

# SERVICE Counselor

PACKARD DIVISION

OF

STUDEBAKER-PACKARD CORPORATION



## Counselor

VOL. 30, NO. 3

MARCH, 1956

### Ignition Cable Support Brackets

55th-56th Series

Occasional reports have been received of the V 8 Engine failing to respond smoothly on acceleration particularly in the 20 to 40 M.P.H. speed range. This condition is generally diagnosed as faulty carburetion, but in many cases it is caused by a cross-fire between No. 5 and No. 7 cylinders.

If cross-fire occurs, it will be most noticeable on wide-open throttle acceleration between 20 and 40 M.P.H. or on acceleration in direct drive after coast-down.

Cross-firing may be caused by pinched ignition cable wires between fingers of the cable supports breaking the wire insulation, separation of the dipped rubber from the cable supports or wires running parallel too close to one another for enough distance to permit capacitive coupling.

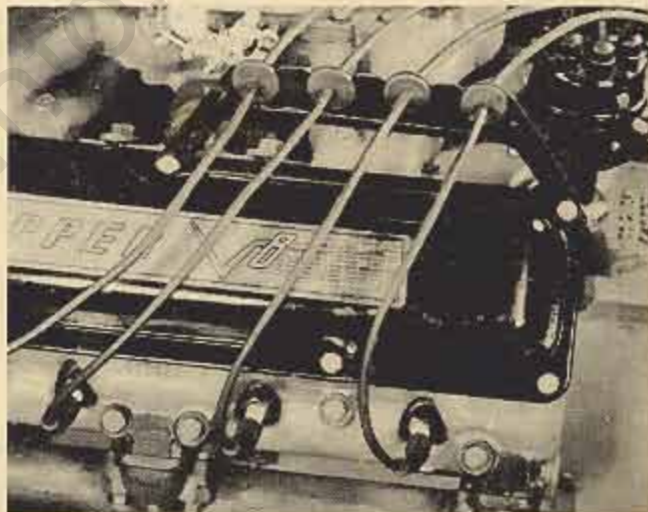
Number 7 cylinder fires 90° crankshaft travel after No. 5 cylinder, cross-firing will cause No. 7 cylinder to fire at the same time No. 5 fires as they both are charged with fuel.

Should cross-firing occur, examine the ignition cables for broken insulation and if found satisfactory, install new ignition cable supports as shown in the illustration. The new supports spread the cables farther apart and the rubber grommets hold the cables at a greater distance from the metal supports.

However, if cable insulation is broken or the condition of the cables is doubtful, we suggest you install support bracket and cable sets.

Installation of the new supports may be accomplished as follows:

1. Lift the ignition cables from between the support fingers on all four supports, remove and discard the cylinder head supports and the supports under the coil.



2. Install the new supports as shown in the illustration by attaching the supports under the center and rear cap screws for the rocker cover. Only one support is used per side.
3. Install the grommets on the cables and position the grommets in the supports leaving the cables at the approximate length shown.
4. It will be necessary to cut off some of the cables to obtain proper length between the support and the distributor cap. Remove the cables one at a time from the distributor cap, remove the cable terminals and cut off the amount of cable as listed and reinstall the terminal and cable in the cap.

Models 5540-5560-5580  
5640-5660-5680

Models 5588-  
5688

No. 1 OK

No. 1 Cut off 1"

No. 2 OK

No. 2 OK

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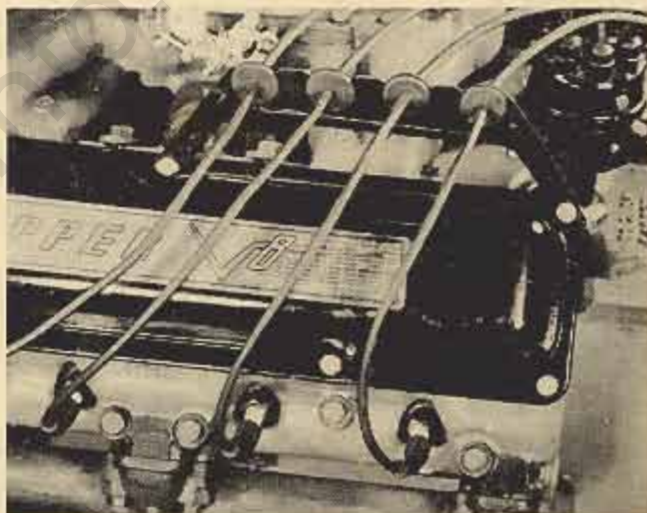
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Models 5540-5560-5580  
5640-5660-5680

Models 5588-  
5688

No. 1 OK

No. 1 Cut off 1"

No. 2 OK

No. 2 OK

Cancelled - replaced by Vol 30 No 5

No. 3 Cut off  $2\frac{1}{2}$ "  
No. 4 OK  
No. 5 Cut off  $5\frac{3}{4}$ "  
No. 6 Cut off  $1\frac{1}{4}$ "  
No. 7 Cut off  $7\frac{3}{4}$ "  
No. 8 Cut off 7"

No. 3 Cut off  $5\frac{1}{2}$ "  
No. 4 OK  
No. 5 Cut off  $5\frac{3}{4}$ "  
No. 6 Cut off  $1\frac{1}{4}$ "  
No. 7 Cut off  $7\frac{3}{4}$ "  
No. 8 Cut off 7"

The new support brackets and cables are available in sets as listed:

- Part No. 6484553 Ignition Bracket and Cable Set  
55th-56th Series  
Part No. 6484555 Ignition Bracket Set 55th-56th  
Series  
Part No. 6484554 Ignition Cable Set 55th-56th  
Series

## Converter Pump Shaft— Oil Pump Rotor Splines

WORN OR STRIPPED  
54th-55th-56th Series

Several reports have been received of worn or stripped splines on the converter pump shaft where it engages with the front oil pump rotor and in some cases, the splines in the rotor were worn or stripped. This condition may occur in 54th Series Gear-Start transmissions, 55th and early 56th Series Ultramatic transmissions.

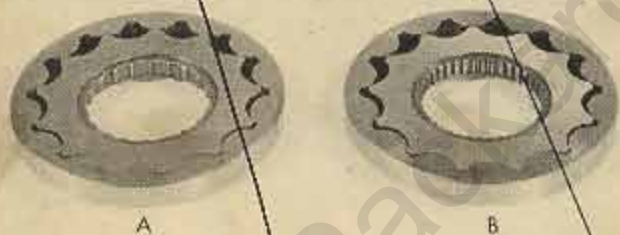


Fig. 1

"A" figure 1, shows the front oil pump rotor having 20 internal splines that is used in 54th Series Gear-Start, 55th and early 56th Series Ultramatic transmissions.

On 54th Series Gear-Start, all 55th and 56th Series Ultramatic transmissions up to transmission serial number A-6481, B-4741, C-1057, oil pressure for the direct drive clutch came out of a passage on the front side of the pump. See "A" figure 2. The oil pressure is directed through a passage in the bell housing, then past the open splines in the rotor to the input shaft.

56th Series transmissions after the above serial numbers have front oil pumps with the direct clutch oil passage in the rear side of the pump. "See arrow figure 3," also note the oil passage hole is not in the front plate. However, these pumps have the 20 tooth

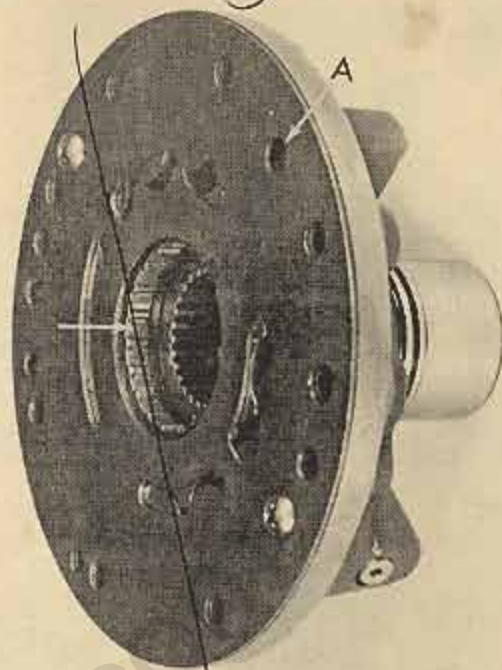


Fig. 2

splined rotors. (40 tooth rotor is shown in the illustration.)

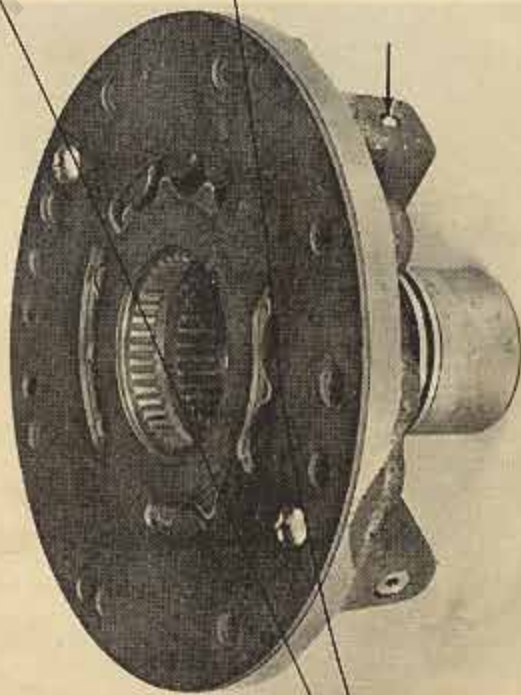


Fig. 3

New rotors with 40 splines and front pump assemblies with 40 spline rotors have been released for service replacement and are listed for your ready reference.

54th SERIES GEAR START TRANSMISSION  
Part No. 450257 Converter Shaft Assembly

Part No. 6484526 Front Pump Assembly  
Part No. 6489367 Front Pump Rotor Assembly

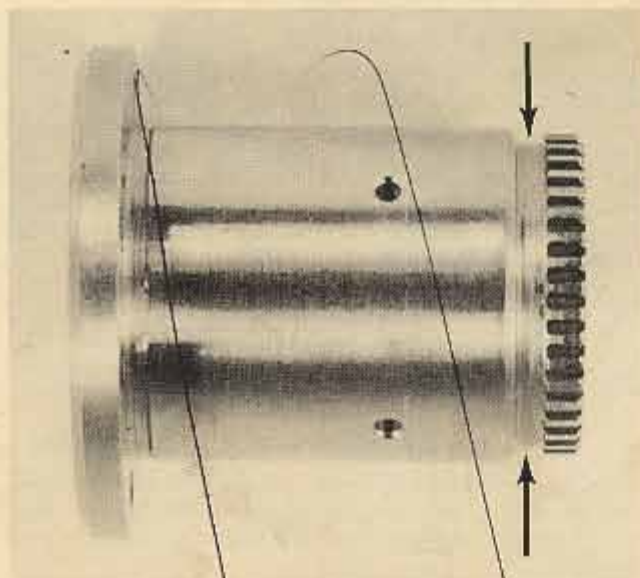


Fig. 4

The pump assembly listed above has the oil passage in the front side of the body and the rotor has 40 splines, therefore it will be necessary to drill six  $\frac{1}{8}$ " holes through the annular groove just back of the splines in the converter shaft to provide an oil passage to the direct drive clutch. "See arrows figure 4." This also applies when replacing the rotor assembly. Be sure to remove burrs from edges of  $\frac{1}{8}$ " holes and internal bushing after drilling.

#### 55th SERIES ULTRAMATIC TRANSMISSIONS

#### 56th SERIES ULTRAMATIC TRANSMISSIONS

(Prior to transmission serial numbers  
A-6481, B-4741, C-1057)

Part No. 450257 Converter Shaft Assembly  
Part No. 6484527 Front Oil Pump Assembly  
Part No. 6489367 Front Oil Pump Rotor Assembly

The information described for the "54th Series Gear-Start Transmission" also applies to the 55th Series, and 56th Series transmissions prior to the above listed serial numbers.

#### 56th SERIES ULTRAMATIC TRANSMISSIONS

(Starting with transmission serial numbers  
A-6481, B-4741, C-1057)

Part No. 450257 Converter Shaft Assembly  
Part No. 6489368 Front Oil Pump Assembly  
Part No. 6489367 Front Oil Pump Rotor Assembly

The  $\frac{1}{8}$ " holes are not required in the above listed Converter Shaft because the direct clutch oil passage is in the rear side of the pump body.

56th Series transmissions starting with serial numbers A-9681, B-6012, C-1143, D-1862 have front oil pumps with the direct clutch passage in the rear and also have the rotors with 40 tooth splines on the internal driving section, "B" figure 1.

#### 56th SERIES ULTRAMATIC TRANSMISSIONS

(Starting with transmission serial numbers  
A-9681, B-6012, C-1143, D-1862)

Part No. 450257 Converter Shaft Assembly  
Part No. 6489368 Front Oil Pump Assembly  
Part No. 6489367 Front Oil Pump Rotor Assembly

Whenever worn or stripped splines are found on one of the units, always replace both units to provide proper spline mesh.

### Ultramatic Transmission Rear Oil Pump Rotor Sets

Rear oil pump rotor assembly sets have been released for service to reduce the cost when servicing the 54th Series "Gear Start," 55th Series "Twin" Ultramatic and 56th Series Ultramatic Transmissions.

The rotor sets are available at the Central Warehouse and can be ordered as follows:

Part No. 450237 Rear Pump Rotor Assembly 1  
54th Series Gear Start  
55th Series Twin Ultramatic  
56th Series Ultramatic

### Front Wheel Bearing Adjustment

#### All Models

Front wheel bearing and spindle failure has been caused in most cases by bearing adjustments being too tight.

When the adjustment is too tight, heat is generated in the bearing causing it to lock destroying the bearing and often causing it to turn and score the spindle.

A new procedure in adjusting front wheel bearings is now in affect in production and should be used in service when preparing new cars for delivery and any time that wheel bearings are adjusted.

1. Tighten nut to 20 ft. lbs.
2. Back off nut until loose.
3. Tighten nut to 4 ft. lbs.
4. Back off nut to first cotter pin hole.
5. Install cotter pin.

### Noisy Hydraulic Tappets

#### 56th Series

Hydraulic tappets that become noisy at idle speed or at speeds of 40 to 50 M.P.H. after the oil gets hot may be caused by a sticking oil pump pressure relief valve.

If the relief valve sticks open at idle speed, gallery oil pressure may drop so low that the tappets may be starved for oil.

Sticking relief valve at higher speeds generally causes the engine oil in the gallery to aerate which also starves the oil supply to the tappets.

In most cases, sticking oil pump relief valves can be corrected by removing the oil pump assembly and polishing the valve with crocus cloth. Using emery cloth, clean off the edges of the openings in the oil pump body at each side of the relief valve bore. Be sure to wash the oil pump thoroughly to clean any burrs or emery that may have been loosened.

Crankcase oil level over full by more than one pint can also induce aeration of the oil which can cause tappet let down. When this occurs, it is usually at car speeds over 40 to 50 M.P.H.

## Push Button Control Bent Actuator Fingers

A few push button actuator assemblies have been returned for various reasons. Upon inspection in most all cases, it was found that one or both end fingers were bent so they would not touch the contact segment.

Bent end fingers is generally caused by actuator overtravel, which permits the finger to drop down at the end of the segment therefore, bending a finger when the actuator is operated. Overtravel may be caused by improper electrical testing or may occur during installation of the unit.

Indications of bent fingers:

- a. Complete failure of unit.
- b. Actuator will not operate in all button positions.
- c. Manual valve in transmission not positioning properly in its detent as the sector will not stop in its proper position.
- d. Engine starter will operate in "P" or "N" but push buttons will not operate the actuator.
- e. The actuator will operate in only one position such as reverse, engine will not stop and the park relay will "buzz" with the ignition switch turned off unless the "P" button is pushed.

If bent fingers are indicated, the actuator should be removed from the transmission. It may be necessary to disconnect the wires from the pressure switch to drop the actuator down far enough to remove the cover plate otherwise do not disconnect it electrically.

Remove the actuator cover and finger assembly. If bent fingers are found, they can be straightened by holding the upper portion of the finger with pliers and straightening the lower end with long nose pliers. Be sure the finger has the same contour as the other fingers and has not been weakened after being bent and straightened, also check for burned fingers.

Place the contact finger assembly in position with the fingers above the contact segment. Carefully slide the assembly toward the contact segment until the fingers are deflected only enough to allow alignment of the screw holes. Install and tighten the three screws evenly.

Connect the two wires to the pressure switch and operate the actuator with all push buttons with actuator cover off to see if it operates properly.

Reinstall the unit on the transmission as described on pages 117 and 118 in the Ultramatic Section of your Service Manual. Be sure to adjust the unit in the reverse detent as described.

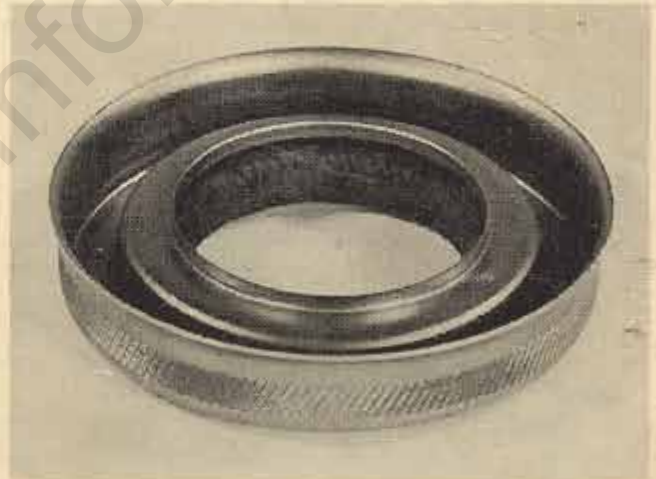
**IMPORTANT:** In connecting wires to the shift relay be sure to connect "light gauge" orange with black tracer wire to "L" or #4 terminal and pink wire to "M" or #6 terminal. Connect "heavy gauge" gray wire to "D" or #1 terminal and brown wire to "F" or #3 terminal. If any of these wires are reversed, the actuator will overtravel when pushing the buttons. (Refer to wiring diagram—Service Counselor Vol. 30, No. 1, January 1956.)

## Engine Crankshaft Front Oil Seals

### 55th-56th Series

A few reports have been received of the front oil seal loosening and turning in the chain cover making it necessary to replace both the seal and cover to stop the leak.

Production is now using a seal with the outer diameter of the retainer knurled to prevent the seal from turning. "See illustration."



The new seal with the knurled retainer will press tightly into the cover even in cases where an old seal has turned.

When installing a new front oil seal, it is important that the instructions be followed as described on page 27 in the "Engine Section" of your Service Manual.

The new seal assembly can be ordered under Part No. 6489724.

## Throttle Linkage Ball Joints

### 55th-56th Series

The ball joints at the ends of the throttle linkage can be damaged to the extent that they may fall off if the lock nuts at the transmission throttle rod adjuster are improperly tightened.

Two wrenches should be used in tightening the lock nuts to prevent undue strain on the ball joints.