sonnax

THE SURE CURE® 096, 097, 098

Transmission Reconditioning Kit

Full Compatibility

- Full compatibility with AG4 Phase 0 & 1 units.

  (For Phase 2 AG4 units use **SC-01M/01N/01P**.)

Valve Body Parts

- Oversized Main Regulator Valve Kit **(119940-08K)**
- Oversized Boost Regulator Valve Kit **(119940-07K)**
- Oversized Solenoid Regulator Valve Kit **(119940-06K)**

Required Tools

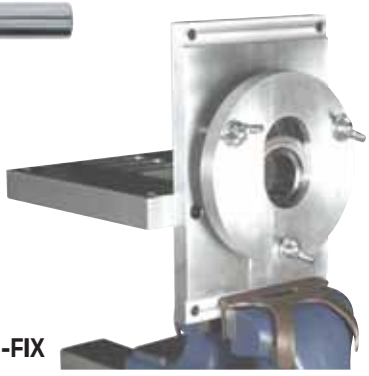
- Sonnax tool kit **F-119940-TL8** is required to ream the main pressure regulator bore.
- Sonnax tool kit **F-119940-TL7** is required to ream the boost regulator valve bore.
- Sonnax tool kit **F-119940-TL6** is required to ream the solenoid regulator valve bore.
- Sonnax tool **VB-FIX** is required for use with all the F- series tool kits mentioned above.

Part No. SC-096/097/098

Part No. F-119940-TL8

Part No. F-119940-TL7

Part No. F-119940-TL6



Part No. VB-FIX

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TORQUE SPECIFICATIONS:

Valve body to case bolts:	108 inch lbs.
Valve body halves:	71 inch lbs.
Pump to stator:	71 inch lbs.
Pump to case:	71 inch lbs.
Oil cooler to case bolts:	26 ft. lbs.

ELECTRONICS:

Solenoids are prone to contamination failures. Test on a solenoid tester or replace.

On-off solenoid resistance. 60 ohms (triangular brass insert on the end)

PWM solenoid (EPC). 5 ohms (round brass crimped onto end)

All On-Off solenoids are interchangeable – Sonnax **119952-01**.

EV6/ EPC solenoid– Sonnax **119954-01**

Wiring harnesses become brittle. Connector issues and intermittent internal breaks are common.

096 – Sonnax **119957**

097 – Sonnax **119957B**

098 – Sonnax **119955C**

BUSHINGS:

Inspect all bushings carefully.

Sonnax Bushing Kit **119905-01K**

GENERAL NOTES/CAUTIONS

Do not forget to fill the differential on 01M/096 units. These have a separate sump from the ATF.

Use 80-90 synthetic gear lube. Fill and check location is the driven speedometer gear. Gear lube should be visible on half of the driven gear tooth.

Aftermarket fluid preference is partial synthetic ATF. Dexron III with an additive may be sufficient. VW/Audi fluid tends to varnish easily at higher operating temperatures.

High transmission fluid temperatures: Sonnax suggests the elimination of the OE antifreeze to ATF cooler mounted on the transmission.

All computer codes must be cleared before rebuilt valve body or transmission is test driven.

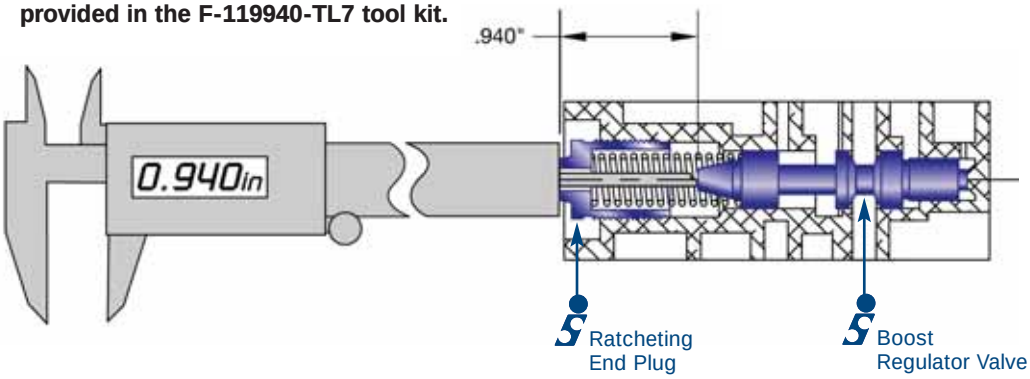
Valve Body Preparation:

1. Remove the boost regulator valve ratcheting end plug as outlined below.

Ratcheting End Plug Removal:

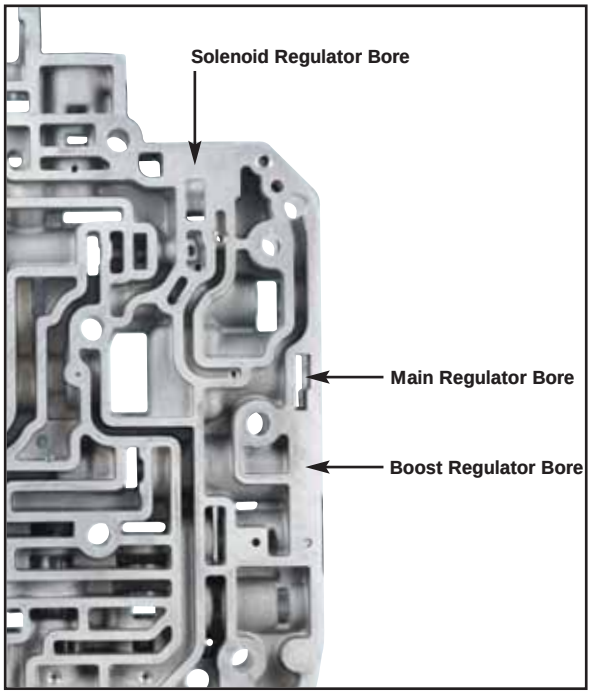
Note:

- **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-TL7 tool kit.**



2. Remove all other components from the valve body. Save all components at this time. Be sure to keep individual components of the various line-ups together, to help ensure that matched valve and spring combinations will be correctly installed together during reassembly. Clean the valve body after disassembly.

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



Reaming Instructions – Tool Usage:

1. To align the valve body for reaming with all the F-Series tool kits, follow the **VB-FIX** instructions.
2. Boost Regulator Bore: From tool kit **F-119940-TL7**, use jig **F-119940-RJ8** and guide pin **F-119940-GP5**, then ream with reamer **F-119940-RM5**.
3. Main Regulator Bore: From tool kit **F-119940-TL8**, use jig **F-119940-RJ5** and guide pin **F-119940-GP6**, then ream with reamer **F-119940-RM6**.
4. Solenoid Regulator Bore: From tool kit **F-119940-TL6**, use jig **F-119940-RJ7** and guide pin **F-119940-GP3**, then ream with reamer **F-119940-RM3**.

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

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Reaming Procedures – all bores:

1. 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.
2. Gently insert the reamer through the jig and into the bore until the cutting tip contacts the first bore to be reamed.
3. Select the correct sized socket to fit the square shank of the reamer, and attach it to a wobble/swivel socket drive.

Note: Once valve body alignment 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.

4. 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.
5. 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.
6. Continue reaming until the reamer stop is reached.
7. Using low air pressure, blow the chips free before removing the reamer.
8. To remove the reamer, turn clockwise while slowly pulling outward on the reamer.
9. Repeat the process until all bores have been reamed. **ALL reamed bores should be deburred and polished with Scotchbrite™ on a drill. Use a stiff wire bent back sharply to hold/ turn the Scotchbrite™.**
10. Thoroughly clean the valve body. Inspect all bores.

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.

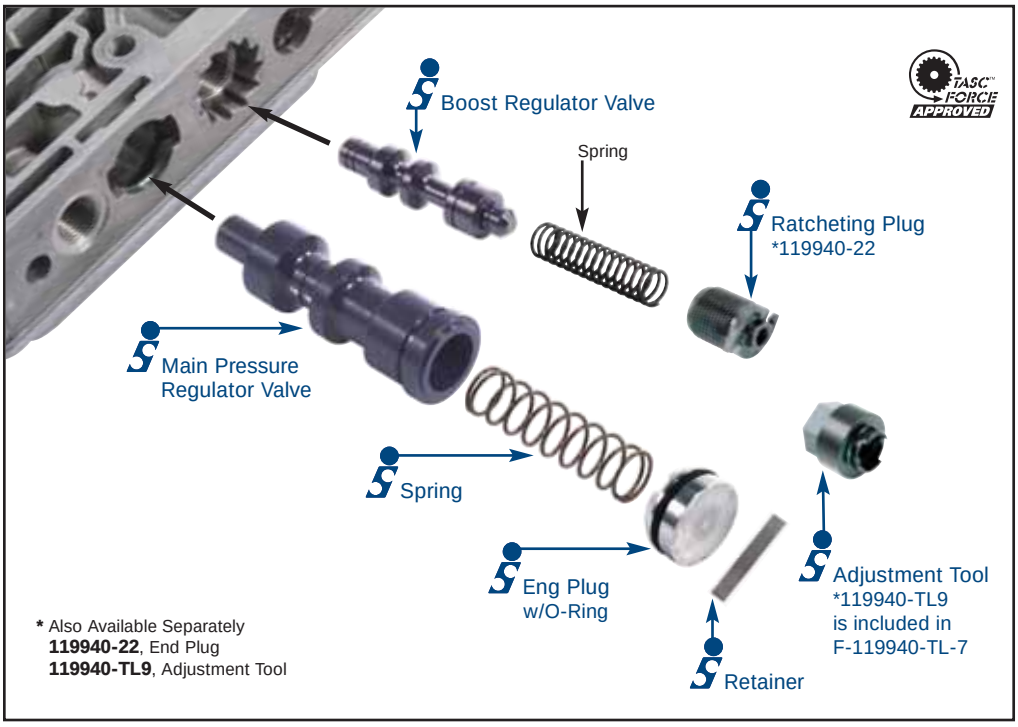
Main Pressure Regulator Valve Installation

Install the Sonnax valve, Sonnax spring and the Sonnax o-ringed end plug and retainer as shown below. 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.

Boost Regulator Valve Installation

Install the Sonnax valve, OEM spring and the Sonnax ratcheting end plug as shown below.



1. To install the end plug, thread into the bore until the premeasured 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 an 8 psi alteration. One turn is drastic and we suggest you go by 1/2 to 1/4 turns. The outcome of this adjustment is monitored at line pressure tap.

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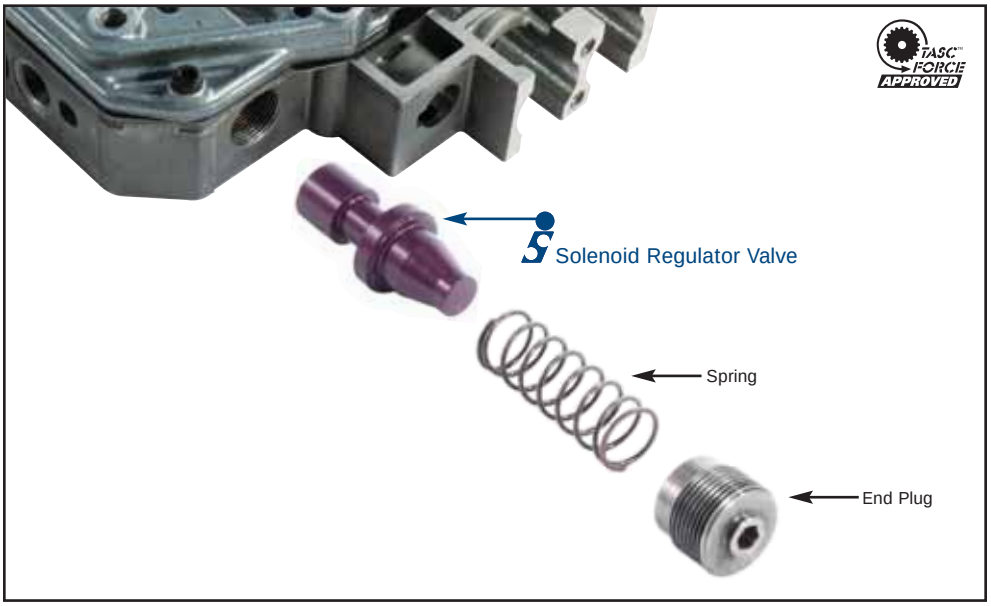
3. A 5/16" socket may be used while threading the plug into the bore. However, the tool will be needed to turn the plug back out while adjusting to the correct setting.
4. It is very important to verify line pressure when installation is complete. OEM line in Drive is generally 50-56 psi. Reverse is 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.



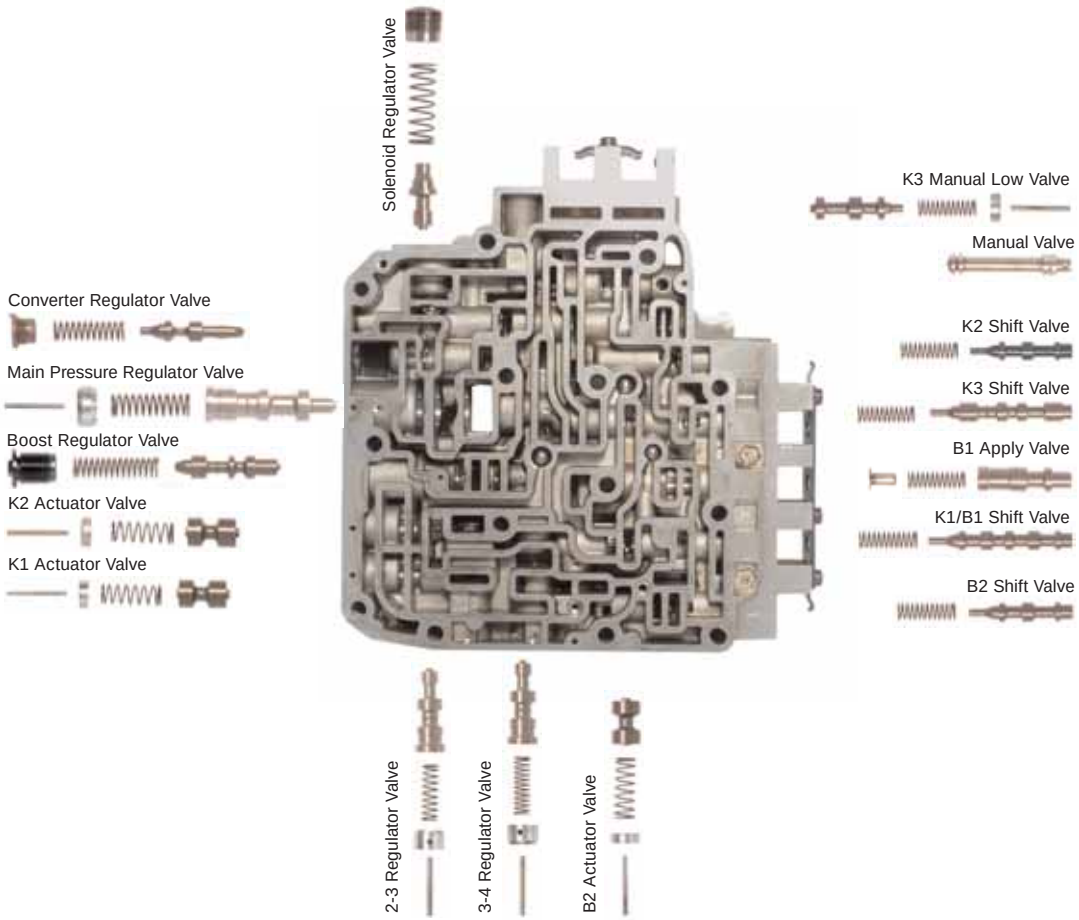
Note: OE line pressure port is a straight 10 x 1.0mm thread with a flanged plug. A line pressure adapter can be made from a common 1/8th NPT 45-degree adapter. Chase male thread on the adapter with 10 x 1.0 thread die. Gently screw adapter into the case and then screw pressure gauge into adapter.

Solenoid Regulator Valve Installation

Install the Sonnax valve with the OEM spring and end plug as shown. OEM end plug is threaded but this is not an adjustment. Thread in until snug.

Final Reassembly

Reassemble the remaining line-ups using the photo below as a guide.



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