Instruction Data Sheet

VW/AUDI 01M, 01N, 01P

PART NUMBERS 119940-03K, -05K, F-119940-TL3, -TL5

Oversized Boost Regulator & Main Regulator Valve Kits

Main Regulator Valve Kit
119940-03K
1 Valve
1 Spring
1 End Plug
2 O-Rings (1 extra)

TOOL REQUIRED

Tool Kit for 119940-03K
F-119940-TL3
1 Reamer
1 Reamer Jig
1 Guide Pin

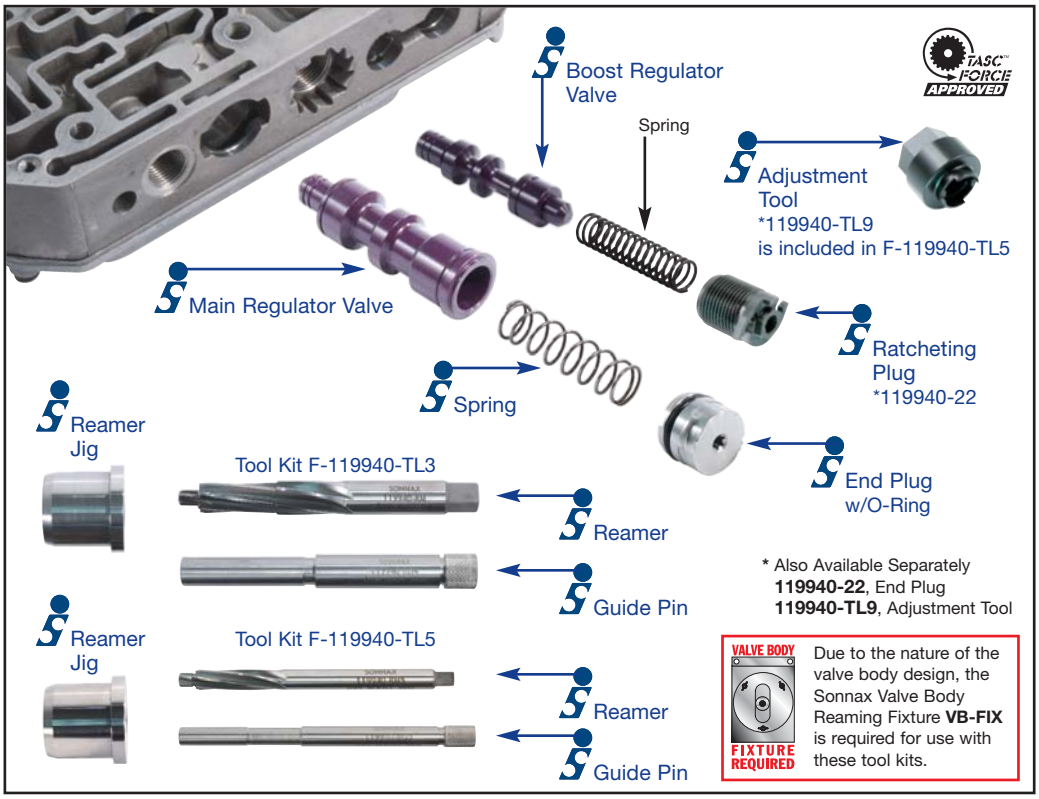
VALVE BODY FIXTURE REQUIRED

Boost Regulator Valve Kit
119940-05K
1 Valve
1 Ratcheting Plug

TOOL REQUIRED

Tool Kit for 119940-05K
F-119940-TL5
1 Reamer
1 Reamer Jig
1 Guide Pin
I Adjustment Tool

VALVE BODY FIXTURE REQUIRED



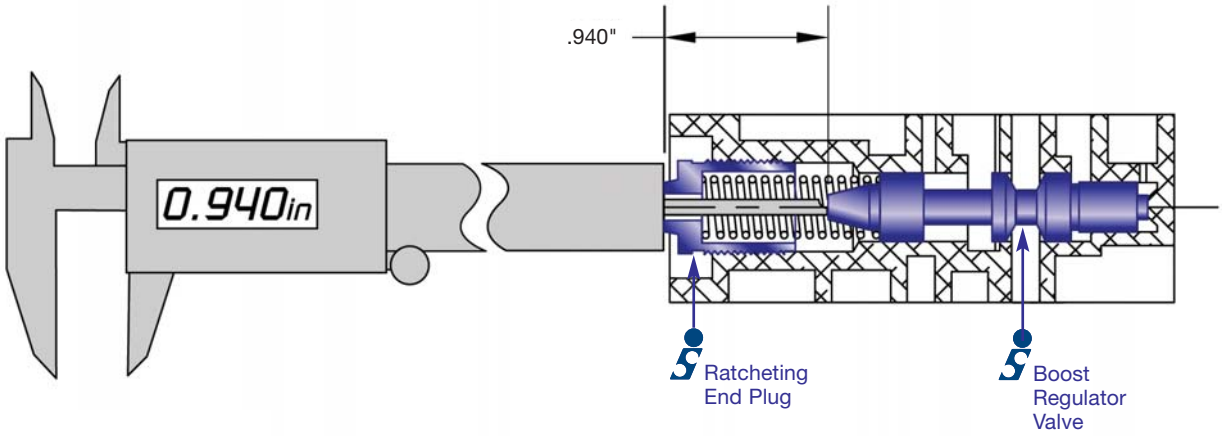
Ratcheting End Plug Removal:

Note: Prior to removing the ratcheting end plug from the bore, measure and note how deeply it is installed. The replacement plug should be installed to this same depth to ensure proper line pressure control. The most accurate method is to insert a slide caliper rod through the hole in the plastic plug until it bottoms against the control valve. Bring the caliper end toward the plug until flush. This gives you the spring height adjustment from the plug to the valve. Record this measurement before removing the plug and duplicate this distance during reassembly to most accurately duplicate the spring compression setting. If your caliper will not pass through the hole, measure from the valve body casting surface to the outer face of the OEM plug and duplicate later.

The adjustment tool may be used during removal of either the OEM or Sonnax ratcheting end plug at the boost regulator valve bore.

Using the tool prevents breakage of the 2 anti-rotational tabs. The adjustment tool is provided in the **F-119940-TL5** tool kit.

1. To remove the ratcheting end plug from the bore, gently insert the cam end of the tool into the valve body bore and over the end of the end plug.



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2. Carefully rotate the tool counterclockwise until the tool seats fully against the plug and the anti-rotational tabs are enclosed fully in the cam.
3. Continue rotating tool to the left, until the end plug is removed from the bore. The tool has a 3/4" hex head so a socket or wrench may be used.

Note: Before reaming any bores, inspect the main pressure regulator valve. 01M, 01N, 01P valve inner spools measure .5935" OD. If your valve inner spools measure .6095" OD, DO NOT CONTINUE. You have an 096, 097, 098 valve body and must order SC-096/097/098 and different tooling to continue with the repair.

Reaming Instructions:

Prep and Set-up

1. Remove all components from the bore.
2. Clean the bore thoroughly
3. To align the main pressure regulator bore in the fixture, follow the **VB-FIX** instructions. From tool kit **F-119940-TL3**:
   Use Jig F-**119940-RJ5** and guide pin **F-119940-GP4,** then ream with reamer **F-119940-RM**.
   To align the boost regulator valve bore in the fixture, follow the **VB-FIX** instructions. From tool kit **F-119940-TL5**:
   Use jig F-**119940-RJ6** and guide pin **F-119940-GP2,** then ream with reamer **F-119940-RM2**.

Note: Extra attention should be paid to alignment and securing of the valve body to the fixture on these bores. A very smooth action to insert and remove the guide pin after final securing is a must to provide easy, on-center reaming of these bores.

4. Soak the bore and reamer with cutting fluid (Mobilmet S-122, Lubegard Bio-Tap, Tap Magic™, etc.). For best results, provide a continuous flow of water-soluble cutting fluid (i.e. Mobilmet S-122) during the reaming process.
5. Gently insert the reamer through the jig and into the bore until the cutting tip contacts the first bore to be reamed.
6. Select the correct sized socket to fit the square shank of the reamer, and attach it to a wobble/swivel socket drive.

Reaming

Note: Once valve body alingment has been established on the **VB-FIX**, do not disturb or loosen the valve body setting or guide setting in any way until the reaming process is complete. Be sure to use plenty of continuously supplied cutting fluid while reaming these bores. The large amount of material being removed is more likely to cause reamer stalling than most operations. It is recommended that the reamer be removed carefully from the bore and cleared of chips four to five times during the reaming process.

1. The reamer should be turned by hand using a speed handle or by a low rpm, high torque air drill regulated to a maximum of 200 rpm.
2. The reaming action should be clockwise in a smooth and continuous motion, at 60-200 rpm. The reamer should actually pull itself through the bore, so little or no forward force should be applied.
3. Continue reaming until the reamer stop is reached. The approximate reaming time is 5 minutes.

Finish and Clean-up

1. Using low air pressure, blow the chips free before removing the reamer.
2. To remove the reamer, turn clockwise while slowly pulling outward on the reamer.
3. Remove any remaining debris from the bore with low air pressure and clean in a solvent tank.
4. Examine the bore after cleaning for surface finish, debris, and burrs. Flashing and burrs on the exit side of casting bores can be carefully removed with a small piece of Scotchbrite™ on the end of a long wire.
5. Clean the reamer after each use and store in its protective tube.

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Cautions and Suggestions

1. Turning the reamer backward will dull it prematurely.
2. Pushing on the reamer will result in poor surface finish and inadequate and sporadic material removal.
3. Never use a crescent wrench, ratchet or pliers to turn the reamer.
4. A dull reamer will cut a smaller hole.

Reassembly:

Main Pressure Regulator Valve

Install the Sonnax valve, Sonnax spring and the Sonnax o-ringed end plug as shown in the photo on Page 1. Lubricate the bore and o-ringed end plug prior to assembly and insert into bore slowly to prevent seal damage. An extra o-ring is included in case of damage.

Note: Be sure to use the new end plug and o-ring provided in the kit. They are not the same size as the ones that were removed. Substituting the original plug or original o-ring will negatively affect line rise.

Regulator Boost Valve

Install the Sonnax valve, OEM spring and the Sonnax ratcheting end plug as shown in the photo on Page 1.

1. To install the end plug, thread into the bore until the pre-measured height is again achieved.
2. Adjustments to the base setting may be required due to variations in the plug, valve body or improvements from either regulator bore. Initial setting on average OEM parts is .940" measured from the end of the valve to the outer face of the plastic adjuster. Turning the adjuster clockwise will increase boost pressure, line pressure and create firmer engagements as well as upshifts and downshifts. Counter clockwise reduces line pressure at idle and results in softer shifts. Each turn is approximately 8 psi alteration. One turn is drastic and we suggest you go by 1/2 to 1/4 turns. Outcome of this adjustment is monitored at line pressure tap.
3. A 5/16" socket may be used while threading the plug into the bore. However, the tool will be needed to turn the plug back out while adjusting to the correct setting.
4. It is very important to verify line pressure when installation is complete. OEM line in Drive is generally 50-56 psi. Reverse is 95-110 at idle. To obtain firm engagements or reduce flare, increase to line in Drive 60 (1/2 turn clockwise). Readjust if not within this range.

Note: OE line pressure port is a straight 10 x 1.0mm thread with a flanged plug. A line pressure adapter can be made from a common 1/8th NPT 45 degree adapter. Chase male thread on the adapter with 10 x 1.0 thread die. Gently screw adapter into the case and then screw pressure gauge into adapter.

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