PACKARD
Service Counselor
PARTS ★ ACCESSORIES ★ PRODUCT ★ PROFITS
INSTITUTIONAL PROMOTIONAL
APPROVED Packard SERVICE

VOL. 20, NO. 6 JUNE, 1946

SYNTHETIC VERSUS NATURAL RUBBER TIRES

While synthetic rubber tires lack some of the desirable features of natural rubber, they are in some respects superior to the pre-war tires made of natural rubber.

The bruise resisting qualities of synthetic tires with rayon cord are much greater than pre-war rubber tires with cotton cord. These synthetic tires are also lighter, thus reducing the unsprung weight.

Some of the features of synthetic tires react adversely upon the performance of the car. This reaction is noticed in lower gasoline mileage, steering shock, harsh ride and greater tendency toward skidding on slippery roads during winter driving.

These complaints are due to:

1. An increase in hysteresis or internal friction in synthetic rubber
2. Less resiliency of synthetic rubber
3. Poorer traction of synthetic rubber on ice or snow
4. Difficulty in maintaining tire balance during manufacture.

Synthetic tires have higher internal friction than natural rubber and consequently, generate more internal heat. If synthetic tires are inflated when cold, the pressure increase (due to expansion after the car has been driven) will be greater than that experienced with natural rubber. The results of this increase are: to cause the shock of road irregularities to be transmitted to the steering wheel, and a decided harshness in the low speed or "boulevard" ride.

Tires should be inflated to the specified pressure when cold and should not be deflated to cold pressure after they have become heated. Tires should be kept at the proper pressure since under-inflation will cause an increase in tire heat and over-inflation will cause ride harshness even when cold.

The lower resilience of synthetic rubber decreases the ability of the tires to absorb or cushion the impact experienced when traveling on "washboard" roads or striking expansion strips on concrete roads.

Lack of resiliency and high internal friction in the synthetic rubber causes an increase in tire drag over that of a natural rubber tire of corresponding size. This reacts on fuel economy by increasing fuel consumption.

Another factor contributing to poor riding and steering is the inability of tire manufacturers to maintain close limits of balance. When a serious complaint of either ride or steering is received, it would be advisable to check the balance of wheel and tire assemblies.

Before removing a tire from a wheel check for the red dot signifying the light point of the tire, with which the valve stem should be aligned. If this mark has been scuffed off or is not plain, mark the tire in line with the valve stem so the tire can be reinstalled exactly as removed.

Thus it will be seen that proper balance and inflation will alleviate a great many of the troubles encountered when using synthetic tires.

INSTALLING REPLACEMENT ENGINES PRIOR TO 16th SERIES

We have had numerous requests for information as to the alterations necessary to permit installation of the Six and Eight replacement engines in cars prior to the 1938, 16th Series.

These engines can be installed in the earlier cars, provided certain alterations are made to adapt the accessory and control connections. When making such an installation, additional time and material is required in addition to that for installation in the 16th Series and later cars.

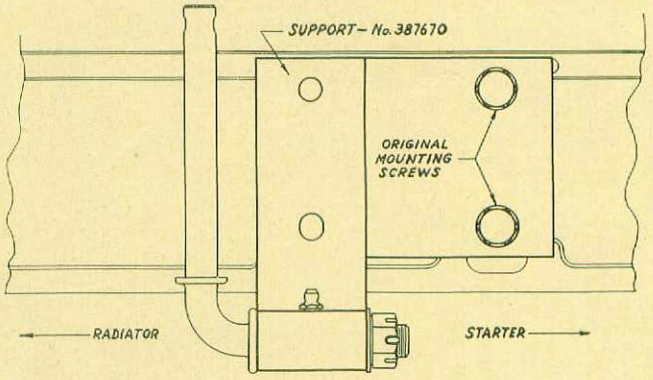
The principal changes to be made and the time and material required, in addition to the *12 hrs.* for Engine Remove and Replace, and the *2.5 hrs.* for Transferring of Accessories, are listed below. Some other minor alterations, gaskets, and attaching parts may be required. These of course should be supplied as needed.

	Six	Eight
Flywheel Housing Install flywheel housing from old engine on new engine to provide proper clutch shifter relay lever pivot.	1.5	1.5
Radiator Outlet to Water Pump Elbow Make and install adapter for elbow. Cut old elbow in half and weld on ½ new elbow, Part Number 379080.	0.8	0.8
Cylinder Head Water Outlet Transfer outlet from old engine to new engine.	0.3	0.3
Fuel Pump Furnish and install new 21st Series pump to fit mounting pad. Pump Part Number, 364678 Six; 348092 Eight; Cap Screws 324791, two required; Bushings 324771, two required; Insulator Washer 324772, two required; Fuel Pump Gasket 327807.	no additional time required	
Windshield Wiper Vacuum Line Make up and install new vacuum line to connect windshield wiper to manifold.	1.0	1.0
Fan Pulley Install new 21st Series pulley, Part Number 362028, instead of old one which will not pilot on hub.	no additional time required	
Fan Install new 21st Series fan, Part Number 348875, to replace old one which will not fit on hub. Ends of new fan blades must be cut off to give clearance at sides.	1.0	1.0
Fan Belt Install new fan belt, part number 320517, to fit the new larger pulley.	no additional time required	
Distributor Install new 21st Series distributor, Part Number 362766 Autolite, 364491 Delco, Six 377742 Eight. Mounting bracket on old distributor will not fit pad on crankcase.	no additional time required	
Intake and Exhaust Manifold Drill and tap for two additional exhaust manifold end studs, and remove two long studs. Install four studs, Part Number 300171.	1.0-Six only	

In the case of both the fuel pump and distributor, it is thought the owner will be better served at little if any additional cost, by installing new units rather than over-hauling the old units and altering them to fit.

1951 CLIPPER INSTALLATION

When installing replacement eight cylinder engine in the 1941 Clipper (1951) chassis, it



is necessary to use the special Steering Column Gear Shift Lever Support Assembly, No. 387670, which is now available. This part

is necessary to bring the idler lever shaft into the correct relation with the steering column gear shifter levers. Bolt the special support to the cylinder block with the idler lever shaft bearing end toward the radiator.

Remove the idler lever shaft from the old support and install it in the new support in the reverse position. In the original installation the shaft was on the rear or starter motor side of the support. In the new installation, it is on the front or the radiator side.

If the car is equipped with an Electromatic clutch it will be necessary to make a bracket as described in Parts and Accessory Bulletin No. 45P-8 dated December 26, 1945. This bracket will provide a mounting in the proper location for the Electromatic clutch power cylinder bracket.

REMOVING WHEEL SUPPORT BUSHING BOLT Non-Clipper

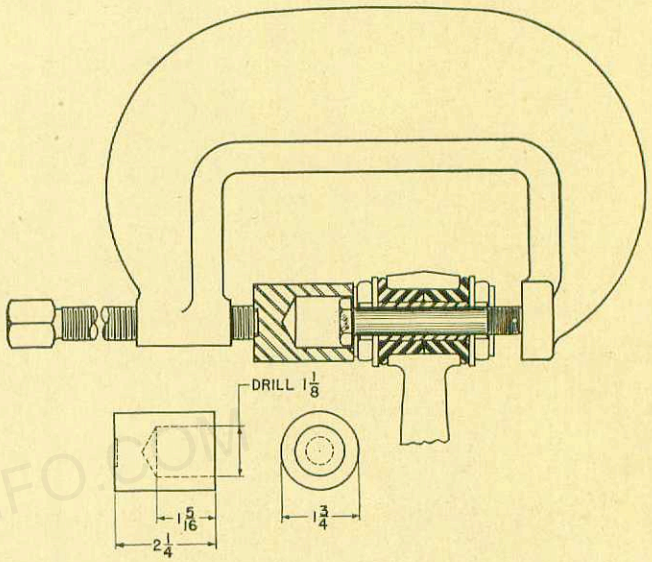
One of the most difficult jobs on the Packard Safe-T-Flex front suspension on Non-Clipper models is the removal of the wheel support upper bushing bolt.

This bolt passes through the wheel support upper bushing and retains the camber pilots and the shock absorber arm to the wheel support. Since the bolt passes through a steel sleeve in the bushing any rust formation at this point makes removal of the bolt extremely difficult.

To aid in the removal of this bolt a heavy duty C-clamp and an adapter have been used with very good results by some of our Service Departments.

The C-clamp is an extremely heavy drop forging available in two sizes that are suitable for this job. A Vulcan No. 6 with a 6-1/2 inch capacity and No. 8 with 8-1/2 inch capacity. They may be purchased from the J. H. Williams & Co., 400 Vulcan St., Buffalo 7, N. Y. at $10.00 for the No. 6 and $14.00 for the No. 8.

The adapter to be used must be made locally from 1-3/4 inch diameter cold rolled bar stock to the dimensions shown in the accompanying sketch, when the No. 6 clamp is used, and two inches longer (4-1/4 inch) when the No. 8 clamp is used.



When using the clamp, place the adapter over the head of the bolt, place the set screw of the clamp against the adapter and the clamp seat against the threaded end of the bolt. Apply penetrating oil to the bolt and tighten the clamp with a long handled wrench.

It is sometimes necessary to strike the head of the clamp screw a sharp blow with a hammer to break the bolt loose. Then press out with the clamp screw.

"QUIZ TEST"

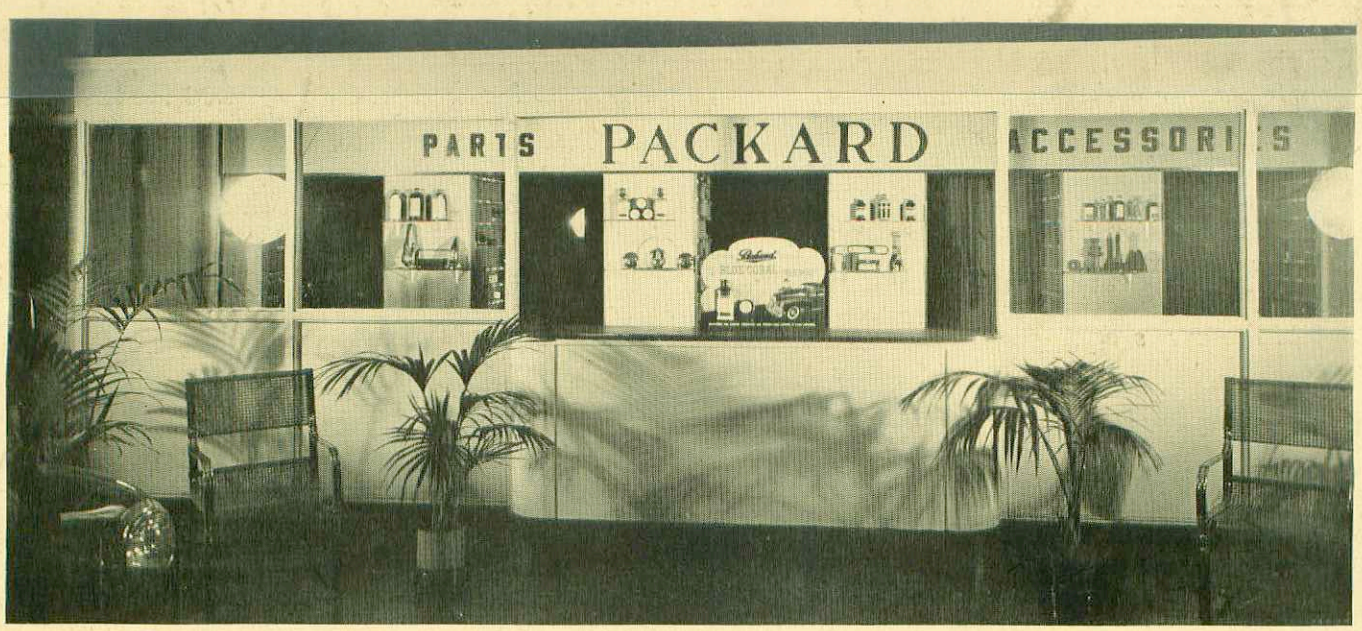
HOW MANY DO YOU KNOW— without looking at the answers?

1. The cause of the rattle or noise commonly known as clutch or "transmission jazz", which occurs in the neighborhood of 20 M.P.H., actually originates: (a) In the clutch. ☐ (b) In the transmission. ☐ (c) In the Econo-drive. ☐ (d) In the engine. ☐

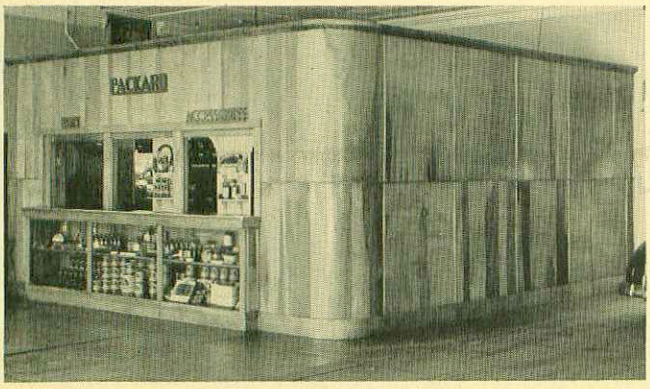
2. The condition that is commonly known as "front wheel tramp" is caused by:
   (a) Too much toe-in of the front wheels. ☐ (b) Caster angle too small. ☐
   (c) Static unbalance of wheels and tires. ☐ (d) Caster angle too great. ☐
   (e) Camber angle too small. ☐

For Answers, See Back Page.

RECENT PPCP INSTALLATIONS



WILKINSBURG, PA.



ROANOKE, VA.

EASTON, MD.

RHD and LHD

Dealer parts men when ordering parts should pay patricular attention to the initials in the Parts List, "RHD and LHD".

Cars built and sold for use in the United States and certain foreign countries are designated as "LHD" or left hand drive. For certain foreign countries the right hand drive "RHD" is used.

In the Parts Book all parts marked "LHD" or with neither set of initials are for left hand drive cars.

All parts used exclusively for right hand drive cars are marked "RHD".

Don't order "RHD" parts unless they are actually needed for right hand drive cars.

ANSWERS TO QUIZ

1. ANSWER: (d). The condition actually originates in the engine. It is caused by a natural torsional vibration period of the engine. The vibration causes a rattle at splines and gear teeth in the transmission. On cars equipped with Econo-drive the noise is more noticeable because there are more gears and splines with clearances to rattle. See Service Counselor 3-44.

2. ANSWER: (c). The condition described is caused by *uneven* centrifugal force produced by static *unbalance* of the wheels and tires.

In cases of severe front wheel tramp, the front tires actually leave the pavement, while in mild cases the condition is the same as if the front tires were rapidly deflated and then inflated. The condition encountered is very similar to a condition which would be evident if the front wheels were "egg shaped".

PRINTED IN U. S. A.