

# Installation Instructions for 603300

## 4<sup>th</sup> Gear Super Hold Servo Assembly

For GM 4L60, 4L60-E, 4L65-E & 4L70-E Transmissions  
(US Patent # 5,944,627)

### Tools Required:

- Dial Indicator or GM Servo Pin Length Checking Tool #J33037
- Small Flat-Blade screwdriver
- Pry Bar
- Transmission Assembly Lube

### Installation Tips:

- To prevent case damage, do **NOT** reuse servo-to-case retaining rings with the flat sides (MY 2004 up to Mid-April 2004, see GM Bulletin # 04-07-30-025A).
- If the servo travel is insufficient, the band will not be able to fully release. Double check by looking up in the case near the manual shaft while turning the output shaft. The band drum should rotate inside the band.
- To cushion the 1-2 shift and reduce the 3-2 downshift clunk, install additional cushion spring (GM part # 8681195).

### Disassembly:

- 1) Remove the original servo assembly.
- 2) Discard the 4<sup>th</sup> piston and cover.

### Assembly:

- 1) Assemble 4<sup>th</sup> gear super hold servo and steel washer onto 2<sup>nd</sup> gear servo assembly. Do not install the seals at this time. Make sure the servo release spring is on the pin.

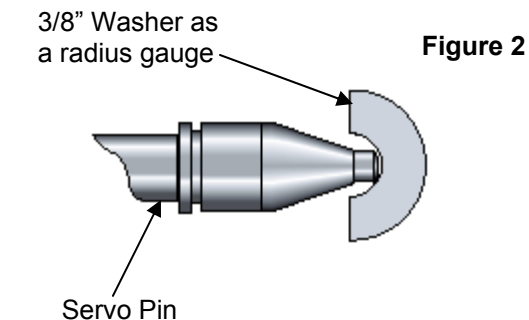
**Note:** This Super Hold Servo is compatible with all OE 2<sup>nd</sup> gear piston assemblies. If other type of 2<sup>nd</sup> apply piston is used, clearance for the outer diameter of the steel washer over the full travel of the apply pin must be verified.

- 2) Set pin travel using one of the two methods outlined below:

#### Method 1, Set Pin Travel (with Dial Indicator)

- 1) Install the 2<sup>nd</sup> gear servo assembly, 4<sup>th</sup> gear servo assembly and retaining ring onto the case.
- 2) Setup dial indicator as shown in figure #1
- 3) Depress the servo cover and measure the distance the cover travels.
- 4) Grind the pin tip as necessary to achieve .075" to .125" of servo travel.

**Note:** It is important to maintain a spherical tip radius when grinding the pin. The inner hole of a 3/8" flat washer cut in half makes a good radius gauge for this (see Figure #2)



### Method 2, Set Pin Travel (Using GM Tool # J33037)

- 1) When using GM tool # J33037, follow instructions included with the tool.
- 2) Warning: This 4<sup>th</sup> Gear Super Hold Servo 555-603300 will reduce pin travel by .050" (see Figure # 3). Therefore it is necessary to compensate when using GM tool # J33037. For Example, change pins or grind pin tip or set pin length so gauge line is near the outside edge (short pin) side of the window on GM tool # J33037 (as if the pin was the shortest allowable). When assembled, the resulting pin travel will be .075". From this point, measure the length of the pin with calipers and remove up to .050" additional material to set pin travel in the desired range of .075" to .125".

When using GM pin checking tool # J33037, the tool gauge slow window represents about .050" in pin travel.

Line Location	OE 4 <sup>th</sup> Gear Servo	Super Hold 4 <sup>th</sup> Gear Servo
White line at short pin side of window	.125" travel	.075" travel
White line at center of window	.100" travel	.050" travel
White line at long pin side of window	.075" travel	.025" travel

Figure 3

### Final Assembly

- Install & lubricate all seals.
- Install & lubricate 4<sup>th</sup> gear servo o-ring.
- Install the 2<sup>nd</sup> & 4<sup>th</sup> servo assemblies into the case
- Install the servo retaining ring (see installation tips on page 1).
- Verify the retaining ring is fully seated in case.

### Air Test Servo

- 1) When air checking during overhaul (and pump removed), check for leaks of 3<sup>rd</sup> clutch oil at the OE 3<sup>rd</sup> accumulator checkball capsule (No. 2 in Figure 4)
- 2) No. 1 in Figure 4 is orifice to spray lube oil onto 2-3 band. Some leakage here is normal.

**Note:** When using 4<sup>th</sup> Gear Super Hold Dual Servo Assembly, do not air test 4<sup>th</sup> apply unless band and drum are in place, otherwise 4<sup>th</sup> apply seals may come out of position.

### Illustration Reference:

- A. 2<sup>nd</sup> Feed
- B. 3<sup>rd</sup> Accumulator
- C. 4<sup>th</sup> Feed
- D. Exhaust

