BRAKE AND TRANSMISSION SERVICE TIPS
Consider this...

What reasons prompted an owner to choose a new 1962 Chrysler Corporation automobile over its competition? Was it styling, convenience, economy? Sure, those points usually count—but he probably was also impressed with the many superior mechanical features of his new car. For example, right from the start, he must have had confidence in the performance of the engine, V-8 or Slant Six, in day-to-day operation.

Chances are that much of the time, this day-to-day operation is stop-and-go driving. And when you think of it, this is the kind of driving that highlights brake and transmission operation, too. As long as they're working right, the owner is hardly aware of them. But when something's not right with either his brakes or transmission, he is disturbed by that fact—almost constantly! Usually he can hardly wait to have it corrected.

And that, of course, is where you enter the picture. It's up to you to smooth out their stoppin' and goin' problems. Let the tips in this Reference Book help you—and you'll convince them of their wisdom in choosing a Chrysler Corporation product, now and in the future. That's one more step in building a successful—and profitable—dealership.

TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVO-CONTACT BRAKES</td>
<td>1</td>
</tr>
<tr>
<td>REAR WHEEL PARKING BRAKES</td>
<td>3</td>
</tr>
<tr>
<td>TORQUEFLITE—FEATURES AND OVERHAUL TIPS</td>
<td>4</td>
</tr>
<tr>
<td>TORQUEFLITE—SERVICE ADJUSTMENTS</td>
<td>7</td>
</tr>
<tr>
<td>NEW MANUAL TRANSMISSION GEARSHIFT LINKAGE</td>
<td>11</td>
</tr>
</tbody>
</table>
PLYMOUTH AND DODGE BRAKES

The big brake news this year is the new Servo-Contact brakes on Plymouth and Dodge. These brakes feature a new automatic brake adjuster mechanism, factory-installed as standard equipment on all four wheels. Bonded brake linings are used. And for protection against road splash, the design incorporates a very efficient water seal. Most Master Technicians will feel right at home with this new Servo-Contact brake, since it’s essentially a larger, huskier version of the service brakes used on current and past model Valiants and Lancers.

AUTOMATIC BRAKE ADJUSTER

The automatic brake adjuster is standard on all ’62 Plymouths and Dodges. It’s also available in kits for dealer installation on Valiants and Lancers of any model year—so watch for it on these cars, too.

The brake adjuster works only when the lining wear increases the shoe-to-drum clearance beyond a certain point, and then only when the brakes are applied while the car is backing up. Under these conditions, the automatic adjuster device will turn the star wheel adjusting screw slightly to re-establish the proper clearance. This maintains pedal height as the linings wear down. The adjuster works only during reverse braking to prevent over-adjustment when brake drums are temporarily expanded because of heat created during severe forward braking.

INOPERATIVE ADJUSTER

Almost any service problem with this device will be one of no adjustment, since if it isn’t working right, it won’t work at all. When trouble shooting this problem, look for an adjuster cable which has slipped off its guide on the secondary shoe, a bent adjuster lever, or corroded threads which would prevent the star wheel adjusting screw from turning. It’s okay to lubricate the cable guide sparingly with Silglyde so the cable will operate easier, but be very careful to avoid getting even the slightest trace of lubricant on the brake linings.

To test the automatic adjuster: Pry the secondary brake shoe—the rear shoe, in every case—away a sixteenth of an inch or more from the anchor pin at the top of the brake, and let it return. As the shoe returns, the adjuster lever should engage the next tooth of the star wheel, turning it to lengthen the adjuster slightly. After you’ve done this, it’s a good idea to lift the lever up out of the star wheel and back off the adjustment to its previous setting.

Over-adjustment condition: Although extremely uncommon, there is one way in which an over-adjustment service problem could result. Repeated reverse brake applications while the drums are still hot from hard braking might create brake drag from over-adjustment. If an owner has this problem, tell him what caused it. Advise him to prevent its recurrence by hesitating a few seconds after using his brakes hard before he backs up. This will give the drums time to cool down and return to their normal size.

MANUAL SHOE ADJUSTMENT

Backing-off the adjustment: There are times when you must back off the brake adjustment manually on brakes having the automatic brake adjustment feature. This may need to be done, for example, after you’ve installed...
new linings, or if you encounter the over-adjustment condition described in the previous paragraph. To do this, you'll have to move the adjuster lever out of engagement with the star wheel. Otherwise, the lever will act as a ratchet to prevent reverse rotation of the adjusting screw. And if you force the star wheel with the lever engaged, you'll bend the lever.

However, it's not necessary to remove the brake drum to back off the adjustment. Just stick a thin screwdriver through the adjusting hole in the brake support plate to push the adjuster lever away from the star wheel. Hold the lever there while you turn the star wheel back with the adjusting tool. Back off the adjustment until you feel only a slight drag as you turn the tire.

**BRAKE DRUM SEALS**

All 1962 Servo-Contact brakes have a highly effective built-in water seal to protect linings from road splash. The outer edge of the dust shield fits closely into a groove in the rim of the drum. With this design feature, you'll have to watch the drum-to-dust-shield clearance.

**FRONT SUPPORT PLATE WATER SEALS**

On Plymouth and Dodge, there are two plastic foam seals at each front brake support plate. One is a flat washer-shaped seal between the steering knuckle and the support plate. The other is a semi-circular seal between the support plate and the top part of the flange in the cup which is spotwelded to the center of the support plate.

A rough or jagged appearance at the edge of this semi-circular seal is normal. The seals are made with tabs at both ends to help line up the seal properly when it's installed at the factory. During assembly, these tabs are removed, leaving a torn edge.

If you find any trace of rust when servicing the front wheel bearings, check the condition of these two seals. The flat washer-shaped seal can be replaced with a new one if it's leaking. However, if the semi-circular seal at the upper edge of the cup is leaking, it can't be replaced with a new one. Instead, you will have to dig out as much of the old seal as possible, and reseal the entire top segment of the cup flange with a non-hardening sealer such as Permatex Number 2.

A number of early production Plymoutths and Dodges were manufactured with a non-hardening sealer applied to the upper portion of the cup flange, in place of the semi-circular plastic foam seal. This, too, is an effective seal, and should give you no cause for concern. Just be sure it hasn't pulled away from the metal at any point.

**REAR SUPPORT PLATE WATER SEALS**

On Servo-Contact brakes, circular plastic foam seals are also used at the rear wheels for protection against water leakage into the axle bearings. On Plymoutths and Dodges, there is one seal at each rear brake, between the axle housing flange and the brake support plate.
On Valiants and Lancers, there are two at each brake. One is used between the axle housing flange and the brake support plate, and the other is placed between the brake support plate and the axle shaft bearing retainer.

Fig. 4—Rear support plate seal, Plymouth and Dodge

On earlier model Valiants and Lancers, it’s a good idea to use these new plastic seals in place of the paper gaskets originally used, whenever you’ve disassembled the rear brakes to this point for servicing. The part number of this plastic foam seal for Valiant and Lancer only is 2070932.

OTHER SERVICE TIPS

When trouble shooting Servo-Contact brakes, don’t overlook the usual sources of trouble. If the condition indicates it, check as you would on any type of brake for contaminated linings, out-of-round drums, misaligned shoes, or a faulty hydraulic system. Observe the normal precautions and procedures when bleeding these brakes, and bleed the wheel cylinders farthest from the master cylinder first.

It’s also a good idea, when installing new linings, to check the clearance between the lining and the drum at the heel and toe. This clearance should be .004-inch.

Plymouth and Dodge now have the parking brake located at the rear wheels. Valiant and Lancer have the same type of parking brake system, unchanged from their 1961 design. Adjust all four models identically.

ADJUSTMENT

Before you adjust the rear wheel parking brakes, make sure that the service brakes are adjusted right, and that the rear wheels turn freely with the parking brake released. Then, at the cable equalizer under the floor pan, loosen the locknut and tighten the adjusting nut until the rear wheels are hard to turn.
Finally, back off the adjusting nut just enough so that the rear wheels turn freely without dragging, and tighten the locknut. To test your adjustment, operate the parking brake a few times, and check to be sure the rear wheels don’t drag with the brake released.

In 1962 Chrysler Corporation cars, two Torque-Flite three-speed automatic transmissions are used: the A-904 TorqueFlite Six and the A-727 TorqueFlite Eight. Apart from their size and torque capacities, these two transmissions share many features, since they are very similar in basic design.

Practically all service operations, such as pressure tests, band adjustments and overhaul procedures are identical, or very nearly so, for both transmissions. This fact in itself is good news to Master Technicians.

TORQUEFLITE SIX

With some new design refinements, the A-904 TorqueFlite Six is essentially the same three-speed automatic transmission that’s been used with the Slant Six engine since its introduction two years ago. For 1962 you’ll find a new in-line throw-away-type oil filter in the return line from the cooler to the transmission.

Also new for this year are prefinished service bushings for the front pump housing, the reaction shaft support, and the front clutch retainer. You don’t have to buff these new bushings when you install them, and you can use them in servicing earlier A-904 Torque-Flite Six transmissions, too. This feature is a cost-saver for your customers.
NEW TORQUEFLITE EIGHT

The new A-727 TorqueFlite Eight offers three-speed automatic transmission performance in a unit that’s light, compact, and easily serviced. It’s designed and built to handle the greater torque of the V-8 engines. The A-727’s torque converter is an inch larger in diameter than that of the A-904. It also has larger clutches and planetary gearsets.

TORQUEFLITE EIGHT COMPONENTS

Heavy-duty components are used throughout the TorqueFlite Eight. For example, annulus gears are of welded construction, which cuts down the backlash in the planetary gear train, and simplifies assembly. The front annulus has external teeth and serves as a hub for the rear clutch. Planet pinion carrier thrust washers are steel-backed bronze. The front clutch has waved clutch discs for more positive disengagement, and it uses ten small return springs instead of the one large one found in the TorqueFlite Six.

The overrunning clutch assembly has external serrations on the cam, and the cam is pressed into the transmission case. If necessary, you can replace this assembly in the shop—a service feature that’s new with the TorqueFlite Eight.

Fig. 9—Output shaft bearing

The output shaft is supported by a heavy-duty ball bearing in the rear of the extension housing, and the front of this shaft pilots in a bushing in the end of the input shaft.

TORQUEFLITE EIGHT OVERHAUL TIPS

After reading the previous paragraphs, you’ll have some idea of what to expect during overhaul of the A-727 TorqueFlite Eight. Be sure to stick to the procedures in your service manual. And in addition, here are a few other points to remember when reassembling the transmission.

Rear clutch piston: The large washer-shaped piston spring in the rear clutch assembly is under much less tension in this new transmission, and you can compress it sufficiently with thumb pressure to remove or install the snap ring. Also, you’ll find the ball check in the rear clutch piston, not the piston retainer.

Front clutch piston: Since the front clutch piston has tabs on its outer rim which fit into grooves inside the piston retainer, you can’t use a twisting motion to seat the piston in the retainer. But don’t try to jam the piston down—you’ll just curl back the seal.
Instead, take a stick of MoPar or Chryco “Door-Ease” and wipe a very thin film of this lubricant all around the lip of the piston seal. You’ll find the piston will slip straight into place, slick as a whistle, without damaging the seal! Don’t try this with Lubriplate or transmission fluid, though—you’ll need a firm, waxy lubricant to do the job. And don’t use more than a very thin film of “Door-Ease”!

**Piston return springs:** After the piston is seated, you’ve got to install the return springs on bosses in the back of the piston. The only problem is—there are fifteen bosses for ten springs! The answer, of course, is obvious. Starting at any point, place springs on two consecutive bosses, skip a boss, then put on two more springs, skip another one, and so on, installing two and skipping one until you’ve worked your way all around the circle.

**Valve body and transfer plate:** The assemblies for the TorqueFlite Eight and the TorqueFlite Six look alike, but they are not interchangeable. If you try to install the wrong one, the center mounting hole in the rear of the transfer plate won’t line up with the corresponding mounting hole in the transmission case.

Here is a point to remember. Although the complete valve body and transfer plate assemblies are different, the valve body itself, and all its component parts, are identical on both transmissions. Therefore, these parts are interchangeable. Pressure valves and test pressures are the same for both transmissions.

**Input shaft end play:** Before disassembling the TorqueFlite Eight, you should measure the end play of the input shaft. Then you will know if you’re going to need a new thrust washer between the reaction shaft support and the front clutch retainer. And you’ll want to double-check the end play after reassembly to be positive it’s within limits. But to make sure you get a true reading, remember this point; always check end play with the output shaft flange installed.

**AUTOMATIC TRANSMISSION SERVICE BUSHINGS**

New prefinished service bushings which don’t require burnishing after installation are available for all 1962 TorqueFlite transmissions, both Six and Eight. You can use them in 1960-61 TorqueFlite Sixes, as well. They’re available for the front pump, the reaction shaft and the front clutch retainer of both
transmissions, and for the input shaft of the new TorqueFlite Eight, in addition. These new bushings have advantages for both you and your service customers, but they do call for certain precautions during installation.

To begin with, you'll need the C-3887 special tool set to remove the old bushings and install the new prefinished ones. When you’re using these tools, be careful—don’t let them get cocked in the bushing bores. If an installer tool isn’t lined up straight when you’re driving in a new bushing, you’ll distort the bushing. Furthermore, the sharp edges of the tools could damage the bores.

When you remove a bushing, clean out the bore and examine it for smoothness. Get rid of any burrs or metal build-up, or the new bushing won’t seat in the bores as it should. After you’ve installed a new bushing, be sure no loose particles of metal remain in the bore. Be particularly alert for this at the blind hole in the pilot bushing bore in the TorqueFlite Eight input shaft.

Here’s one more important point. Sometimes, you’ll be laying parts on the workbench with a machined mating surface down, to drive bushings out or in. When you do, be sure that the bench is clean and smooth! Don’t risk scratching or burring the mating surface.

Fig. 12—C-3887 Tool Set for service bushings

TORQUEFLITE—
SERVICE ADJUSTMENTS

As mentioned earlier, the band adjustment and pressure test procedures for the new TorqueFlite Eight are practically identical with those you’ve been using for the TorqueFlite Six. You’ll also find there has been no change in the way the pushbutton cable is adjusted from the procedures used with last year’s TorqueFlite Six.

There’s a new cable used with both transmissions this year. A tough plastic housing gives it greater protection. However, it’s still recommended that you handle this cable with hands only—don’t use pliers or any other tool that could cut the plastic. And be sure to route this cable correctly, fitting it into the body clip to keep it from sagging toward the exhaust pipe.

THROTTLE LINKAGE ADJUSTMENTS—PLYMOUTH AND DODGE

A one-piece transmission throttle rod with a ball joint connection at the carburetor is used between the transmission and the carburetor bell crank on Plymouth and Dodge Six and V-8 models. Although the linkages for Sixes and V-8’s are different, they are adjusted in the same way. If the transmission rod adjustment is correct, the transmission lever will be in the extreme forward position with the carburetor at curb idle.

Preparation: Before starting the throttle linkage adjustment, be sure the engine is tuned up to specifications and the carburetor is adjusted to the correct curb idle. Disconnect the transmission throttle rod at the ball joint.
Next, disconnect the choke at the carburetor or block the choke valve in the full-open position, and open the throttle slightly to release the fast-idle cam. Then, return the throttle shaft to curb-idle position.

Transmission Throttle Rod Adjustment: Hold the transmission rod forward against the stop in the transmission with only a very light force. Too much force will place a stress on the throttle controls within the transmission. Adjust the length of the transmission throttle rod by means of the trunnion adjustment at the upper end. The correct length has been attained when the ball socket on the rod lines up directly with the ball end on the throttle shaft. The ball socket must be at the same height as the ball end when checking rod length. Attach the ball socket to the ball end.

Adjust the position of the cable housing ferrule in the clamp, using the Adjusting Tool C-3901, so that all slack is removed from the cable with the carburetor at curb-idle. To remove slack from the cable, move the ferrule in the clamp in the direction away from the carburetor lever. Then tighten the clamp nut. Remove the \(\frac{1}{4}\)-inch-diameter rod from the dash bell crank and lever. Finally, connect the choke or remove the block from the choke.

THROTTLE LINKAGE ADJUSTMENTS—CHRYSLER AND IMPERIAL

1962 Chryslers and Imperials equipped with the new TorqueFlite Eight transmission have a throttle control linkage similar to previous models, except for the addition of an intermediate bell crank attached to the side of the bell housing section of the transmission case. Although this changes the geometry of the linkage, the adjustment procedure is the same as with last year's models.

THROTTLE LINKAGE ADJUSTMENTS—VALIANT AND LANCER

Valiants and Lancers equipped with the TorqueFlite Six have the same throttle con-
control linkage as was used on last year's models, and their adjustment procedure is unchanged.

**FLUID DRAIN AND REFILL PERIOD**

The normal transmission draining and refilling period for both automatic transmissions on 1962 models has been established at 32,000 miles. At each 32,000-mile chassis lubrication interval, the transmission should be drained, the torque converter and the cooler flushed, and the screen and pan cleaned. The in-line filter in the fluid return line from the cooler to the transmission should also be replaced at this time. Refill the transmission with Automatic Transmission Fluid, Type “A”, Suffix “A”. Fluid capacity of the A-727 TorqueFlite Eight is 18 1/2 pints; fluid capacity of the A-904 TorqueFlite Six is 14 pints.

**PARKING LOCK**

This year Plymouth and Dodge TorqueFlite Eight and Six transmissions are equipped with a new parking lock. If you’re familiar with the parking lock on the Valiant and Lancer automatic transmissions, you’ll feel right at home with this new lock. However, there are some changes in the pushbutton box mechanism on all four of these cars. These changes are designed to make cable adjustment easier, but they require revised adjustment procedures. For example, the parking lock control lever is now pivoted on an adjustable eccentric cam on the pushbutton control box.

**PARKING LOCK ADJUSTMENTS**

Before adjusting the control lever, be sure that an adjustment is needed. When you’re troubleshooting the parking lock, check for the most obvious and easiest things first. Start with the cable. Check it for kinks, particularly near the upper end, and for cable cover damage. These things can cause hard operation. Then check the cable connection at the transmission.

**Cable Connection:** To check the cable connection at the transmission, move the lock handle to the “off” position. Loosen the clamp nut, and tap the nut to free the cable ferrule.

Then pull the cable to see if the cable tip is locked in the adapter. Don’t pull the cable out so far that the “O” ring at the end of the cable housing comes out of the bore, or you’ll spill some transmission fluid. If you find signs of a transmission fluid leak in the area of the clamp, check the “O” ring carefully. If it’s damaged you’ll lose lubricant there.

![Fig. 15—Checking cable connection at transmission](image)

If the cable tip is disconnected, put the lock handle in the “park” position, and push the cable in until the tip locks in the adapter. If you have a particularly stubborn adapter lock, you may have to remove the drain plug in the bottom of the parking lock cover to drain the fluid from the extension. And be careful! This fluid could be hot! Insert a screwdriver in the drain plug hole to hold the adapter steady while you force the cable guide in.

**Cable Adjustment:** When you’re sure the cable tip is locked in the adapter, adjust the cable. Put the lock handle at the instrument panel in the “off” position. Pull the cable away from the transmission as far as possible, using firm, but not excessive, force. Then release it and allow it to settle back, but don’t push it back. Tighten the clamp nut to no more than ten to fifteen inch-pounds.

**Control lever handle:** There’s another point to check. Be sure the control lever handle doesn’t hit either end of its slot in the instrument panel. If there’s interference, loosen the two nuts holding the lever handle to the control lever. Move the handle to correct the interference, then tighten the nuts. But when you’re checking the lever handle for clearance, remember this—the handle should rub lightly against one side of the slot in the instrument panel to prevent rattling.
PARKING LOCK CONTROL LEVER ADJUSTMENT

If the preceding steps haven’t eliminated the problem, you’ll have to take the control box out of the instrument panel. Check it for damaged parts and control lever adjustment.

Make sure all friction points are lubricated before testing control box action. If necessary, apply Lubriplate to the neutral slide pin and bushing, the cam pivot, both ends of all slides and the anchor holes for both ends of the over-center spring. Then remove the over-center spring, and hold the neutral slide full in, pushing on the forked end of the slide. Give the slide a slight clockwise twist to turn the neutral slide pin upward. With the slide held in that position, operate the control lever a few times, and watch the lever nose as it passes the neutral slide pin. The lever nose should just barely touch the pin in passing—it shouldn’t “hang up” on the pin.

To adjust the lever nose position: Loosen the cam jam nut until it’s only snug. Then change the cam position to get the correct lever nose clearance, and tighten the jam nut to ninety-five inch-pounds. For the cam to be set correctly, the high-point indicator on the cam should end up pointing forward somewhere between the seven o’clock and one o’clock positions. Reinstall the over-center spring.

Adjust lever stop screw: Finally, put the lever in the “park” position, and adjust the lever stop screw to give a ten-thousandths gap between the neutral slide pin and the lever heel. Tighten the lock nut to twenty inch-pounds and install the over-center spring.

CONTROL BOX INSTALLATION

When you install the box, make certain the handle clears both ends of the slot in the instrument panel. Also don’t damage or kink the cable, and be sure it’s secured in the body clip to keep it from sagging toward the exhaust pipe.

Here’s one final precaution concerning installing the parking lock cable and pushbutton control cable. Be sure to route them through the proper holes in the firewall. The parking lock cable through the lower hole; the pushbutton control cable through the upper hole.
NEW MANUAL TRANSMISSION
GEARSHIFT LINKAGE

DESIGN AND OPERATION

There's a new gearshift mechanism on 1962 Plymouth, Dodge, Valiant and Lancer manual-transmission-equipped cars. Because of its inherent rigidity, this design provides a crisp, firm feel and consistently smooth shifts. During shifting, movement of the gearshift lever is transmitted to the shift linkage under the car by a hollow tube inside the steering jacket.

The acetal-resin bushings used in this design are tough, durable, and practically noiseless. They're permanently lubricated at the factory and need only to be checked at 32,000-mile intervals.

GEARSHIFT LINKAGE ADJUSTMENT

Hard shifting complaints can often be traced to a need for gearshift linkage adjustment. If the condition is allowed to continue, chipped and broken transmission gears, as well as popping out of gear, could result. When adjusting the linkage, check each point in the order listed here, but don't waste your time adjusting anything that's okay to begin with.

Here's something to keep in mind when you're working on this linkage. The positions of the two shift levers are reversed from those of the previous column-mounted linkage. The low and reverse lever is now below the second and high lever.

Steering Column Jacket Concentricity: Be sure the steering column jacket is centered on the steering shaft, or you're liable to have a binding condition and stiff shifting. If you have to adjust this, loosen the screws that attach the steering column floor plate to the toeboard. Then shift the jacket as necessary and tighten the screws to ninety inch-pounds.

GEARSHIFT LEVER NEUTRAL POSITION

Check the position of the gearshift lever when it is in neutral. It should be five degrees above horizontal on Plymouth and Dodge; and ten degrees on Valiant and Lancer. These are the original factory settings, and have been found to be generally the most satisfactory. Of course, you can change this position to suit the individual customer, if necessary.

To adjust the neutral position: Disconnect the control rod swivel from the second-and-high lever and move the gearshift lever to the desired position. Loosen the locknut and screw the swivel up or down to line up the swivel stud with the hole in the lever.

Attach the swivel, installing the parts on the swivel stud in this order: first, a flat washer and the anti-rattle washer—then on the other side of the shift lever, another flat washer and the spring clip. Tighten the swivel locknut to seventy inch-pounds.
On Plymouths and Dodges, you'll notice that the second-and-high control rod is connected to a lever on a torque shaft which operates the transmission shift lever. This arrangement isolates the gearshift lever from engine and drive-train vibrations to prevent the lever from shaking and the transmission from jumping out of gear. Valiants and Lancers don't require this torque shaft in the shift linkage; the second-and-high control rod is connected directly to the lever at the transmission.

**SHIFT LEVER FREE PLAY**

Check the shift levers for axial looseness by trying to tilt one of them parallel to the steering column. Too much free play makes it impossible to get a good linkage adjustment.

If there's more than one-sixteenth of an inch of play, measured at the tip of the lever, loosen the two bushing retaining screws in the steering column jacket, and turn the plastic bushing down by hand just enough to remove all end play. Don't tighten it to the point where it will bind the shift levers.

When you're turning the bushing, hold the screws back against the upper edges of the slots in the column. That way, you won't leave any room for them to slide back out of adjustment after they're tightened. Then hold the bushing in this position and tighten the screws to thirty inch-pounds only, or you'll strip the threads in the bushing.

**CROSSOVER ADJUSTMENT**

When shifting from low to second or high, the selector lever at the lower end of the shift tube disengages from the pin on the low-and-reverse shift lever and engages the pin on the second-and-high shift lever. These two pins overlap slightly to insure that the two shift levers won't move when the selector lever is in neutral, moving through the crossover. When the transmission's in neutral, these two pins should be aligned so that the crossover action will be smooth.

*Check crossover operation:* Move the gearshift lever up and down several times in neutral while holding a slight downward pressure on the lever. By doing this, you'll hold the upper edge of the slot in the selector lever down against the top of the two shift lever pins. This way you'll be more able to feel any misalignment of the pins. Then repeat the test with a slight upward pressure against the
gearshift lever, to press the lower end of the slot up against the bottom of the pins. Eliminate any "lumpy" feeling caused by misalignment of the shift lever pins by adjusting the low-reverse swivel at the transmission.

Adjusting Crossover: Begin by wedging the selector lever in neutral, exactly halfway between the two shift levers, at a point where the selector lever will engage both shift lever pins. This will keep the shift levers lined up during adjustment. A wide-tipped screwdriver makes a satisfactory wedge for this purpose.

Loosen the swivel clamp on the low-and-reverse rod at the transmission. Be sure the low-and-reverse lever at the transmission is in neutral, and wiggle the lever slightly to make certain the detent ball in the transmission is seated in the neutral notch in the lever cam.

Then slide the low-and-reverse control rod gently back and forth through the swivel to find the mid-backlash point. Hold the rod there and tighten the swivel clamp screw to one hundred inch-pounds. Finally, remove the wedge from the selector lever and lubricate all moving parts with Lubriplate, if they need it.

Final Checks: To wrap up the job, test the adjustment by shifting into all gears with the engine off. Operate the clutch on each shift to be sure there's no binding or interference. There should be at least a quarter-of-an-inch clearance between the two shift rods, and between each shift rod and the toeboard weld flange, the clutch torque shaft, and—on Plymouths and Dodges—the transmission shift torque shaft.

**CLUTCH PEDAL FREE PLAY**

Smooth shifting and maximum clutch life depend to a great extent upon the right amount of clutch pedal free play—the amount of pedal movement before the clutch starts to disengage. For 1962 manual transmission-equipped cars, there should be 5/32-inch free movement of the clutch release fork, measured at its outer end. This dimension applies to all models, and is established by shortening or lengthening the effective length of the adjusting link to the clutch release fork, as necessary.

When adjusted correctly, there will be about an inch of free travel of the pedal. However, don't attempt to gauge the amount of free play by measuring the travel of the clutch pedal before it meets resistance. This method is unreliable because the over-center spring makes it impossible to feel the end of the free play accurately.

*Plymouth and Dodge*: A new, much shorter adjusting link having a pair of jam nuts to lock the adjustment is used on these models. When you've obtained the 5/32-inch free play at the outer end of the release fork, be sure these two nuts are tightened down securely, or the adjustment may shift.

**Slant Six engine clutches**: Be sure the forward end of the retracting spring for the clutch release fork is anchored in the proper place. On Valiants and Lancers, the spring is attached to a hole in the rear engine bracket. On Plymouths and Dodges, the spring hooks into a slot in the forward end of the clutch housing. Just remember that in either case the spring will be horizontal, not slanted, when installed correctly.