

## Oversized Pressure Regulator Kit

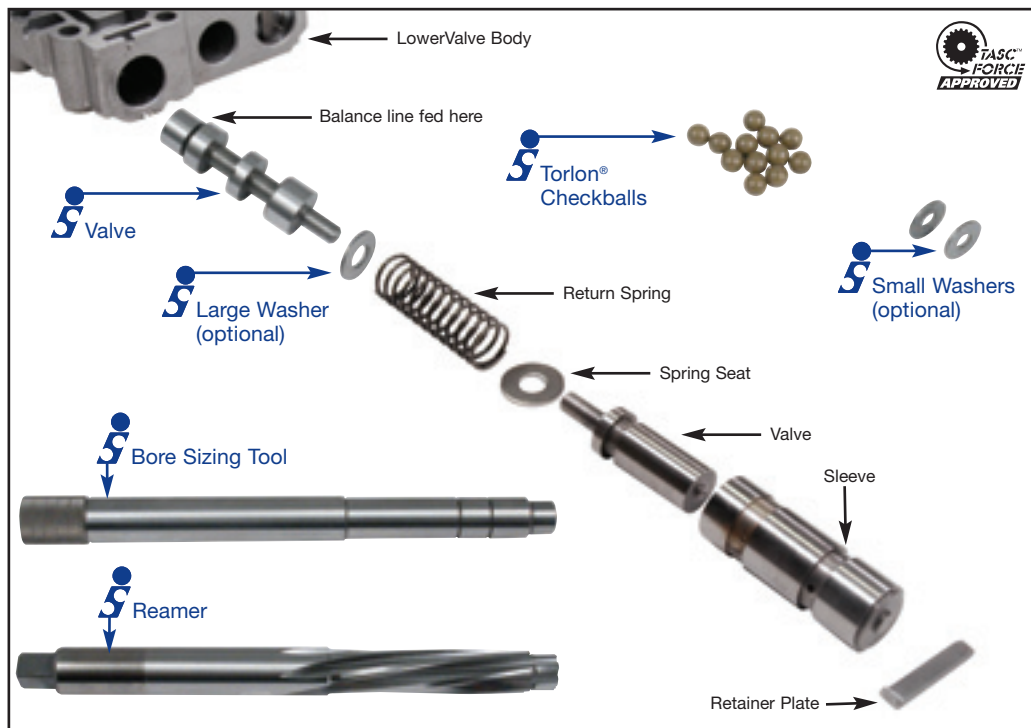
### 63940-01K

- 1 Valve
- 1 Large Washer
- 2 Small Washers
- 12 Torlon® Checkballs



### 63940-TL

- 1 Reamer
- 1 Bore Sizing Tool



### INSPECTION:

Place a small amount of ATF into the balance line circuit, which is the port between the smallest inboard spool and the neighboring large spool on the valve. Follow with low air pressure while holding the valve inboard. There should be little or no leakage of air or oil past the valve spools and out sump port or exhaust port on the back of the casting.

### DISASSEMBLY:

1. Remove all components from the pressure regulator valve bore.
2. Discard the OEM pressure regulator valve.

### REAMING INSTRUCTIONS:

#### Prep and Set-up

1. Clean the bore thoroughly in a solvent tank.
2. Securely clamp the valve body to the bench, making sure not to clamp directly over the bore to be reamed.
3. Soak the bore and reamer with cutting fluid. For best results, provide a continuous flow of water-soluble cutting fluid (Mobilmet S122, etc.) during the reaming process.
4. Gently insert the self-guiding reamer into the bore until the cutting tip contacts the first bore to be reamed.

### Reaming

1. Select the correct size socket to fit the reamer, and attach it to a wobble head socket.
2. Use a speed handle to ream the bore. The reaming action should be clockwise in a smooth and continuous motion, at approximately 100rpm.
3. The reamer should actually pull itself through the bore, so little or no back pressure should be applied to the reamer or speed handle.
4. Continue reaming until the reamer bottoms out in the bore.



# NISSAN RE4F04A, FORD 4F20E

PART NUMBER 63940-01K

## Oversized Pressure Regulator Kit

### 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.
4. Clean valve body thoroughly in a solvent tank.

### Cautions

- Never turn the reamer backward.
- Pushing on the reamer will result in poor surface finish and inadequate and sporadic material removal, and material being left behind as the reamer exits a bore.
- Blow free any chips from the reamer after each use.
- Never use a crescent wrench to turn the reamer.

### Bore Sizing Tool

The bore sizing tool may be used to refine the surface finish of the reamed pressure regulator valve bore.

Insert the stepped end of the bore sizing tool into the reamed bore. It is designed to have either a slight amount of clearance or interference with the reamed bore. A 3/8-16 UNC internal thread is provided at the knurled end of the tool to adapt to a puller or slide hammer if needed.

Stroke the bore sizing tool within the bore to mimic valve oscillation.

Remove the bore sizing tool and install the oversized pressure regulator valve.

If the valve does not move freely, reinstall the bore sizing tool and tap the sizing tool up and down using a hammer and screwdriver through the ports and into the tool slots. This will smooth out any ridges in the bore. Repeat this process until the valve strokes freely.

### Adjusting Pressure & Performance

#### Return to OEM performance:

For OEM line rise, engagement and shift quality, do not use the main regulator washer or the pressure modifier washer(s).

#### Improved engagement:

For firmer forward and reverse engagement, install the washer against the Sonnax pressure regulator valve. This washer will also result in slightly shorter shifts and will increase line pressure about 6psi at all ranges.

#### Firmer shifts, all ranges:

For improved line rise to EPC solenoid response, we recommend one shim in the pressure modifier valve. Adding one washer will

result in faster line rise and about 4psi line increase.

If firmer shifts are desired, a second washer can be inserted into the pressure modifier valve. Adding two washers will result in faster line rise, and about 8psi line increase.

**Note:** 1-2 shift can also be improved. See Sonnax 63940-02K information.

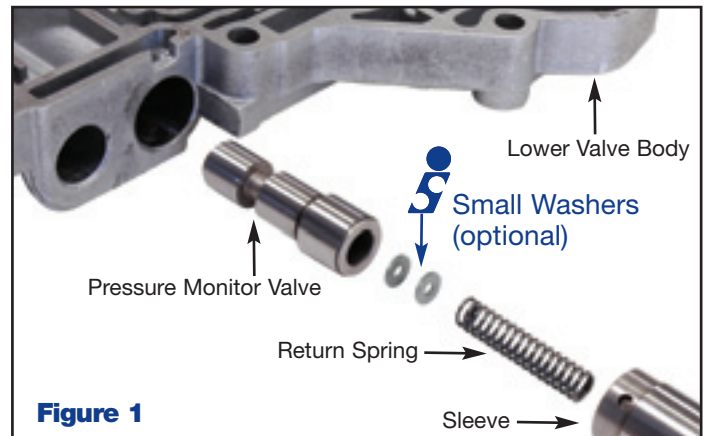


Figure 1

### INSTALLATION

#### Oversized Pressure Regulator Valve:

1. Install the oversized pressure regulator valve as indicated in the photo on page 1.
2. For increased line pressure, the optional .625" OD washer may be installed over the spring stem of the pressure regulator valve.
3. Return the OEM spring, boost assembly and retainer to the bore.

#### Pressure Modifier Valve Washers:

1. The 2 smaller (.312" OD) washers may be installed at the pressure modifier valve to increase line rise. Refer to Figure 1 for correct location.
2. Remove components from the pressure modifier valve bore.
3. Install the washer(s) in the spring pocket of the pressure modifier valve.
4. Reinstall components per the photo.

**Note:** The Torlon® checkballs can be used to replace the steel OEM check balls. These Torlon® checkballs seal better than steel balls because they conform to the separator plate ball seats. Ensure the separator plate ball seats are free from damage prior to installing the Torlon® checkballs.