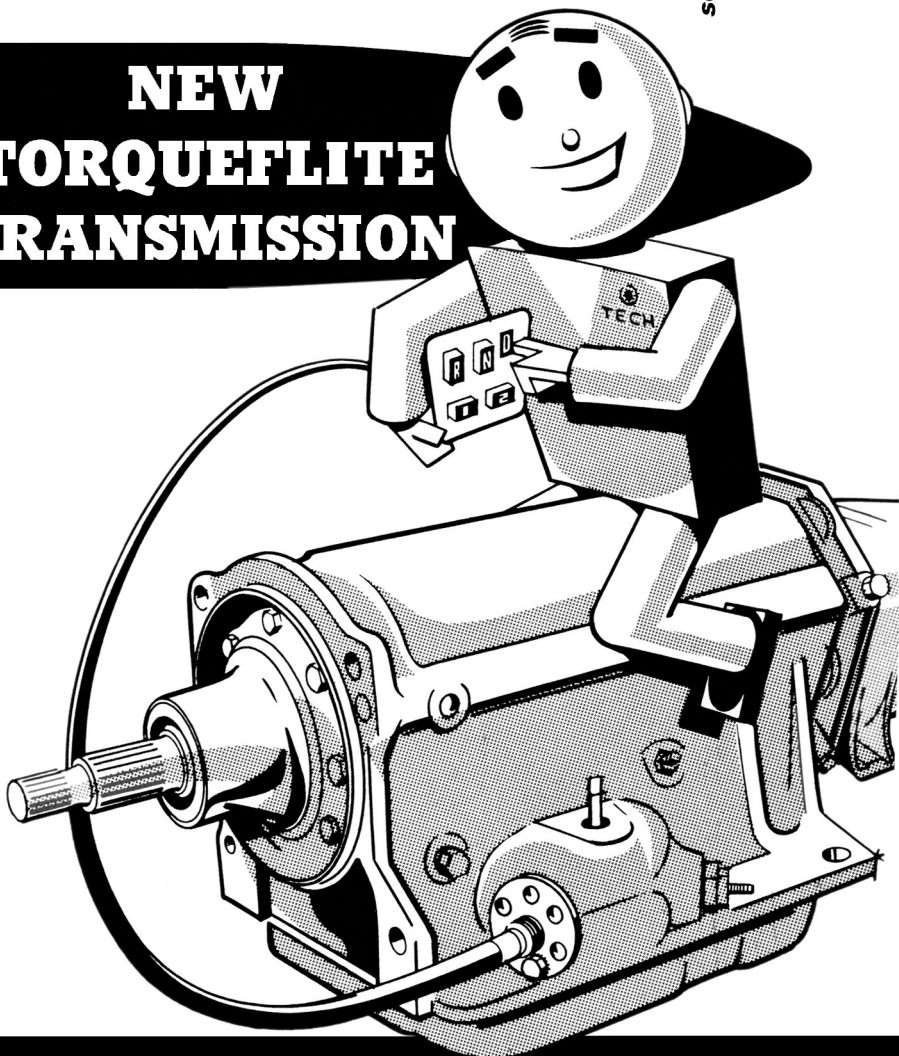


**NEW
TORQUEFLITE
TRANSMISSION**



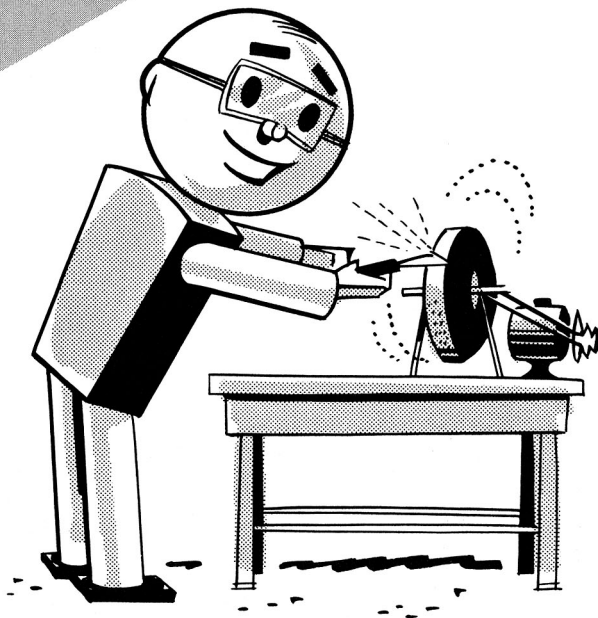
PREPARED BY CHRYSLER CORPORATION

Plymouth • Dodge • De Soto • Chrysler • Imperial

TECH SEZ:

“GET RAZOR-SHARP

ON NEW TORQUEFLITE SERVICE!”



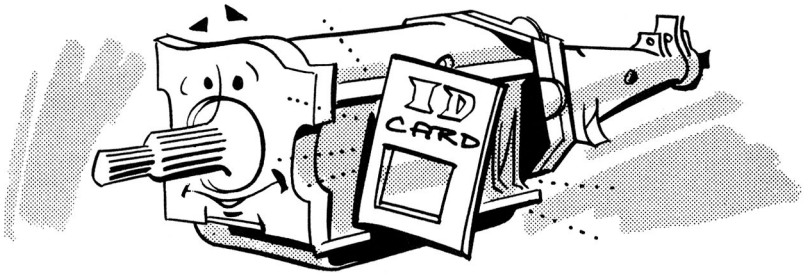
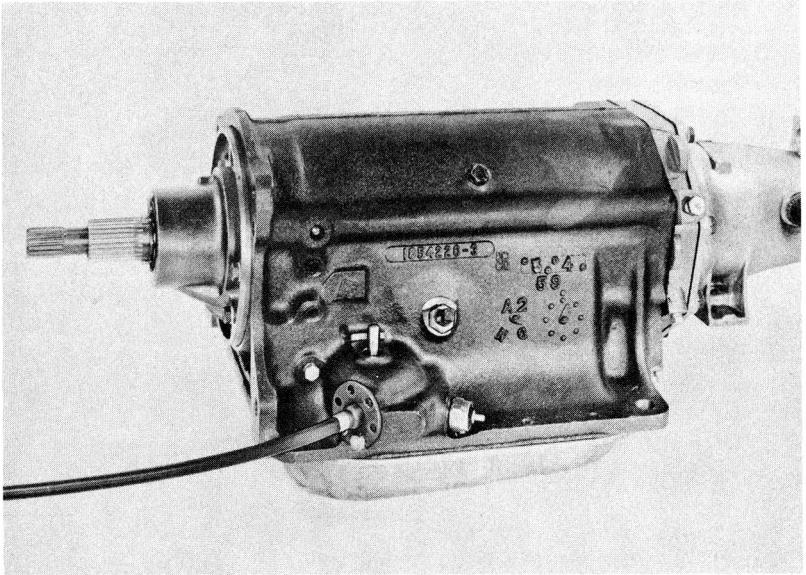
Here's an opportunity to get acquainted with the new, improved TorqueFlite transmission—and it's not too soon to start. You certainly don't want to get caught with your TorqueFlite service down.

This reference book outlines all the differences in design, explains up-to-the-minute improvements, and spells out the service procedures affected. It adds up to a good chance to get razor-sharp on everything new to help you keep your service customers coming back to you.

You'll find this useful information under the following headings:

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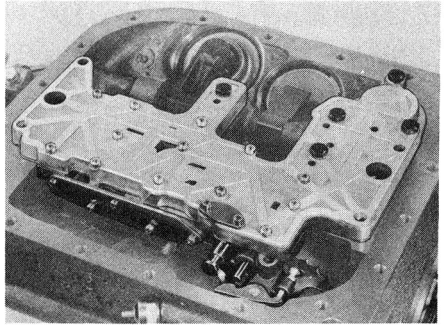
FEATURES OF THE NEW TORQUEFLITE TRANSMISSION



General

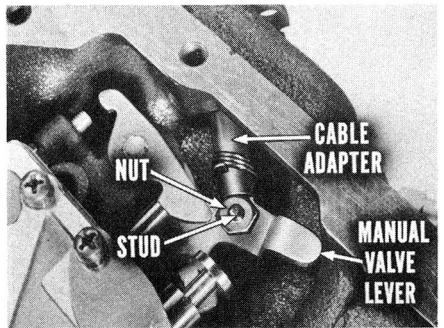
Identification. You'll find it easy to recognize the new transmission because it has a distinctively new control cable and cable adjusting wheel. There's also a new transmission case, and the cable adapter housing is integral with the case.

On the inside, there's an entirely new, simplified valve body assembly, along with several internal refinements. Perhaps the best way for you to get familiar with this main improvement is to remove and disassemble the valve body as though you were going to service it.



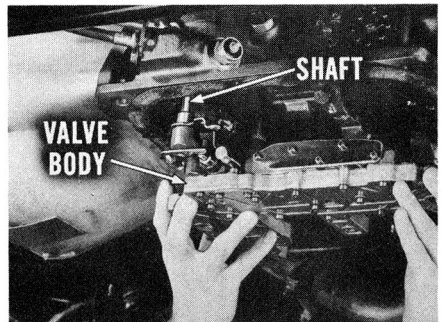
Remove Valve Body. The first step in removal is to drain the oil. Next, remove the oil pan and strainer. This is done much the same as before, so you won't have any difficulty up to this point.

Now before you can take the new valve body assembly out, you've got to push in the Reverse button. Then, remove the nut from the adapter stud. That lets you disconnect the new cable adapter from the manual valve lever.



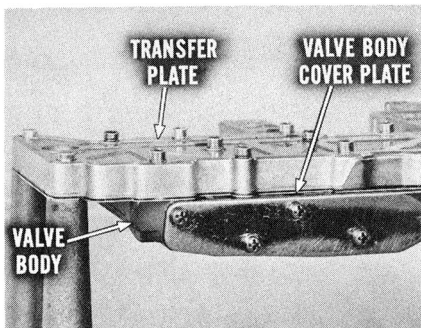
NOTE: You do not have to disconnect the control cable.

Remove the transmission throttle lever and washer from the outer end of the shaft. After that, lower the valve body *straight down* until the throttle valve lever shaft disengages itself from its hole in the case. Do this carefully so you won't bend or burr the shaft as you remove the body.



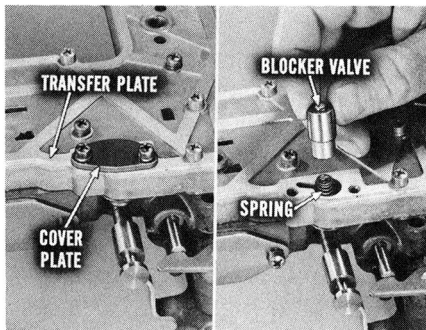
Valve Body Assembly

Description. Now, even though the valve body is of a different design, you can still put it in the same repair stand on the bench. Right away you'll notice how the valve body assembly has been simplified. It is one, consolidated body — instead of three separate bodies. There's also a new transfer plate and a new valve body cover plate.



Here's something else. The accumulator cover is now integral with the transfer plate. (Incidentally, on cars using dual four-barrel carburetors, no accumulator spring is used.)

The entire valve body is so different that no part of it is interchangeable with any earlier type TorqueFlite transmission. Valve body assembly differences are so numerous that a close look at them will be helpful.



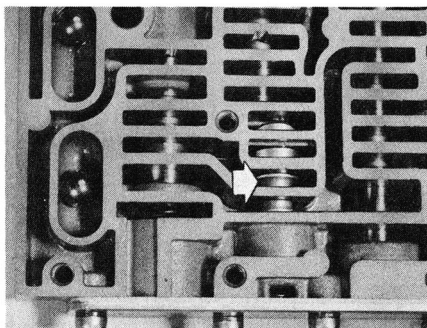
Disassembly. One design change you'll notice is that the reverse blocker valve is held in the transfer plate by a flat cover plate and two screws. As the plate can be installed backwards, make a mental

note of its position so you'll be able to get it back in place properly. Then, remove the retaining screws, the plate, blocker valve and spring.

Once that's done, lower the valve body and cover plate from under the transfer plate. Take it easy as you do this, though, or you might spill the check balls.

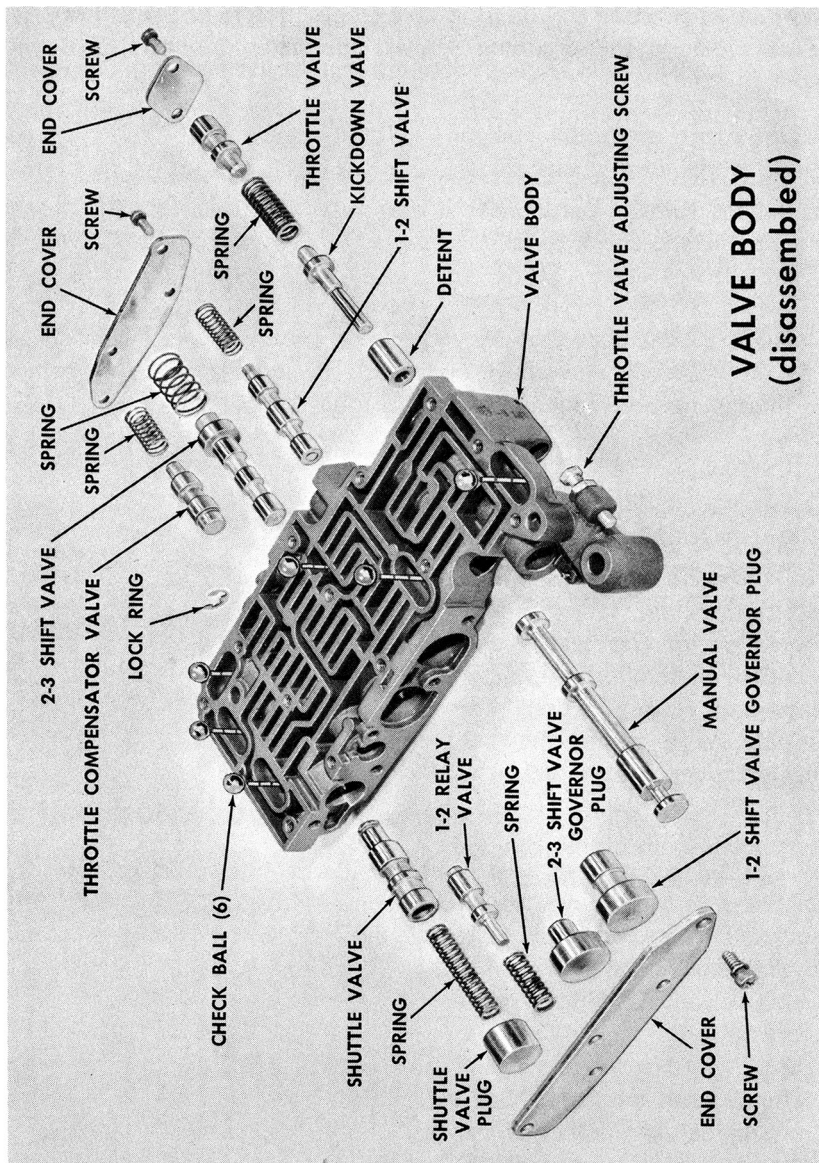
NOTE: Remember that all valves, springs, valve plugs and check balls inside the new valve body are redesigned parts. They're not interchangeable with any former TorqueFlite parts.

There's a new 1-2 relay valve that functions as a flow control valve. It times the operation of the servos and clutches so that their application and release actions are softer. As a result, the 1-2 upshift is much smoother.



The 3-1 relay valve used in earlier TorqueFlite units isn't needed in this new valve body assembly. There's still a 3-1 downshift, but this shift is provided by design changes in all valves, passages, and hydraulic circuits.

In size and number, check balls are different. Six of equal size do the job that five balls and one flat check valve used to do. Make a note of their location so you'll be sure to get 'em back correctly.



VALVE BODY (disassembled)

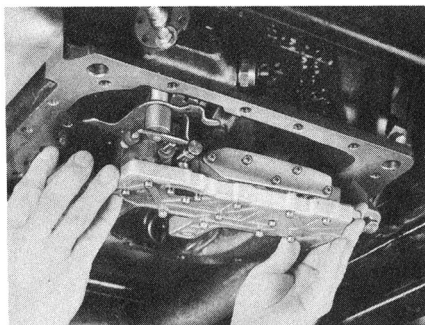


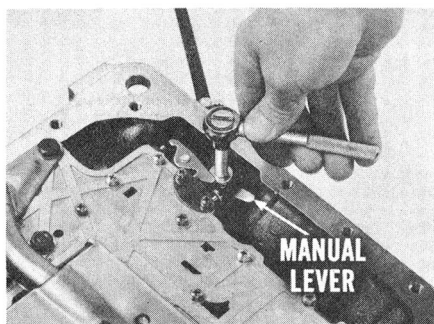
You can go ahead and remove the screws attaching the three valve body end covers, and lift off the covers. Then, slide the valves, valve plugs and valve springs from their ports in the valve body.

Clean all parts in a good commercial solvent and blow them dry with compressed air. Examine valve springs for breakage or distortion. Inspect valves and valve plugs for scratched surfaces, or other damage. Replace any part not suitable for further service.

Assembly. Reinstall the valves, valve plugs, springs, and check balls in the valve body and secure the end covers by tightening the screws to 25 to 30 inch-pounds torque. Install the cover and transfer plates on the valve body and tighten the 13 crosshead screws finger-tight. Then, starting at the center and working outward, tighten the screws 25 to 30 inch-pounds. Install the blocker valve plate with the edge having the large radius assembled to the outside. Unless you do, internal oil leaks will develop. Tighten these screws 25 to 30 inch-pounds torque.

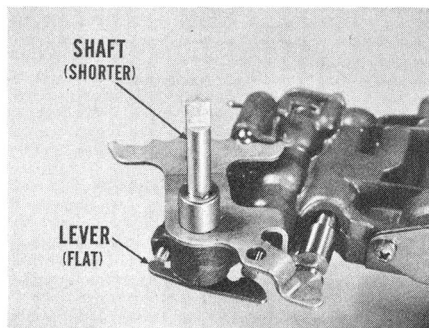
Installation. When you reinstall the valve body, be sure the throttle lever shaft is centered in the hole in the case so the shaft won't bind. Then, tighten the attaching screws. Next, move the manual lever to Reverse position.





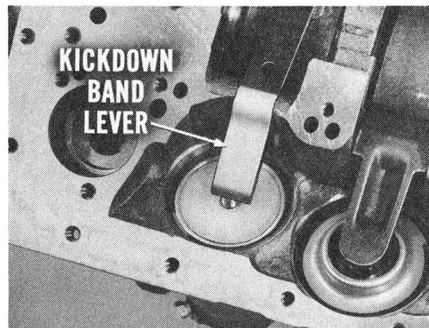
Engage the cable adapter stud in the manual lever. Lock it securely with the nut. If the stud slides into the lever easily, the control cable adjustment is correct. Otherwise, of course, you'd have to readjust the cable.

Other Transmission Improvements



Throttle Valve Lever Shaft. The throttle valve lever shaft is of shorter design. The lever, on the lower end, is flat instead of U-shaped.

The torque converter valve is of the same basic design, but in the new transmission has a shorter spring guide.

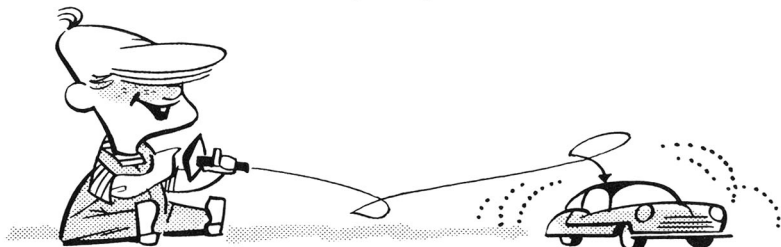


Kickdown Band Lever. On some models, there is a new kickdown band lever which provides an entirely different ratio. This new lever ratio, together with changes in the hydraulic circuits, brings about a softer kickdown band application.

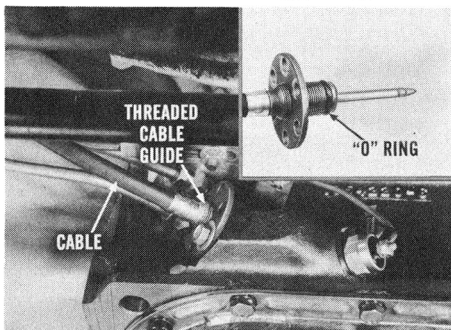
Neutral Starter Switch. The neutral starter switch position in the transmission case has been slightly modified. It is mounted at a

slight angle in the case. This, however, doesn't affect operation or servicing of the switch.

Control Cable. The all-new control cable features a wheel-type adjustment. The new method of adjusting the cable is more accurate.

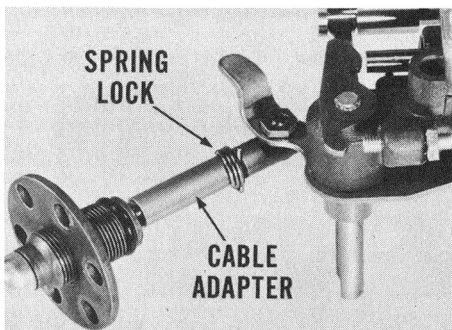


When you examine the wheel closely, you'll see that it is threaded in its center, and screws onto a threaded cable guide at the transmission end of the cable. A rubber "O" ring in a groove near the inner end of the guide serves as an oil seal.



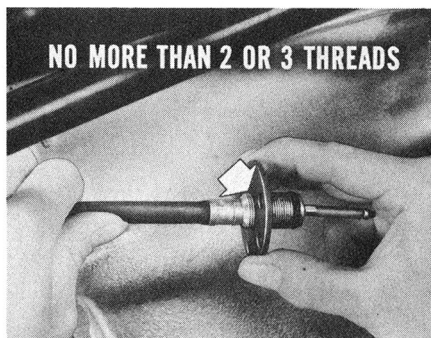
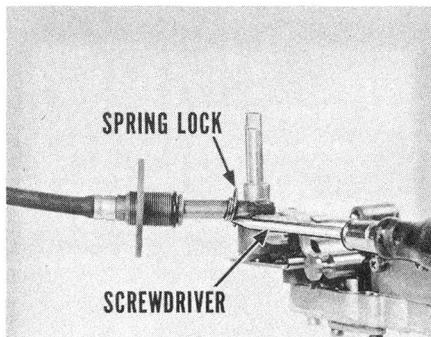
There are six lock-screw holes in the adjustment wheel. A lock-screw secures the wheel to the case.

One feature still similar is the spring-lock arrangement on the new cable adapter. This doesn't have to be unlocked when you remove the valve body assembly. You disconnect the control cable only when you have to replace it, or remove the transmission from the car.



It will be helpful to you, though, to know how the control cable is removed when it is necessary. So here is the removal procedure.

Removing the Control Cable. Engage the Reverse button first, and drain about three quarters of fluid from the transmission. Then, remove the adjustment wheel lockscrew. Next, take out the neutral starter switch. Insert a slender-blade screwdriver through the switch hole and contact the top end of the cable adapter spring lock. Press lightly, and pull the cable from the transmission.

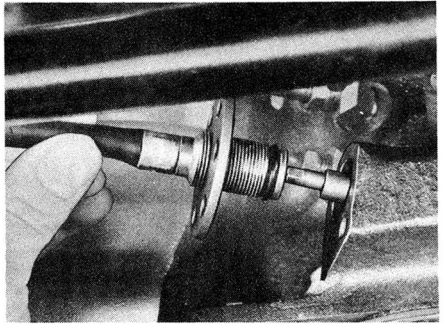


Installing the Control Cable. To install the control cable, first make sure the adjustment wheel is turned back on the control cable guide (away from the “O” ring) until only two or three threads are showing. The guide must be free from dirt or burrs so the wheel can turn freely.

Remember, if the wheel isn't backed off *far enough*, the cable might not lock into the adapter. On the other hand, if the wheel is backed off *too far*, that can force the “O” ring through the cable hole where the sharp edges can damage the ring.

Install a new “O” ring on the cable guide. Coat the ring with transmission fluid, or light engine oil, to make this installation easy. Ask a helper to push the “R” button all the way in, and to *hold it in tightly* until you finish installing the cable.

Hold the cable and wheel square with the machined surface of the case so the cable won't cock. With the manual lever in the Number "1" position, *carefully* guide the cable wire into the adapter. Push the cable guide into the case lightly. Use just enough force to overcome "O" ring resistance, and bottom the manual valve lever against the Reverse detent. You'll feel it lock into place.

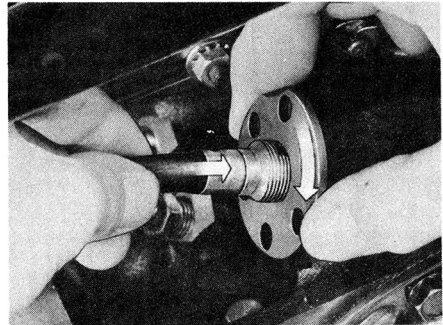


Reverse detent. You'll feel it lock into place.

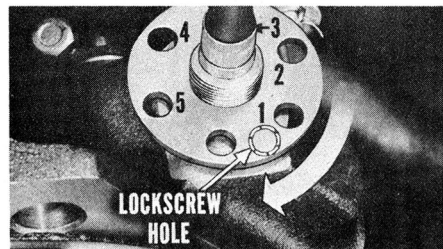
After you bottom the cable in the transmission, pull out on it to make sure the cable is secured snugly in the adapter.

Adjusting the Control Cable.

To make the cable adjustment, force the cable *lightly* into its bottomed position. Then, turn the adjustment wheel until it *just touches* the face of the case. You can then release the cable. Remember . . . you must stop as soon as the wheel touches the case or you'll pull the manual valve lever out of its bottomed position. So take it easy.



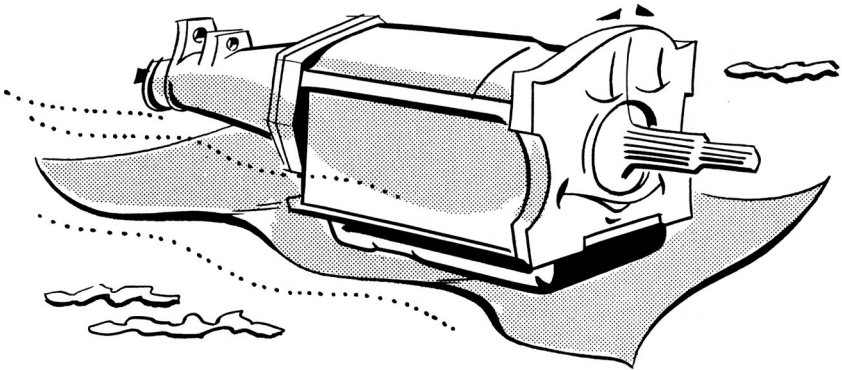
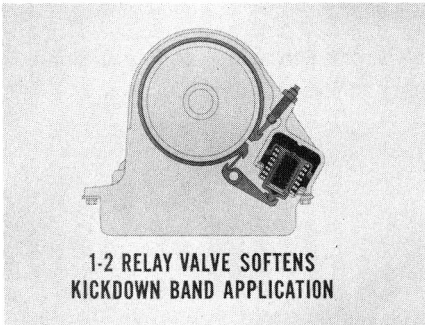
Now, if an adjustment hole lines up with the lockscrew hole, turn the wheel *clockwise five holes*. Install and tighten the lockscrew.



NOTE: If an adjustment hole doesn't line up with the lockscrew hole in the case, the next clockwise adjustment hole should be considered the "Number 1" hole. Count four more holes, making a total of five, and you will have turned the wheel the proper amount. Install and tighten the lockscrew.

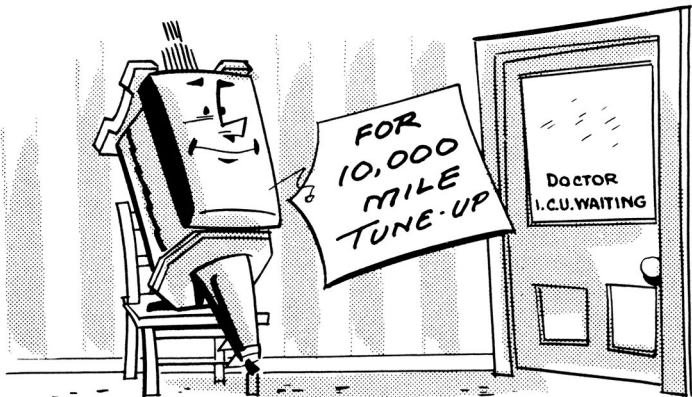
Improvement in Transmission Operation

To understand the reason for some of the changes in the valve body assembly, suppose we take a look at the improvement in transmission operation. As an example, let's consider the new 1-2 relay valve. This valve helps soften application and release of the servos and clutches on the upshift and downshift — particularly the kickdown band application on the 1-2 upshift.

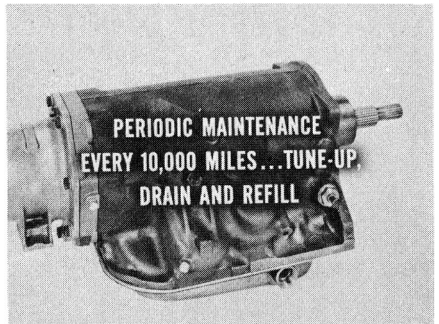


TORQUEFLITE TRANSMISSION TUNE-UP

In-warranty service on TorqueFlite is especially important. During the 1000-mile inspection on Plymouth, and the 2000-mile service on all other models, always be sure to make kickdown and reverse band adjustments. After initial operation, the normal wearing-in of new parts throws the original band adjustments off. So, the bands should always be adjusted as a part of Warranty Service. In addition, inspect engine idle, throttle linkage and control cable adjustments.

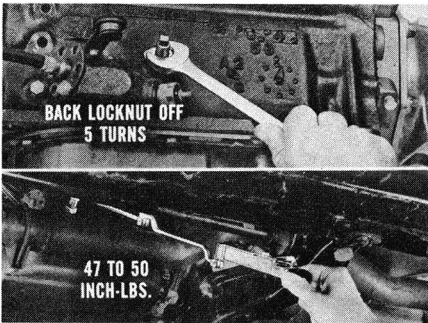
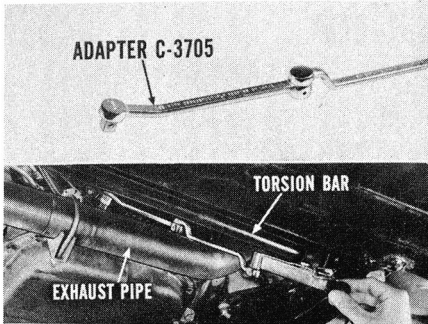


Periodic Maintenance. Every 10,000 miles, our engineers recommend a transmission tune-up along with the draining and refilling of fluid. *This represents a change over previous recommendations!* Changing fluid every 10,000 miles eliminates foreign particles and sludge. Like engine oil, transmission fluid becomes contaminated. Changing it at regular intervals prevents excessive wear, and insures more miles of trouble-free operation.



After you drain the fluid, always

remove the oil pan. Clean the pan and the oil strainer. After that, adjust the bands. A new 6" adapter (Tool C-3705) will help simplify the kick-down band adjustment. This adapter is handy on models where the torsion bar and exhaust pipe get in the way of the standard torque wrench C-3380, and extension C-3583.

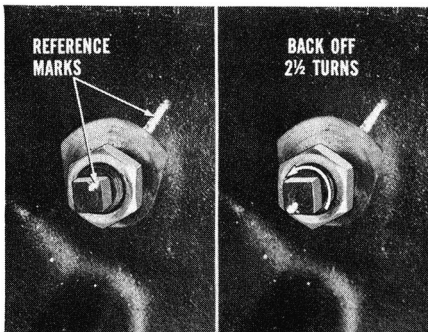


Kickdown Band Adjustment.

To adjust the kickdown band, first loosen the locknut and back it off about five turns. Use the torque wrench and the new adapter (C-3705) to turn the adjusting screw in, and snug it down between 47 to 50 inch-pounds.

Mark the adjusting screw and case for reference. Then back the

screw off *exactly* 2½ turns. Hold the adjusting screw in place and tighten the locknut. Backing the screw off 2½ turns applies to the new TorqueFlite transmissions on all cars except four special-duty models listed below. Back off the adjusting screw *only* 2 turns on these models.



Special-Duty Transmissions. TorqueFlite units on the Plymouth with the Golden Commando engine, Dodge Super D-500, De Soto Adventurer, Chrysler 300-E, taxicab and police car models are identified by the following assembly numbers:

1949385

1949267

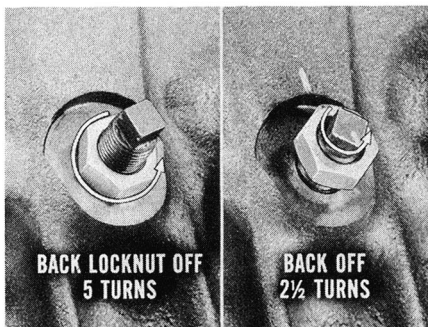
1949277

1949281

This number is stamped on the milled surface of the case at the lower right front corner. These transmissions use a kickdown band lever which provides a 4.25 to 1 ratio. Normal-duty transmissions use a kickdown band lever which provides a 3.2 to 1 ratio. The difference in lever ratio is the reason for the difference in adjustment.

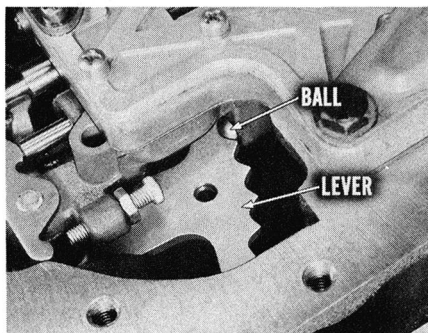
Reverse Band Adjustment.

When you adjust the reverse band, back the locknut off five turns just as you do when adjusting the kickdown band. Tighten the adjusting screw 47 to 50 inch-pounds torque using the wrench with the new adapter. Then back the screw off $2\frac{1}{2}$ turns on all models.



Inspect Detent Alignment.

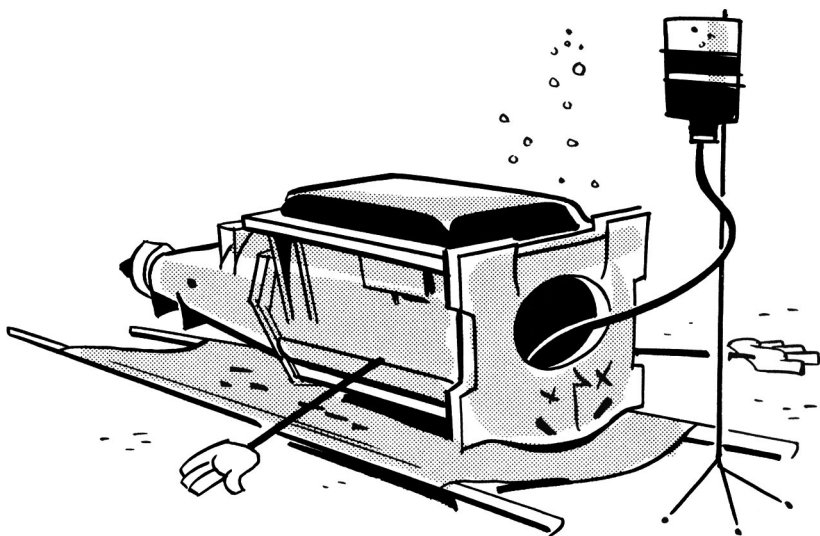
While the oil pan is off, the most accurate method of checking cable adjustment is rocking the manual valve lever while an assistant holds each button alternately pressed in.



Finally, have the assistant hold the “R” button in, rock the manual valve lever back and forth. If the ball rides higher on one side of the

detent than on the other, adjust the control cable. This should be done whenever the valve body is reinstalled in the transmission.

Use a new gasket when you reinstall the pan. And when you install the filler tube, be sure to tighten the nut 35 to 40 foot-pounds torque. Finally, refill the unit with fresh Automatic Transmission Fluid, Type "A", Suffix "A". It is a new, improved fluid that insures better transmission performance.



Adjust Engine Idle and Throttle Linkage. Reset engine idle speed 475 to 500 r.p.m. with the transmission in Neutral. Be sure the carburetor is off the fast-idle setting.

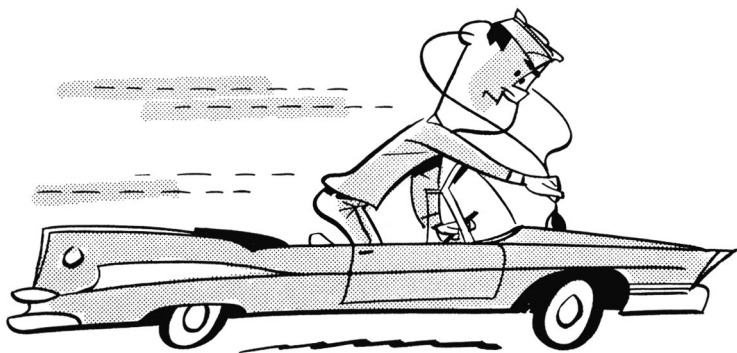
Turn off the ignition, next, and disconnect the throttle rod from the throttle lever on the carburetor. Move the throttle rod rearward to the limit of its travel. See if there is $\frac{1}{2}$ " clearance between the rear edge of the bell crank and dash panel. With the bell crank in that position, the end of the throttle rod should line up with the carburetor lever without moving the lever from the idle position.

If you can't connect the rod to the lever without moving it or changing the $\frac{1}{2}$ " clearance, readjust the length of the rod. Remove any lost motion in the rod, first. Then, if you don't have the required $\frac{1}{2}$ " clearance, leave the throttle rod disconnected at the carburetor. Loosen the throttle lever locknut at the transmission.

Have a helper hold the bell crank $\frac{1}{2}$ " from the dash panel while you pull the transmission end of the bell-crank-to-throttle lever linkage as far forward as it will go. Tighten the locknut to secure the adjustment. With this clearance correct, adjust throttle rod length so it can be connected to the carburetor without moving the rod or lever.

Accelerator pedal position must permit a transmission kickdown without compressing the floor mat. If it doesn't, adjust the length of the pedal-to-bell-crank rod to increase or decrease pedal travel.

Road-Test the Car. Take the car out and put it through the usual road-test paces. Drive it at least 10 miles and check the shift pattern carefully. If the transmission performs smoothly, it's ready to be turned over to the customer. But if some of the shifts are still harsh, or incorrectly timed, you'll have to test pressures and inspect some of the adjustments.



Before you make any pressure tests, drive the car at least 10 miles to bring the fluid up to operating temperature, 150° to 200° F. Cold fluid won't give you proper pressure readings.

NOTE: All pressure specifications and adjustments on the new TorqueFlite are the same as those on earlier transmission units except compensated throttle pressure.

Adjust Compensated Throttle Pressure. If your road test turns up a harsh upshift, delayed upshift, or erratic shift, make the following inspections.

Fluid Level. Be sure the oil is hot, engine is running at normal idle speed, transmission's in Neutral and the hand brake is applied. If fluid level is below the "ADD ONE PINT" mark, add one pint. Push the dipstick all the way in with the cap fully seated on the filler tube. After inspecting the level, install the dipstick firmly with the seal (used on current models) down in the filler tube with the cap fully seated.

Adjust engine idle 475 to 500 r.p.m., and the throttle linkage, if necessary. Put the car on the hoist, and adjust the kickdown band according to the transmission assembly number of the unit.

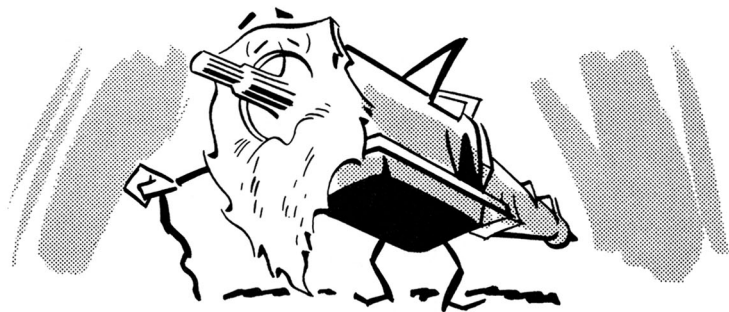
Test governor pressure to see if it is within limits specified for the car you're working on. If governor pressures are correct, remove the compensated throttle pressure tap plug in the upper end of the kick-down servo bore. Connect a 100 psi Pressure Gauge (C-3292).

Start the engine. Engage the "2" push button and operate the engine at 850 r.p.m. by opening the throttle with the accelerator pedal. At this speed, the 1-2 upshift will take place without operating the transmission throttle valve.

There should be 10 to 16 psi on the gauge. If your gauge reads outside these limits, adjust the throttle valve lever at the transmission to get this reading. Loosen the locknut at the transmission end of the throttle bell-crank-to-throttle-lever linkage. Have a helper hold the bell crank lever so $\frac{1}{2}$ " clearance between the bell crank and dash panel is maintained. Holding the bell crank there, pull back the transmission end of the linkage as far as it will go. Then tighten the locknut to secure the adjustment. For the smoothest 1-2 upshift, compensated throttle pressure should be near 14 psi.

Lower the car and road-test it to see if this adjustment has corrected the condition. If harsh, or unsatisfactory shifts are still present, it points to a mechanical condition inside the unit. In this case, remove the unit for further disassembly and correction.

EARLIER TORQUEFLITE, POWERFLITE TRANSMISSIONS



The 10,000-mile transmission tune-up is also recommended for earlier TorqueFlite and PowerFlite units. Drain the fluid, remove the oil pan and oil strainer for cleaning. Adjust the bands. In addition, adjust engine idle, throttle linkage, and the control cable.

On PowerFlite-equipped cars, adjust linkage in this manner. Turn off the ignition and be sure the carburetor is off its fast-idle setting. Disconnect the throttle rod at the carburetor. Hold the rod to its limit of travel rearward and see that the bell crank is $\frac{1}{2}$ " to $\frac{9}{16}$ " from the dash panel.

If this dimension is correct, the lower linkage is in proper adjustment. The next step is to adjust the throttle rod length at the center to fit between the bell crank (with bell crank held to the rear) and the carburetor lever.

MISCELLANEOUS SERVICE TIPS

Fluid Level. Avoid overfilling the transmission with fluid. It causes foaming and results in erratic shift performance. Be sure to use the new Type "A", Suffix "A" fluid.

Additives. Use of special compounds in transmission fluid is not recommended. Engineering tests show that most benefits claimed for these additives are doubtful.

Parts Inspection. Valve body parts should soak in a clean, suitable solvent before they're inspected for wear and damage. **DO NOT USE A STEEL-STRIPPING SOLUTION.**

Use compressed air to dry the parts and then use a pen light to check valve bores for scores, scratches, pits and imperfections. Distortion of valve body surfaces can be detected by using a straight-edge. Slight irregularities can be removed with crocus cloth applied with light pressure. Use a surface plate to correct slight distortions.

Inspect valve springs for distortion and collapsed coils. Replace any springs you find are unsatisfactory.

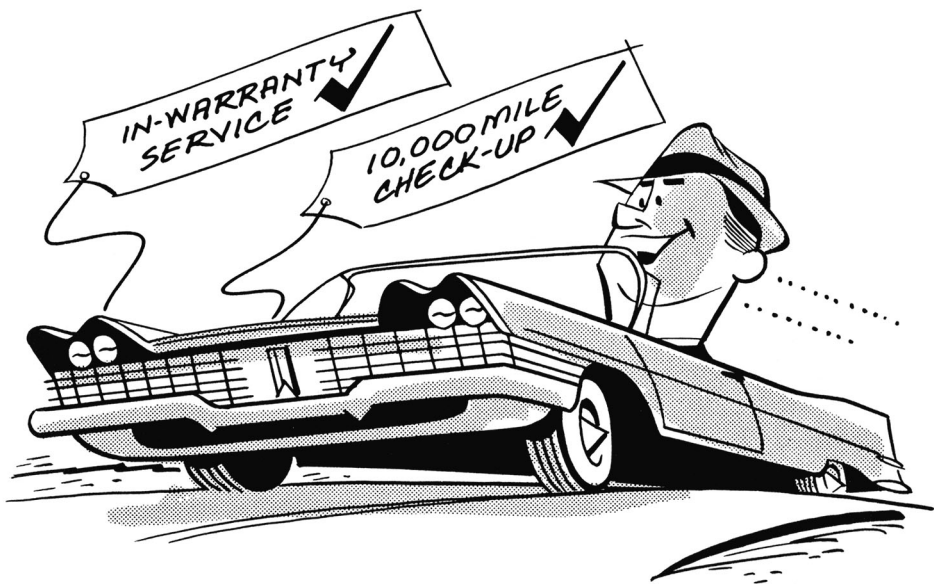
Keep a sharp eye peeled for burrs or nicks on valves and valve plugs which could cause them to stick in the valve body. Use crocus cloth to remove tiny nicks and scratches, but be sure you don't round off any sharp valve edges.

Remember that the valve body and transfer plate are of cast aluminum. Do not exceed torque of 25 to 30 inch-pounds when assembling the valve body and transfer plate.

CONCLUSION

The new TorqueFlite transmission is designed to provide smoother and more effortless driving for our many owners. Regular 10,000-mile, as well as thorough in-warranty service, will go far to maintain the many benefits TorqueFlite transmissions offer.

Your service customers look to Master Technicians for first-class work on this important unit. So study the many suggestions outlined in this reference book, and apply them during every TorqueFlite service opportunity.



**RECORD YOUR ANSWERS
TO THESE QUESTIONS
ON QUESTIONNAIRE NO. 140**

To remove the valve body assembly from the new TorqueFlite transmission, it is necessary to disconnect the control cable.

RIGHT

1

WRONG

Valves, springs, valve plugs, and check balls of the new TorqueFlite valve body are not interchangeable with former parts.

RIGHT

2

WRONG

The new 1-2 relay valve provides a smoother 1-2 upshift.

RIGHT

3

WRONG

Before adjusting the control cable, make sure the wheel and cable guide are free from dirt and burrs.

RIGHT

4

WRONG

Band adjustments must be made during the 1000-mile or 2000-mile inspection to compensate for normal wearing-in of new parts.

RIGHT

5

WRONG

Drain and refill the automatic transmissions every 20,000 miles.

RIGHT

6

WRONG

When adjusting the reverse band, back the adjusting screw off $2\frac{1}{2}$ turns on all models, and tighten the locknut.

RIGHT

7

WRONG

If the spring-loaded detent ball doesn't engage fully in the correct notch as each push button is depressed, adjust the control cable.

RIGHT

8

WRONG

Always refill with the new Automatic Transmission Fluid, Type "A", Suffix "A".

RIGHT

9

WRONG

Compensated throttle pressure should be between 10 and 16 psi with the new valve body.

RIGHT

10

WRONG