

# 1963 - 1964 Corvette: Service Bulletin: 3-Speed Transmission Problems

**Subject:** 3-Speed Transmission Problems

**Model and Year:** All Passenger Cars and 10-20 Series Trucks - 1963-1964

**Source:** Chevrolet Technical Service Bulletin

**Bulletin No:** TSB #1008 DR #676

**Section:** VII

**Date:** July 16, 1964

**TO: ALL CHEVROLET SERVICE PERSONNEL**

This Bulletin is intended to provide corrective measures for the following problems if encountered on the vehicles indicated:

- Gear clash on first and reverse shift. All subject vehicles except Corvair and Corvair 95
- Shifting difficulty - All subject vehicles except Corvair, Corvair 95 and Chevy Van
- Countergear and thrust washer installation - All subject vehicles
- Bearing noise - All subject vehicles except Corvair and Corvair 95

Detailed instructions for correcting the above conditions are covered in the attached pages.

GEAR CLASH ON FIRST AND REVERSE SHIFT - 800; 1000; 5000; CHEVY II;  
CHEVY VAN; C10-20 & P10 -1963-64

Gear clash will cause rounding of the chamfers on the first and reverse gear, countergear and reverse idler gear and possibly break loose some fine chips. These fine particles are a major contributor to bearing noise.

Major causes of gear clash and their corrections are:

1. Drag of clutch gear pilot shaft in pilot bushing caused by (1) scored bushing or shaft; or (2) improper transmission alignment. Correct as outlined in appropriate shop manual. Scored bushings should be replaced. Nicks in shaft pilot diameter may be removed by stoning.
2. Bent clutch disc - correct by replacing clutch disc.

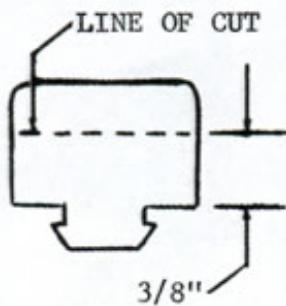


FIGURE 1 - CUTTING CLUTCH BUMPER

3. Not allowing sufficient time for clutch disc to "spin down" (i.e. reduce speed of rotation) before shifting. Correction is a matter of instructing drivers to hesitate a moment after depressing clutch before attempting to shift into first or reverse.
4. Insufficient clutch release on all passenger cars and trucks except Corvair, Corvair 95 and Chevy Van - adequate clutch release on these models may be obtained by cutting off the existing clutch pedal stop

bumper to a height of 3/8" (see Figure 1) and readjusting clutch pedal lash to specifications (1" to 1-1/4").

Chevelle models utilize a bellows seal where the clutch push rod passes through the fire wall. It is suggested that the push rod be lubricated with chassis grease in the area where it is contacted by the seal. The object of this is to enable the rod to slide within the seal as the shortened bumper may increase rod travel beyond the limits of the seal bellows.

SHIFTING DIFFICULTY - 1000 SERIES; C-10-20; P10 & C30 WITH RPO M-16 1964

The major sources of difficulty in shifting are the clearance adjustment between the transmission control levers located at the lower end of the mast jacket and the adjustment of the selector rods at the control levers for neutral cross-over. Excessive clearance between the levers or incorrect neutral cross-over may result in block-out.

To provide a more positive shift on truck models, Part No. 3793124, transmission control 1st and reverse lever spring washer is being omitted in production and should be removed from units in service. The procedure to remove this spring washer and to readjust lever clearance is as follows:

1. Refer to Figure 2 for parts identification. Place shift lever in neutral; remove access cover from fender skirt.

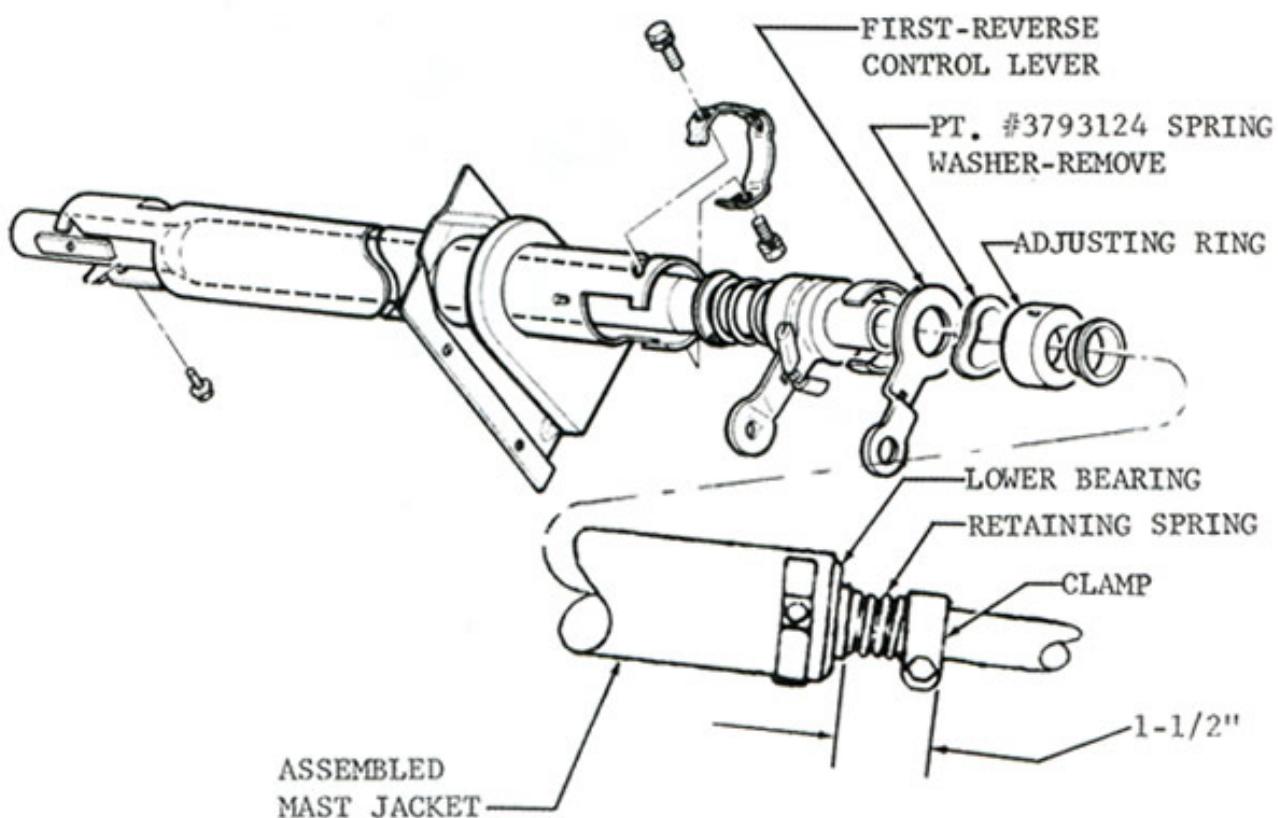


FIGURE 2 - MAST JACKET ASSEMBLY

2. Remove cap screws retaining adjusting ring to mast jacket.
3. Loosen steering shaft lower bearing retaining spring clamp.
4. Slide adjusting ring downward along steering shaft until Part No. 3793124, spring washer, is exposed. Cut and remove spring washer from steering shaft.
5. Apply lubriplate to thrust surfaces of control levers, relay lever and adjusting ring.
6. Position adjusting ring in mast jacket; align holes in ring with slots in mast jacket and install cap screws, but do not tighten.
7. Rotate adjusting ring upward until clearance of .005" exists between first-reverse control lever and ring as shown in Figure 3. Tighten cap screws.



FIGURE 3 - ADJUSTING 1ST-REVERSE LEVER CLEARANCE

8. Force lower bearing retaining spring clamp upward against spring tension until a dimension of 1-1/2" exists between lower bearing and clamp as shown in Figure 2. Tighten clamp bolt.
9. With transmission side cover selector levers in neutral position, adjust selector rod lengths per instructions in the appropriate shop manual to provide proper neutral cross-over. Replace access cover when adjustments are completed.

On 1000 Series Passenger, the wave washer mentioned above on Truck models is not involved. However, the lubriplating of levers, the .005" end clearance between the first and reverse control lever and the adjusting ring, and the adjustment for neutral cross-over is the same.

#### CHEVELLE AND CHEVY II -1964

The major source of difficulty on these models is inaccurate neutral cross-over adjustment.

Due to design, end clearance between the levers is non-adjustable and should nominally be .030" to .050" on Chevy II. Clearance can still be somewhat above .050", however, and not be objectionable. Clearance on Chevelle should be .010" to .035".

The determining factor is whether or not the selector key welded to the shifter tube can possibly disengage from one control lever prior to picking up the other.

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Excessive clearance necessitates replacement of the mast jacket plus control levers and/or spacers if thrust surfaces are worn. Lubriplate thrust surfaces at time of reassembly.

For neutral cross-over adjustment, refer to instructions in the appropriate shop manual.

#### COUNTERGEAR AND THRUST WASHER INSTALLATION - 800; 1000; 5000; CHEVY II; CHEVY VAN; CORVAIR AND TRUCK WITH CHEVROLET THREE-SPEED TRANSMISSION -1964

The purpose of this information is to clear up any confusion which may exist as to correct usage and installation of service parts. On counter-gears, there are minor differences in helix angles, overall length and

usage with countergear, thrust washers, and countergear roller thrust washers that lead to this confusion.

On Chevy Van models with three-speed transmissions, a small steel thrust washer is used between the countergear thrust washer and the countergear roller bearings at each end of the countergear. Since the 1964 Chevy Van Shop Manual is supplemented to the 1963 Truck Shop Manual in this area, reference to this part is omitted in error.

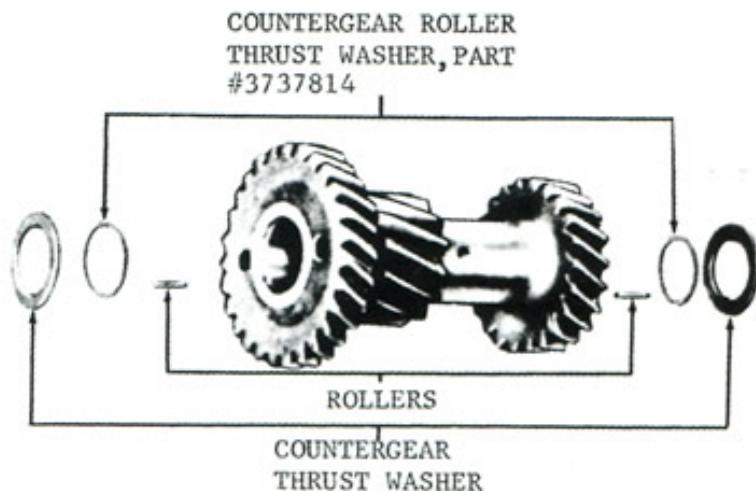


FIGURE 4 - INSTALLATION OF THRUST WASHERS IN CHEVY VAN

Figure 4 illustrates installed location of this thrust washer in Chevy Van transmissions.

The following chart lists countergear and thrust washer application for all Chevrolet standard three-speed transmissions.

1964- COUNTER GEAR AND THRUST WASHER APPLICATION

<u>Originally Installed</u>	<u>Corvair 95</u>	<u>Corvair</u>	<u>CKP10-20 (Exc. C10 W/ Overdrive Transmission)</u>	<u>Corvette</u> <u>Chevelle W/V-8</u> <u>Chevy II W/V-8</u> <u>Chev. W/V-327</u> <u>(250 or 300 HP)</u>	<u>Chevelle W/L-6</u> <u>Chevy II W/L-4 or L-6</u> <u>Chevrolet W/L-6 or V-8</u> <u>283 Cu. In.)</u> <u>Chevy Van</u> <u>C10 W/Overdrive Trans.</u>
Countergear	3772522	3837983	3817960	3834208	3834207
Countergear Thrust Washer	Steel (see note)	3834209	Steel (see note)	3834209	3834209
Countergear Roller Thrust Washer	None (see note)	3737814	None (see note)	3737814	3737814

NOTE: For service replacement procure (1) 3740819 Countergear Thrust Washer & (1) 3737814 Countergear Roller Thrust Washer for each steel thrust washer replaced. The roller thrust washer is installed between the countergear rollers and the countergear thrust washer.

A brief description of the above countergears follows:

<u>Countergear</u>	<u>Number of Teeth</u>	<u>O.A. Length</u>	<u>Largest O.D.</u>
3772522	27-14-22T	5.724/5.720	3.996/3.990
3834207	27-14-22T	5.844/5.840	3.760/3.754
3837983	28-14-22T	5.844/5.840	3.934/3.928
3817960	27-14-22T	5.724/5.720	3.758/3.752
3834208	25-14-22T	5.844/5.840	3.574/3.568

BEARING NOISE - 800; 1000; 5000; CHEVY II & CHEVY VAN 1963-64

To reduce bearing noise and increase bearing durability, two changes have been released for production. First is the installation of a magnetic chip collector which went into effect on June 5, 1964. Second is the use of a new clutch gear and mainshaft bearing that incorporates a slinger ring on the inner race. This change went into effect on transmissions for use on 327 cu. in. engines on June 11, 1964, and is estimated to go into effect the week of June 22, 1964, on remaining transmissions.

Service Kit #3869240 has been released for field installation of the chip collector on 1963 and 1964 3-speed transmissions built prior to the above dates. The kit includes the magnet, cement, and instruction sheet. It also contains a 3/8 inch high pedal bumper for increasing clutch release on all except Chevy Van (Reference - Gear Clash - First and Reverse Shift). It is recommended that whenever a 1963 or 1964 3-speed transmission is disassembled for any reason, that the magnet be installed using the following procedure.

INSTRUCTIONS FOR INSTALLING MAGNET

1. Remove all components from case.
2. Clean inside of case with steam cleaner, if available. In the absence of steam cleaning equipment, mineral spirits, kerosene or gasoline may be used. Evaporate all traces of cleaning agent by blowing out inside of transmission case with compressed air. To remove loose particles, sand area in case where magnet is to be installed with coarse emery cloth.

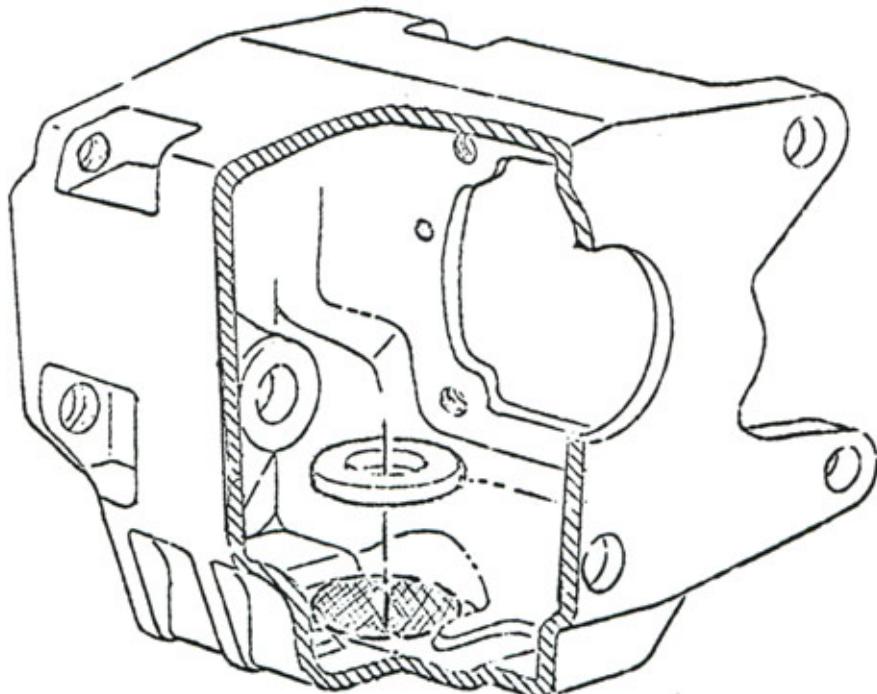


FIGURE 5 - INSTALLATION OF MAGNETIC CHIP COLLECTOR

3. Wipe magnet and area in case where magnet is to be installed with Acetone or Toluol (available at most drugstores). Area where magnet is to be installed must be clean, dry and free from oil and grease film. When Acetone or Toluol is applied, be sure to use in ample quantity to neutralize grease and oil which may be in pores of casting surface. Do not touch cleaned area with hands.
4. Using cement supplied in kit, apply about a 1/16 inch thick film over entire bottom surface of magnet and immediately place in case as shown in sketch. Press straight down - do not twist while pressing in position. Note: If cement from tube appears to be thick, discard thick or hardened chunks and use cement from middle or bottom of tube.
5. To cure cement, place a trouble light with a 100 watt lamp inside of case as close to magnet as possible, and allow to stand for a minimum of 30 minutes. Use care not to touch magnet or knock it out of position. A heat lamp, if available, may be used in place of 100 watt lamp.
6. Reassemble transmission. Note: First and reverse sliding gears, counter gears and reverse idler gears which display normal wear and slight rounding at ends of gear teeth due to gear clash need not be replaced. If tooth marks from partial engagement are visible on gear teeth or if the teeth are chipped or have been partially or fully broken off, replace only the gears so affected.

**PARTS DATA:**

1 - 3869240

### Kit - Magnetic Chip Collector

**FLAT RATE DATA:**

<u>Time</u>	<u>Operation</u>
.5	Install chip collector
.2	Cut or install clutch bumper & adjust clutch lash
.4	Adjust transmission linkage, includes removal of spring washer
.2	Adjust transmission linkage - spring washer removal not required

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