

THROTTLE BODY CLEANING

2000 DODGE DURANGO WITH 4.7L ENGINE

DISCLAIMER!

These instructions are based on my experience with removing and cleaning the throttle body and from information obtained from the 2000 Durango Factory Service Manual. They were originally my notes for use when I have to do it again. They are as complete and detailed as I can make them, however they are provided for informational purposes only and you should follow or use them at your own risk! Other year models may be different; other engines ARE different. If something on yours seems different, it may well be! Use your head and be careful.

CREDITS

The basis for these instructions is the information provided on the Dakota-Durango web site at:
<http://www.dakota-durango.com/performancetips.html>

The instructions for cleaning the throttle body and IAC solenoid are near the bottom of this web page, however it was written for the 5.2 and 5.9 liter engines. The 4.7 is slightly different.

TOOLS REQUIRED:

1. 8mm socket or nut driver
2. 10mm socket or nut driver
3. T-25 Torx screwdriver
4. Carburetor / Throttle Body cleaner
5. Compressed air (a compressor or just a can of compressed air from an office supply store)
6. Old toothbrush
7. Q-tips
8. Shop rags
9. Shallow pan for cleaning the throttle body in.
10. Safety glasses
11. A WELL VENTILATED place to clean the throttle body (read that as meaning outside if at all possible!)

THROTTLE BODY REMOVAL STEPS

1. To prevent the engine from inadvertently starting remove the negative battery cable. Note that this may cause you to lose settings in your radio and clock. Skip this step if desired, but do so at your own risk!
2. If you have an aftermarket alarm system with a remote start capability and chose to skip Step 1, make certain your remote starter is in "Valet" mode or whatever is necessary to prevent the engine from starting while the vehicle is being serviced.
3. Disconnect the hose between the air cleaner box and the air hat at the air hat end. There is a hose clamp over the end of the hose. Loosen it using an 8mm socket and remove the hose from the air hat (if necessary you can remove the hose entirely, but it should not be necessary).

4. Remove the air hat from the throttle body.
 - a) There are two 10mm bolts that need to be removed, one on the right side of the engine (your left as you face it) pointed horizontally across the engine, and another 10mm bolt on the left side of the engine going vertically down. Both bolts go into brackets on the intake manifold.
 - b) There is also a hose clamp that clamps the air hat to the throttle body. It has an 8mm bolt on it. Loosen the hose clamp, and the air hat will slide off the throttle body. You may have to twist slightly since there is a rubber gasket on the mouth of the air hat.
5. Disconnect the throttle linkage. There are apparently at least two variants.
 - a) The FSM shows one with an egg-shaped cable end going into the side of a bell crank. To remove this one open the throttle by hand and slide the connector off of the FRONT of the bellcrank stem. DO NOT try to pry it off sideways or you may break the bellcrank.
 - b) My Durango has a cable that runs over the top of the bellcrank, and the cable has a barrel-shaped end. To remove this one open the throttle by hand, and rotate the cable toward the front of the engine. There is a slot in the bellcrank and when the slot is aligned with the cable it can be slid out the side of the bellcrank.
4. Disconnect the cruise control cable. Open the throttle by hand, and slide the end of the cable forward to disengage it from the bellcrank. DO NOT try to pry it off sideways or you may break the bellcrank.
5. Disconnect the vacuum line to the PCV valve. This line is on the left side of the throttle body (the right side as you face the engine), and is the only vacuum line on the throttle body. It will twist off.
6. Disconnect the electrical connectors for the IAC (Idle Air Control) motor and the TPS (Throttle Position Sensor). Both of them have a tab on top that must be depressed to disconnect the connector. The MAP (Manifold Air Pressure) for the 4.7L engine is not on the throttle body, it is on the intake manifold so there are only two sensors.
7. Remove three 8mm bolts connecting the throttle body to the intake manifold.
8. Remove the throttle body from the intake manifold. Do not lose or damage the large "O-ring" between the throttle body and intake manifold (I use "O-ring" because that's what it says in the FSM, but in actuality it's an odd-shaped generally rectangular seal.)
9. Cover the intake manifold opening with a shop rag to prevent anything from falling into it. Don't stuff the rag down into the intake manifold, just drape it over the opening. That way you can't forget to remove it when you replace the throttle body.

DISASSEMBLY AND CLEANING

1. There are two sensors on the throttle body. The TPS (Throttle Position Sensor) is toward the front, and up toward the top of the throttle body. It does not need to be removed to clean the throttle body assembly. If you do remove it take careful note of where the shaft of the throttle blade fits into the TPS and be sure to reinstall it the same way.
2. The IAC motor is at the rear bottom of the throttle body and is held on with two T-25 Torx screws.
 - a) Take note of which side of the electrical connector for the IAC motor is on top so you can reinstall it the same way.
 - b) Remove the IAC motor from the throttle body. The IAC motor has a long plunger that goes down into a passage in the throttle body. This passage, and the shaft itself, tend to accumulate a lot of combustion residue and as such the IAC motor may seem to be stuck. (mine was so gummed up it made a sucking sound when I pulled it out!) If the IAC

motor does not pull out of the throttle body easily, DO NOT force it. You can reach a finger into the hole in the throttle body at the end of the plunger and push to assist in removal of the IAC. The IAC motor can be broken if you are not careful.

- c) Once the IAC motor is off the throttle body be careful not to drop it since that would most likely damage it.
 - d) Also be careful not to lose the O-ring that fits between it and the throttle body or get any cleaner on the O-ring that would damage it.
3. Take the throttle body outside or into a WELL ventilated area. The fumes from carb/TB cleaner are very strong, and very flammable. It is best to do the cleaning outside. Also be sure to wear safety glasses. Blasting spray cleaner into the cracks and crevices of the throttle body can cause it to splash back in your face. If this happens follow the recommendations on the container, but at the very least flush your eyes thoroughly with running water!
 4. Put the throttle body in a pan and thoroughly spray it with cleaner.
 - a) Open the throttle blade by hand so the entire bore of the throttle body gets cleaned.
 - b) Pay special attention to the IAC passage as it tends to get heavy deposits in it.
 - c) Use an old toothbrush on heavy deposits, but do not scrub hard. Use Q-tips as necessary but be sure not to leave any cotton residue in the throttle body. Just a little brushing is usually all that is necessary and the deposits will dissolve.
 - d) Let the cleaner soak for a minute or so then blow the throttle body out with compressed air. Finish by removing any deposits from the cleaner with a shop rag.
 5. If the throttle body is not completely clean repeat step 4.
 6. Carefully clean the IAC motor plunger with carb/TB cleaner.
 - a) Point the plunger downward so that residue will run off into the pan instead of running into the motor itself.
 - b) Use a toothbrush or Q-tips as necessary, but be careful and do not use undue force.
 - c) Support the plunger while cleaning by laying it along a finger (yes it's nasty and it isn't good for your skin but you can wash your hands later and use some hand cream, and it's cheaper than buying a new IAC stepper motor).
 - d) Be careful! DO NOT twist on the IAC motor shaft or you will damage it. DO NOT drop the IAC motor or you will damage it.

REASSEMBLY

1. Before reassembling the throttle body look one more time to insure that there is no lint or other residue left inside.
 - a) Blow it out thoroughly with compressed air.
 - b) Make sure the throttle body is dry of cleaner and moisture.
 - c) Remember that anything left in the throttle body is going to get pulled straight into your engine.
2. Make sure that the mating surface where the IAC plunger seats on the throttle body is clean and free of debris.
3. Reinstall the IAC motor on the throttle body using the original T-25 Torx screws. Make sure that the O-ring is properly seated between the body of the IAC motor and the throttle body.

Also make sure the proper side of the electrical connector is at the top (I don't think this really matters, but why take chances).

4. If you removed the TPS reinstall it and make sure that the shaft from the throttle blade fits into the TPS exactly as it was when you removed it.
5. Inspect the large O-ring that fits between the throttle body and the intake manifold for damage. Replace if necessary (it should not be necessary).
6. Place the throttle body over the opening in the intake manifold (don't forget to take the rag off of the intake!). There are pins on the intake manifold that are used to align the throttle body.
7. Reinstall the three 8mm bolts that hold the throttle body to the intake manifold. Tighten to 105 inch pounds (8.75 ft lb) of torque.
8. Reconnect the electrical connectors to the IAC motor and the TPS. One is blue and one is white, just match the colors. Make sure they snap closed.
9. Reconnect the throttle linkage and cruise control linkage.
10. Reconnect the vacuum hose.
11. Reinstall the air hat over the throttle body. Make sure the gasket between the throttle body and air hat fits properly over the air hat. Do not tighten the hose clamp yet.
12. Reinstall the two 10mm bolts that mount the air hat to the intake manifold. You may have to adjust the position of the air hat slightly to get them to line up (which was why the clamp was left loose in step 9).
13. Tighten the hose clamp between the air hat and throttle body.
14. Reconnect the hose between the air hat and air filter box, and tighten the hose clamp.
15. Reconnect the negative battery cable.

CHECKOUT

1. Start the engine and let it idle without pressing the accelerator for about a minute. This will let the PCM "Learn" the new idle airflow.
2. If the engine idles high shut it off, wait a few minutes and restart it. The PCM only checks some engine parameters when the engine is "Cold Started". Sometimes after cleaning the throttle body the engine will idle high, sometimes it doesn't (mine did not, another person told me that his did). This should go away when the PCM learns the appropriate position of the TPS and IAC for proper idle speed, however that could take several cycles of "Cold Starting" the engine.
 - a) If you removed the TPS check and make sure that it was reinstalled properly. The shaft from the throttle blade can rest on either side of the lugs in the TPS. If it is on the wrong side it can change the idle speed.
3. If high idle continues after a few cycles of turning the engine off and restarting you can manually reset the PCM. Doing this may cause you to have to reset certain things such as your clock, radio stations, etc.
 - a) Disconnect the negative battery cable.
 - b) Turn the ignition key to "Start" and hold it for about 15 seconds (the engine obviously won't start or even turn over without the battery cable connected).
 - c) Reconnect the battery cable.
 - d) Start the engine and let it idle for about a minute without pressing the accelerator. This time the idle speed should be back to normal (around 500 RPM).