



PACKARD-CLIPPER DIVISION

OF

STUDEBAKER-PACKARD CORPORATION



# Counselor

VOL. 30, NO. 7

JULY, 1956

## Engine Run - Away - Flare - Low Brake Information

54th-55th-56th Series

ULTRAMATIC TRANSMISSIONS

We wish to call to your attention for review a condition which, when it exists, might result in burning or premature failure of the high range clutch plates in the Gear-Start and Twin Ultramatic transmissions used in 54th, 55th and 56th Series cars. This condition is an engine "flare" or "run-away" during the upshift from low range to high range converter on acceleration.

The first corrective step to be taken when "flare" exists is to check and, if necessary, adjust the throttle linkage with the carburetor off high idle. This is imperative because the linkage setting is a very important factor in controlling the pattern and quality of the shifts.

### 54th SERIES GEAR-START TRANSMISSION

The linkage adjustment for the 54th Series cars equipped with Gear-Start transmissions is described on page 52 in the Ultramatic Section of your Service Manual.

a. If "flare" exists, check and adjust the linkage as described. In addition, torque tighten the low range brake band adjusting screw to 20 ft. lbs. and then back off  $1\frac{1}{2}$  turns. Road test and check for "flare" after the transmission has been thoroughly warmed up.

b. If "flare" exists after performing the foregoing operations, remove the rear lower and the front valve body assemblies and also the low range brake assembly. It is not necessary to remove the complete control assembly. Inspect the bottom of the oil pan for an accumulation of flakes of friction material from the high range clutch plates. The spring changes outlined

in subsequent paragraphs may not correct the "flare" if the clutch plates are worn excessively and it may be necessary to replace the plates.

c. Refer to figures 74 and 75 in the Ultramatic Section of the Service Manual and replace the Low Regulator Valve Spring with the 56th Series Spring, part number 6480356, and the Throttle Limit Valve Spring with the 56th Series Spring, part number 470217. The low range brake incorporates two large coil springs. Remove the inner spring. When these spring changes are made, set the throttle linkage and the low brake band adjustment standard as outlined in the Service Manual. If the low range band application is audible on the downshift at approximately 5 mph, back off the adjusting screw an additional  $\frac{1}{4}$  turn.

We suggest that these spring changes and the elimination of the low range brake inner spring be incorporated in every unit whenever the oil pan is removed for any reason. This modification can be made in a short time and will accomplish two things: (1) Insure against premature failure of the high range clutch plates; (2) Provide a smoother and more positive shift.

### 55th SERIES TWIN ULTRAMATIC TRANSMISSION

The linkage adjustment for the 55th Series cars with Twin Ultramatic transmissions is described on pages 52 and 53 in the Ultramatic Section of your Service Manual. NOTE: In the last paragraph which reads "Apply a slight rearward pressure, etc.," change the word rearward to *forward*.

a. In adjusting linkage, two important settings must be made before attempting any other adjustments. See "Adjusting Accelerator Linkage in Service Counselor Vol. 30, No. 5, May 1956.

b. Check and adjust the balance of the linkage as described in the Service Manual. On some 55th and early 56th Series cars, it may be necessary to install the throttle lever extension as shown in Service Counselor Vol. 29, No. 12, Nov. 15, 1955.

c. If "flare" exists after making a standard linkage adjustment, move the cross-shaft adjuster back toward the dash panel  $\frac{1}{16}$ " to  $\frac{3}{32}$ ". The adjuster is indicated by "A" figure 181 in the Ultramatic Section of the Service Manual. Do not exceed  $\frac{3}{32}$ " backward movement which is approximately the diameter of the hole in the extension. This can be checked by removing the cotter pin and checking the end of the rod in relation to the hole in the extension. In addition, torque tighten the low range brake band adjusting screw to 20 ft. lbs. and then back off  $1\frac{1}{2}$  turns.

Road test and check for "flare" after the transmission has been thoroughly warmed up.

d. If "flare" exists after performing the foregoing operations, remove the rear lower and the front valve body assemblies and also the low range brake assembly. It is not necessary to remove the complete control assembly. Inspect the bottom of the oil pan for an accumulation of flakes of friction material from the high range clutch plates. The spring changes outlined in subsequent paragraphs may not correct the "flare" if the clutch plates are worn excessively and it may be necessary to replace the plates.

e. Refer to figures 74 and 75 in the Ultramatic Section of the Service Manual and replace the Low Regulator Valve Spring with the 56th Series Spring, part number 6480356, and the Throttle Limit Valve Spring with the 56th Series Spring, part number 470217. The low range brake incorporates two large coil springs. Remove the inner spring. When these spring changes are made, set the throttle linkage and the low brake band adjustment standard as outlined in the Service Manual. If the low range band application is audible on the downshift at approximately 5 mph, back off the adjusting screw an additional  $\frac{1}{4}$  turn.

We suggest that these spring changes and the elimination of the low range brake inner spring be incorporated in every unit whenever the oil pan is removed for any reason. This modification can be made in a short time and will accomplish two things: (1) Insure against premature failure of the high range clutch plates; (2) Provide a smoother and more positive shift.

### 56th SERIES ULTRAMATIC TRANSMISSION

The linkage adjustments for the 56th Series cars are identical to those described for the 55th Series except that the *throttle lever extension is not used*.

a. Check and adjust the linkage as described in items a-b-c listed for the 55th Series.

b. Early 56th Series transmissions incorporated two large coil springs in the low range brake assembly—an inner spring and an outer spring.

In later production units the inner spring was

eliminated and the design of the control separator plate was changed. These alterations went into effect with transmission serial numbers A-9416, B-6012, C-1143, D-1827. The reason for these changes was to overcome possible occurrences of engine "flare" or "run-away" during the transmission upshift from low range converter to high range converter.

c. Transmissions incorporating the foregoing changes, in some instances, were found to be susceptible to a harsh or noisy low range brake band application on deceleration at approximately 7 MPH. The low range brake inner spring recently was reinstated to overcome the possibility of noisy band application. Engineering tests indicated that the late design separator plate would adequately minimize engine "flare" with the two springs in the low range brake. The inner spring was reinstated in transmissions starting with serial numbers A-13010, B-7140, C-1405, D-3660 and E-1350.

The foregoing data may be summarized as follows:

| Group 1                               | Group 2                             | Group 3                              |
|---------------------------------------|-------------------------------------|--------------------------------------|
| Two Springs and Early Separator Plate | One Spring and Late Separator Plate | Two Springs and Late Separator Plate |
| Prior to:                             | Between Numbers:                    | After Numbers:                       |
| A-9416                                | A-9416—A-13009                      | A-13009                              |
| B-6012                                | B-6012—B-7139                       | B-7139                               |
| C-1143                                | C-1143—C-1404                       | C-1404                               |
| D-1827                                | D-1827—D-3659                       | D-3659                               |
|                                       | E-1001—E-1349                       | E-1349                               |

d. Engine "run-away" or "flare" occasionally might be encountered in Group 1 transmissions. If so, install only the latest design separator plate, part number 6489478. Obviously, if the inner spring has been removed from any of these units to overcome "flare" and the low band application became harsh, the inner spring, part number 470183, should be reinstalled.

e. If harsh band application is encountered in Group 2 transmissions, install the low range brake inner spring, part number 470183.

## Intake Valve Spring Seat

### 56th Series

A few reports have been received of the valve keys pulling through the intake valve spring seats on 56th Series cars. This has only occurred on cars that are driven most of the time at extreme high speeds.

Production has corrected this condition beginning with engine numbers A-14403, AA-1597, B-7056, C-1532, D-7719 by using Carbo-Nitrate hardened spring seats on the intake valves.

The new Carbo-Nitrate hardened intake valve spring seats are available and can be ordered under Part No. 6492077. Part No. 440511 seats will continue to be used on the exhaust valves.

When it is known that an owner drives most of the time at extreme high speeds, we suggest replacing the intake valve spring seats with the new hardened seats.

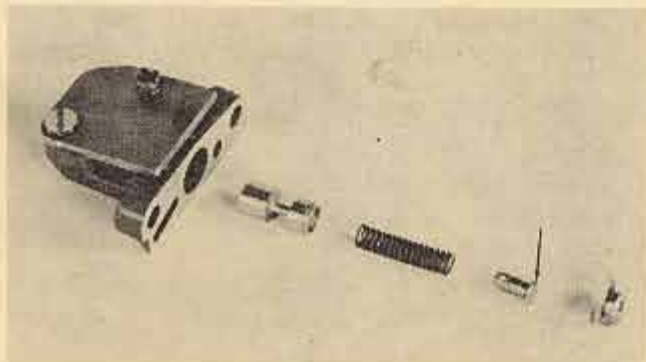
The seats can easily be changed with the valve spring tool J-6204 described in Service Counselor Vol. 29, No. 5, May 1955.

## Earlier Transmission Shift Pattern

### 56th Series Clipper

Occasionally an owner of a 56th Series Clipper may desire the transmission upshifts to take place earlier than is normal. Generally, the upshifts on the Clipper models, having 2.87:1 and 3.07:1 axle ratios, are somewhat later than on the Packard models having a 3.54:1 ratio.

In the event an owner desires an earlier upshift pattern, the control linkage first should be checked and, if necessary, readjusted to standard to make certain that the late shifts are not the result of badly maladjusted linkage.



Earlier upshifts on a Clipper can be obtained by increasing the tension of the high speed governor spring to raise the governor pressure. A suitable means of accomplishing this is shown in the accompanying illustration. Using a Manual Valve Inner Lever to Link Pin, Part No. 450692, slightly grind down the edge of the head (see arrow) so that it seats squarely in the spring seat. Install the pin in the seat end of the spring and reassemble the governor.

Raising the governor pressure in this manner will make the upshifts earlier in the moderate to full throttle range but will have practically no effect at very light throttle. Downshifts will not be affected appreciably except that the maximum "squeeze-off" point will be somewhat lower and less sensitive to throttle travel.

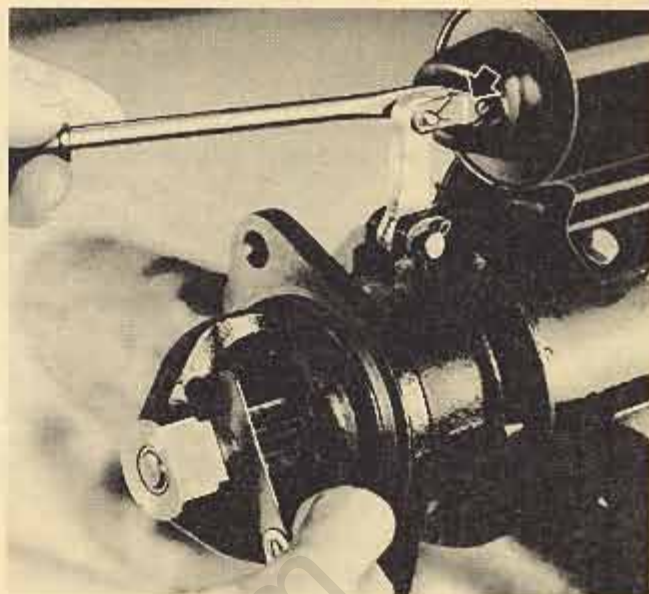
## Starter Motor Pinion Adjustment

### 56th Series

Whenever the starting motor has been disassembled or the solenoid replaced, it is necessary to check the starter motor pinion clearance.

Pinion clearance must be adjusted correctly to obtain switch contact at the proper time in relation to pinion engagement with the flywheel, otherwise excessive wear may occur at the ends of the pinion teeth, flywheel teeth or the solenoid switch will not make contact.

To check Auto-Lite Starter Motor pinion clearance, use a screw driver and press the solenoid plunger inward—NOT THE FORK LEVER—until the plunger bottoms "See illustration". Measure the clearance



between the end of the pinion and the stop on the armature shaft.

The clearance should be  $\frac{3}{32}$  inch, plus  $\frac{1}{32}$  inch or minus  $\frac{1}{64}$  inch. Adjust for proper clearance by screwing the link in or out as required "See arrow".

Adjustment of the Delco Starter Motor pinion clearance is described on page 22, in the Electrical Section of your Service Manual.

## Windshield Wipers

### 56th Series

#### (Correction)

Please make the following corrections in the article "Windshield Wipers" in your Service Counselor Vol. 30, No. 4, April, 1956.

1. Part No. 6485276 is correct for the right arm only, the left arm part number is 6485277.
2. Part No. 6485278 is correct for the right arm only, the left arm part number is 6485279.
3. The new wiper arms and blades listed for the Packard Line also fits the new Packard Executive models 5672-77.

## Push Button Actuator Shaft Screw

### 56th Series

Some difficulty has been experienced in tightening the push button actuator gear set screw which previously was a screw driver slotted type screw.

Production is now using a set screw with a hex drive opening requiring an Allen wrench for installation or removal.

The new hex drive set screw is available and can be ordered under Part No. 6489365 Push Button Transmission Actuator Shaft Screw.

# Torsion Level Manual Control

56th Series

Several requests have been received for a Torsion Level Manual Control that can be easily operated from the instrument panel by the driver to raise or lower the car to prevent dragging the rear bumper on steep inclines such as entering or leaving a side drive, steep grades, etc.

A Manual Control Kit is available and can be ordered under Part No. 6492178. The kit consists of a wiring harness and a three-way switch.

## INSTALLATION INSTRUCTIONS

1. Locate and drill  $\frac{1}{2}$ " hole in bottom left side of instrument panel as shown in figure 1 on the illustration.

2. Attach the two "light green", "pink" and "yellow" wires to the new switch, following the color code as shown in figure 2.

Attach switch to instrument panel with nut and lock washer provided.

3. Remove one of the wires from the compensator "on" and "off" switch and connect this wire to light green wire connector "A" figure 3.

Connect the other light green wire "B" figure 3 to the "on and off" switch.

4. Route wiring harness through dash panel auxiliary wiring grommet, down face of dash and along frame to the compensator control, figure 4.

Attach harness to frame with push-on clips provided.

5. Remove cover from compensator control, figure 4. Remove grommet from cover and insert double yellow, pink wires and connectors through grommet.

Disconnect compensator harness yellow and pink wires from control and connect these two wires into plastic connectors on the new harness. Observe color code. Insert the "double" yellow and pink wire connectors into the proper connectors on the control box.

Reinsert grommet in cover and attach cover on control.

6. Attach knob on switch stem.

To operate, pull switch knob down to lower car. Push switch knob up to raise car.

If switch works opposite, reverse yellow and pink wires on manual control switch.

With manual control switch in center position and compensator switch "on", compensator will level car automatically.

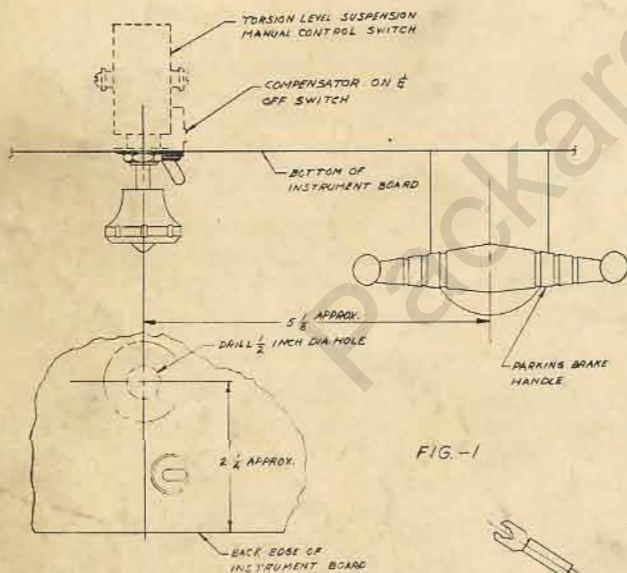


FIG.-1

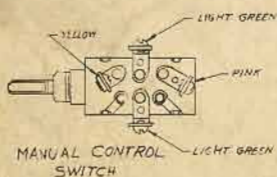


FIG.-2

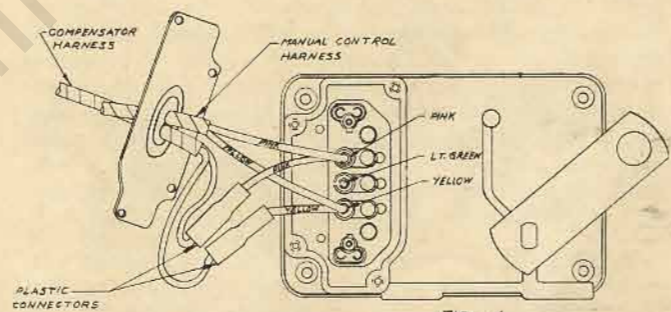


FIG.-4

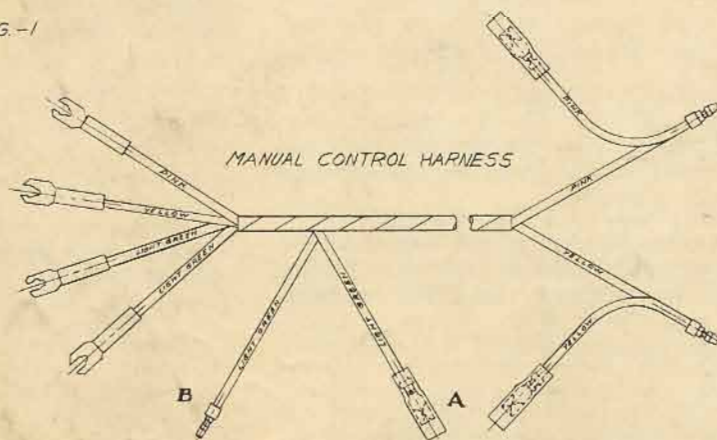


FIG.-3