adjustments).
2. Turn the blade idle adjustment screw (shown in figure 5) clockwise in small increments to increase idle as needed. This will slowly open the throttle blade.

   NOTE: *If the blade idle adjustment screw is turned counter-clockwise to decrease idle, make certain the blade does not stick (with the engine cold and at running temperature). When closed, the the cable arm tab should rest on the blade screw, and not with the blade binding in the bore opening at any point.*

TPS Adjustments

We have added the TPS clocker adaptor to correct issues with ECU's reading incorrect voltages outside of its expected range, causing idle issues and engine code trouble. This feature allows the TPS to be rotated back into the ECU'S required idle voltage.

The adaptor utilizes the full rotational range of the typical TPS and gives a resulting idle adjustment of roughly 1 volt total (+- 0.5V). The TPS may need to be adjusted at wide open throttle in some cases (the ECU needs to see less than 5 Volts at WOT).

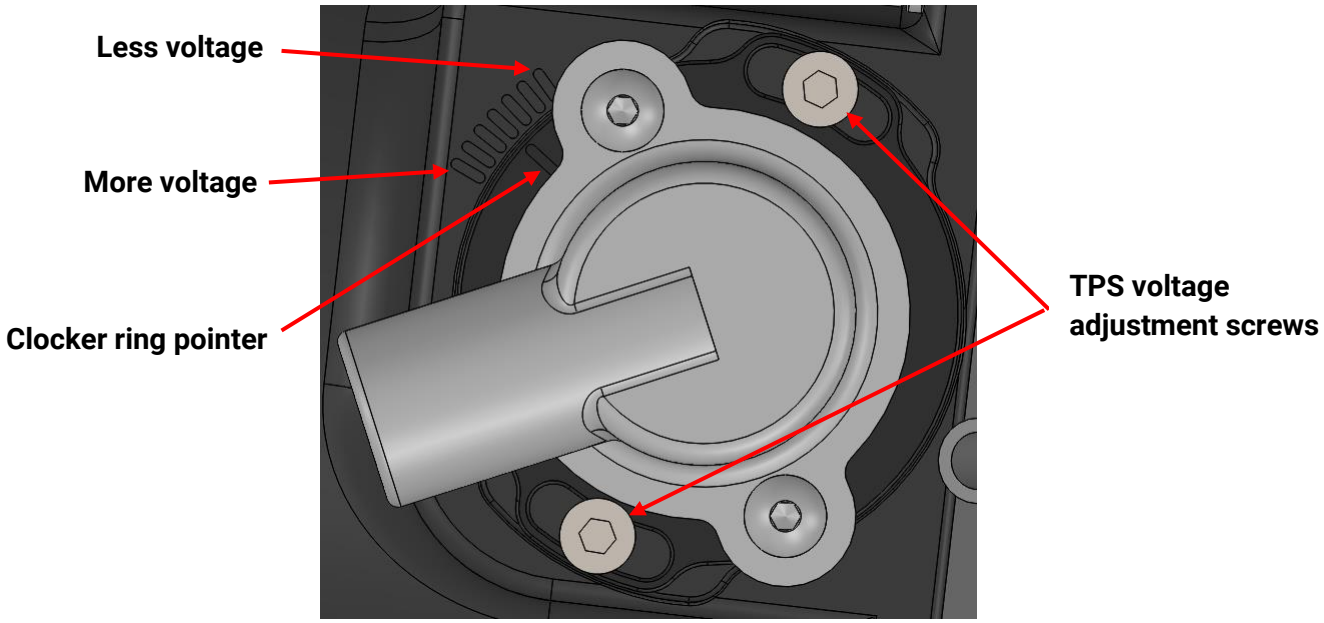

Figure 6: TPS adjustment diagram

1. As a rule of thumb, if the throttle blade is adjusted at the blade adjustment screw, rotate the TPS the same amount in the same direction the plate is rotated. This will keep the output voltage the same at idle.
2. If adjustment is required, readings can be taken to confirm TPS voltages are correct (voltage should be roughly 0.5 V at idle). This can be done using a scanning tool or multimeter. Please contact an automotive professional if you are unsure of this.

   In some cases, the ECU may need to be tuned after adding the throttle body.