



Installation Instructions

Ford C-4 Shift Improver Kit

1967-1969

50260

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This **B&M Ford C-4 Shift Improver Kit** has been designed to work on all **1967 thru 1969 Ford C-4 transmissions**. **WARNING:** Incorrect checkball placement can result in serious transmission damage. Be sure to follow the instructions carefully.

We recommend that you read through the instructions completely before beginning the installation, so you can familiarize yourself with the installation procedure and tools required. Check the tool list at the end of these instructions for the tools required to install your **B&M Ford C-4 Shift Improver Kit**.

Installation of the **B&M Ford C-4 Shift Improver Kit** can be accomplished by anyone with minimum mechanical experience. It is however, important to closely follow the instructions.

NOTE: The **B&M Ford C-4 Shift Im-**

prover Kit is not a cure-all for an ailing transmission. If your transmission is slipping or in poor general shape, the installation of this Shift Improver Kit may worsen the condition. However on a properly operating transmission in average condition, the Shift Improver Kit will provide the kind of transmission performance you looking for.

When installing your Shift Improver Kit there are several other **B&M** products you may wish to consider:

Transmission Oil Cooler We feel that it is very important that every vehicle used in a heavy duty application (racing, towing, RV, etc.) should have an oil cooler. Heat is the major cause of transmission failures, and an oil cooler is an inexpensive safeguard against overheating and failure. **B&M** offers a wide range of transmission coolers to suit every need, which are

available at your **B&M** dealer.

Trick Shift Performance ATF Trick Shift performance automatic transmission fluid is the industry's leading performance **ATF**. A specially blended oil with foam inhibitors, extreme pressure agents and shift improvers, this fluid assures protection while delivering the fastest possible shifts. You literally "Pour in performance." Available at your **B&M** dealer. **TEMPERATURE GAGE KIT 80212** Most transmission and converter failures can be traced directly to excessive heat. The **B&M** transmission temperature gage can save you a costly repair bill by warning you ahead of time of an overheated transmission. The **B&M** temperature gauge is extremely accurate and dependable, it comes with all necessary hardware and is easy to install.

C-4 '67 - '69 INTRODUCTION

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. Transmission components and valves are precision fit 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.

This kit contains all parts necessary to obtain two levels of performance depending on intended use:

1. **Heavy Duty:** Towing, campers, motorhomes, police, taxi, etc.
2. **Street/Strip:** Dual purpose performance vehicles, Street and strip high-performance cars, on and off-road desert vehicles and 4-wheelers.

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 before disassembly 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 the 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 parts in so they won't be lost. Also have a drain pan to catch oil.

DISASSEMBLY

STEP 1. C-4's do not have a drain plug. You may want to install a B&M Pan Drain Plug Kit at this time, part #80250. 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 it aside. Put the pan bolts in your tray.

STEP 2. Manually operate the downshift lever on the transmission with the gas pedal depressed half way. Note how it moves freely with no bind. (See Fig. 1.) Observe how the internal linkage engages the valve body.

STEP 3. Remove the eight valve body attaching bolts (See Fig. 2) and remove the valve body by pulling straight down. Put the valve body in the oil pan.

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

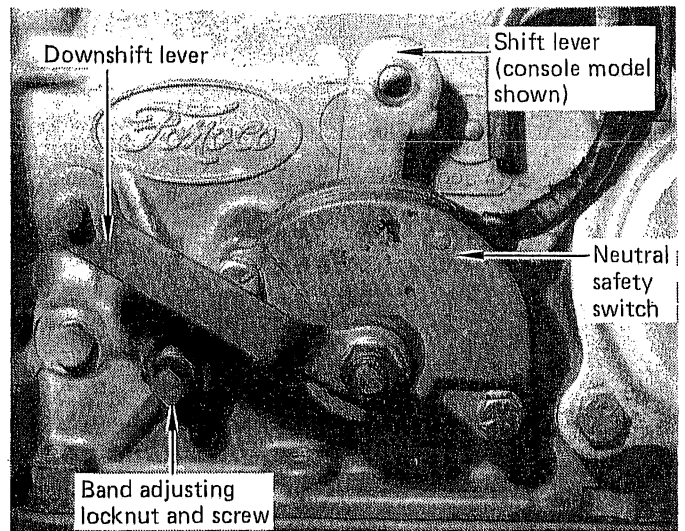


FIGURE 1

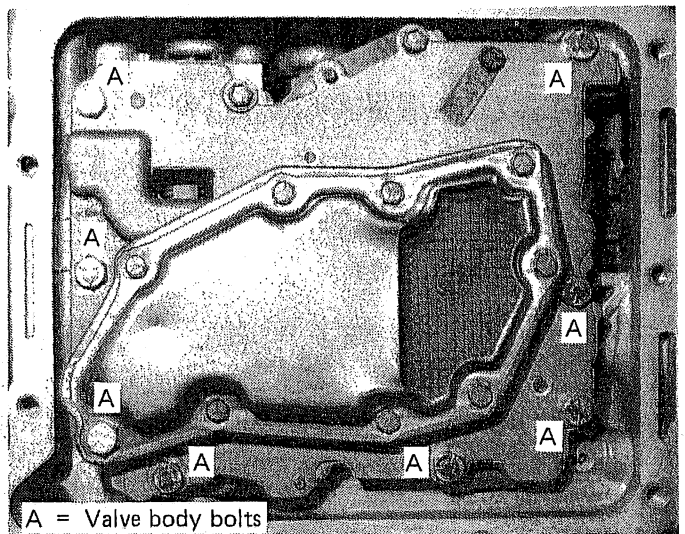


FIGURE 2

STEP 5. 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 Fig. 3)

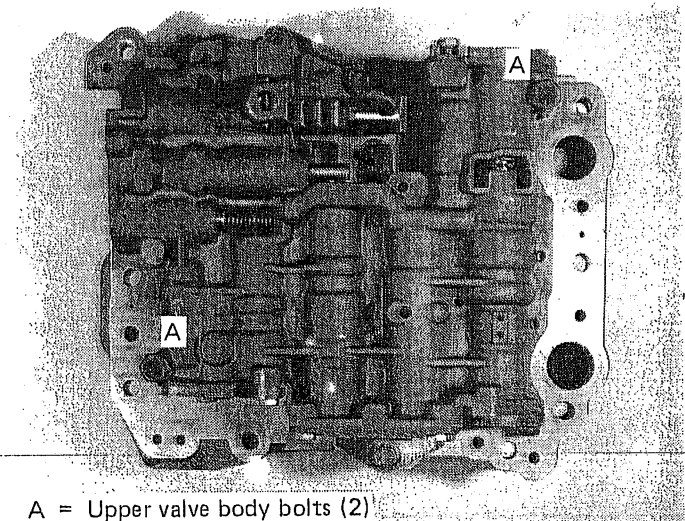


FIGURE 3

STEP 6. Turn the valve body over and remove the filter screws. (See Fig. 4) Remove filter and discard it. Note: These screws are long.

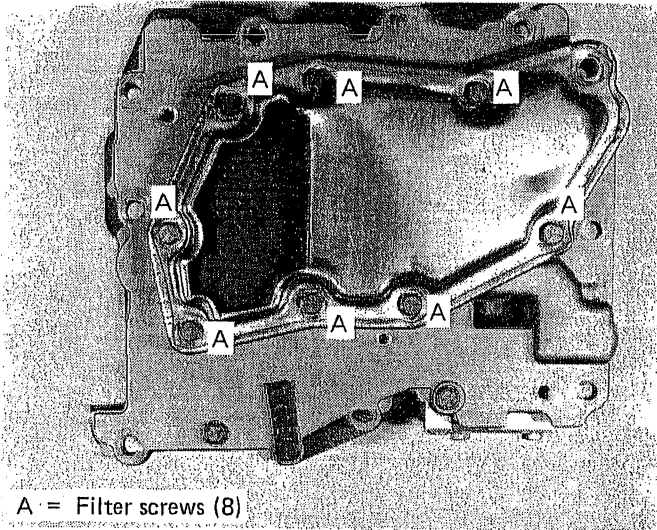


FIGURE 4

STEP 7. Remove the remaining valve body screws. (See Fig. 5) There are seven of these screws and they are medium length. The valve body consists of three main components. The main housing with the valves 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**.

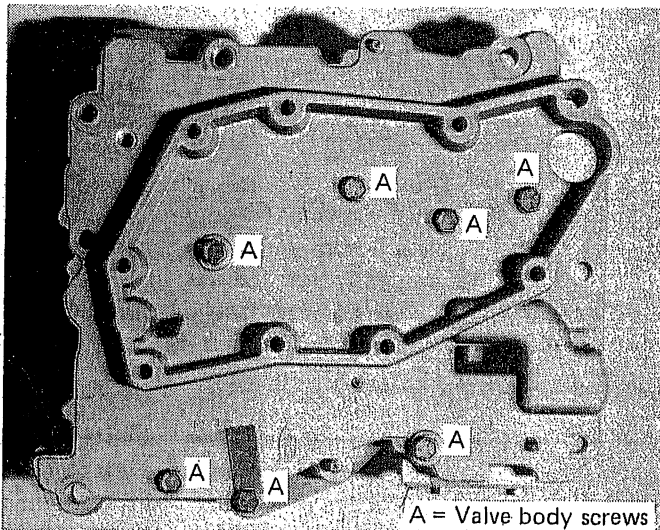


FIGURE 5

STEP 8. Lift the transfer plate assembly off the casting. There is a small plastic check ball and a flat black rubber disc in the **casting**. (See Fig. 6) Remove the plastic check ball and set it aside. Discard the flat black rubber disc. Set the **transfer plate** assembly aside.

STEP 9. Remove the accumulator valve end plate. (See Fig. 7) This plate is held on with one bolt or two countersunk Phillips head screws. Note how your plate is mounted and remove it. Remove aluminum sleeve and small rod-shaped 3-2

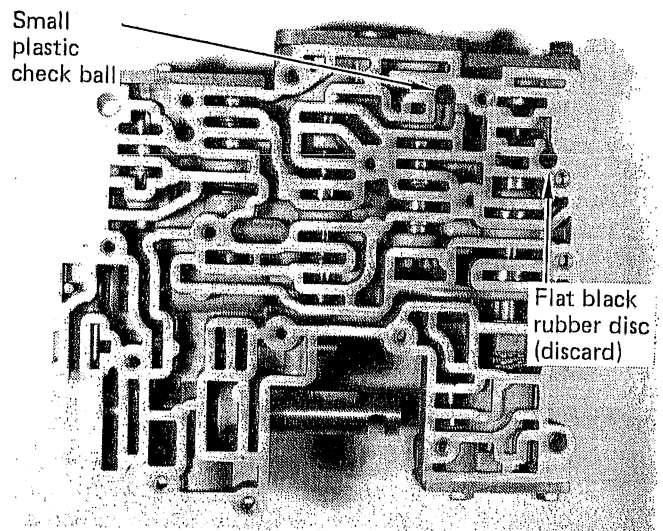


FIGURE 6

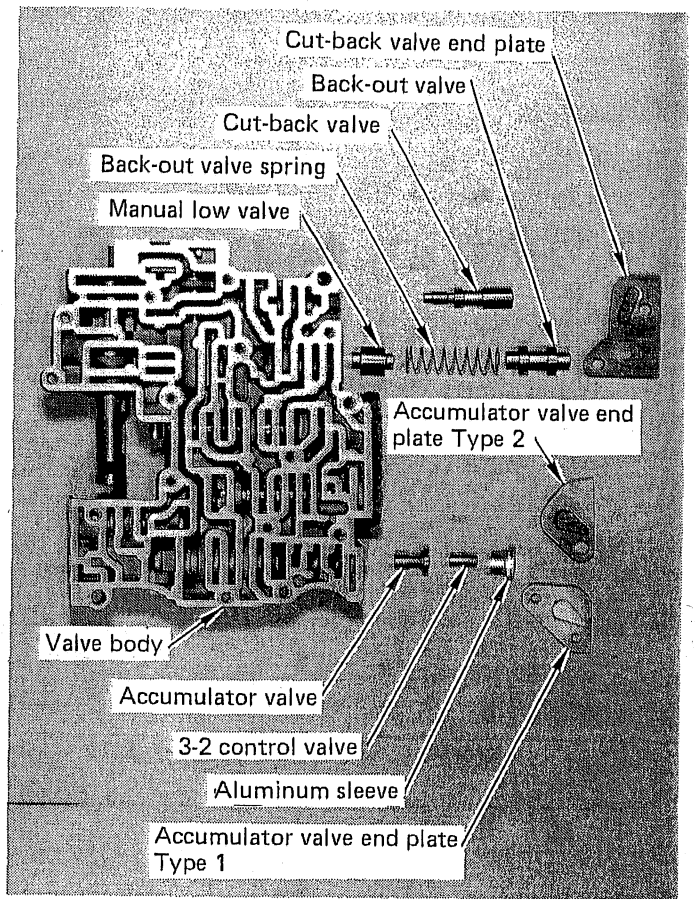


FIGURE 7

control valve. Remove the accumulator spring and discard it. Install accumulator valve plug down against accumulator valve in place of the spring. Install aluminum sleeve and 3-2 control valve. No part of the sleeve or valve should hold the end plate off the surface of the **casting**. If it does, make sure all valves are in place properly. It may be necessary to grind the plug slightly to allow the end plate to seat properly against the **casting**. Install end plate as removed and tighten bolts or screws finger tight.

STEP 10.

Heavy Duty: No modification required to cut-back valve.

Street/Strip: Remove the cut-back valve end plate bolts and end plate. (See Fig. 7) Remove the cut-back valve. Install the 3/16" 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.

STEP 11. Lay casting on bench with passages facing up. Install plastic ball in passage indicated in Figure 6. Set the casting aside.

STEP 12. Place the transfer plate assembly in front of you with the separator plate up. (See Fig. 8) Note the position of the hold-down plates, especially the stud-type bolt on the large plate. Remove the hold-down plates and the separator plate. Remove the plastic check ball and set it aside. (See Fig. 9)

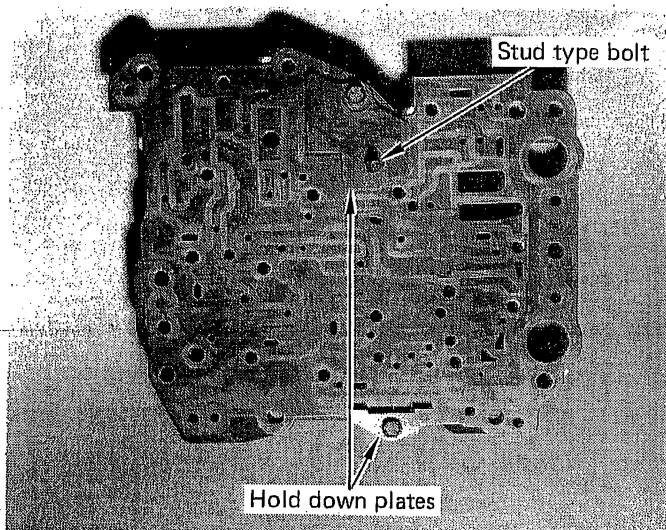


FIGURE 8

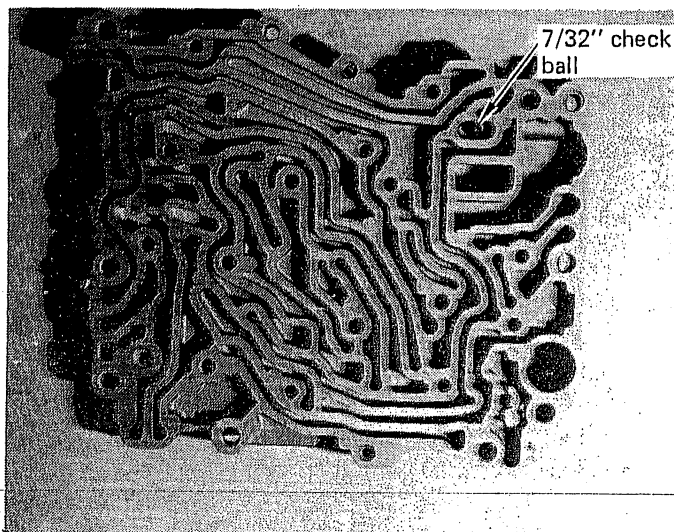


FIGURE 9

STEP 13.

Heavy Duty: No modifications required to the separator plate.

Street/Strip: Use the 3/16" drill supplied with the kit and drill out the hole in the B&M plate as shown in Figure 10. Deburr the hole with a file or sandpaper after drilling.

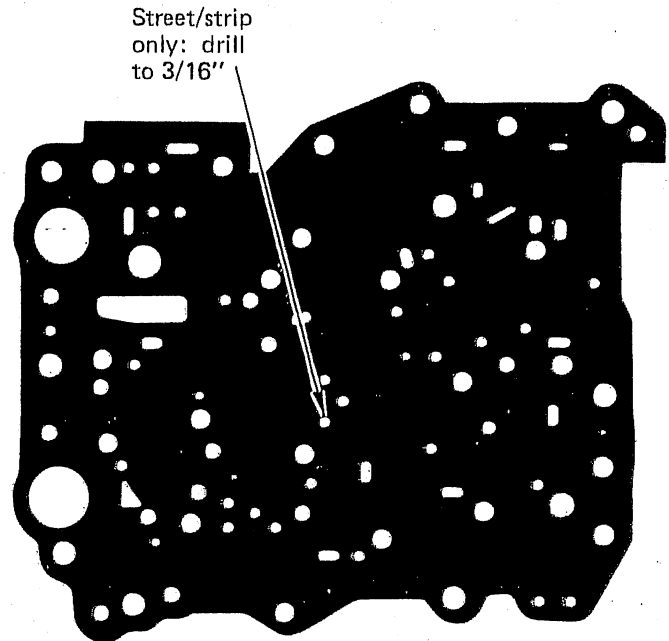


FIGURE 10

STEP 14. Scrape off any excess gasket material from the transfer plate casting. Wash the transfer plate in solvent or gasoline.

STEP 15. Lay the transfer plate in front of you with the passages up. Install plastic check ball in position shown in Figure 9. Install separator plate in place on transfer plate. Do not use a gasket. Install hold-down plates in their proper positions. (See Fig. 8) Install bolts in place with stud-bolt in proper location and tighten bolts finger tight.

STEP 16. Install transfer plate assembly onto casting. Make sure casting check ball is in place. (See Fig. 6) Install seven medium length valve body bolts in place. 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.

STEP 17. Turn valve body over and install the two long 1/4" bolts. (See Fig. 3) Tighten to 80-120 in. lbs. Also tighten all valve body and end plate bolts to 20-40 in. lbs. in this sequence: Two 1/4" hold down bolts 80-120 in. lbs., seven valve body screws 20-40 in. lbs., end plate screws 20-40 in. lbs.

STEP 18. Turn valve body over and install new filter. Align large hole in filter with casting and install filter bolts and tighten to 20-40 in. lbs. The valve body is now assembled.

REASSEMBLY

STEP 19. Install valve body into transmission carefully. You must engage selector lever into manual valve and align downshift lever properly. Work downshift lever with your hand slightly while installing valve body. You should be able to hold the valve body flat against the case without excessive force. The downshift lever should move freely with no bind as it did before removal. Install valve body bolts finger tight. The long bolt goes thru the filter. Again check for free operation of downshift and shifter linkage. Tighten valve body bolts to 80-120-in.lbs.

STEP 20. Clean pan and scrape any excess gasket material from pan and case surface. Install pan with new gasket and tighten pan bolts to 12-16-ft.lbs. Install dipstick tube into pan if your model was so equipped and tighten securely.

STEP 21. 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. Adjust-

ment can be made by loosening the pinch bolt on shifter end of shifter rod and retightening after adjustment.

STEP 22. Depress gas pedal to full throttle. Check to see if carburetor is opening fully and adjust if necessary. Adjust downshift linkage so full throttle operates downshift lever on transmission to full position.

STEP 23. Lower vehicle. Try to keep the rear wheels off the ground if possible. Add three quarts of B&M Trick Shift or Type "F" automatic transmission fluid. While Trick Shift is superior in lubrication, heat capacity and friction material performance, we recommend Ford fluid over Dexron or Type "A". 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 ten times. Lower vehicle and check fluid. It should be between the "add" and "full" marks.

Drive vehicle for 1-2 miles to warm up fluid. Check fluid level and add to "full" mark.

TOOLS REQUIRED FOR C-4 SHIFT IMPROVER KIT INSTALLATION

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

**TROUBLE SHOOTING GUIDE
FORD C-4**

Malfunction	Probable Cause	Malfunction	Probable Cause
Slips	Low Fluid level	Vacuum line cracked or leaking	Valve body bolts loose
	Valve body or end plate bolts loose		
Overheating or foaming at dipstick tube or breather	High fluid level		
	Cooler plugged	Late hard shifts	Vacuum line cracked or leaking
	Cooler insufficient		Modulator damaged
Erratic shifting	Shifter misadjusted	Downshift linkage misadjusted	Valve bolts loose
	Downshift linkage misadjusted		
	Low fluid level	Will not shift	End plate bolts loose
	High fluid level	One gear only	Shifter not engaged properly

C-4 SHIFT IMPROVER KIT PARTS LIST

Inspect the contents of your Shift Improver Kit carefully. If you are missing any of the parts shown below, do not proceed. Contact your B&M dealer.

