

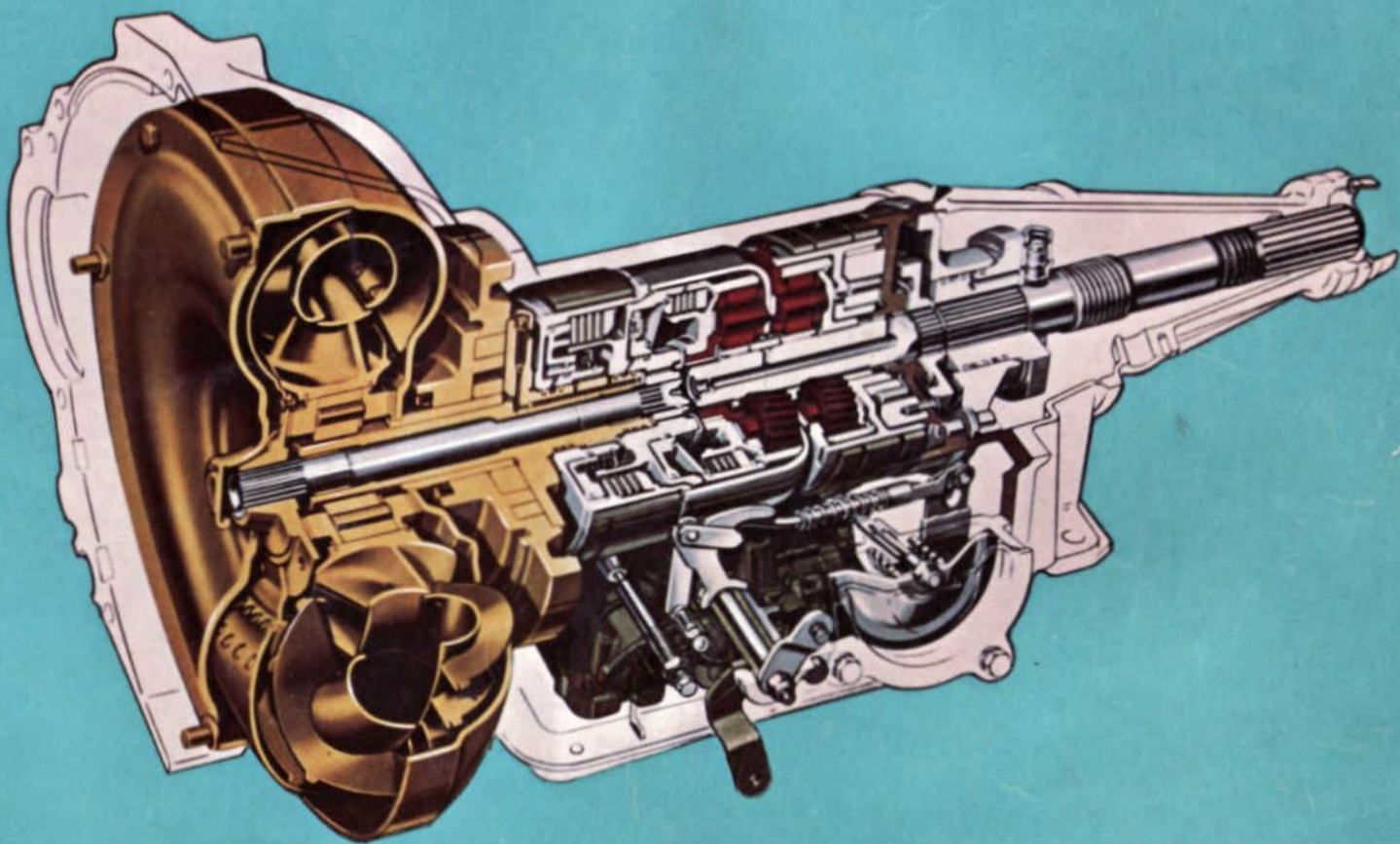
SHOP TIPS

Autolite



VOL. 9, NO. 5

JANUARY, 1971



**ON-THE-CAR-SERVICES
FOR FORD-BUILT
AUTOMATIC
TRANSMISSIONS**

SEE CENTER INSERT FOR TIMELY PROMOTIONS!

ON-THE-CAR SERVICES..

Technical parts and service information published by the Autolite-Ford Parts Division and distributed by Ford and Lincoln-Mercury Dealers to assist servicemen in Service Stations, Independent Garages and Fleets.

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Be sure and file this and future bulletins for ready reference. If you have any suggestions for additional information that you would like to see included in this publication, please write to: Autolite-Ford Parts Division, Merchandising Services Dept., P.O. Box 3000, Livonia, Michigan 48151.

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AN INTRODUCTION TO AN OPPORTUNITY

This issue of *Shop Tips* is devoted to the enormous service business represented by more than 40,000,000 automatic transmissions which have been manufactured and installed at the factory by all U.S. car makers from the 1965 model year to the end of the 1970 model year.

Back in the 1964 model year, 77.5% of the vehicles produced were equipped with automatic transmissions. The figure for the 1969 model year leaped to 90.3% of the total vehicles produced. Furthermore, if you're equipped to actively promote on-the-car service and adjustments, you will then be in a position to tap a big part of automatic transmission service . . . for on-the-car service is generally thought to be about 75% of the total automatic transmission business.

GENERAL INFORMATION:

In the following pages of *Shop Tips* we will first discuss the three basic automatic transmission designs built by Ford: the FMX . . . the C4 . . . and the C6.

It is important to know:

- General Internal Characteristics of Each Transmission
- The Number of Bands and Clutches
- When Bands and Clutches Apply and Release

Let's first take a moment to look at the historical background of the Ford-built automatics.

The FMX automatic transmission goes farthest back into Ford history and represents several stages of refinements that began with the first Fordomatic and Mercomatic design.

The C4 automatic transmission was an entirely new design when first introduced in the 1964 models. This transmission was engineered to "mate" with lower torque output engines, such as the 200 and 289 2V powerplants. Then, in 1966 the Model C6 was released to accommodate the higher torque output engines such as the 390 and 428 cubic inch engines. This C6 has the same type gear train design as the C4.

Before doing any troubleshooting, making service recommendations or performing on-the-car service work on Ford-built vehicles, you must be able to tell what type of automatic transmission is in the vehicle. You can do this by looking at the transmission and noting the general physical design features that distinguish each.

However, an easier way, and one that is much simpler, is to "read" the CODE on the identification plate (or certification label) and check it out on the Transmission Code Chart. You'll find the identification plate or certification label on the lock face of the left front door or the left front body pillar. Listed below is the Code for Ford-built cars and light trucks from 1967 up to and including the 1971 models.

AUTOMATIC TRANSMISSION CODE CHART

1967-68-69-70-71	U	C6 (XPL)
1968-69-70	W	C4 (XP3)
1967 and 1971	W	C4 (XP)
1967	X	Cruise-O-Matic (FX)
1968-69-70-71	X	Cruise-O-Matic (FMX)
1967-68	Y	Cruise-O-Matic (MX)
1967-68-69-70-71	Z	C6 (XPL Special/Police)

FMX DESIGN FEATURES

A number of different design features are found among the three basic types of Ford-built automatic transmissions . . . the FMX, C4 and C6. These differences have a direct effect upon troubleshooting and service work that you can perform on-the-car. Regardless of these differences all three Ford-built automatic transmissions have (1) three forward speeds or gear ratios, (2) a manual selection of 1st and 2nd gears, (3) a torque converter, (4) a planetary gear train, (5) multiple disc clutches, (6) friction bands, and (7) a hydraulic control system.

As you will note in Figures 1 and 2, the FMX automatic transmission has two multiple disc clutch packs . . . a (front) clutch and a reverse/high (rear) clutch.

Two bands are also employed. The reverse band (rear) provides (1) reverse gear and (2) manual low gear, while the other, the front band, provides a second gear forward ratio. The band and clutch application chart shows that in third gear (D range) none of the bands are applied but that both the front and rear clutches are applied.

This transmission is easily identified visually since the converter housing is bolted to the cast iron main transmission case and there are no provisions for servicing the front or rear servos from outside the main case. This is because both servo piston assemblies are located inside the transmission and can only be reached by pulling the bottom pan.

The front band of this FMX transmission can only be adjusted internally by removing the bottom pan. However, the rear band can be adjusted externally.

FMX CLUTCH AND BAND APPLICATION

Gear	Selector Lever Position	Clutch Applied	Band Applied
Neutral	N	None	None
First	D or 1	Front	Rear*
Second	D or 2	Front	Front
Third	D	Front and Rear	None
Reverse	R	Rear	Rear

*In first gear D, the planet carrier is held against rotation by the one-way clutch, or rear band applied in manual (1) range.

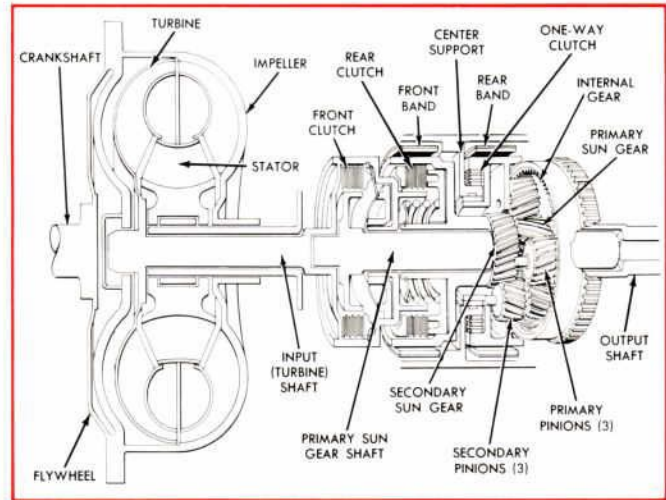


Figure 2—The FMX Planetary Gear Train, Bands, and Clutches

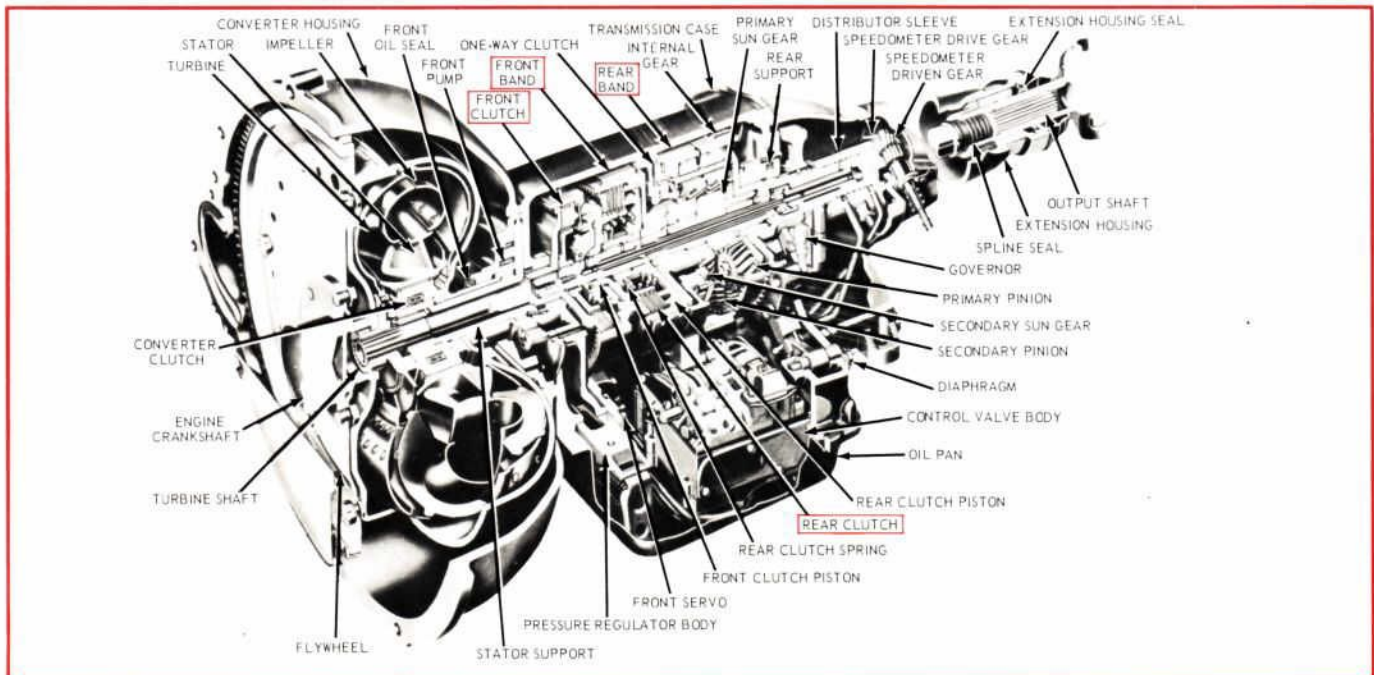


Figure 1—Cutaway of Typical FMX Automatic Transmission

ON-THE-CAR SERVICES..

C4 DESIGN FEATURES

The C4 automatic transmission, see Figures 3 and 4, is similar to the FMX in that it also has two bands. One, called the intermediate band, provides an intermediate gear ratio (2nd gear). The other, called the low/reverse band, helps provide (1) reverse gear and (2) manual low gear. Unlike the FMX transmission, both of these bands are adjusted externally without pulling the bottom pan.

This C4, like FMX, also has a one-way clutch assembly consisting of a one-way clutch roller, springs and spring retainers.

And, like the FMX, the converter housing is separate in that it is bolted to the main transmission. Some of the C4's have the filler tube entering the bottom pan of the transmission and others have the filler tube attached to an opening in the transmission casting. Note in the band and clutch application chart that the one-way clutch is "holding" only in the low gear range and no other, while the intermediate band is "holding" only in the intermediate (2nd) gear range.

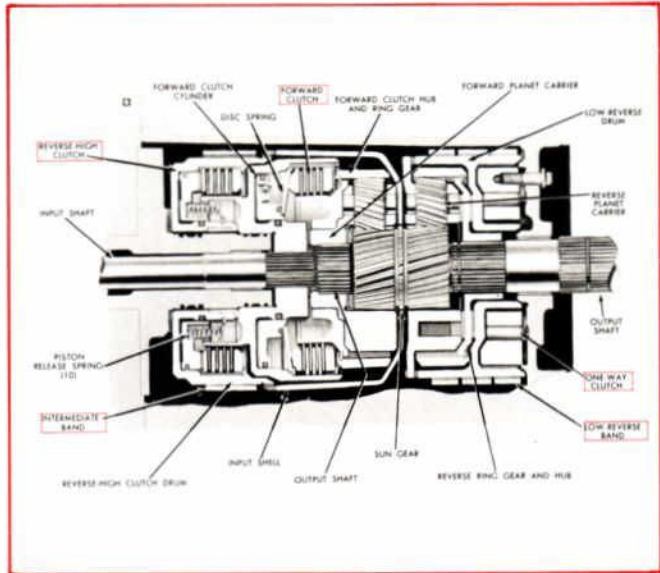


Figure 4—The C4 Planetary Gear Train, Bands, and Clutches

C4 CLUTCH AND BAND APPLICATION

Transmission Selector Position	Gear	Forward Clutch	Reverse High Clutch	Intermediate Band	Low Reverse Band	One-Way Clutch
D or 1	First	On	Off	Off	On*	Holding*
D or 2	Second	On	Off	On	Off	Overrunning
D	Third	On	On	Off	Off	Overrunning
R	Reverse	Off	On	Off	On	Not Affected

*Low-Reverse band is applied in manual low; One-Way Clutch is holding in First gear Drive (D) range.

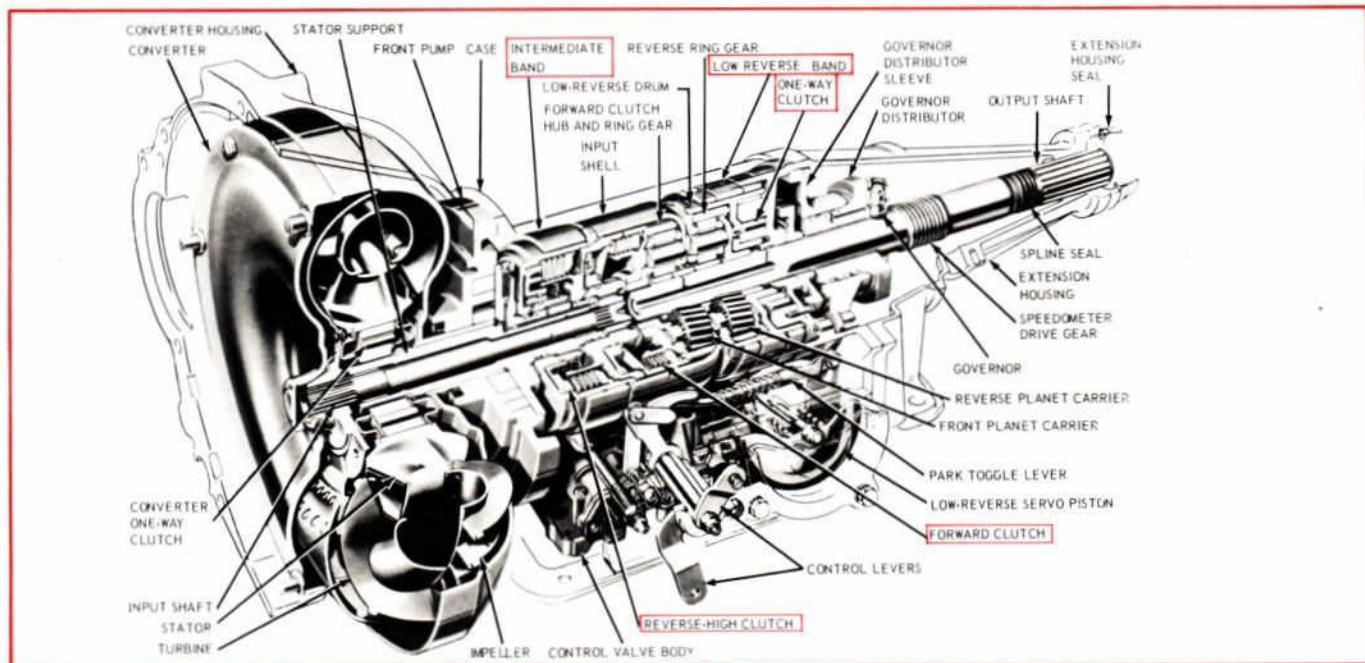


Figure 3—Cutaway of Typical C4 Transmission

ON-THE-CAR SERVICES..

CHECKING FLUID LEVEL AND CONDITION

Since checking the fluid level and its condition is so important, follow the procedures outlined here:

- Make sure the vehicle is standing level. Then firmly apply the parking brake and place the transmission selector lever in the "Park" position.
- Operate the engine at normal idle speed. If the transmission fluid is cold, operate the engine at fast idle (about 1200 rpm) until the fluid reaches normal operating temperature. Once the fluid is warm, slow the engine down to normal curb idle.

NOTE: You may want to disconnect the vacuum release line and temporarily plug the hose on those cars that are equipped with a vacuum parking brake release. This will assure that the parking brake will hold the car if the selector lever is accidentally moved from its "Park" position.

- Shift the selector lever through all transmission gear shift positions then place the lever in "Park." Doing this will fill all the clutch and servo chambers before taking the fluid level reading.
- Wipe all around the dipstick cap before removing the dipstick to prevent dirt from entering the transmission fluid.
- With the engine running, the fluid level should be above the ADD mark but not above the FULL mark. See Figure 7. In other words, the fluid level can be anywhere between ADD and FULL. If you find the fluid level low, suggest to the owner that a leakage check be made to locate the cause of fluid loss.
- If you find the fluid level above the FULL mark, it will be necessary to drain off enough fluid to bring the level between the ADD and FULL marks on the dipstick. Too much fluid will cause aeration (foaming) which may prevent the transmission from functioning properly and may also cause the fluid to blow out the transmission filler tube.

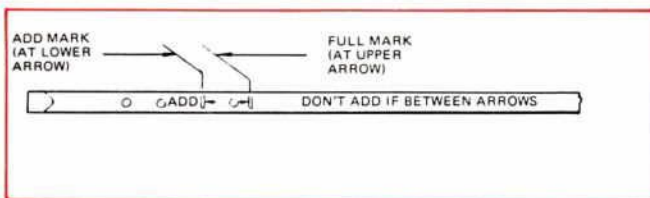


Figure 7—New Dipstick Marking, Late Model Ford-Built Cars and Light Trucks—Automatic Transmissions

ADDING FLUID

If you find the fluid level below the ADD mark, you should advise the owner that fluid is necessary to prevent serious internal damage to the transmission.

Automatic transmission fluid is much cheaper than bearings, gears and new clutch packs!

Use only transmission fluid meeting Ford specification M2C33-F (Type F) to bring the level between the ADD and FULL marks on the dipstick. **DO NOT OVERFILL.**

"READING" FLUID CONDITION

Factory fill automatic transmission fluid, and most of the replacement fluids are dyed RED to help in leak detection.

If the transmission fluid isn't clean and *free of severe discoloration* (dark brown or black), the bottom pan should be removed and further checks made. Discoloration may also indicate the use of fluid not meeting Ford specification M2C33-F (Type F). If the discolored fluid has a burnt smell, this is a good indication that the transmission may have been subjected to an overheating condition* and/or that a clutch or band has become burnt. If this condition is discovered, the transmission will probably require an overhaul.

* *Towing of TRAILERS without proper trailer towing equipment may be detrimental to automatic transmission function. See Shop Tips, June 1970 issue, for proper trailer towing recommendations.*

It is also considered good practice to use an absorbent white paper tissue to wipe the dipstick when checking fluid level and fluid condition. Doing this will make it easier to see any specks of solid material in the fluid.

If you notice a solid residue in the fluid stain on the tissue, advise the owner that the bottom pan should be removed for further inspection to determine the cause and/or condition of the transmission fluid screen.

NOTE: *If the radiator develops a leak between the coolant passages and the transmission fluid passages, anti-freeze will find its way into the transmission. The result is a formation of gummy varnish in the fluid and this varnish will cling to the dipstick.*

Another cause of this condition is prolonged overheating in which the fluid becomes "cooked" in successive stages and forms sludge and varnish.

If you should notice solid specks in the fluid or there is evidence of varnish, you should remove the bottom pan for further inspection.

One thing more. The color test is not always conclusive and should not be used as the final judge of fluid condition.

DRAINING AND REFILLING—(PARTIAL)

Some car makers, and Ford is one, do not advise draining the transmission at any specified time or mileage interval. All Ford Motor Company owner manuals advise checking the fluid level every 6,000 miles or 6 months (whichever comes first) and only adding new fluid as necessary.



When fluid becomes contaminated by dirt, water or other foreign material, the transmission must be removed, cleaned and repaired; the converter and cooler flushed.

When it is necessary to drain the fluid other than when the fluid is contaminated, proceed as follows:

- On certain models, you will find the filler tube connected to the bottom oil pan. Other models have the filler tube entering the main transmission casting.

On those with the filler tube connected to the bottom pan, first loosen and disconnect it to facilitate draining.

On those models with the filler tube entering the case, loosen the pan attaching bolts to drain the fluid.

- Only when the fluid has stopped draining is it advisable to remove and thoroughly clean the pan. Discard the pan gasket and make sure none of the gasket material remains on the pan-to-case mating surfaces.
- With the pan removed, remove the fine-mesh oil screen.

On the FMX transmission the screen is attached and held in position by a retaining clip.

On C4 and C6 transmissions the oil screen assembly, see Figure 8 and 9, is attached to the lower valve body by machine screws and only the C6 has a gasket between the screen and lower valve body. *The gasket should not be cleaned in a degreaser, solvent or any other type of detergent solution.* To clean the gasket, wipe it off with a lint-free cloth.

- The fine-mesh screen should be cleaned thoroughly, inspected closely for ruptures or tears and reinstalled if OK.
- After the pan and screen are cleaned, reinstall the screen. On C6 transmissions, reinstall the screen gasket.
- Place a new gasket on the pan and bolt the pan to the transmission case.
- Torque the oil pan-to-case attaching bolts to 10-13 foot-pounds on FMX transmissions and 12-16 foot-pounds on C4 and C6 transmissions. Do not over-torque.



Figure 8—The C4 Filter Screen Attached to Lower Valve Body by Machine Screws

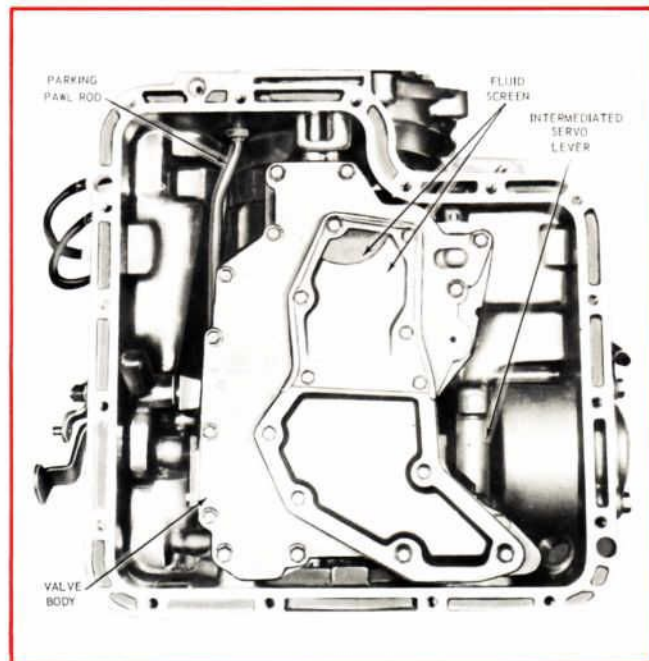


Figure 9—The C6 Filter Screen Attached to Lower Valve Body by Machine Screws

- If the filler tube is attached to the bottom pan, then install and tighten to 32-42 foot-pounds.
- Add three (3) quarts of new fluid meeting Ford specification M2C33-F (Type F) through the filler tube. To insure correct selection, look for the Ford Qualification Number embossed or stenciled on the fluid container. Use of any fluid which does not meet Ford specifications, even for make-up, can result in soft or slipping shifts and may materially affect the life of the transmission through rapid formation of varnish and sludge within the transmission.
- Run the engine at idle speed for about two (2) minutes, then run the engine at fast idle speed (about 1200 rpm) until it reaches its normal operating temperature. **DO NOT RACE THE ENGINE.**
- Shift the selector lever through all positions, then return to PARK position.
- Check the fluid level on the dipstick. The fluid level should be ABOVE the ADD mark and BELOW the FULL mark. If the level is too low, add just enough fluid to bring the level between the ADD and FULL marks on the dipstick. **DO NOT OVERFILL THE TRANSMISSION!**

NOTE: Whenever the converter has been drained or the transmission has been overhauled, follow the same refill procedures as outlined for "Partial Fill" with one exception: with a "dry" transmission, install eight (8) quarts of Type F automatic transmission fluid as the initial amount. Then, start the engine, shift the selector lever through all positions and proceed with the steps outlined for partial refill.



ON-THE-CAR SERVICES ... FOR AUTOMATICS

Continued

ON THE CAR ADJUSTMENTS

ADJUSTING BANDS—FMX TRANSMISSION

Front Band

Drain and remove the bottom pan as described earlier. Loosen the front servo adjusting screw locknut. See Figure 10. Pull back the actuating rod and insert a ¼-inch spacer between the adjusting screw and servo piston stem. With a special tool designed to eliminate any chance of over-tightening (it has an overrunning pre-set clutch) tighten the adjusting screw until the clutch overruns which is set at 10 inch-pounds torque. Remove the spacer and tighten the adjusting screw an additional ¾ turn. Hold the adjusting screw stationary and tighten the locknut securely. Reinstall the bottom pan with a new gasket and add fluid as described earlier.

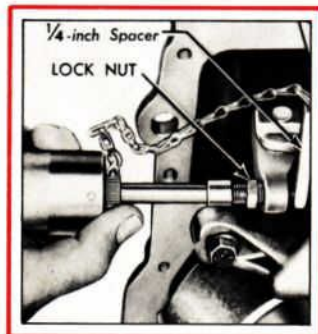


Figure 10—Adjusting FMX Front Band Internally—Typical



Figure 11—Adjusting FMX Rear Band Externally Through Access Hole in Floor Pan—Typical. (Early Models.)

Rear Band

To adjust the rear band on FMX transmissions, proceed as follows:

Remove all dirt from the adjusting screw threads, then oil the threads.

Loosen the reverse band adjusting screw locknut.

NOTE: On 1968 and earlier model Ford-built cars there is an access hole under the front floor mat on the right side of the floor pan and you can adjust the rear band externally from inside the car. See Figure 11. If there is no access hole in the front floor pan, a special tool will have to be used to adjust the rear band externally from under the car. See Figures 12 & 13. (For example: 1969-71 Fairlane, Montego, Mustang and Cougar with the FMX transmission have no floor pan access hole.)

To adjust the rear band through the access hole in the floor pan, proceed as follows:

Fold back the floor mat to expose the right side of the floor pan.

Pry the access hole cover plate from the floor pan and remove all dirt from the adjusting screw threads. Oil the threads.

Loosen the rear band adjusting screw locknut with the special tool as shown in Figure 11.

Using the T-Handle portion of the tool, tighten the adjusting screw until the wrench overruns. (This tool has a pre-set torque of 10 foot-pounds.)

If the screw is found to be tighter than the wrench capacity (10 ft.-lbs. torque) loosen the screw and then tighten until the wrench overruns.

Back off the adjusting screw exactly 1½ turns, then tighten the adjusting screw locknut securely.

CAUTION: Severe damage may result if the adjusting screw is not backed off exactly 1½ turns.

Rear Band Adjustment . . . No Access Hole—FMX

On 1969, '70, '71 models of the FMX transmission, the rear band can be adjusted externally even though there is no access hole in the front floor pan.

Special tools may be purchased to accomplish this band adjustment procedure from under the car.

To make this adjustment, proceed as follows:

- Remove all dirt from the adjusting screw threads. Oil the threads.
- Loosen the rear band adjusting screw locknut. As you will note in Figures 12 and 13, the special tool required for the



Figure 12—Adjusting FMX Rear Band Externally, (Late Ford-Fairlane-Montego Models) When There is No Access Hole In Floor Pan



Figure 13—Adjusting FMX Rear Band Externally, (Late Model Mustang and Cougar) When There is No Access Hole in Floor Pan

Mustang and Cougar is different from the one required for the Ford, Fairlane and Montego.

Using the special type of torque wrench, tighten the adjusting screw until the tool handle "clicks." This special tool is a pre-set torque wrench that clicks and breaks when the torque on the adjusting screw reaches 10 foot-pounds.

If the screw is found to be tighter than the wrench capacity (10 ft.-lbs. torque), loosen the screw and then tighten until the wrench clicks and breaks.

- Back off the adjusting screw 1½ turns.
- Hold the adjusting screw stationary and tighten the adjusting screw locknut securely.

NOTE: Severe damage to the transmission may result if the adjusting screw is not backed off exactly 1½ turns.

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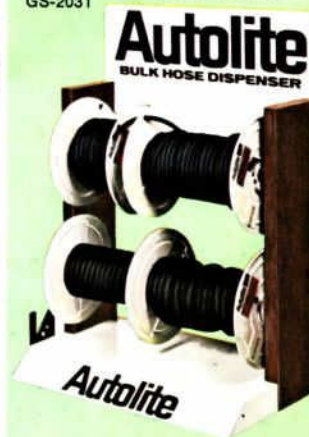
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ADJUSTING BANDS—C4 TRANSMISSION

Intermediate Band

On the C4 automatic transmission, there are two band adjustments . . . the intermediate and the low/reverse adjustment. We'll discuss the intermediate adjustment first.

NOTE: Locknuts used on both the C4 and C6 band adjusting screws have a fluid sealing feature. Installation of new locknuts will prevent fluid seepage at these areas.

To adjust the intermediate band on C4 transmissions, proceed as follows:

- Clean all dirt from the band adjusting screw area, then remove and discard the locknut.
- Install a new locknut on the adjusting screw.
- Using a special tool as shown in Figure 14, tighten the adjusting screw until the tool handle clicks. This tool is a pre-set torque wrench which "clicks" and breaks when the torque on the adjusting screw reaches 10 foot-pounds.



Figure 14—Adjusting the C4 Intermediate Band Externally With a Special Tool



Figure 15—Adjusting the C4 Low-Reverse Band Externally With a Special Tool

- Back off the adjusting screw exactly $1\frac{3}{4}$ turns.
- Hold the adjusting screw stationary and tighten the locknut securely (35-45 ft.-lbs. torque).

LOW/REVERSE BAND ADJUSTMENT—C4 TRANSMISSION

To perform a low/reverse band adjustment on C4 transmissions, proceed as follows:

- Clean all dirt from the band adjusting screw area.
- Remove and discard the locknut.
- Install a new locknut on the adjusting screw.
- Using the special tool as shown in Figure 15, tighten the adjusting screw until the tool handle "clicks." This tool is a pre-set torque wrench which clicks and breaks when the torque on the adjusting screw reaches 10 foot-pounds.
- Back off the adjusting screw exactly three (3) full turns.

- Hold the adjusting screw from turning and tighten the locknut securely (35-45 ft.-lbs. torque).

ADJUSTING THE BAND—C6 TRANSMISSION

Intermediate Band

On the C6 automatic transmission, there is only one band adjustment that can be made, and that is the intermediate band. To adjust the intermediate band, proceed as follows:

- Raise the vehicle on a hoist or jack stands.
- Clean all dirt from the band adjusting screw area.
- Remove and discard the locknut.
- Install a new locknut on the adjusting screw.
- With the special tool shown in Figure 16, tighten the adjusting screw until the tool handle "clicks."

This is a pre-set torque wrench that "clicks" and breaks when the torque on the adjusting screw reaches 10 foot-pounds.

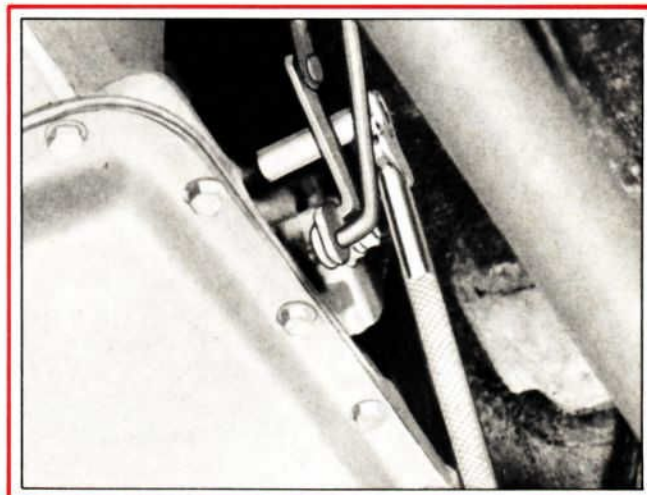


Figure 16—Adjusting the C6 Intermediate Band Externally Using a Special Tool

- Back off the adjusting screw exactly $1\frac{1}{2}$ turns.
- Hold the adjusting screw from turning and tighten the locknut securely (35-45 ft.-lbs. torque).

BAND ADJUSTMENT INTERVALS

As of 1971, all Ford-built passenger cars should have the band (or bands) adjusted only once at 6,000 miles.

This one-time interval is the only band adjustment recommended by the factory service engineers. The exceptions to this maintenance schedule are those models equipped with a *high performance engine* (such as the 427 4V, 428 4V, 429 4V), and those vehicles that are subjected to severe service such as police, taxi, and light and medium truck operation. These require a band adjustment at 6,000, 18,000 and 36,000 miles.

ON-THE-CAR SERVICES..

ADJUSTING THROTTLE LINKAGE— 1971 MODELS

There is one important step that must be made before you can check or adjust the throttle or downshift linkage on automatic transmission equipped cars . . . and that is the engine curb idle speed.

Make certain the engine idles at the rpm called for by the factory. Idle rpm specifications are listed in the 1971 New Car issue of *Shop Tips* (September 1970), or appropriate shop manuals.

DOWNSHIFT LINKAGE— AUTOMATIC TRANSMISSIONS

Ford-Mercury-Lincoln Continental—1971

A simplified, more reliable and more easily serviced throttle control system is included on all 1971 Ford-built car lines. Note Figures 17 through 21 for details.

This new system features a compression spring type throttle spring that is part of the carburetor end of the accelerator-to-carburetor cable.

The spring automatically takes up all slack in the system and is calibrated to provide a smooth pedal feel for all engines. During carburetor service or throttle linkage adjustment, the spring remains with the cable.

This eliminates the possibility of spring stretching such as can occur with the more conventional spring when it is removed and installed.

Disconnect the downshift lever return spring and hold the carburetor throttle shaft lever in the wide-open throttle position. See Figure 17 and Figure 20. Hold the downshift (kick-down) rod against the "through detent" stop.

Adjust the downshift screw to provide .050"-.070" clearance between the screw and the throttle shaft lever. On the 240 CID engine, tighten the locknut to maintain the screw setting. End play adjustment is not required. Connect the downshift lever return spring.

Cougar-Torino-Maverick-Comet- Montego-Mustang—1971

Hold the transmission in full downshift against the stop. See Figure 18 and 19. Hold the carburetor throttle lever in the wide-open throttle position against the stop.

Turn the adjustment screw on the kickdown lever until a gap of .040"-.080" exists between the carburetor lever and the adjusting screw.

Release the transmission and carburetor to their normal free position and install the throttle return spring.

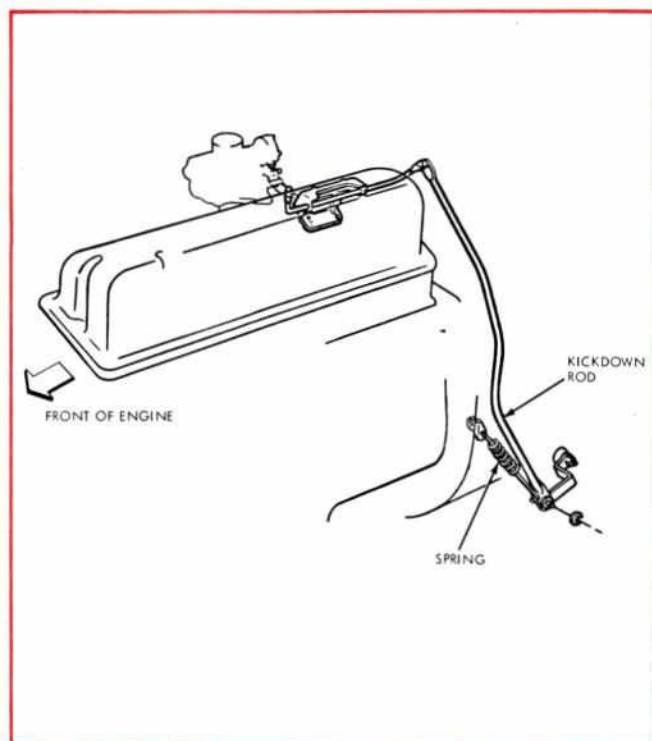


Figure 18—1971 Torino, Montego, Comet, Maverick and Mustang 6 Cyl. Throttle Linkage and Kickdown Rod. Note Location of Kickdown Rod Return Spring.

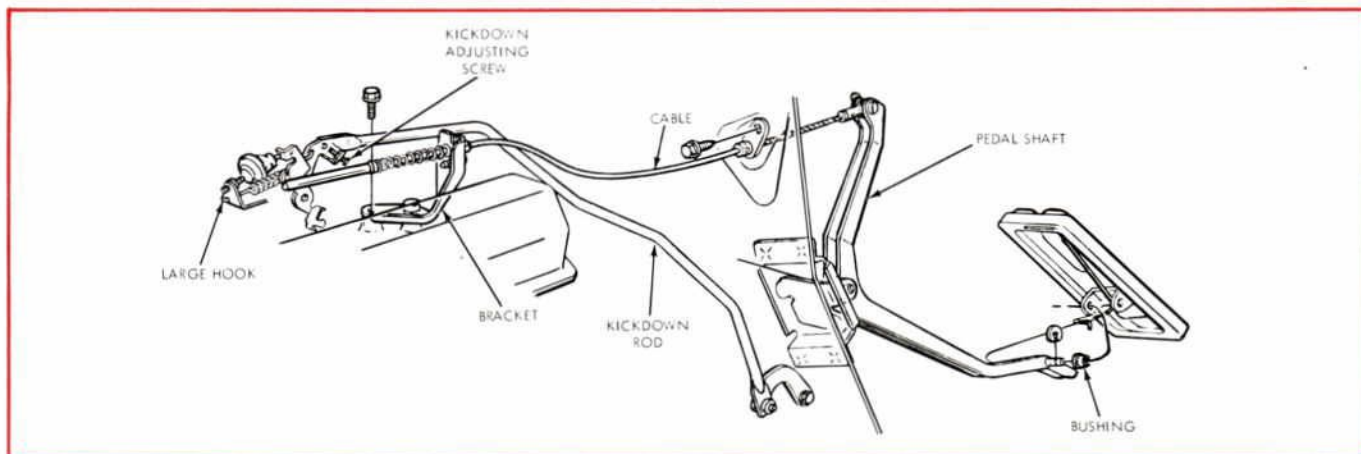


Figure 17—1971 Ford, Mercury and Lincoln Continental Throttle Linkage to Carburetor and Kickdown Rod to Automatic Transmission

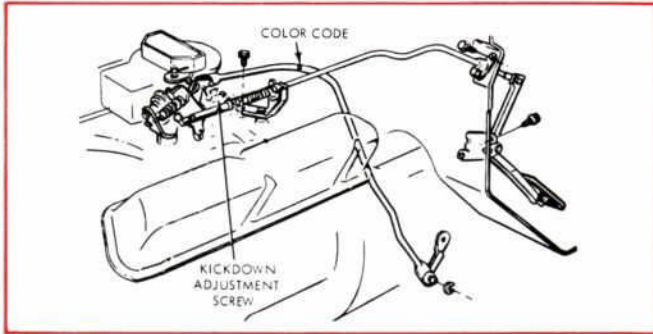


Figure 19—1971 Mustang, Cougar, Comet, V8 Engine Throttle Linkage. Note Location of Kickdown Rod Adjusting Screw.

Thunderbird-Continental Mark III—1971

Note the throttle and kickdown linkage in Figure 21. Disconnect the downshift lever return spring. Then, hold the carburetor throttle shaft lever in the wide-open position and hold the downshift (kickdown) rod against the "through detent" stop. Adjust the downshift screw to provide .050"-.070" clearance between the screw and the throttle shaft lever.

End play adjustment is not required.

Connect the downshift lever return spring.

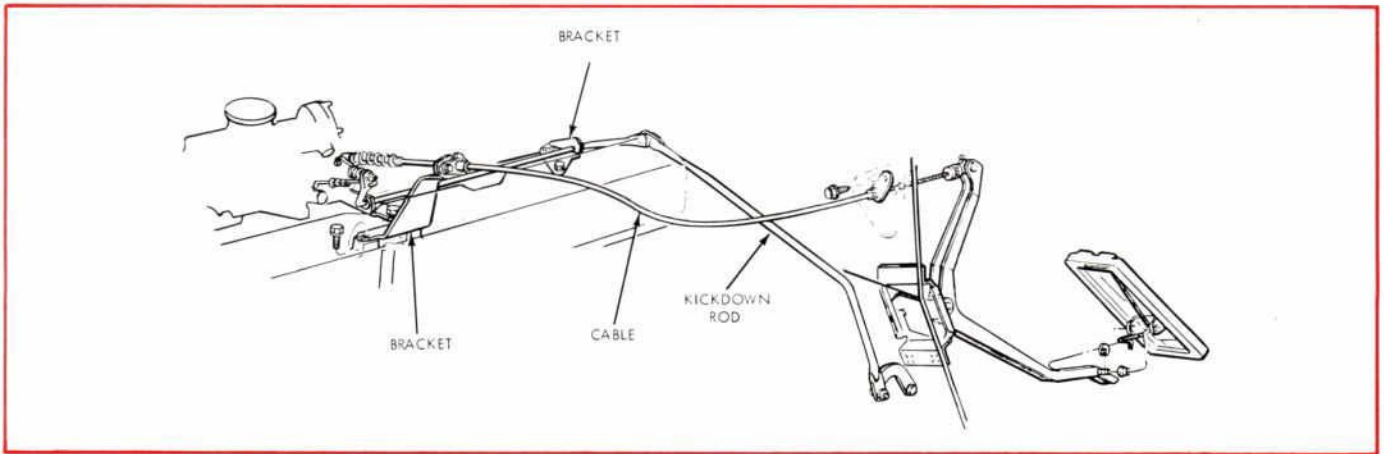


Figure 20—1971 Ford 6 Cyl. Throttle Linkage and Kickdown Rod.

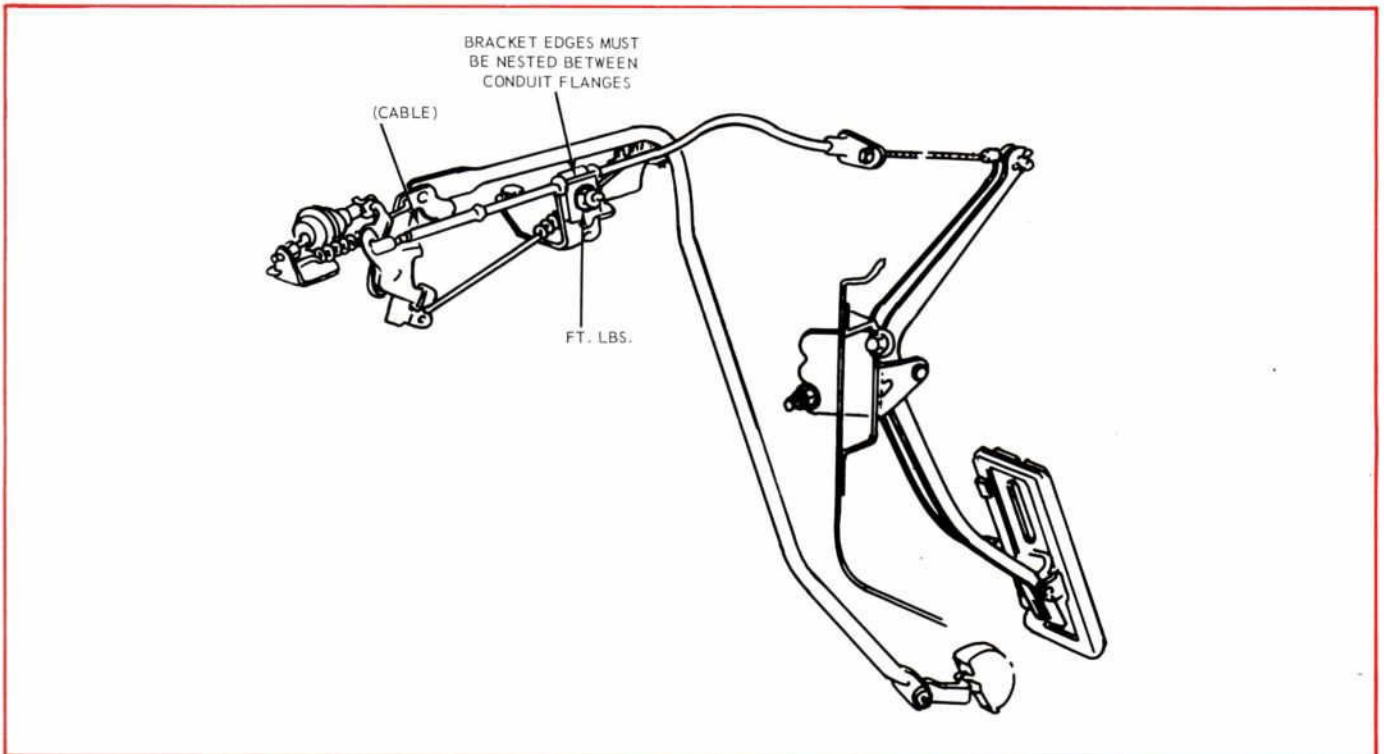


Figure 21—1971 Thunderbird and Continental Mark III Throttle Linkage and Kickdown Rod.

ON-THE-CAR SERVICES..

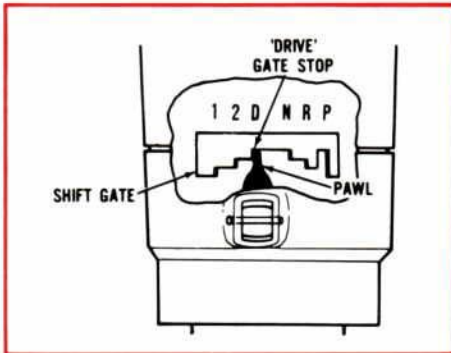


Figure 22—Note the Correct Position of the Shift Selector Pawl Nesting Against the "Drive" Gate Stop.

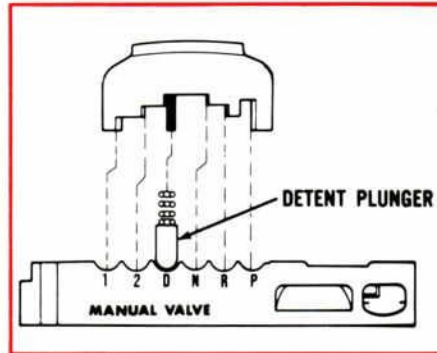


Figure 23—A Schematic Drawing Showing the Relationship of the Shift Gate Pawl to the Manual Valve in the Transmission Valve Body When Correctly Set.

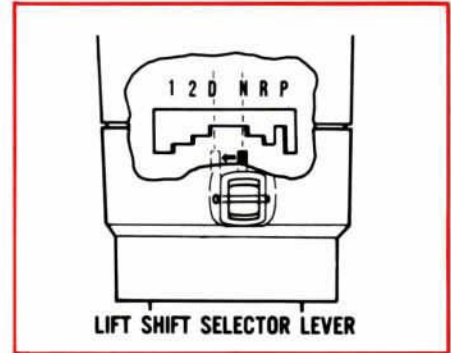


Figure 24—The First Step in Checking the Position of the Selector Lever and Manual Valve.

MANUAL LINKAGE ADJUSTMENTS—C6 (1970-71)

COLUMN SHIFT

Manual linkage adjustment on the C6 automatic transmission is not new but if not properly set, the manual valve will be out of position in the valve body.

This condition can cause erratic shifts, delayed engagements or slippage of the clutches or band . . . resulting in internal damage to their friction surfaces.

The manual linkage must be adjusted so that the shift selector . . . the shift gate in the steering column . . . and the manual valve in the valve body are all in proper relationship. Here's how to accomplish this on-the-car-adjustment.

- Note Figure 22. In Drive position, the shift selector must be in its appropriate gate position with the selector pawl against the gate stop as indicated.
- The manual valve located in the valve body must now be positioned exactly in the Drive detent, as shown in Figure 23.
- To check the position of the selector lever and manual valve, see Figure 24. First place the shift selector in Neutral

position. Now, lift the selector lever toward the steering wheel and move the selector lever until you feel the manual valve position itself in the Drive detent.

- Now . . . slowly let the selector lever return from the "up position" . . . towards the instrument panel, until the lever stops against the gate. The lever must now be against the Drive gate stop. This can be checked by attempting to move the selector lever into the TWO positions without raising it.
- If the pawl is positioned up on the drive gate stop or away from the stop as shown in Figure 25, the manual linkage will have to be adjusted at the transmission shift lever.
- To make the adjustment (see Figure 26), place the selector lever pawl against the drive gate stop. Now, raise the car and loosen the shift rod adjustment nut.

Make sure the transmission is in Drive detent, which is the third (3rd) position from the rear. See Figure 27.

Be sure the selector lever has not moved away from the Drive stop. To check this, pull down on the shift link.

- Torque the adjustment nut.

NOTE: It will be necessary to refer to the appropriate Shop Manual when making a Manual Linkage Adjustment on Console shift models.

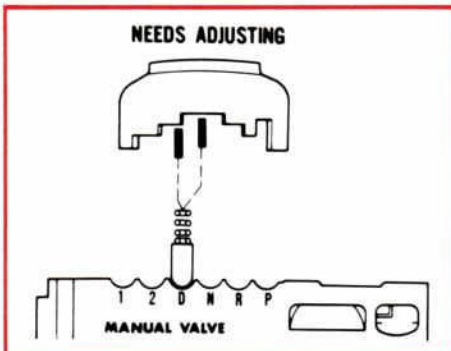


Figure 25—Incorrect Positions of the Selector Pawl in the "Drive" Range.

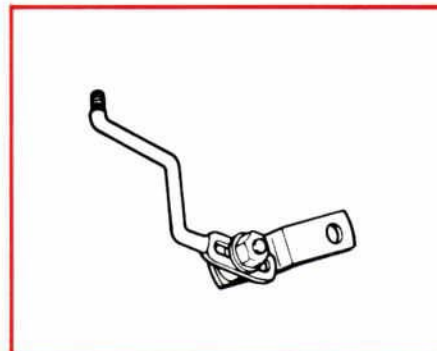


Figure 26—The Location of the Shift Rod Adjustment Nut at the Left Side of the 1970-71 C6 Transmission.

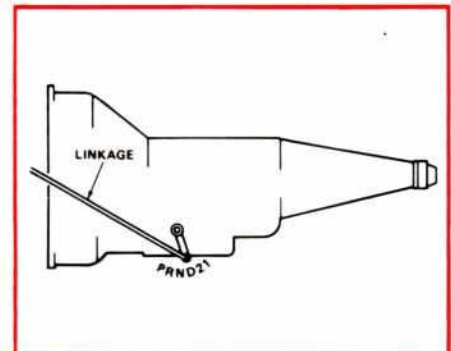
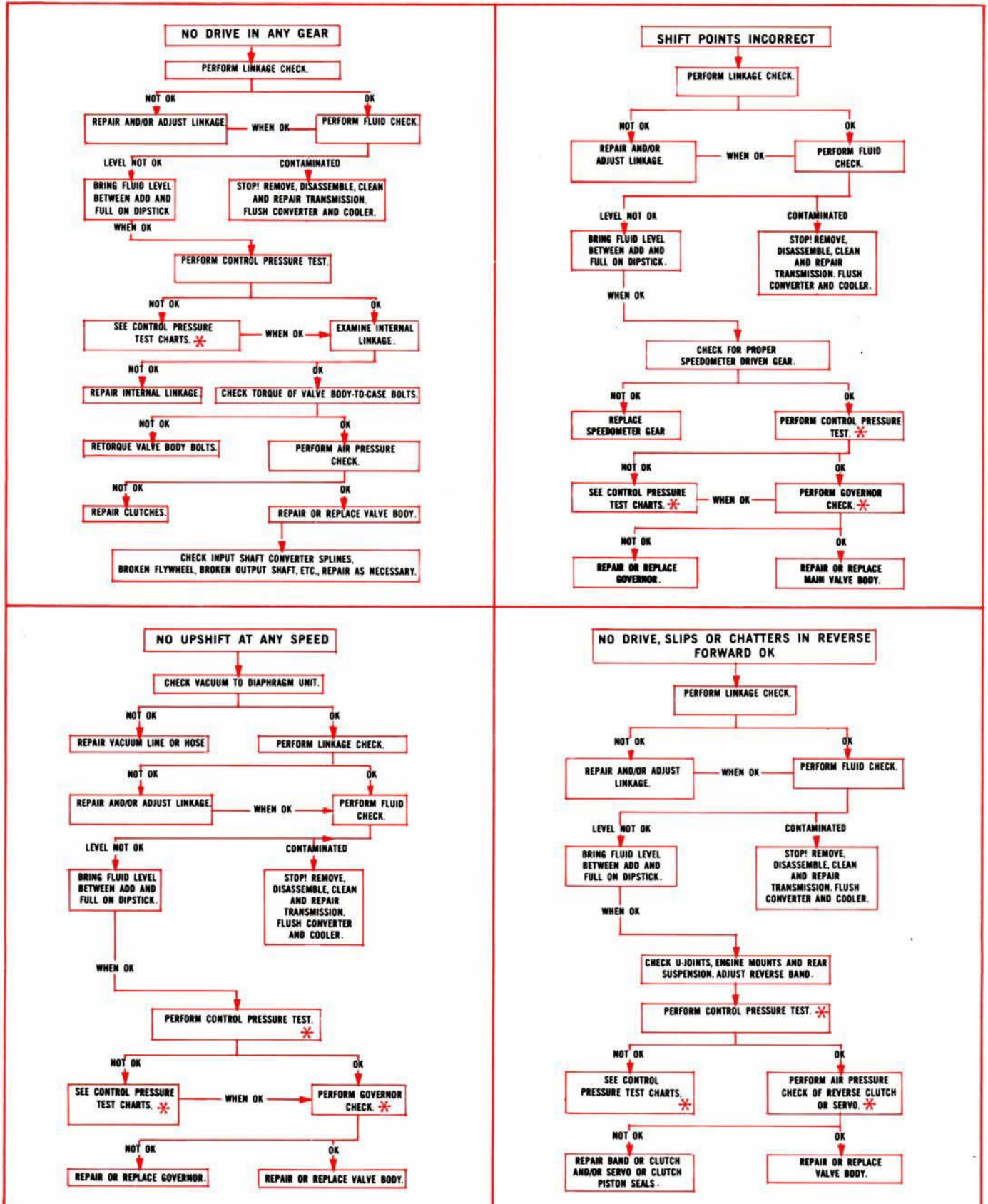


Figure 27—The Six Detent Positions as They Appear When Looking at the C6 Transmission.



TROUBLE-SHOOTING CHARTS



*See Appropriate Shop Manuals for Specifications and Procedures.

REPLACING WELD STUDS

CORRECT METHOD OF INSTALLATION— TRIM CLIP RIVET 383229-S

This trim clip rivet appears to be the same as a standard blind rivet. However, it differs in that it has a small diameter head and is designed to replace weld studs for the attachment of trim clips and glass framing.

The use of standard rivet handgun nosepieces to install the rivet *through* the trim clip is *incorrect* and results in loose, leaky, and hard to replace clips.

To obtain correctly installed rivets, which exactly duplicate

factory weld studs, first use a #30 drill for the rivet hole. Then using a special standoff rivet nosepiece in the rivet handgun, install the new rivet. This type of rivet installation will allow the trim clip to then slide under the rivet head, just as with a weld stud, and insure a tight and leak-proof installation.

NOTE: Here is some information about how to obtain the correct nosepiece for use with your handgun:

Check the thread size of the standard nosepiece in your blind rivet handgun. Nosepieces are available in TWO thread sizes: 5/16-24, Part No. 32720; and 3/8-24, Part No. 32730. Nosepieces can be obtained from P. O. Box 03150, Cleveland, Ohio, 44103.

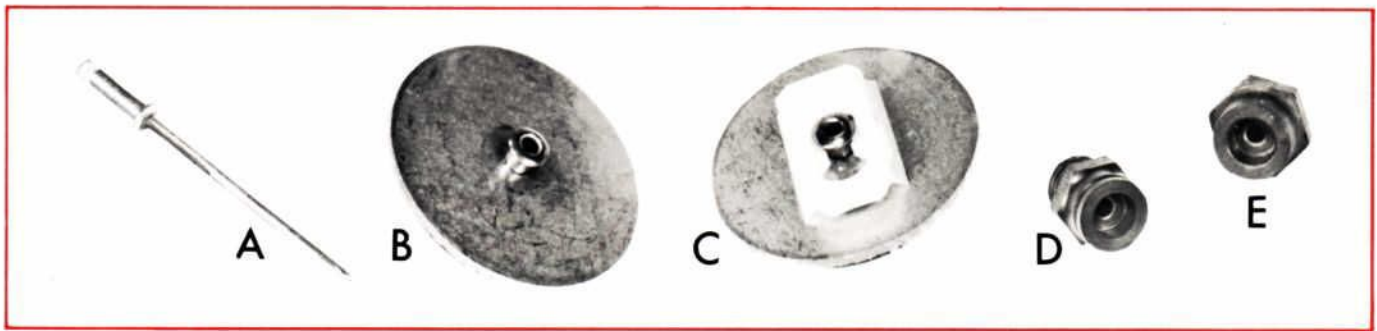


Figure 1—Illustration "A" is the rivet as it appears before installation. "B" is a view of the installed standoff rivet and "C" shows the standoff rivet as it appears when installed with a trim

clip attached. Also, illustrations "D" and "E" are the two available nosepieces which will fit 95% of the blind rivet handguns now in dealer or field use.

ERRATIC OR NO UPSHIFTS, NO REVERSE OR CRACKED MAIN CONTROL

ALL WITH AUTOMATIC TRANSMISSION

Contamination in the vacuum diaphragm can cause any of the above complaints. Contamination (water, ice, fuel or sludge) will prevent the throttle valve from regulating which results in high line pressures. Excessive line pressure can:

- Prevent the shift valves from functioning at the proper shift speeds

- Overstroke the forward clutch spring, preventing the clutch piston from returning to a full release position
- Crack the valve body at the regulating valve

Whenever an automatic transmission is being diagnosed for a malfunction such as an erratic, no upshift, or no reverse, the vacuum diaphragm should be checked for contamination and the vacuum lines should be checked for pinched, kinked or torn rubber hoses.

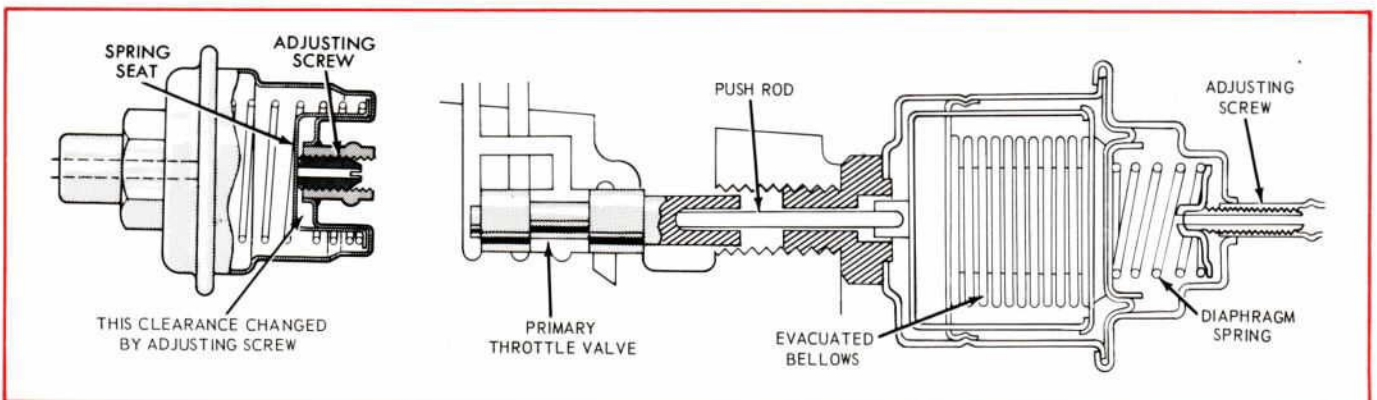


Figure 2—The Adjustable Vacuum Unit at the Left and the Altitude Compensating Type of Vacuum Diaphragm at the Right.

TECHNICAL SERVICE BRIEFS

USE OF CONNECTOR LINK ON SOLENOID ACTUATED STARTERS

ALL VEHICLES WITH A SOLENOID ACTUATED STARTER AND A STARTER RELAY

A connector link is installed on solenoid actuated starters when they are used on vehicles equipped with starter relay. The link connects the battery terminal to the solenoid coil and allows the solenoid to be energized. This link is NOT used on vehicles not equipped with a starter relay (see Figure 3).

If a starter without a link is installed on a vehicle with a starter relay, the solenoid will not engage and the motor will not crank. The link may be transferred to accomplish motor interchangeability.

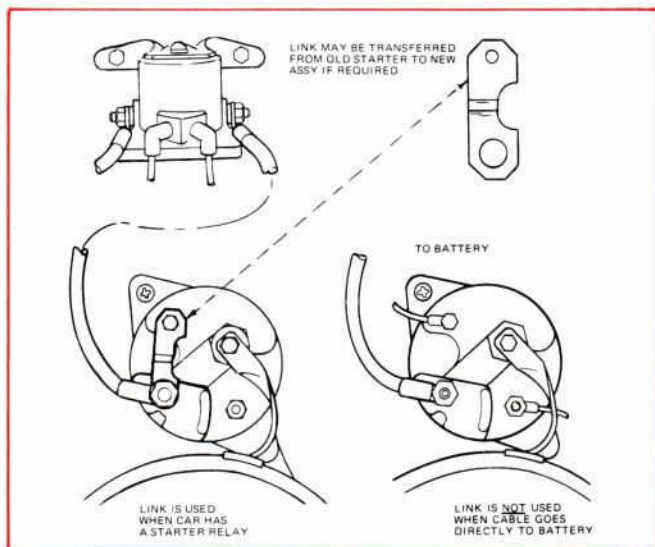


Figure 3—The Connector Link as it Appears at Left on a Solenoid Actuated Starter When Used With a Starter Relay.

CRANKCASE BREATHER ELEMENT ... SERVICE INTERVAL

ALL 1971 FORD DIVISION AND LINCOLN-MERCURY DIVISION CARS

For 1971 the Crankcase Breather Filter has been moved from the Oil Fill Cap to the Air Cleaner. Servicing of this "Filter Pack" in the air cleaner is revised from REPLACE EVERY 6,000 MILES to the newer service procedure that calls for the following:

- Inspect every 6,000 miles and replace if necessary.
- Replace every 24,000 miles or more often under dusty conditions.

Neglect of this hidden filter (located inside the air cleaner and attached to the inner surface of the metal shell), may result in the crankcase breather (PCV) system becoming "plugged," thus leading to engine damage.

FORD LOCTITE MINUTE-BOND

(D0AZ-19554-A)

Ford's new Loctite adhesive has exceptional high strength characteristics. It develops handling strength in 10 seconds and attains 60% of its full strength in 2 minutes. Loctite Minute-Bond is a real timesaver for field repair or attachment of inside rear view mirror brackets to windshields of all models. Aerosol Accelerator is sprayed on and allowed to dry for one minute. Then, one small drop of Minute-Bond is applied to the bond surface of the mirror bracket to achieve a permanent grip. Loctite Minute-Bond may also be used to bond together most smooth-surfaced materials — aluminum, steel, hardwoods, ceramics and many others.

AUTOLITE PARTS AVAILABILITY FOR THE 1970-71 CAPRI

Capri Parts List—Fast-Moving Autolite Branded Parts

ITEM	AUTOLITE SALES NUMBER	ITEM	AUTOLITE SALES NUMBER
Spark Plug	AG-22	Gasoline Cap—Non-Locking (All)	FC-96
Oil Filter	FL-227	Gasoline Cap—Locking (Except GT)	FC-547
Air Filter (GT Only)	FA-95	Radiator Cap	RS-513
Air Filter (Except GT)	FA-96	Oil Filler Cap	EC-15
Fuel Filter	FG-44	Thermostat	RT-148
PCV Valve	EV-59	V-Belts (All Without A/C)	JB-325
Point Set	DP-77	V-Belts—W/AC (GT Only)	JC-577
Condenser	DCE-238	V-Belts—W/AC (Except GT)	JC-554
Rotor (GT Only)	DRE-90	Radiator Hose—Upper (All)	KM-387
Rotor (Except GT)	DRE-91	Radiator Hose—Lower (All)	KM-385
Distributor Cap	DHE-156	Battery	Any Group 24F
Ignition Coil	DGE-45		

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