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TRANSMISSION PARTS

Instructions

GM 4L60-E, 4L65-E, 4L70-E

TCC Regulator Valve Kit

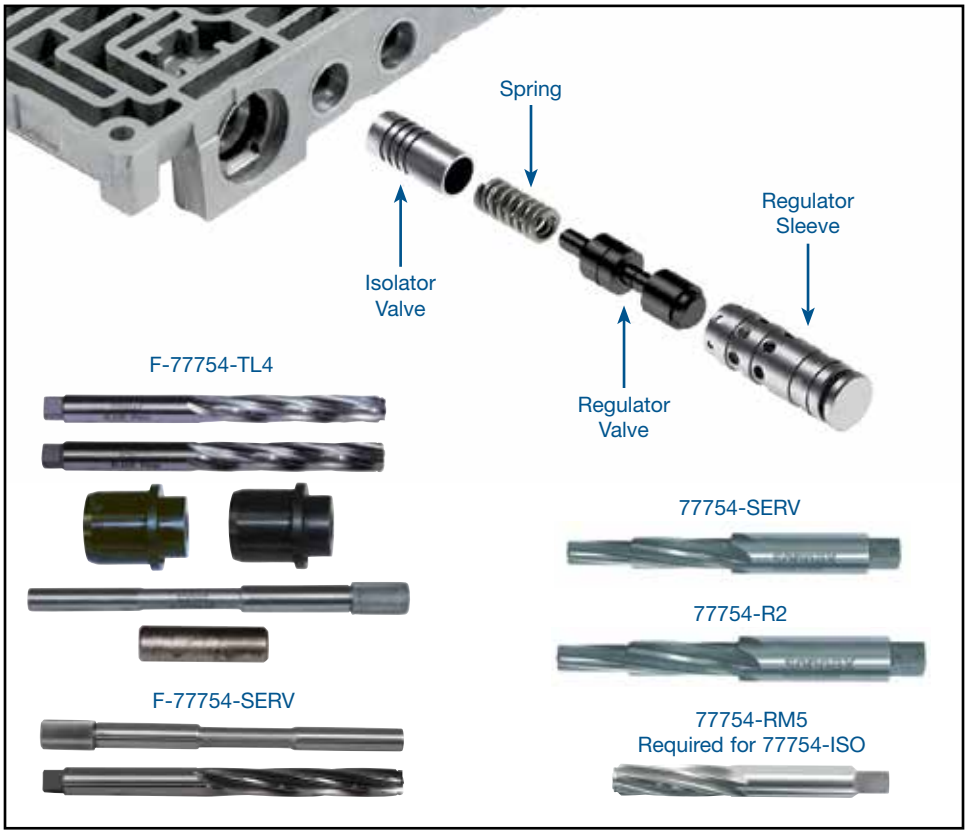
TOOL REQUIRED

Part No. 77754-04K

- Isolator Valve
- Spring
- Regulator Valve
- Regulator Sleeve

Patent Nos. 6,990,996 & 7,104,273

NOTE: Use in any application including '98-later EC³ units. Compatible with all PWM and non-PWM 4L60-E units.



Part Selection

There are two TCC regulator valve kit options. Selection is based on the application year and TCC apply strategy.

- **77754-04K** matches the OE apply rate. It can be used in any application and is required in '98-later vehicles using EC³ apply strategy.
- **77754-03K** has an increased apply rate and should only be used in '97-earlier vehicles which do not use EC³ apply strategy.

In either case, you must both measure the existing isolator valve diameter and evaluate the isolator bore for wear.

- If the existing OE isolator valve diameter measures .441" and no isolator bore wear is found, proceed to **Reaming Option 1** to install either kit.
- If the existing OE isolator valve diameter measures .441" but isolator bore wear is evident, you will also need to install Sonnax isolator valve sleeve **77754-ISO** along with either **77754-03K** or **77754-04K**, proceed to **Reaming Option 2**.
- If the existing OE isolator valve diameter measures .473", you have a GM Service valve body. You will also need to install Sonnax isolator valve sleeve **77754-ISO** along with either **77754-03K** or **77754-04K**, proceed to **Reaming Option 3**.

NOTE

NOTE: Must read Part Selection & Reaming Options on page 2 for usage & tooling requirements.

Tool Kits

Part No. 77754-R2

Reamer — For Non-Serviced VB

Part No. 77754-SERV

Reamer — For GM-Serviced VB

Part No. 77754-RM5

Reamer — Use with 77754-ISO

Part No. F-77754-TL4

VALVE BODY FIXTURE REQUIRED

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

Part No. F-77754-SERV

VALVE BODY FIXTURE REQUIRED

Reamer — For GM-Serviced VB

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.

Reaming Options

1. Isolator valve was .441" dia. and isolator bore is not worn:

a. Bench Tool option – use **77754-R2**

b. F-tool option – use **F-77754-TL4** & **VB-FIX**

2. Isolator valve was .441" dia. but isolator bore is worn:

a. Bench Tool option – use **77754-R2** followed by **77754-RM5**

b. F-tool option – use **F-77754-TL4** & **VB-FIX**

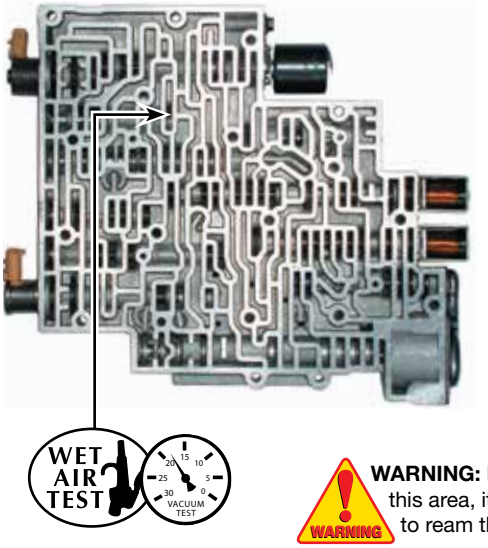
3. Isolator valve was .473" dia. – GM Service valve body:

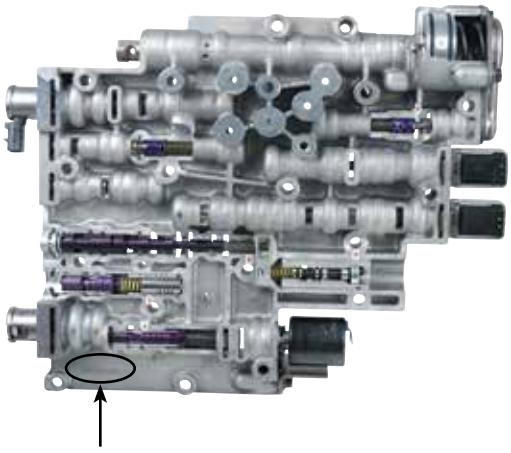
a. Bench Tool option – use **77754-SERV** followed by **77754-RM5**

b. F-tool option – use **F-77754-SERV** followed by **F-77754-TL4**, each using **VB-FIX**

Wet Air Test

To test for a signal oil leak, place oil into the PWM/TCC Feed (2nd Clutch oil on non-PWM units, (see photos below). Follow with low air pressure.





WARNING: If the valve body has been stamped SERV in this area, it has been remanufactured by GM. Do NOT try to ream this SERV valve body with your **77754-R2** reamer!

Remanufactured valve bodies require **77754-SERV** and **77754-RM5** reamers and Sonnax isolator valve sleeve **77754-ISO** in addition to this kit.

1. Disassembly

a. Remove OE valve train from bore.

b. Discard valves and end plug.

2. Reaming Instructions

NOTE: The following reaming instructions are for Bench Tool reaming only (see three options above). Reaming directions for F-tool kits that utilize the **VB-FIX** can be found on those individual tool kit instructions.

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.

2. Reaming Instructions (continued)

a. Clean the bore thoroughly in a solvent tank.

b. Generously lubricate the bore and reamer with cutting fluid (i.e. 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.

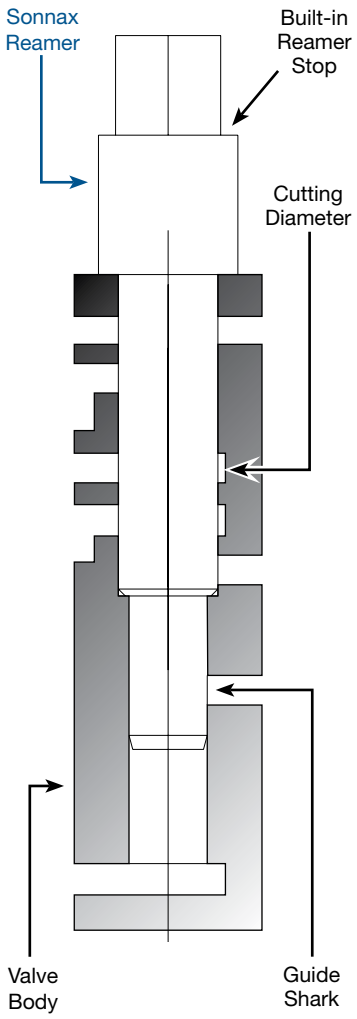
c. Gently insert the proper reamer into the bore until the cutting tip contacts the first land to be reamed. For Bench Tool options 1 or 2, use **77754-R2** for this step. For Bench Tool option 3, use **77754-SERV** for this step.

d. Use a loose fitting reamer socket and a wobble adapter to ream the bore. The reamer can be turned by using a speed handle or with a low-RPM, high-torque drill regulated to a maximum of 200 RPM. The reaming actions must be clockwise in smooth and continuous motion at 60-200 RPM. Continue reaming until the reamer stop is reached.

e. Using low air pressure, blow the chips free before removing the reamer.

f. To remove the reamer, turn clockwise while slowly pulling outward.

g. If performing bench reaming option 1, proceed to step 3, "Finish & Clean-Up".
If performing bench reaming option 2 or 3, repeat steps "a" through "f" with reamer **77754-RM5**.



3. Finish & Clean-Up

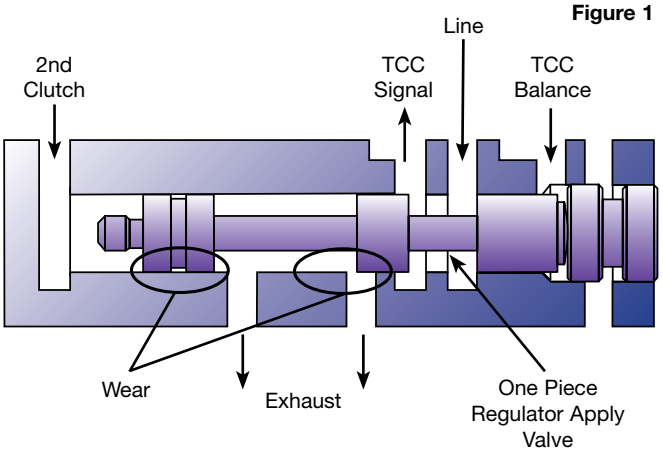
a. Examine the bore after cleaning for surface finish, debris and burrs. Flashing and burrs on the exit side of land and in bores must be carefully removed. A small piece of Scotch-Brite™ material attached to a wire and powered with a drill motor is ideal for the task. However, Scotch-Brite™ is a very abrasive material and all residual Scotch-Brite™ debris must be removed afterward to ensure particles do not migrate or remain embedded in the surface. Cleaning this material out should involve several progressive steps using solvent on a lint-free rag.

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

Non-PWM Valve Lineup

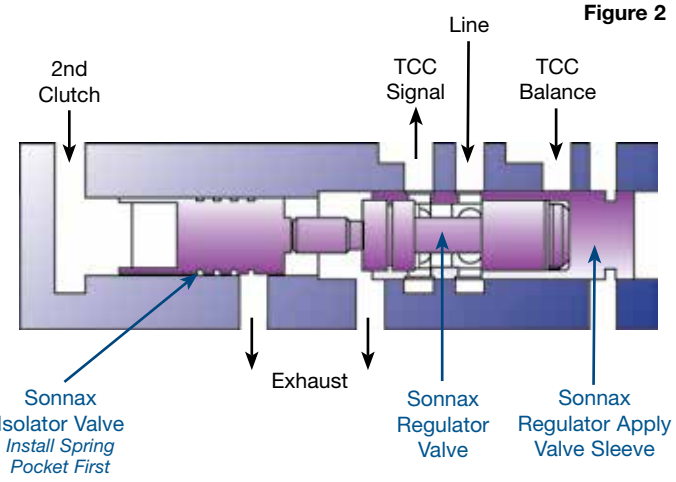
OE '91–'94 Non-PWM
One solenoid at front of body and 12-pin case connector.

Figure 1



Sonnax Installed Non PWM
Insolator valve installs with no spring.

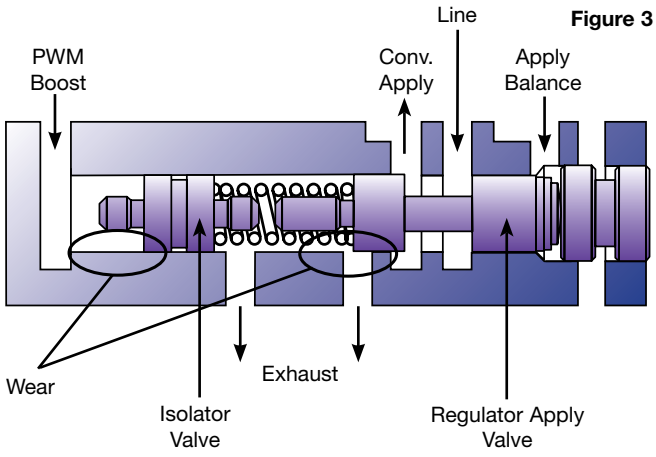
Figure 2



PWM Valve Lineup

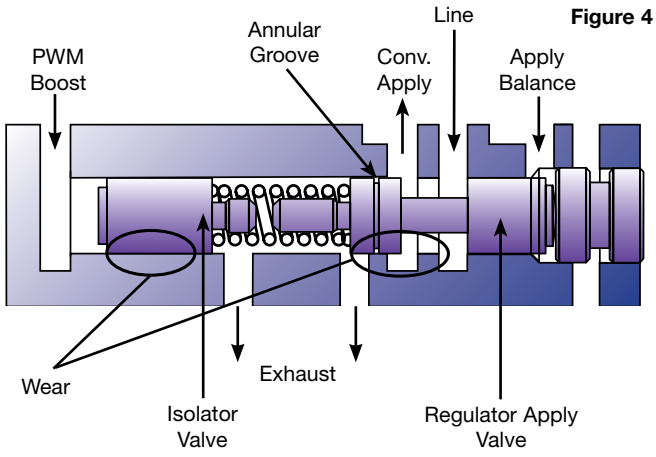
OE '93–'97 PWM
Two solenoids at front of body and 13-pin case connector.

Figure 3



OE '98–Later PWM
Common to EC³ controls, see the application section.

Figure 4



5. Installation Instructions

a. After the valve body bore has been reconditioned, refer to **Figures 2** and **5** to determine proper valve lineup. Use **Figures 1, 3** and **4** to determine if you have a PWM or a non-PWM application.

b. **For non-PWM applications:** Install Sonnax valve lineup as pictured in **Figure 2**.

For PWM applications: Install Sonnax valve lineup as pictured in **Figure 5**. Use Sonnax TransJel™ **31295** to retain spring in the isolator plug during installation.

c. Push the sleeve assembly into the valve body, just deep enough to install retaining clip around sleeve.

Sonnax Installed PWM Kit

Figure 5

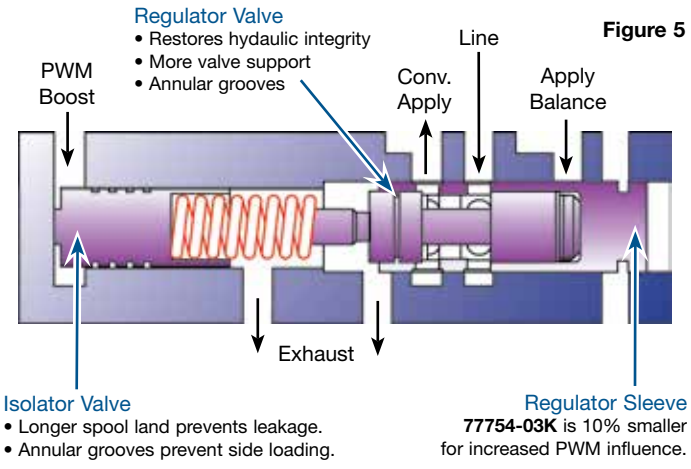
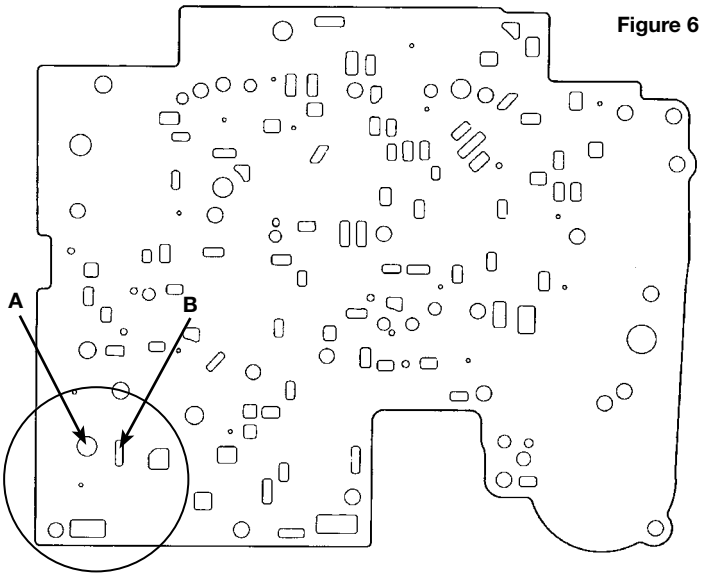


Figure 6



NOTE: Since the castings for PWM and non-PWM valve bodies are identical, this kit can be used when updating a non-PWM valve body for use in a PWM unit or retrofitting a PWM valve body for use in a non-PWM unit. The separator plate must also be changed when this is done (**Figure 6**).

With PWM solenoid "A" & "B" holes; contains isolator, spring, two spooled regulator valve. (**Figures 3** & **4**).

Non-PWM do not have holes "A" & "B"; contains one-piece valve, three spools. (**Figure 1**).

ADDITIONAL NOTE: Refer to **77805-K** & **77805E-K** for other TCC overheat, slip conditions.