

## **hrottle Minimum Air Position**

Tools needed:

1. Torx driver # T-20
2. Paper Clip
3. Small Punch
4. Tachometer

GENERAL NOTE: The engine should be at normal operating temperature before performing any adjustments. Never rely on the dash mounted instruments for diagnostics and adjustments. The oil pressure and temperature gauges and the voltmeter and tachometer just aren't calibrated accurately enough for diagnosis, but are a relative indication for monitoring the vehicle while driving.

For this adjustment, the transmission will be in DRIVE while you're under the hood. You will need to securely set the parking brake and block the drive wheels. It would also be a good idea to have an assistant hold the service brake while you perform the adjustments.

In order to successfully complete the adjustment, the IAC air passages and pintle need to be clean. The throttle plates and bores need to be clean as well. If this is not the case, you'll need to remove the air cleaner from TBI engines or the intake airbellows from TPI engines to gain access to the area to be cleaned. A spray-type carburetor cleaner works well for this. Cleaning the IAC passages on a TPI/MAF engine will set a DTC, but we'll be clearing that later. With the engine idling, direct the spray cleaner in to the IAC air passages and around the throttle plates. Shut off the engine and continue cleaning the throttle plates by opening the throttle manually. Once everything is satisfactorily cleaned, replace the air bellows on TPI engines. Many times, this alone can solve IAC/idle speed problems.

If this doesn't solve the problem, you may need to remove and clean the IAC stepper motor. If the IAC appears to be clean and functioning properly, continue with the adjustment procedure.

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### ***Idle Air Control Cleaning***

You can remove the IAC and service it. Remove the electrical connector from the IAC. Unscrew the IAC unit from the throttle body.

DON'T do what I did the first time! I removed the IAC, plugged it back in to watch operation, then turned on the ignition. The IAC stepped the pintle out to full extended position until the spring took over and launched the pintle across the garage. A while later, after moving a couple of other cars and several pieces of equipment, I found all the parts I needed to reassemble the unit.

You can gently rock the pintle back and forth and allow the spring to extend it until it comes apart in your hands. Clean everything with lint-free cloths and a mild solvent. Harsh solvents can affect the insulation of the stepper motor coils. It's generally the dirt and buildup on this worm shaft that causes sluggish IAC operation.

When the worm gear on the pintle shaft is clean and dry, apply one drop of clean light oil to the shaft and work the pintle back into the rack gears of the motor by the same rocking motion. It takes a while to get the pintle back into the worm gears, but you'll get it. It is important to get the pintle fully retracted into the housing so that the pintle is not forced against the gears when reinstalling the IAC unit in the throttle body.

While the IAC is out, clean the air passages in the throttle body. The oriface in the TB where the IAC resides is the seat that the IAC valve closes against, and it can accumulate a lot of carbon, dirt, and debris. The easy way to do this is with carburetor cleaner and a small stiff brush. Another "DON'T" - don't use your sister's toothbrush.

When everything is clean and dry, replace the gasket if it is damaged, apply a little anti-seize to the threads, and torque the IAC to the proper specs. (13 ft/lb for '85-'89 , 30 in/lb for 1990-on.) Proceed with setting the TPS and minimum air position.

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Cut and form a paper clip into a "U" shape. Insert the clip ends into the ALDL in the 'A' and 'B' sockets. Turn on the ignition, but don't start the engine. This will force the ECM into its diagnostic mode. Wait 30 seconds to allow the IAC pintle to fully extend. Under the hood, remove the electrical connector from the IAC, then turn off the ignition and remove the paper clip jumper from the ALDL. With the IAC pintle fully extended (closed) all idle air will be controlled by the position of the throttle plates. Some manuals indicate that the EST bypass connector should be disconnected for this procedure, while some make no mention of it. While timing is a factor in idle speed, the EST should only operate as a function of engine RPM, temperature, and detonation sensor inputs. To remove all doubt, disconnect the EST bypass connector if your car is so equipped. Some TBI and V-6 engines do not have this bypass connector, and therefore must be set with no regard to the EST system. The EST can be bypassed on some cars by grounding the diagnostic terminal at the ALDL

and continuing with the procedure, but the fuel mixture will be skewed to the rich side, affecting idle speed as well. In any event, the minimum airposition idle speed range is wide enough to allow for some variations. As always, it is best to consult your service manual for the exact procedure for your system.

Locate the Torx screw on the left side of the throttle body (when facing the TBI from the front of the car it should be on the right side). It may be equipped with a protective metal cap from the factory. This was intended to discourage adjustment. If the cap is present, use a small punch to knock it out. Once the screw is accessible, start the engine and place the transmission in DRIVE. Adjust the throttle stop to obtain 450-500 RPM with the transmission in "DRIVE", rotating the Torx screw clockwise to raise speed and counter-clockwise to lower speed. Once the idle RPM is set, place the transmission in PARK and turn off the engine.

Re-connect the electrical connector onto the IAC. Start engine. Idle speed should be governed by the ECM at approximately 650 rpm in "DRIVE" (for unmodified cars). Idle speed in NEUTRAL or PARK is less significant, and will be higher.

Source: [www.thirdgen.org](http://www.thirdgen.org)

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