

## TCC Control Valve Sleeve

### 33000-03

1 TCC Control Valve Sleeve

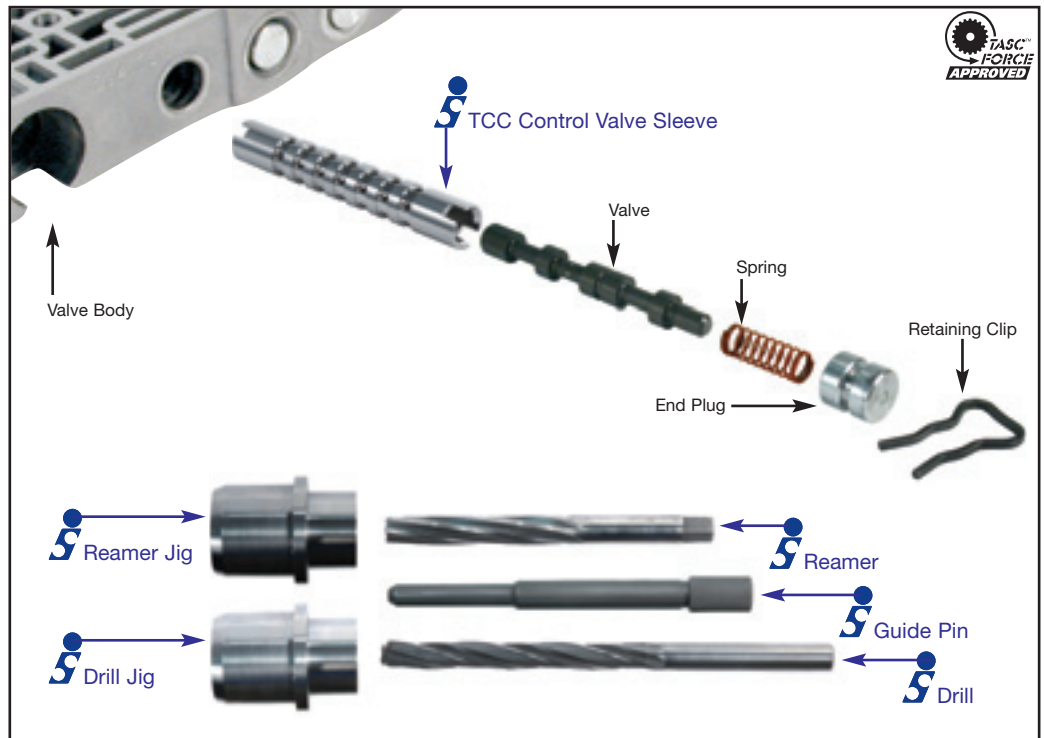


### F-33000-TL

1 Reamer  
1 Reamer Jig  
1 Guide Pin  
1 Drill  
1 Drill Jig



**Note:** Due to the nature of this OEM valve body design, the Sonnax Valve Body Reaming Fixture **VB-FIX** is required for use with this tool kit.



### Reaming Instructions

#### Prep and Set-up:

1. Remove all components from the bore.
2. Before reaming verify that your valve is .354" in diameter.
3. If valve is .412", do **NOT** ream bore. This kit cannot be installed.
4. Clean the bore thoroughly in a solvent tank.
5. Align the valve body in the fixture according to **VB-FIX** instructions, using the **F-33000-DJ** drill jig and **F-33000-GP** guide pin from the **F-33000-TL** tool kit.

**Important Note:** Once alignment is complete, do not loosen wing nuts or unclamp valve body from fixture until entire drilling and reaming process is completed.

4. Pre-drill the bore using the core drill provided in the kit. Drill depth will be established when pilot nose bottoms in the bore.
5. Remove drill and slip drill guide out of the fixture. Clean out debris as thoroughly as possible without disturbing valve body-to-fixture location. Slip the **F-33000-RJ** reamer jig into the fixture and locate the **F-33000-RM** reamer from the tool kit.
6. 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.
7. Gently insert the reamer through the jig and into the bore until the cutting tip contacts the first bore to be reamed.
8. 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 bottoms in the bore. The approximate reaming time is 2-3 minutes.

## 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.

## 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. Reamers can be sharpened, but should only be done by a professional machine tool sharpener. Actual life of a reamer before resharpening averages 50-70 bores.

## Assembly Instructions:

1. Be certain that all debris has been removed from the valve bore and valve body.
2. Install the new Sonnax sleeve **33000-03** with the sleeve's OD chamfer leading as it is positioned into the bore.
3. Push the sleeve in until it bottoms on the valve bore end wall as illustrated below.
4. Install the original OEM TCC control valve, valve spring, bore plug and retainer clip as illustrated below.

