

New Venture Gear 1500 – New For 1996

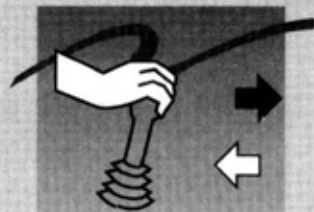
By Mike Weinberg
Contributing Editor

With the new year General Motors brings us a new transmission – the NV1500. This unit will be in GM S trucks behind the 2.2 liter engine (VIN 4). The transmission also may be called the MW2, which is the RPO code assigned by the General. This trans is synchronized in all gears and has a two-piece aluminum case. The front half of the case has an integral clutch housing and the rear case includes the extension housing and the rear output seal.

Those of you familiar with the New Venture 3500 trans in the C & K trucks will recognize the same design downsized to create the 1500. Internal shift mechanism is similar to the 3500 with a single main shift rail controlling three

forks and the interlock system. A note of caution when taking apart one of these units for internal repair: remove the bolt from the base of the the shift tower. Do not remove the four bolts at the top of the tower that retain the shift lever onto the tower (See Figure 1). If the tower is worn or damaged it must be replaced as a unit. No internal parts are available for the shift tower itself at this time.

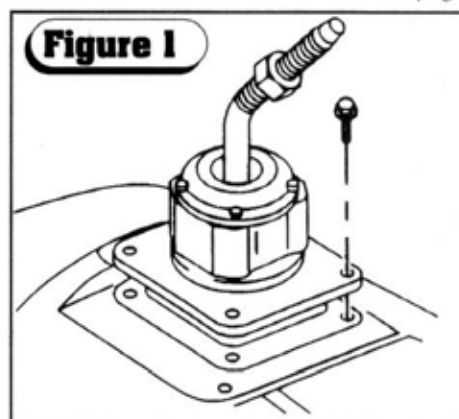
The synchronizers use double-lined rings for 1st and 2nd gear. If you don't match mark your synchronizers before disassembly, now would be a great time to start. The engagement teeth on 1st and 2nd gear have different angles. The 1-2 synchro sleeve has a groove on one side that MUST face 1st gear. If you put the synchro sleeve on bassackward you will get a gear clash in 1st and 2nd and have to take the unit apart again. The



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synchronizers use keys with internal spring and poppet balls. A word to the wise - hold the synchro rings tight against the synchro assembly when pressing the synchro assembly off the main shaft (See

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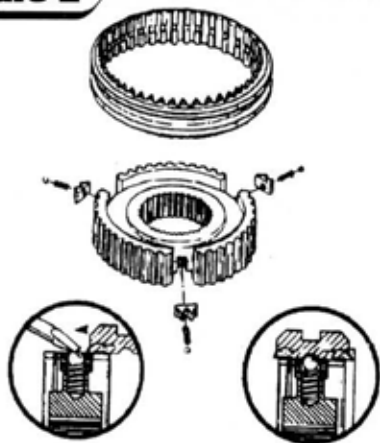
**Shift Housing Assembly
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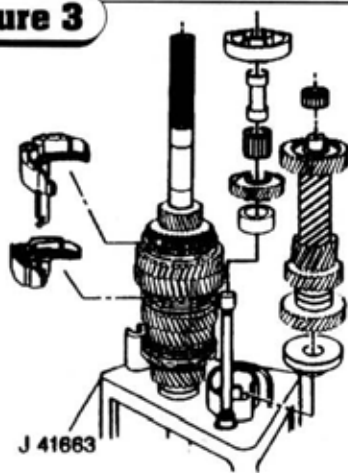


Figure 2



Synchronizer Assembly

Figure 3



Gears and Shift Forks

Figure 2). Failure to do so will have you on your knees with a flashlight and a magnet, trolling through the Speedy Dry. The 3-4 synchro is identified with two grooves that must face 3rd gear. A couple of seconds with a die grinder will match mark the synchros so you can't make a mistake.

There are several essential tools that are musts to rebuild the NV1500: an assembly stand, Kent Moore #J 41663; rear bearing retainer alignment cables, Kent Moore #J36515-10, and a factory repair manual. The good news is that the tools are not expensive. GM has come up with the simple, brilliant idea of publishing one manual covering every transmission, transaxle and transfer case in use in the 1996 model year. The book is listed as GMPT/96-TURM. You heard right; one book covers every unit - automatic, stick and transfer case - that will be used in a 1996 GM vehicle (See Figure 3). Whoever thought that up is a prime candidate for sainthood. There is, however, one problem with the section covering the

Up To Standards

NV1500. After searching diligently, page after page, I can find no mention of the specs most important to us - endplay and synchro-ring clearance. No clearances are listed and endplay is not even mentioned. We will find out what the spec should be and make that info available to you.

As we have come to learn, lubrication on standard transmissions is not to be taken for granted. The NV1500 has a dry fill capacity of 2.9 quarts of GM synchromesh fluid, P/N 998564, and four fluid ounces of friction modifier, GM P/N 1238072. Please note that this is the mixture that the factory wants in the unit and if you have a customer come in with a unit that doesn't shift well but has low miles, be sure to ask whether he had the fluid changed at another shop.

Wrong fluid creates wrong shifts. While the talk is on lubrication, this unit is sealed with anaerobic gasket maker, GM P/N 1052943. When sealing the front bearing retainer to the case, be careful not to

continues on page 60

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use too much sealer. If the sealer blocks the oil-drainback holes for the front bearing, you are building in an expensive comeback (See Figures 4 and 5).

Working on a 1500 is just rebuilding a 3500 on a smaller scale. Get the tools, buy the book; work smarter, not harder. **TD**

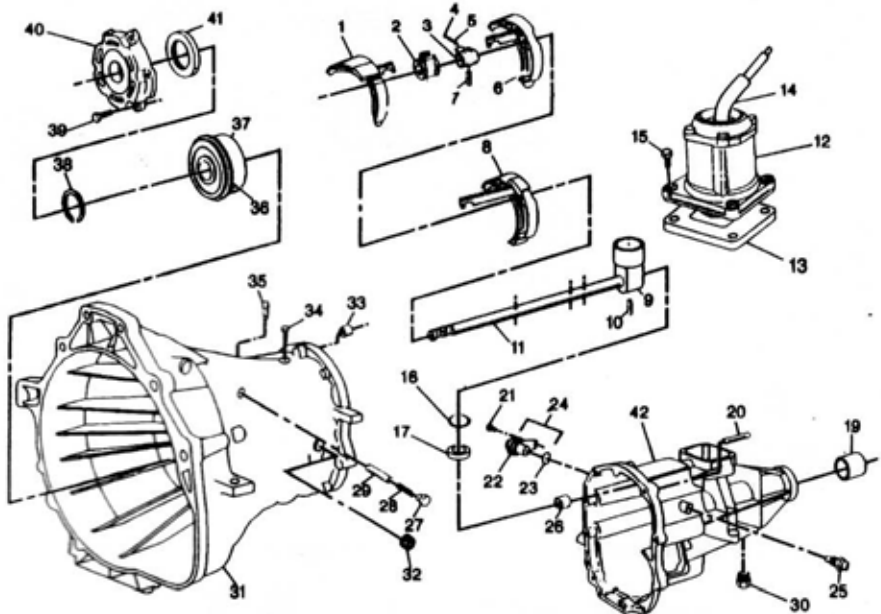
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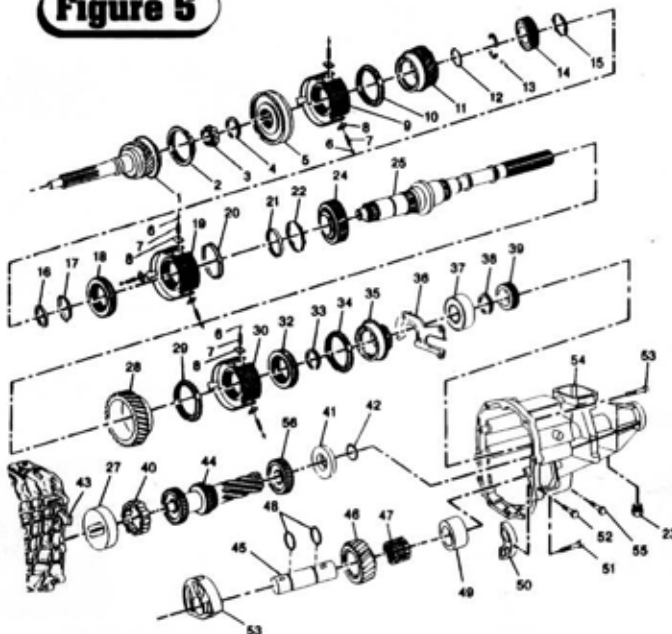
Figure 4



Transmission Shift Mechanism and Case Components

1. Fork, Third And Fourth Shift
2. Bushing, Shift Shaft Block-Out
3. Lever, Shift Shaft
4. Plunger, Shift Shaft Lever
5. Spring, Shift Shaft Lever
6. Fork, First And Second Shift
7. Pin, Roll
8. Fork, Fifth And Reverse Shift
9. Socket, Shift Shaft
10. Pin, Roll
11. Shaft, Shift
12. Housing Assembly, Shift Lever
13. Insulator
14. Lever, Transmission Shift
15. Bolt, Shift Lever Housing
16. Snap Ring
17. Support
19. Bushing, Rear Extension
20. Pin, Dowel
21. Bolt, Vehicle Speed Sensor
22. Sensor, Vehicle Speed
23. Seal, Vehicle Speed Sensor O-Ring
24. Sensor Assembly, Vehicle Speed
25. Switch Assembly, Back-up Lamp
26. Bushing, Shift Shaft
27. Plug
28. Spring, Detent
29. Plunger, Detent
30. Plug, Oil Drain
31. Housing, Front
32. Plug, Oil Fill
33. Bushing, Shift Shaft
34. Pin, Shaft Block-out Bushing
35. Vent
36. Ring, Input Shaft Bearing Snap
37. Bearing, Input Shaft
38. Ring, Snap
39. Bolt, Input Shaft Bearing Retainer
40. Retainer, Input Shaft Bearing
41. Seal, Input Shaft Bearing Retainer Oil
42. Housing, Rear

Figure 5



Transmission Gear Components

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Shaft, Input 2. Ring, Synchronizer 3. Bearing, Pocket 4. Ring, Snap 5. Sleeve, Synchronizer 6. Ball, Synchronizer Detent 7. Spring, Synchronizer Detent 8. Key, Synchronizer 9. Hub, 3-4 Synchronizer 10. Ring, Synchronizer 11. Gear Assembly, 3rd Speed 12. Retainer Ring 13. Thrust Washer And Pin 3-Piece 14. Gear Assembly, 2nd Speed 15. Cone, Inner 16. Cone, Middle 17. Ring, Synchronizer Blocker 18. Sleeve, 1-2 Synchronizer 19. Hub, 1-2 Synchronizer 20. Ring, Synchronizer Blocker 21. Cone, Middle 22. Cone, Inner 23. Plug, Drain 24. Gear, 1st Speed 25. Shaft, Output 27. Shell, Bearing 28. Gear Assembly, Reverse Speed | <ol style="list-style-type: none"> 29. Ring Synchronizer 33. Ring, Snap 34. Ring, Synchronizer 35. Gear Assembly, 5th Speed 36. Retainer, Output Shaft Bearing 37. Bearing Assembly, Output Shaft 38. Ring, Snap 39. Rotor, Speed Sensor 40. Bearing, Roller 41. Bearing, Ball 42. Ring, Snap 43. Housing, Front 44. Countershaft 45. Shaft, Reverse Idler 46. Gear, Reverse Idler 47. Bearing Assembly, Needle 48. O-Ring (2) 49. Collar - Idler Shaft Support 50. Segment - Idler Shaft 51. Bolt, Housing 52. Bolt, Idler Shaft Support 53. Bolt, Housing 54. Housing, Rear 55. Bolt, Collar 56. Gear, Fifth Counter |
|--|---|