Oversized Manual Valve
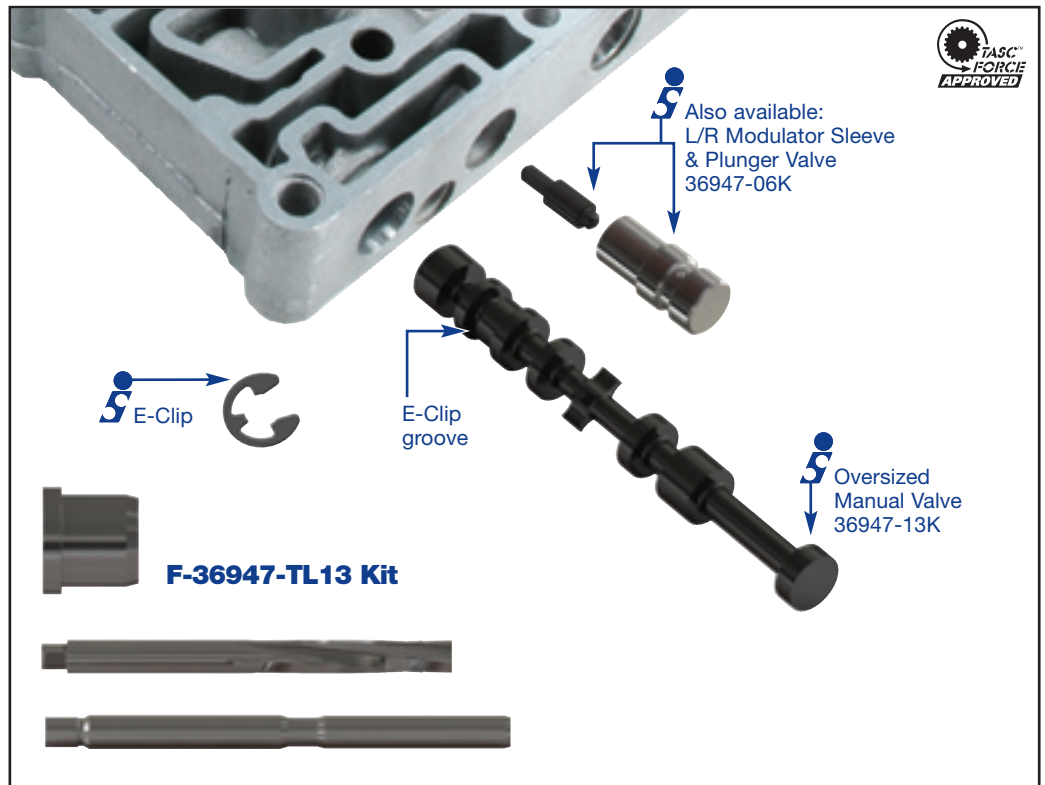
36947-13K

1 Oversized Valve
1 E-Clip

F-36947-TL13

1 Reamer
1 Reamer Jig
1 Guide Pin/Bore Sizing Tool

VALVE BODY

FIXTURE REQUIRED

Also available:
L/R Modulator Sleeve & Plunger Valve
36947-06K

E-Clip

E-Clip groove

Oversized Manual Valve 36947-13K

F-36947-TL13 Kit

DISASSEMBLY

Remove and discard the OEM valve and E-clip.

REAMING - Prep and Setup

Note: Extreme care should be used in clamping the valve body to the **VB-FIX** as currently designed, to ensure the manual valve bore does not warp. Once clamped in place, the Sonnax guide pin must stroke freely in the bore. To provide better support, the **VB-FIX** base plate can be modified by drilling and tapping four holes. This allows the base plate to be turned 90° and then secured to the clamp mounting plate, allowing more support for the manual valve during reaming. For specific information about testing and installing this part, or modifying your **VB-FIX**, go to the **36947-13K** page at www.sonnax.com and click on "Additional Diagnostic Information."

1. Remove all components from the bore.
2. Clean the bore thoroughly in a solvent tank.
3. Securely clamp the housing to the valve body reaming fixture, **VB-FIX.**
4. Align valve body in fixture according to **VB-FIX** instructions with the appropriate guide pin provided in tool kit **F-36947-TL13**.
5. 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 (Mobilmet S-122) during the reaming process.
6. Gently insert the reamer though the fixture and into the bore until the cutting tip contacts the first bore to be reamed.
7. Select the correct sized socket to fit the square shank of the reamer, and attach it to a wobble/swivel socket drive.

REAMING

1. The reamer should be turned either 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.

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. The **F-36947-GP13** guide pin also functions as a bore sizing tool by inverting and installing into the bore, knurled end first. Use a slide hammer at the tapped end of the tool for ease.

6. Clean the reamer after each use and store in its protective tube.

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.

INSTALLATION

1. Slide the oversized manual valve into the reamed bore.

2. Secure with the included E-clip at the Ø.300" stem closest to the detent linkage.

3. The installation alignment groove should be even with the valve body casting face when the vehicle is in reverse position (see illustration below).
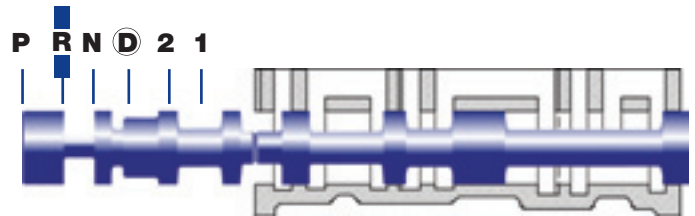
VERIFICATION & VACUUM TEST PROCEDURE:

Perform a vacuum test at the location indicated. A vacuum test should reach at least 9" of vacuum.

For information on proper vacuum test procedures, go to www.sonnax.com, click on "Technical Information" and go to the Vacuum Testing Guidelines section. For specific information about testing and installing this part, go to the **36947-13K** page at www.sonnax.com and click on "Additional Diagnostic Information."

Vacuum test plate must cover all other related circuits

Critical! Check L/R modulator plunger sleeve for wear. Wear reduces vacuum and equals line loss in reverse.

Vacuum test here, replace if 9" or less

Valve should extend .062" from casting for proper reverse circuit test