

Installation Instructions for 603107 Valve Body Kit C-4 1970 & Later

Tools Required

Speed Handle or Ratchet – 3/8" Drive
1/2" Socket – 3/8" Drive
7/16" Socket – 3/8" Drive
5/16" Socket – 3/8" Drive
Small Screwdriver
Philips Screwdriver
3/4" Wrench
Small File
Torque Wrench 0-250-in.lbs. – 3/8" Drive
3/8" 12-point socket – 3/8" Drive

By CAREFULLY following these instructions anyone with a minimum of mechanical experience can install this kit.

NOTE: This kit was not intended for installation in transmissions that are in poor general condition. It will not correct the condition of malfunctioning or slipping transmissions.

Before beginning the installation of your Valve Body Kit it is necessary to check the parts list to be certain you have all items.

This kit can be installed in a few hours by carefully following directions. Read all instructions first to familiarize yourself with the parts and procedures. Work slowly and do not force any parts. Burrs and dirt are the number one enemies of an automatic transmission. Cleanliness is very important so a clean work area or bench is necessary. We suggest a clean work bench top from which oil can easily be cleaned or a large piece of cardboard.

Automatic transmissions operate at temperatures between 150°F and 250°F. It is suggested that the vehicle be allowed to cool for a few hours to avoid burns from hot oil and parts. The vehicle should be off the ground for ease of installation. Jack stands, wheel ramps, or a hoist will work fine. Make sure vehicle is firmly supported! Try to raise it 1-2 feet so you have plenty of room to work easily. Have a small box or pan handy to put small parts in so they won't be lost. Also have a drain pan to catch oil in.

Qty	Description
1	Pan Gasket
1	Filter
1	Vacuum Modulator
1	1/8" Drill Bit
1	Modulator Rod
1	Green Pressure Regulator Spring
1	2-3 Back Out Valve Plug
1	Modulator Shim
1	Modulator Gasket
1	7/32" Steel Ball
2	7/32" Plastic Balls

DISASSEMBLY

STEP 1 C-4's do not have a drain plug. You may want to install a Drain Plug Kit at this time. Drain the oil by removing the back oil pan bolts and work towards the front slowly. (Some vehicles have the dipstick tube attached to the oil pan. This can be removed first to drain some oil.) Do not remove the two front bolts yet. If the pan sticks to the gasket, insert a screwdriver between the pan and the case and pry the pan down slightly to break it loose. Now remove the two front bolts slowly. This will lower the pan to allow the rest of the fluid to drain. Lower the pan and set aside. Put the pan bolts in your tray.

STEP 2 Manually operate the kickdown lever on the transmission with the gas pedal depressed half way. Note how it moves freely with no bind. Observe how the internal linkage engages the valve body (**See Illustration 1**). Note position of detent roller spring (**See Photo 2**).

STEP 3 Remove the eight or nine valve body attaching bolts (**See Photo 2**) and remove the valve body by pulling straight down. Put the valve body in the oil pan. Pinto models have a check valve next to the filter (**See Photo 3**). Note: Detent roller spring comes out with valve body (**See Photo 2**).

STEP 4 Adjust the front band: Loosen the outer jam nut with 3/4" wrench (**See Photo 1**). Tighten the band adjusting screw to 120 inch pounds and back off 1-3/4 turns. Hold band adjusting screw in this position and tighten jam nut securely.

STEP 5 If your unit has a bolt-in modulator (**See Photo 2**), remove it and install new modulator supplied with kit along with new gasket. Make sure rod is in place between modulator and valve. Do not use silver rod in kit. If you have a push-in modulator that is retained with a clamp, make no modifications at this time.



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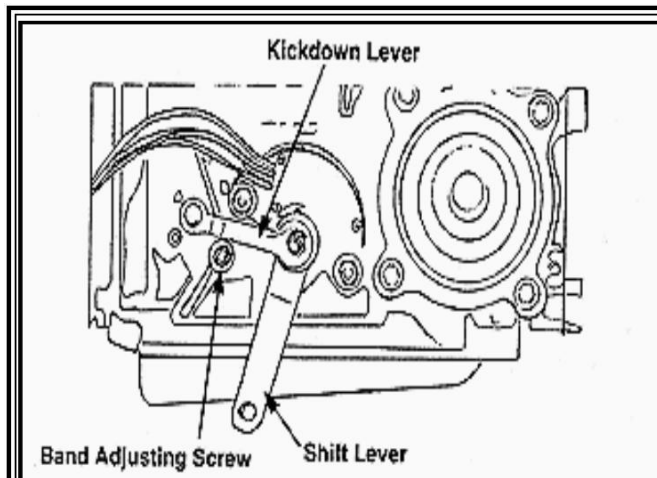


Illustration 1

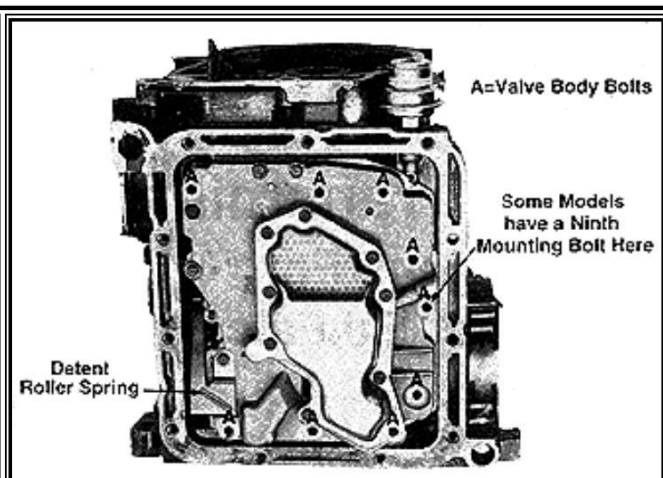


Photo 2 (All Except Pinto)

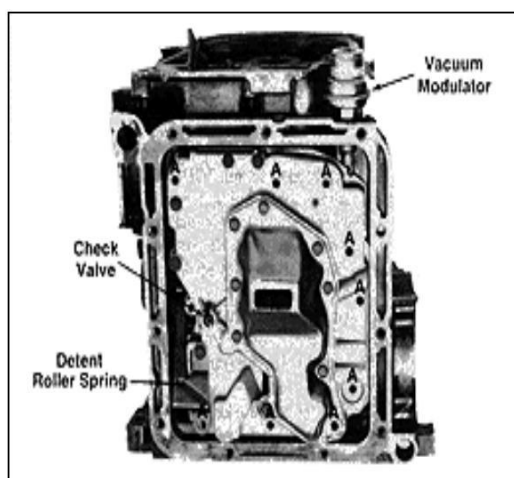


Photo 3 (Pinto Only)

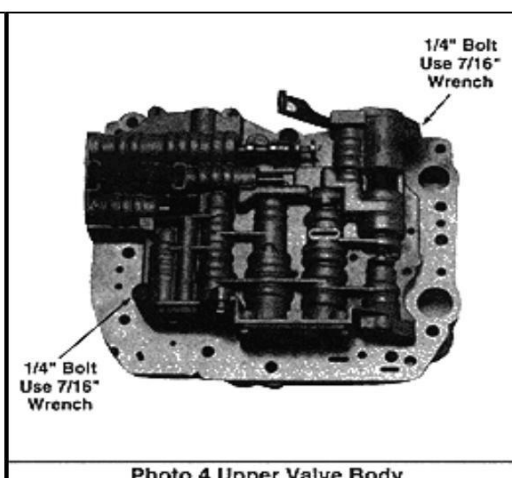


Photo 4 Upper Valve Body

Note: Some late model intermediate size vehicles and most Mustang II's may have the Pinto type body style. Compare your valve body to Photo 2 and 3. If your valve body matches Photo 3 follow the "Pinto Only" steps in the instruction book regardless of the model of car.

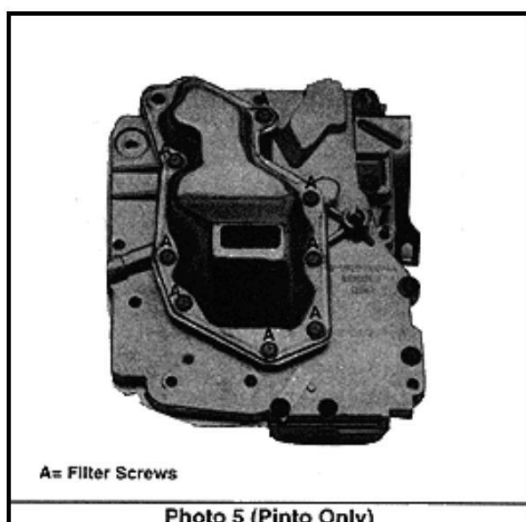


Photo 5 (Pinto Only)



Photo 5 (All Except Pinto)

STEP 6 Lay the valve body on the bench with the filter side down. Remove the two upper 1/4" bolts with a 7/16" wrench (See Photo 4).

STEP 7 Turn the valve body over and remove the filter screws (See Photo 5). Remove filter and discard it. Note: These screws are long. All except Pinto will have a check valve and spring under a tab in the corner of the filter. Remove the valve and spring and set them aside (See Photo 6).

STEP 8 Remove the remaining valve body screws and detent roller spring. There are nine of these screws and they are medium length. The valve body consists of three main components. The main housing with the valve is called a **casting**. The thinner aluminum casting that the filter is attached to is called the **transfer plate**. The thin steel plate with all the holes is called a **separator plate**.

STEP 9 Lift the **transfer plate** assembly off the **casting**. There is one black plastic check ball (all except Pinto) or two check balls (Pinto only) and a flat black rubber disc in the **casting** (See Photo 7). Remove these and discard them. Set the **transfer plate** assembly aside.

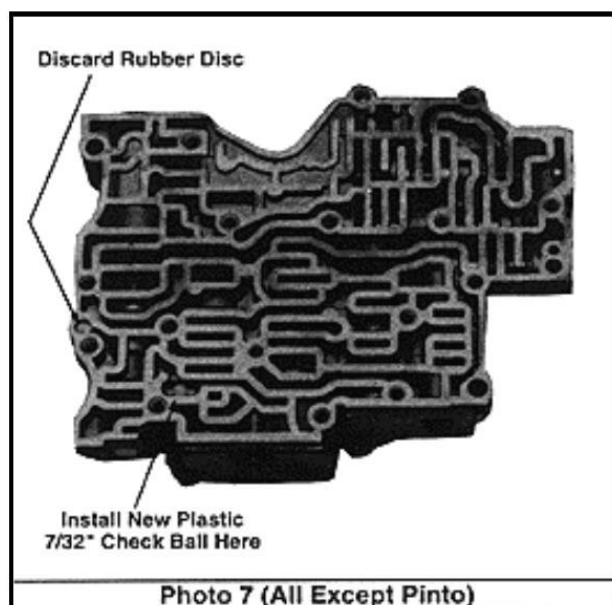


Photo 7 (All Except Pinto)

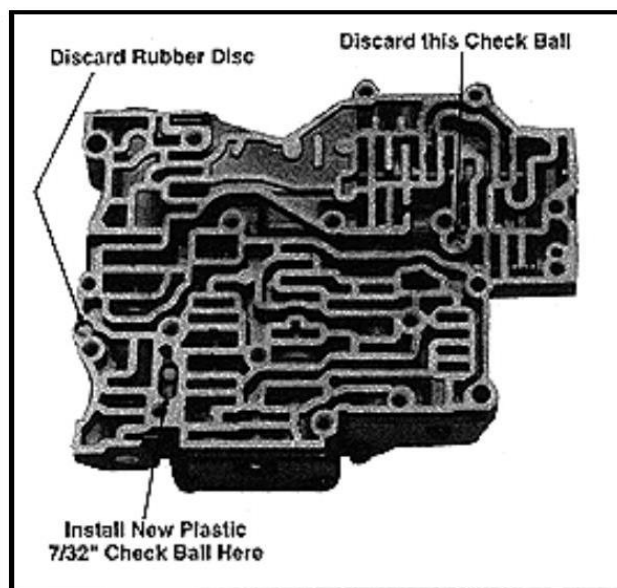


Photo 7 (Pinto Only)

STEP 10 Remove the accumulator valve end plug (See Photo 8). This plug is held in by a retaining pin. Push in on the plug to allow the pin to fall out. There is a spring underneath that will push the plug out. Remove the plug and the intermediate servo accumulator valve and spring. Install accumulator valve first into bore and spring second. Install end plug as removed. Push in on plug until retaining pin can drop in place and install pin. Spring tension will hold pin in place.

STEP 11 Remove the cut-back valve and end plate bolts and end plate.

Heavy Duty: No modification necessary for this application.

Street and Competition: Remove the cut -back valve. Install the 7/32" diameter steel ball from the kit into the cut-back valve bore. Install the cut-back valve as removed. The end of the valve should be below the surface of the **casting**. If it is not, grind a sufficient amount off the small end of the valve.

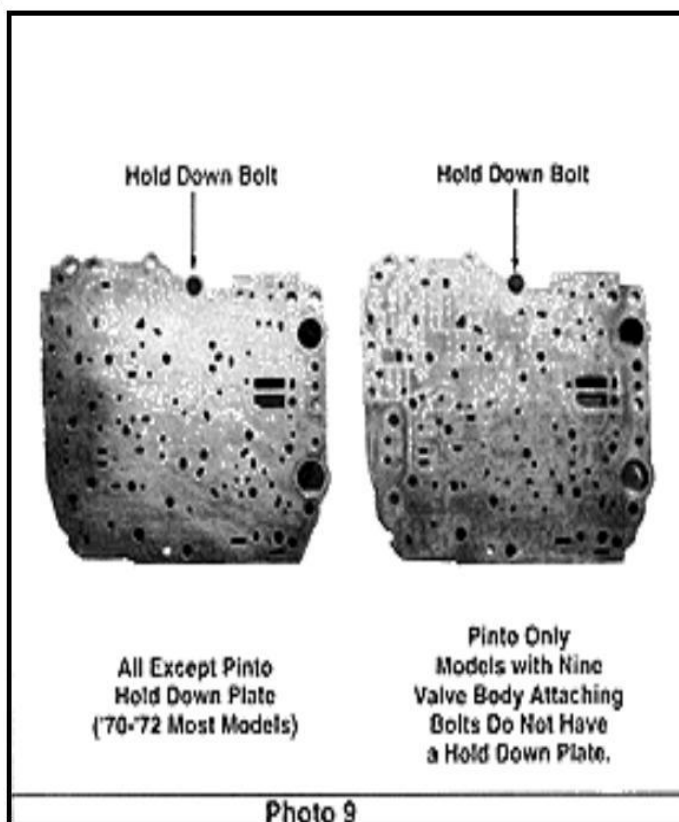
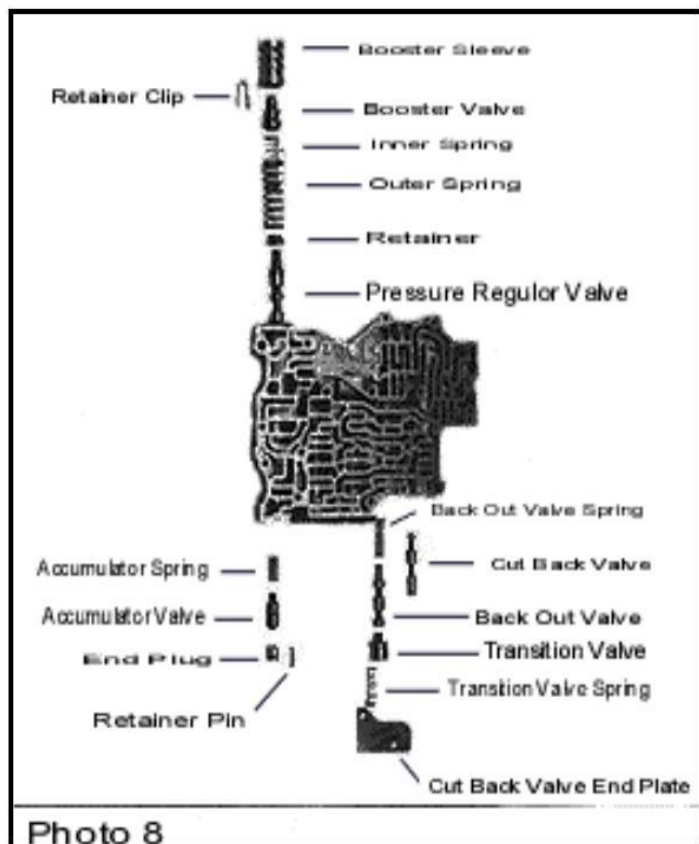
Remove the transition spring valve. Remove the 2-3 back-out valve and spring. Discard the springs. Install the 2-3 back-out valve plug into the bore. Install 2-3 back- out valve and transition valve as removed. Transition valve must be below the surface of the casting. If not, grind a sufficient amount off the small end of the transition valve. Install the cut-back end plate as removed and install two bolts finger tight.

STEP 12 Remove the booster valve sleeve. This sleeve is held in by a retaining pin (**See Photo 8**). Push in on the sleeve to allow the pin to fall out. There is a spring underneath that will push the sleeve and valve out. Remove the aluminum sleeve and valve. Remove the outer pressure regulator spring (large diameter) and replace it with the green spring from the kit. Install booster valve and sleeve as removed. Make sure valve is properly installed in sleeve before assembly. Hold sleeve in place and install retaining pin. Spring tension will hold pin in place.

STEP 13 Lay **casting** on bench with passages facing up. Install new 7/32" plastic ball in passage indicated (**See Photo 7**). Set the **casting** aside.

STEP 14 Place the transfer plate assembly in front of you with **separator plate** up (**See Photo 9**). Note the position of the hold-down plates. Remove the hold-down plates and the **separator plate**. *Pinto only:* There will be a check valve and spring under the separator plate. Remove it and set it aside.

STEP 15 Drill the **separator plate** in the place shown (**See Photo 9 & Illustrations Below**) using the drill supplied. After you drill the hole, deburr the plate using a file, stone, or sandpaper.



STEP 16 Scrape off any excess gasket material from the **separator plate** and the **transfer plate** casting. Discard the check ball under the **transfer plate**. Wash the **transfer** and **separator plates** in solvent or gasoline.

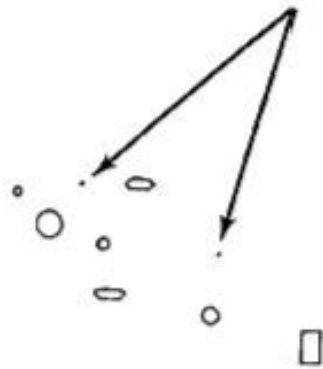
STEP 17 Lay the **transfer plate** in front of you with the passages up. Install new 7/32" plastic ball supplied with kit in position (**See Photo 10**). *Pinto only:* Install check valve and spring as removed with face of valve against **separator plate**. Install **separator plate** in place on **transfer plate**. Do not use gasket. Install hold-down plates in their proper positions (**See Photo 9**). Install bolts in place and tighten bolts finger tight.

STEP 18 Install **transfer plate** assembly onto **casting**. Make sure casting check ball is in place (**See Photo 7**). Install eight medium length valve body bolts in place in position shown (**See Photo 6**). Tighten finger tight. The **casting** and **transfer plate** should be flat against the **separator plate**. If it is not there is an interference problem that must be corrected. Do not install detent roller spring yet.

FORD C-4 1970 and Later

ALL EXCEPT PINTO

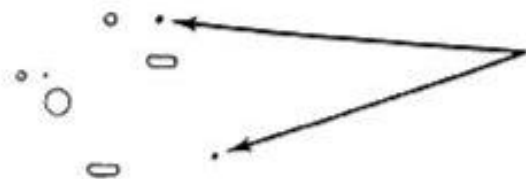
DRILL 1/8"



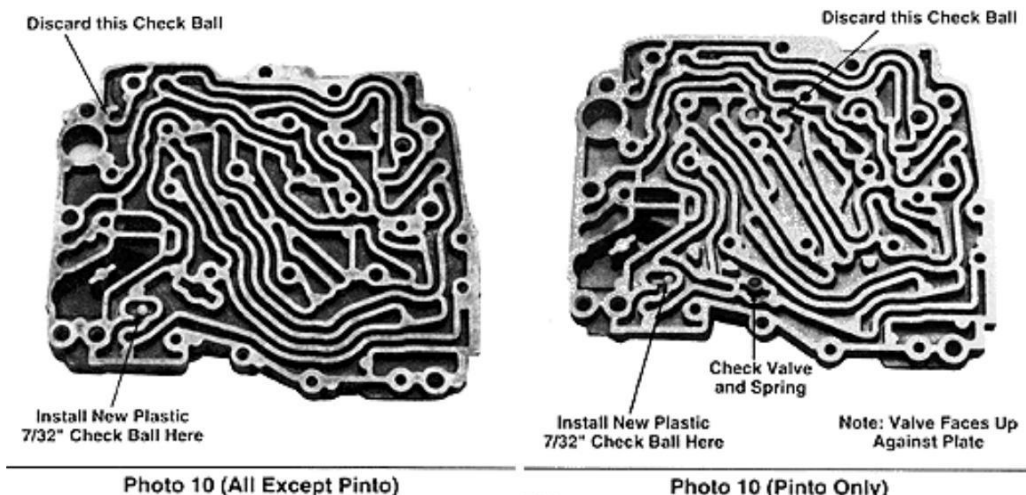
FORD C-4 1970 and Later

PINTO ONLY

DRILL 1/8"



STEP 19 Turn valve body over and install the two long 1/4" bolts (**See Photo 3**). Tighten to 80-120 inch-pounds. Also tighten all valve body and end plate bolts to 20-40 inch-pounds. This includes one end plate, eight valve body bolts and one or two hold down plates. *All except Pinto*: Install check valve and spring. Face of valve goes into casting first with spring on top. Tab on filter will hold valve assembly in place. Install new filter. Align large hole in filter with **casting** and install filter bolts and tighten to 20-40 inch-pounds. The valve body is now assembled.



REASSEMBLY

STEP 20 Install valve body into transmission carefully. You must engage selector lever into manual valve and align kickdown lever properly. Work kickdown lever with your hand slightly while install valve body. You should be able to hold the valve body flat against the case without excessive force. The kickdown lever should move freely with no bind as it did before removal. Install valve body bolts finger tight. The long bolt goes through the filter. Install detent roller spring in corner (**See Photo 2**). Again check for free operation of kickdown and shifter linkage. Tighten valve body bolts to 80-120 inch-pounds. Tighten detent roller spring casting bolt 20-40 inch-pounds.

STEP 21 Clean pan and scrape any excess gasket material from pan and case surface. Install pan with new gasket and tighten to 12-16 foot-pounds. Install dipstick tube into pan if your model was so equipped and tighten securely.

STEP 22 Check shifter adjustment: Detents on selector lever must correspond with detents in the transmission. There should be a slight amount of clearance between the shift lever and the neutral stop when the shifter is in neutral. Adjustment can be made by loosening the pinch bolt on shifter end of shifter rod and retightening after adjustment.

STEP 23 Depress gas pedal to full throttle. Check to see if carburetor is opening fully and adjust if necessary. Adjust kickdown linkage so full throttle operates kickdown lever on transmission to full position.

STEP 24 Lower vehicle. Try to keep the rear wheels off the ground if possible. Add 3 quarts type "F" automatic transmission fluid. Start the engine and put the selector lever in neutral. Check the fluid level and add fluid until it is to the "add" mark. Shift the transmission into all gear positions. If the rear wheels are off the ground allow the unit to shift through all gears about 10 times. Lower vehicle and check fluid. It should be between the "add" and "full" mark. **DO NOT OVERFILL TRANSMISSION.** Drive vehicle for 1-2 miles to warm up fluid. Check fluid level and add to "full" mark.

TO RAISE OR LOWER SHIFT POINTS

Part throttle shift points can be adjust for personal preference. Method of adjustment varies depending on type of modulator.

A. Modulator with green stripe supplied with kit: A small adjustment inside the vacuum tube can be turned to change shift points. Turn screw clockwise to raise shift points. Turn screw counterclockwise to lower shift points. Do not turn screw more than four turns in either direction.

B. Non-adjustable push-in type with clamp retainer: Three steps can be made to obtain lower part throttle shift points only. Shift points cannot be raised.

1. Replace factory modulator rod with special silver rod supplied in kit. This will lower your shift points approximately 5 mph.

2. Install shim under modulator base using factory modulator. This will lower your shift points approximately 7-8 mph.

3. Install both shim and special silver rod. This will lower your shift points by approximately 12-15 mph.

Note: The above modifications will have no noticeable effect on full throttle shift points.

Troubleshooting Guide

Malfunction	Probable Cause
Slips	Low fluid level Pressure regulator valve assembly improperly installed. Booster valve installed improperly Valve body or end plate bolts loose
Overheating or foaming at dipstick tube or breather	High fluid level Cooler plugged Cooler insufficient
Erratic shifting	Shifter misadjusted Kickdown rod misadjusted High fluid level Low fluid level Vacuum line cracked or leaking Valve body bolts loose End plate bolts loose
Late hard shifts	Vacuum line cracked or leaking Modulator damaged Kickdown linkage misadjusted
Will not shift	Valve body bolts loose End plates bolts loose
One gear only	Shifter not engaged properly
Early soft shifts	Modulator rod missing or incorrect Check valve and spring missing or installed incorrectly



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