42-44-46-47RH/RE, 48RE, 727, 904

PART NUMBERS 22771-04K, F-22771-TL

Oversized Throttle Valve Kit

Oversized Throttle Valve Kit

22771-04K

1 Oversized Throttle Valve Plunger
1 Oversized Throttle Valve Sleeve
1 Oversized Throttle Valve
1 Spring
3 Shims

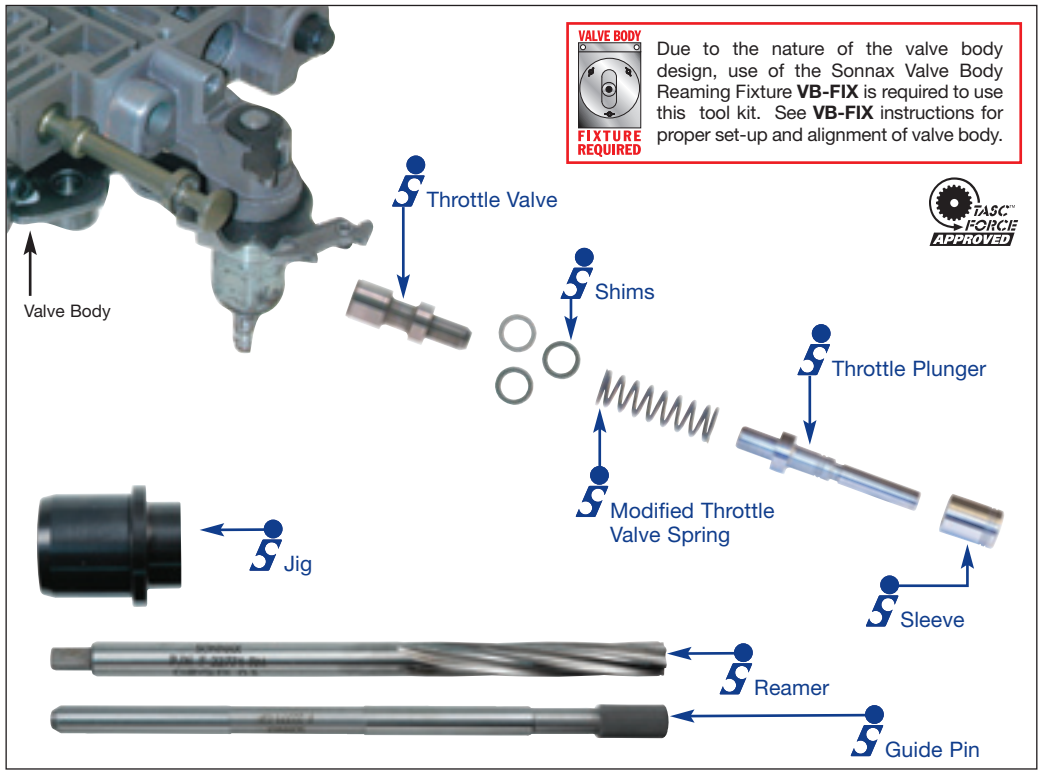
TOOL REQUIRED

F-22771-TL

1 Reamer
1 Guide Pin
1 Reamer Jig

VALVE BODY FIXTURE REQUIRED

Note: Kit is now designed to work in all models, including the 2005-up OEM units with a "motorized" style linkage. This updated version replaces **22771-02K**.



Reaming Instructions

Prep and Set-up:

1. Remove all components from the throttle valve 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-22771-TL**.
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 (i.e. Mobilmet S-122) during the reaming process.
6. Gently insert the reamer through 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. Clean the reamer after each use and store in its protective tube.

800-843-2600 • 802-463-9722 • F: 802-463-4059 • www.sonnax.com • info@sonnax.com

Cautions and Suggestions:

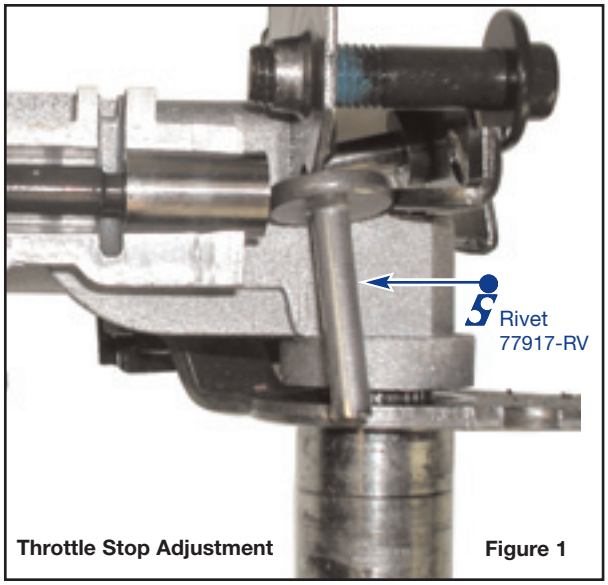
1. Turning the reamer backwards will dull it prematurely.
2. Pushing on the reamer will result in poor surface finish and inadequate and sporadic material removal.
3. Never use a crescent wrench, ratchet or pliers to turn the reamer.
4. A dull reamer will cut a smaller hole. Reamers can be sharpened,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

Reassembly Instructions:

Note: TV pressure and resulting shift points can be tailored if needed. The suggested starting point is to reuse the OEM throttle valve spring without shims.

1. Reassemble using Sonnax replacement throttle valve, throttle plunger and sleeve, and the OEM throttle valve spring. **The Sonnax purple throttle valve spring should be used only when changes to shift timing are desired (see step 3)**.
2. TV stop adjustment is the same for both early- and late-style brackets. Set throttle lever stop using a Sonnax rivet (**77917-RV**) or equivalent tool measuring .627" as a gauge to set the distance between the throttle lever and the throttle plunger. To obtain the correct measurement, the throttle valve must be fully bottomed and the throttle valve spring fully compressed. With the tool in place, the valve line-up should have no movement (see Figure 1).
3. Customizing TV pressure and shift points can be accomplished by following the directions and chart below.

   Note: Customizing TV pressure and shift points can vary depending on the overall condition of the transmission, what type of loads the vehicle will be subject to, and driving habits.



Throttle Stop Adjustment — Figure 1

Use the following chart as a general guide to determine change in TV pressure with any one of the spring/shim combinations.

Desired Results	Spring/Shim Selection	Approximate Change to TV Pressure
HIGHER UPSHIFTS		
Increased throttle raises shift points and reduces throttle buzz	(3 Shims not recommended w/ OEM spring)	+21 psi
TV Pressure:	OEM Spring +2 Shims	+14 psi
	OEM Spring +1 Shim	+7 psi
OEM Specifications	OEM Spring	0 psi
LOWER UPSHIFTS		
Decreased throttle lowers shift points and corrects oversensitive kickdown	Sonnax Spring +3 Shims	-7 psi
TV Pressure:	Sonnax Spring +2 Shims	-14 psi
	Sonnax Spring +1 Shims	-21 psi
	Sonnax Spring Only	-28 psi

Increasing TV Pressure Above OEM Specifications

Spring shims can be used to increase throttle sensitivity, delay upshifts and reduce throttle buzz or pulsation. The shims can be installed on either the plunger or control valve, where the spring sits. Spring shims increase spring load and TV pressure. TV pressure delays upshifts and gives sensitivity to 3-2 downshifts.

Note: Vehicle load, driving habits and engine modifications will affect the outcome. Increasing line pressure and leaking governor circuits result in sensitive 1-2, 2-3 and 3-2 shift timing.

The spring shims can be installed to increase throttle pressure at an idle, which stabilizes the TV valve and often eliminates a pulsation or buzz. Adding one shim will delay the upshifts slightly (approximately 3-5 mph depending on load, engine, etc.). Installing a second shim is suggested when late upshifts are desired. For example, on the OEM blue spring, each shim raises the spring weight approximately .5 lbs. and increases TV pressure by 7 psi. The shims can also be used in conjunction with the modified Sonnax spring (see chart on previous page).

Decreasing TV Pressure Below OEM Specifications

A common problem in these units is poor throttle control that occurs during heavy load or towing applications. The increased load requires the driver to use more throttle. This increases TV pressure and creates complaints such as late 2-3 upshift and oversensitive 3-2 downshifts. Installing the modified spring and shim(s) designed by Sonnax (provided in kit) can reduce TV pressure and sensitivity. The Sonnax spring and shims reduce throttle sensitivity, lower shift points, prevent delayed upshifts and reduce falling out of third under heavy throttle. The Sonnax spring and shims can be combined with additional spring shims to fine-tune TV pressure (see chart on previous page).

Note: It is not necessary to completely remove the valve body to alter this spring adjustment. Remove the external linkage levers and loosen/lower the body about 3/4" with bolts still in place. Remove the two bolts, one side and one lower bracket bolt (that are holding the spring bracket into position). Pivot the bracket off toward the front, and slide out the throttle plunger, spring and valve.

Suggestions:

Use the OEM spring whenever possible. If late upshifts are a concern, set the TV gap first, then install the purple spring with two shims. If late upshifts persist, install purple spring with one shim. Verify that the problem is not related to governor pressure.