

VFS Modulator Control Sleeve & Valve Kit

Part No.

56947J-19K

- Sleeve
- Spring
- Valve
- End Plug
- O-Rings (2) 1 Extra

NOTE: Kit works in either the VFS1 or VFS2 modulator control bore location.

Tool Kit

Part No.

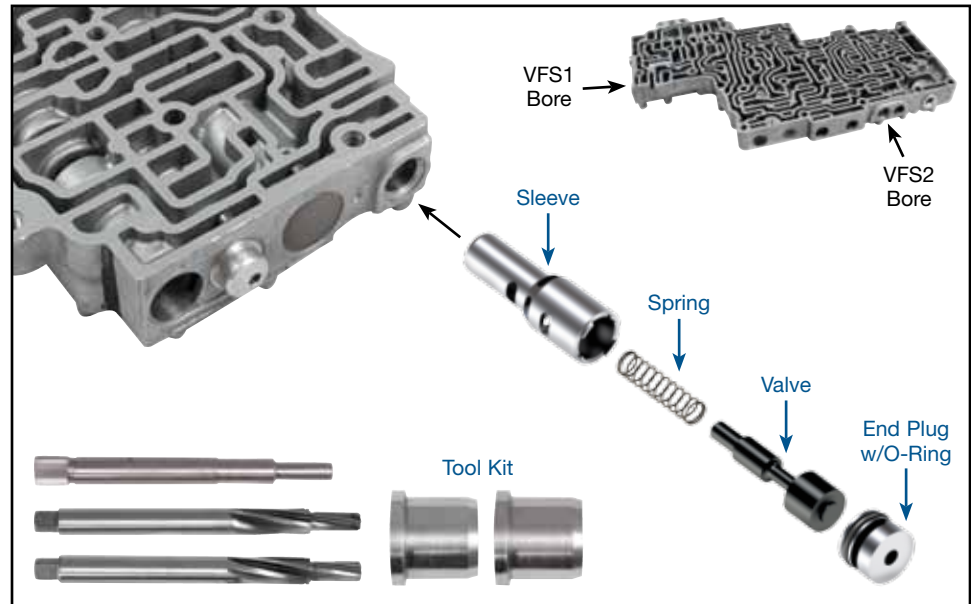
F-56947J-TL19

- Reamers (2)
- Reamer Jigs (2)
- Guide Pin

NOTE: Sonnax "F-Tool" kits designed to service a specific bore require the VB-FIX, a self-aligning valve body reaming fixture. More information and instructions can be found online at www.sonnax.com.



Ford 5R55W/S



1. Disassembly

Remove all components from the bore. Discard all parts except the end plug retaining clip.

2. Bore Preparation

- Clean the bore thoroughly in a solvent tank.
- Generously lubricate the bore and reamer with cutting fluid (i.e. Mobilmet S-122, Lubgard[®] 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.
- The reamers should be turned using a low RPM, high-torque air drill regulated to a maximum of 200 RPM.
- Examine the bore after cleaning for surface finish, debris and burrs. Flashing and burrs on the exit side of land and in bores must be carefully removed. A small piece of Scotch-Brite[™] material attached to a wire and powered with a drill motor is ideal for the task. Scotch-Brite[™] is a very abrasive material and all residual debris must be cleaned to ensure particles do not migrate or remain imbedded into the surface. Post cleaning involves several progressive steps with solvent on a lint-free rag.

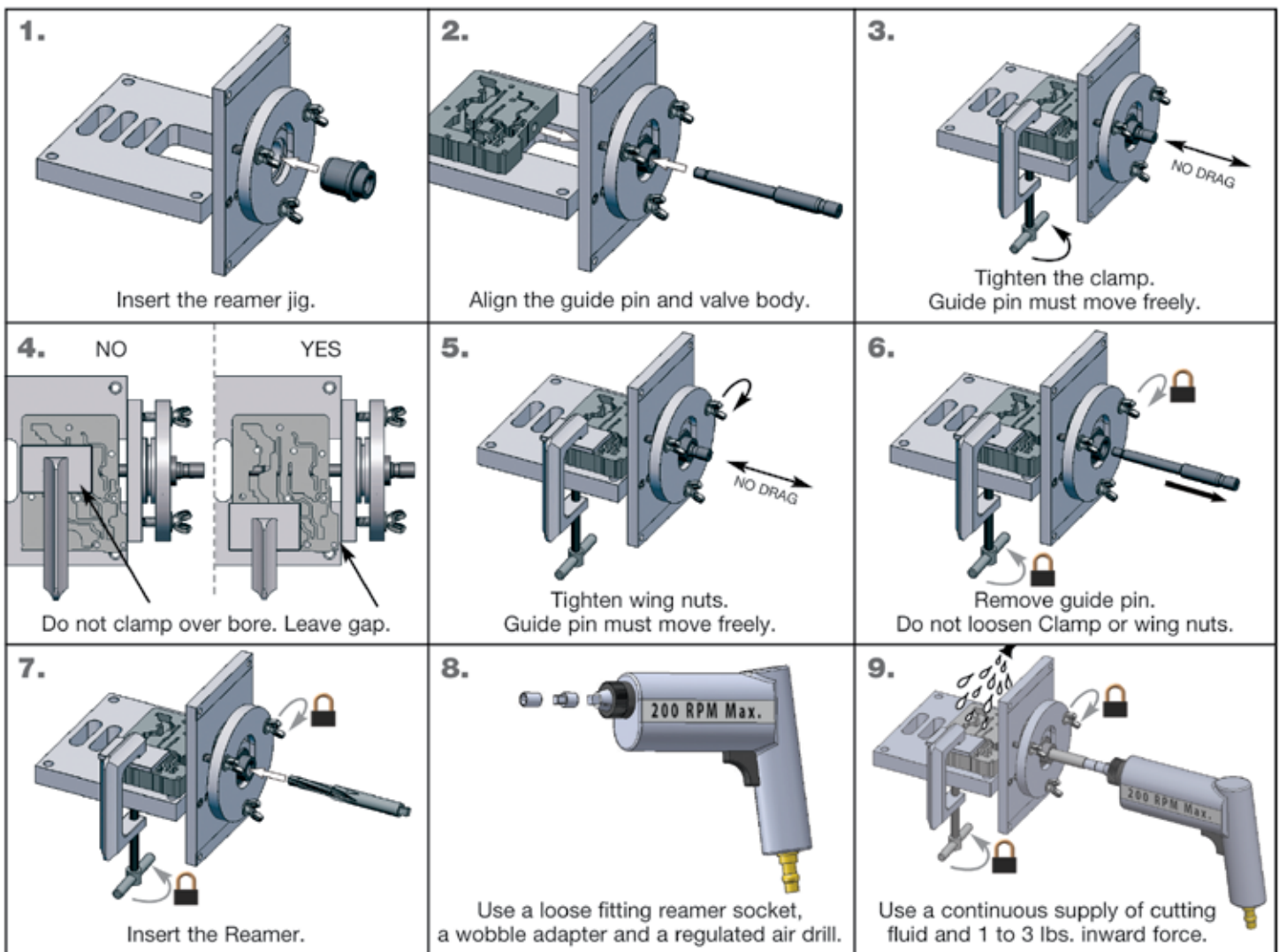
CAUTIONS AND SUGGESTIONS:

- Turning the reamer backward will dull it prematurely.
- Pushing on the reamer will result in poor surface finish and inadequate and sporadic material removal.
- Never use a crescent wrench, ratchet or pliers to turn the reamer.
- A dull reamer will cut a smaller hole. Reamers can be sharpened, but should only be done by a professional tool sharpener. Actual life of a Sonnax reamer before resharpening or replacing averages 50-70 bores.

3. Bore Reaming NOTE: This is a two-reamer jig and two-reamer process.

Use the associated "F-Tool" F-56947J-TL19 kit and VB-FIX reaming fixture as illustrated below to ream the bore.

- Start by using the "Reamer Jig 1" F-56947J-RJ19 for step 1 below, then follow illustrated steps 2–6 below.
- For illustrated steps 7–9 below, use "Reamer 1" F-56947J-RM19 and ream the bore until reamer stops cutting (pilot of reamer will bottom out in the last bore).
- Using low air pressure, clean chips from the bore then remove first reamer (always rotating clockwise) and reamer jig, but **do not alter position of fixture or casting**.
- Repeat illustrated steps 1-6 using "Reamer Jig 2" F-56947J-RJ20.
- Repeat illustrated steps 7–9 using "Reamer 2" F-56947J-RM20. The pilot (narrow middle diameter) should fit into the first bore to be cut.



4. Installation

- Push the Sonnax enclosed spring over the small spring stem on the valve/sleeve assembly.
- Push the Sonnax sleeve/valve/spring assembly into the reamed bore, spring end first, until the sleeve stops against the casting wall midway through the bore.
- Place the Sonnax O-ring in the end plug groove. Lubricate the roll on the bench to size.
- Push the O-ringed end plug into the bore, O-ringed end first. The threaded end can be used to help install. Secure with OE retaining clip. If the retaining clip does not fit, a small amount of material may have to be removed from the notched end of the sleeve by flat-sanding on the bench.

5. Fit Verification

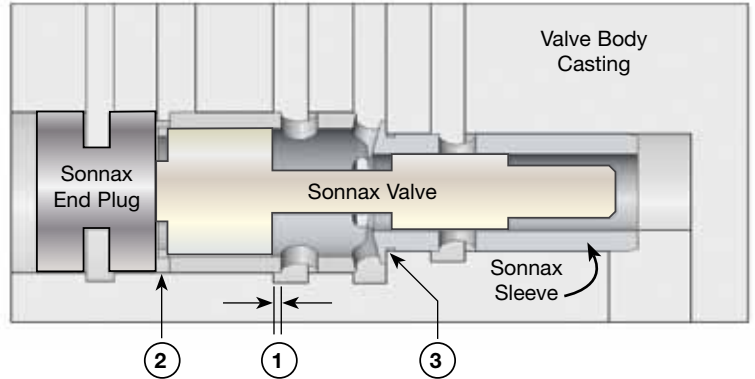
Ensure the sleeve ports align correctly with the valve body ports (**Figures 1 & 2**). If significant misalignment is noted ($= .015"$), shimming or sanding of components may be necessary.

6. Final Verification

Vacuum tests at the ports indicated hold a minimum of 20 in-Hg (**Figure 3 & 4**).

Part Misalignment - Sleeve too far Inboard

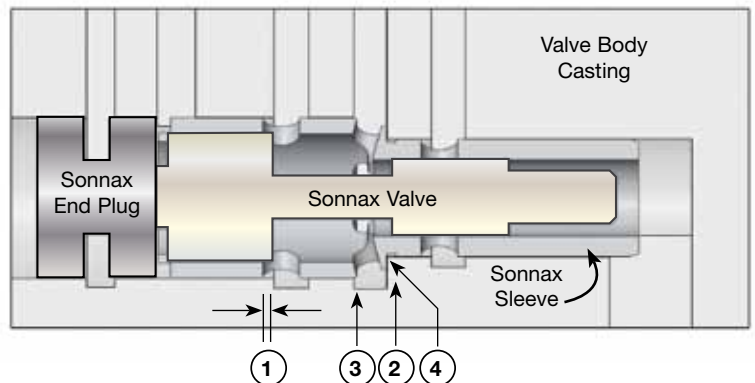
Figure 1



- Note how the ports are positioned. A portion is under the casting, shifted right. This is incorrect; shift sleeve **left** by this distance.
- Material will need to be removed from either this end of the sleeve or from the inboard of end plug.
- Once material has been removed and sleeve is shifted left, the holes in sleeve should align with casting. The sleeve must be shimmed or Loctited at this location. Shim can be made from coil wire cut from spring.

Part Misalignment - Sleeve too far Outboard

Figure 2



- This condition can occur due to reamer not traveling deep enough into the bore.
- Casting variance and "valley-flashing" also can short stop reamer travel.
- To correct this and move sleeve to the right, remove material from the casting face and valley. A Dremel® 194 cutter works well.
- In some situations, remove material from edge stop on sleeve.

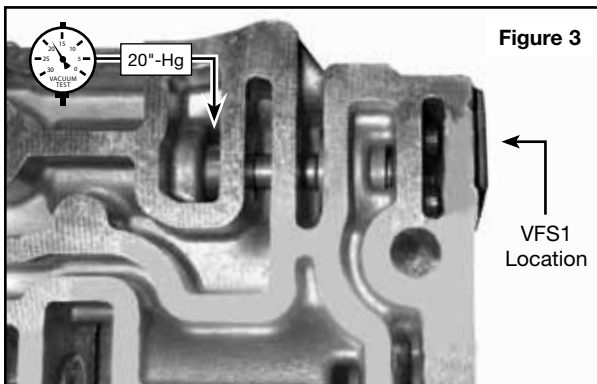


Figure 3

VFS1 Location

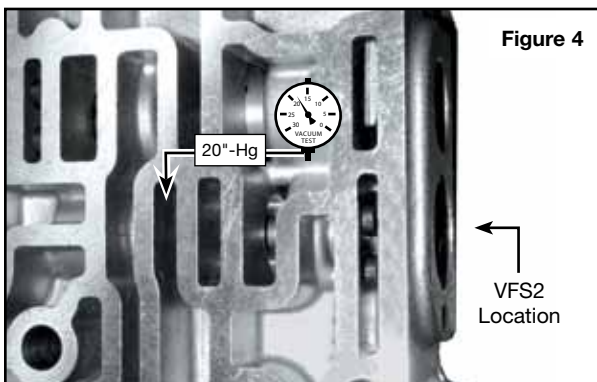


Figure 4

VFS2 Location