



VG30DE(TT) Drive By Wire Throttle Linkage

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Parts List

(Qty)	Description
(1)	DBW Linkage Assembly
(1)	Dual Channel Throttle Position Sensor (TPS)
(1)	TPS Adapter
(2)	Throttle Body Return Spring Delete Spacer
(2)	M4x0.7x12 SS Allen bolt
(2)	M4x0.7x8 SS Allen bolt w/washer
(1)	Deutsch DTM-6 Position Male and Female Connectors for TPS
(1)	Deutsch DTM-2 Position Male and Female Connectors for DBW motor
(3)	M8x1.25x25 Bolt w/washer

Tools needed for installation

- 2.5mm Allen wrench
- 3mm Allen wrench
- 6mm Allen wrench
- 8mm socket
- 10mm wrench
- 12mm wrench
- 1/4" socket driver
- Open barrel Deutsch DTM terminal crimpers
- Lubricating oil or assembly grease

Other Parts You Will Need for a Complete Installation

1. IACV block off plate
2. DBW throttle pedal (C6 pedal is recommended)
3. DBW Z32 pedal adapter (LOJ Conversions is recommended)
4. ECU with DBW capability

Always lubricate threaded holes and bolt threads prior to assembly to prevent stripped threads.

Disassembly and Prep

1. Remove the upper plenum from the engine.
2. Remove the throttle bodies (TB or TBs) and cable operated linkage from the upper plenum.
3. Remove linkage nuts, lock washers, and drive tabs from both ends of the cable operated linkage. These will be re-installed onto the DBW linkage.
4. Disassemble the throttle return springs from both throttle bodies by removing the nuts with a 12mm wrench - retain the end nuts, lock washers, and drive tabs (circled in figure 1).
5. Use pliers to grab and twist the spring retainer to release the spring tension and remove the springs (see figure 2).

Note, a throttle return spring is located inside the DBW case, so the stock TB return springs must be removed to prevent overloading the DBW motor.

6. Clean the throttle body bores and throttle plates to prevent them from sticking when fully closed.
7. Clean the TB and linkage mounting threads in upper plenum to remove residual loc-tite.



FIGURE 1 - disassembly of throttle body return spring mechanism

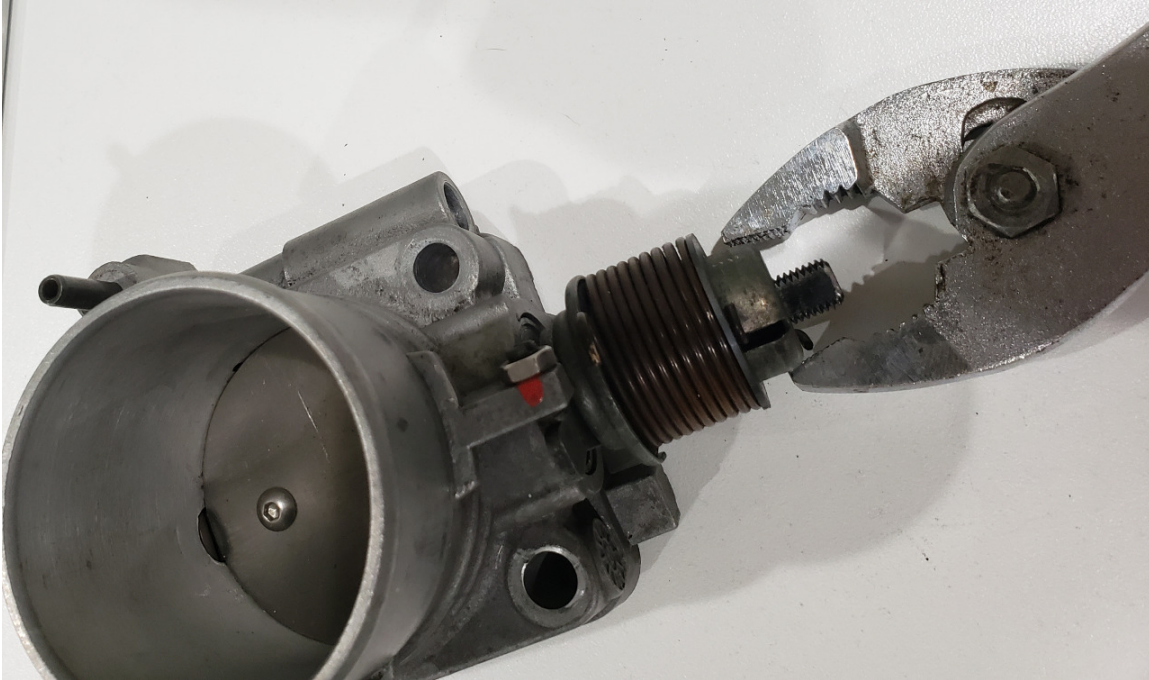


FIGURE 2 - using pliers to grab and twist spring retainer for disassembly

Throttle Body Assembly

- After cleaning, verify the TB throttle plates do not stick when rotated to fully closed. Adjust the TB stop screws if needed.
- Install the BDE spring delete spacer onto the driver side TB with the spacer's counter bored end facing towards the TB.
- Install the BDE spring delete spacer onto the passenger side TB with the spacer's counter bored end facing away from the TB.

DBW Linkage Assembly

- Install the drive tabs, lock washers, and linkage nuts which were removed from the cable operated linkage onto DBW linkage assembly (note the drive tabs must face forward). It is easy to cross-thread the nuts on the shaft's partially threaded ends, so install these by hand and only tighten with a wrench after you have verified both are threaded on correctly.

Installation of DBW Linkage and TBs

1. Install the DBW linkage assembly onto the upper plenum using the three M8 x1.25x25 bolts and washers and leave all three bolts slightly loose.
2. Route the DBW wires to the passenger side of the DBW case, on to the center of the upper plenum, and then towards the back of engine.

3. Install both throttle bodies onto the upper plenum. Note the spring loaded plungers on both ends of the TB drive tabs each have a small hole in them for a wire to be inserted into and hold the plungers down, making engagement of the drive tabs easier. Remember to remove these wires afterwards.
4. Tighten the TB bolts.
5. Tighten the three mounting bolts for the DBW linkage assembly.

TPS and Adapter Assembly

1. Using the two M4x0.7x12 Allen screws, install the TPS adapter onto the driver side TB and leave the screws slightly loose.
2. Locate the flat on the end of the driver side TB shaft and align it with the flat of the TPS drive socket. Push the TPS onto the TB shaft and rotate the exit wires to face towards the back of the engine.
3. Install the two M4x0.7x8mm Allen screws with washers to hold the TPS. Rotate the TPS so its mount screws are centered in its adjustment slots and tighten the screws.
4. Tighten the two screws you left slightly loose in step 1. This ensures the assembly is properly centered on the throttle shaft and any misalignment is minimized.

Throttle Soft-Closed Verification

At this point the DBW should be holding both throttle plates slightly open, this is the DBW soft-closed position and this helps the engine to start faster.

Throttle Full-Closed Verification

- With your hand, hold a drive tab on the DBW linkage and twist its shaft to fully close the TBs.
- Verify both throttles are fully closed and engaging their adjustable stop screws.
- If either TB is slightly open, use the adjustable linkage on the driver side TB (circled in figure 3) to equalize their setting so that when rotating the DBW shaft by hand, both throttles are closed and engage their stop screws simultaneously. If you cannot get both TBs to be fully closed when twisting the linkage by hand, refer to **Soft / Full-Closed Adjustment** section further below.

Throttle Wide-Open Verification

- With your hand, hold a drive tab on the DBW linkage and twist its shaft to fully open the TBs until it stops.
- You will notice the stops on both TBs (arrows in figure 3) do not touch their stops on the castings - this is normal, these stops allow a +5° over-rotation and opening the throttle this far does nothing to increase airflow or power.
- The DBW linkage has an internal stop which limits the throttles to be fully open at 90°.

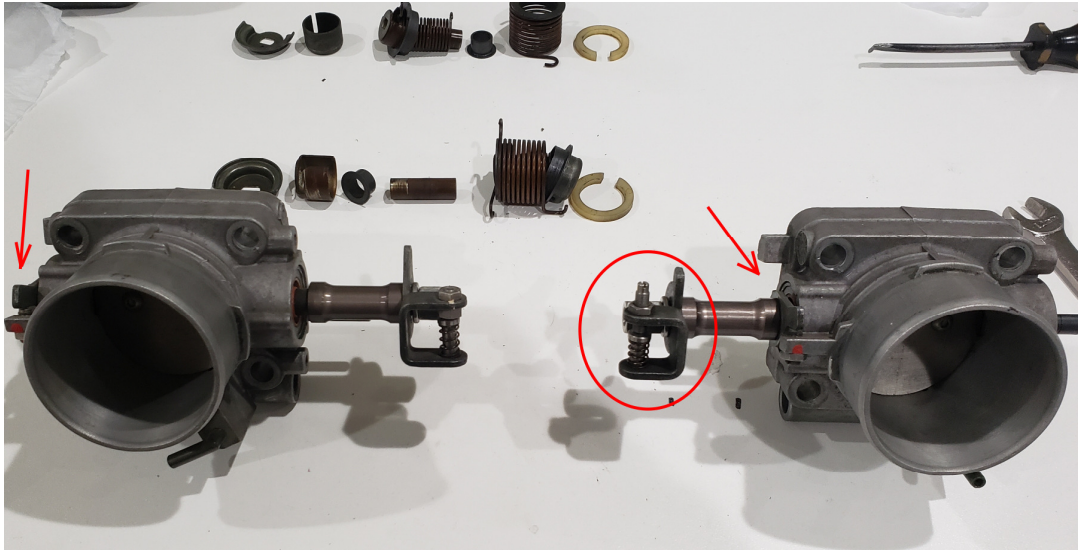


FIGURE 3 - throttle bodies with BDE spring delete spacers installed

Soft / Full-Close Adjustment

You will need to remove the DBW from the upper plenum to access the Soft / Full-Closed adjusters. They are located on back-bottom of the DBW case and should not need to be adjusted. Inspect all of your linkage hardware thoroughly for damage or bent parts before adjusting these screws.

If you find that you need the throttles to be adjusted in either position, loosen the appropriate 8mm lock nut (identified in figure 3) and rotate its set screw - CW rotation will open the throttle while CCW rotation will close the throttles. Lightly tighten the lock nut(s) when finished using a 1/4" socket driver.

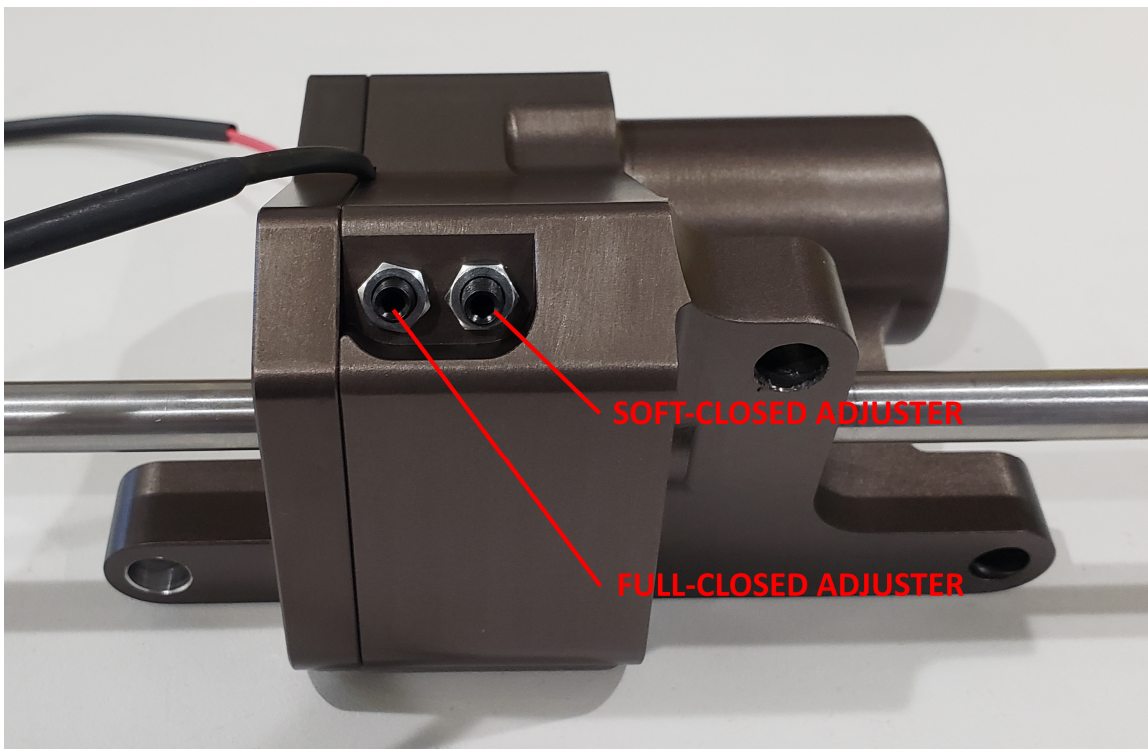


FIGURE 3 - DBW Soft / Full-Closed Adjustment Location