



# Job Aid –Throttle Body/Plate Cleaning

Reference No.: GOPRO TBPC 2014

**Carbon, varnish and sludge deposits tend to accumulate around the throttle body and plate.**

- These deposits are caused mainly by combustion by-products drawn in through the PCV system and the EGR system.
- These deposits reduce air flow, which is critical during warm up, idle and deceleration. Thorough cleaning can alleviate many of these pesky drivability symptoms.



## **Cautions:**

- Never spray cleaner into mass air flow sensors (see illustrations, left), honey combs, or sensitive electronic parts.
- Use cleaner sparingly, a little goes a long way!
- Never spray throttle body cleaner into the engine while it is running.
- Always use approved throttle body / air intake cleaner, never use carburetor cleaner.
- Remove throttle pedal depressor before starting vehicle.
- Always use Safety glasses



**Remove the air intake boot from the throttle body.**



**With Engine Off**, use the throttle pedal depressor to hold the gas pedal against the floorboard. This will open the throttle plate all the way to facilitate complete cleaning.

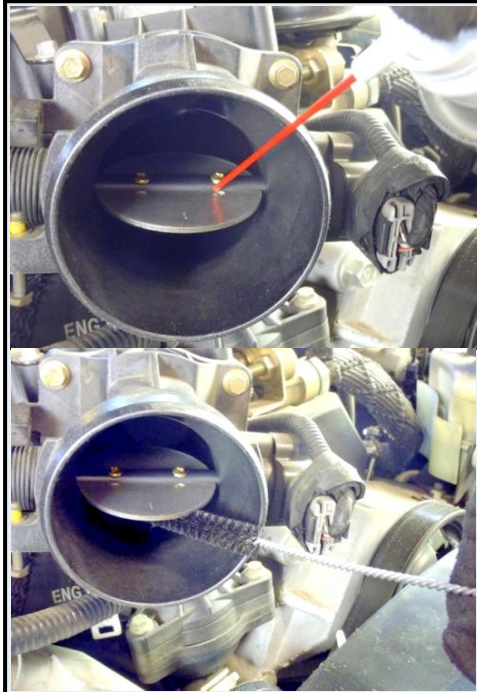
**Tip:** On “drive by wire” vehicles (vehicles that don’t have a throttle cable), leave the key in the “on” position without starting the engine.

Use the throttle depressor to hold the gas pedal to the floor.

The throttle stepper motor will open the throttle plate all the way on most vehicles.



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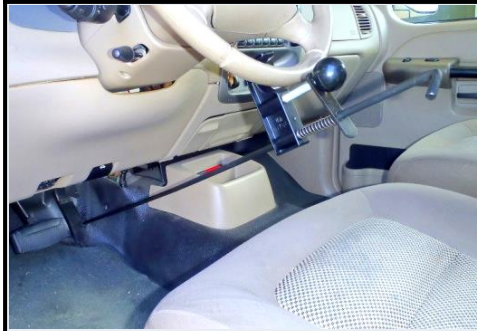
## Throttle plate and body cleaning

- Lightly spray the throttle plate and surrounding throttle body area with approved cleaner. Allow cleaner to soak for 30 seconds.
- Scrub deposits with a soft bristle throttle brush or old tooth brush (never use a wire brush), then wipe clean with a soft, clean shop rag. Very dirty throttles may require duplicate cleaning.



## Reinstall throttle boot

- Make sure the throttle boot is clamped around the entire diameter of the throttle body. If not, it will result in un-metered air entering the engine. This can create stalling, check engine lights and general poor performance.



## Remove throttle depressor before starting the vehicle!



**Start the vehicle and purge any residual cleaner from the engine before proceeding with the fuel and induction service.**



# Gumout Professional

## Job Aid – Chemical Engine De-Carbonization

Reference No.: GOPRO CEDC 2014

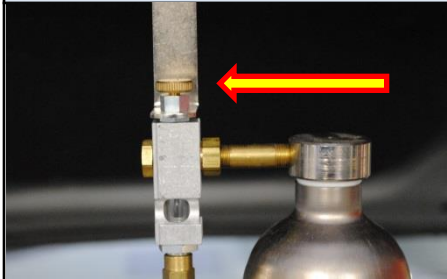
### Safety Requirements

- Use Throttle body cleaning job aid in conjunction with this job aid
- Always use Safety Glasses and gloves
- Bring engine to normal operating temperature
- Use in a well ventilated area
- Do not apply induction cleaner to diesel, rotary or direct injection engines that do not have a throttle plate.



### Fuel System Cleaner

1. Pour contents of bottle labeled Fuel System Cleaner into the gas tank.
2. Properly secure gas cap.



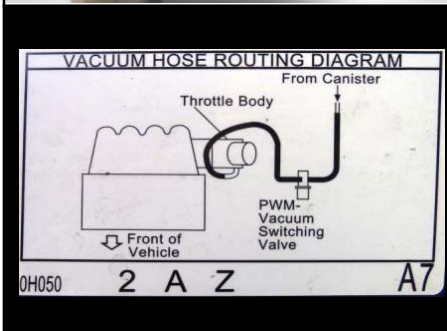
### Induction Cleaner Bottle Set up

1. Turn applicator flow control dial to the closed (full off) position.



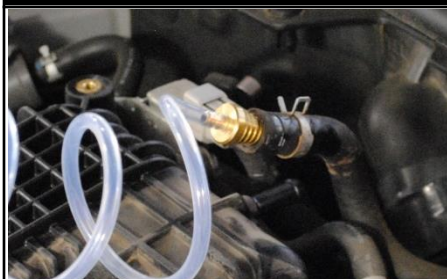
2. Pour entire contents of bottle\* labeled Induction Cleaner into the induction cleaner applicator.
3. Hang the applicator from the hood.

\*bottle style/shape may vary



### Vacuum Source Selection

1. Locate a strong manifold vacuum source as close to the throttle plate as possible to distribute cleaning solution to all cylinders.
2. Connect the applicator tip to the selected vacuum source.



Note how the selected vacuum hose originates from central and just behind the throttle plate. Always select a location like this. Never use a vacuum port that originates from an individual intake runner.





# Gumout Professional

## Job Aid – Chemical Engine De-Carbonization



### Alternative Method for Vacuum Source

1. Locate the Idle Air Control Valve (IAC) mounted on top of Throttle Body.

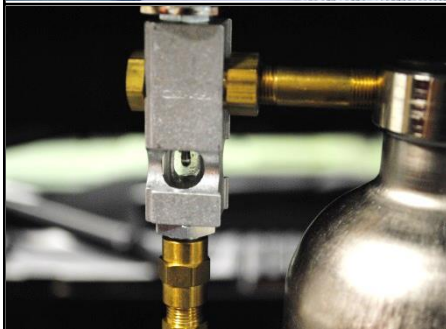


2. Tear off one of the small flaps on the kit box and use it to block off the complete (IAC) opening, and insert the applicator tip into the flap.



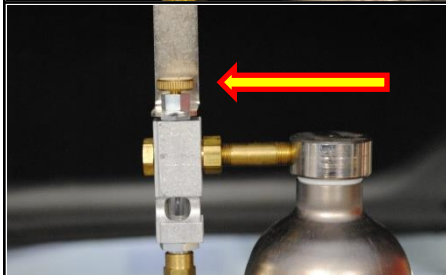
### Pedal Depressor Application

- Start the engine, increase and stabilize engine speed to between 1,200 and 1,500 RPM using a throttle pedal depressor or other appropriate means.



### Drip Rate Selection

- Adjust the flow control dial so that the rate of flow in the sight glass is a fast, steady drip, but not a stream.



### Completion of service

1. When the applicator is empty, turn the flow control valve to the closed position. Run the engine at 1,800 to 2,000 RPMs for 1 to 2 minutes to purge cleaner from the system.



2. Disconnect the applicator bottle and re-connect the vacuum hose and anything else that was disconnected.

3. Perform a quality control road test of at least 1 mile.