

# SERVICE MANUAL

## SECTION XX LUBRICATION



Packard Motor Car Company  
Detroit 32, Michigan

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# SECTION XX

## LUBRICATION

The 24th Series Packard is engineered and manufactured combining modern design, finest material, and the most precise workmanship available. High standards of quality and precision are established by Packard engineers. The moving parts are manufactured and fitted so precisely that they are able to withstand the loads and speeds of today's driving conditions for long periods of operation. The high standard of performance of the Packard car puts exacting demands on the lubrication methods and materials. Therefore, it is imperative that the Packard serviceman adheres to the factory lubrication methods and specifications, so that the Packard owner may obtain the safety, performance, ease of handling, and comfort built into his Packard car.

### Types of Engine Oil

Different types of engine oil are made to meet the various needs of everyday driving. These are defined as follows:

The *Regular Type* designates engine oil generally suitable for use in internal combustion engines under moderate operating conditions.

The *Premium Type* designates engine oil having the oxidation stability and bearing corrosion preventive properties necessary to make it generally suitable for use in internal combustion engines where operating conditions are more severe than regular duty.

Both types of oil are available in several grades.

### Selecting Engine Oil

During the first 500 miles, use the oil that was in the engine when the car was delivered. If it is necessary to add oil during this period, use nothing heavier than 10-W oil in cold weather and SAE 20 or 20-W in warm weather.

After the first 500 miles, oil should be selected to meet different driving and climatic conditions.

During warm weather, use SAE 20 engine oil; however, if the car is regularly driven at high speeds, or if

the average daylight temperature is above 90° F, use SAE 30 oil.

The "Oil Grade and Temperature Chart" lists the oil grades to use during cold weather. If there is any doubt as to which grade of oil to use, consult the chart below:

### Engine Oil Level

The engine oil level should be checked every time gasoline is purchased. Two level marks are stamped on the oil stick, one marked "Low" and the other marked "Full." The oil level should be maintained between these marks. Never permit the oil level to get below the "Low" mark; and, when necessary, add only enough oil to bring the level up to the "Full" mark. Always check the oil level before starting on a long drive.

### Engine Oil Additives

"Break-in" oils or compounds are unnecessary. They should not be used under any circumstances unless the supplier can furnish satisfactory proof that they contain no harmful ingredients.

### Changing Engine Oil

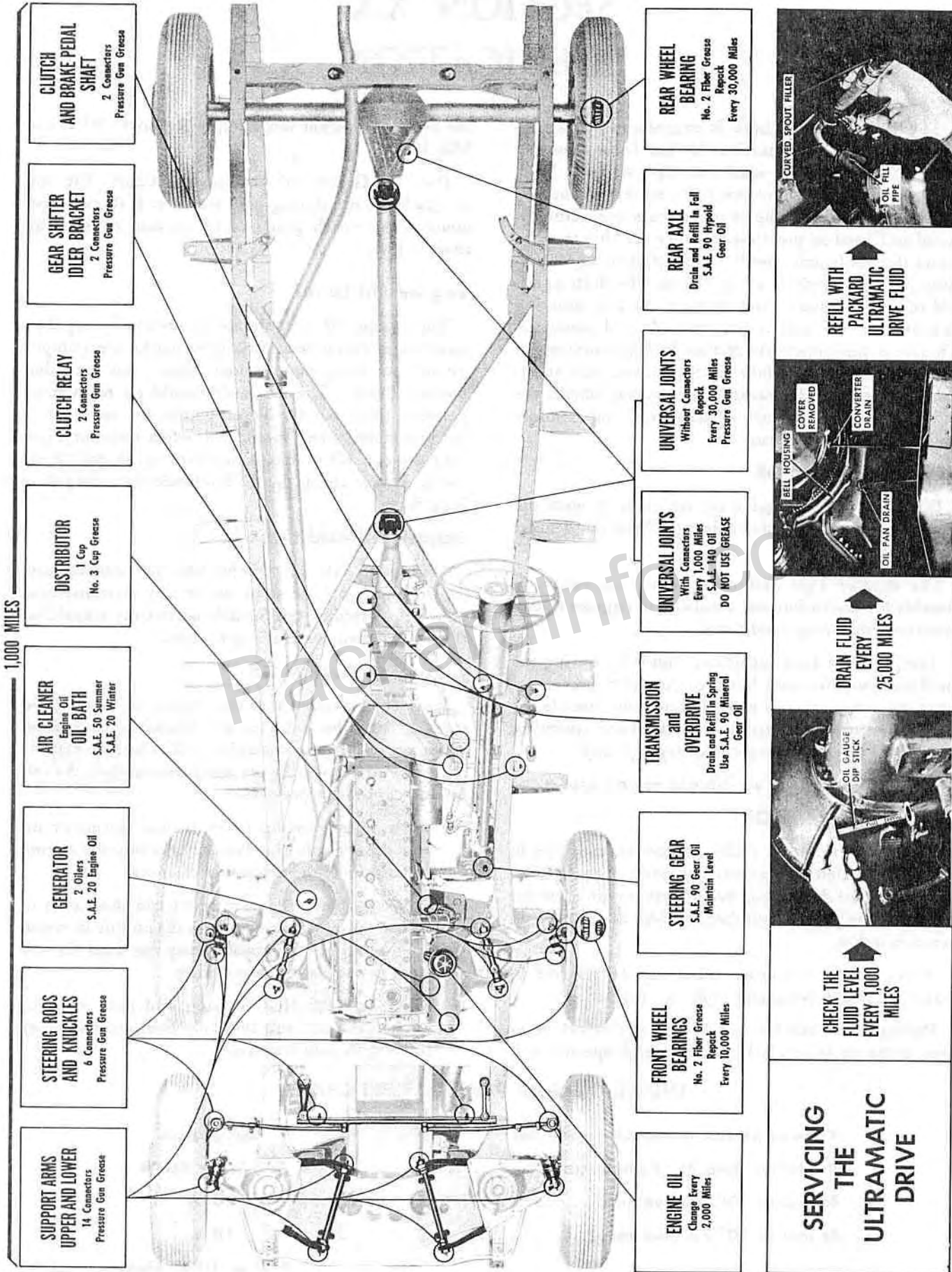
It is recommended that the engine oil be changed every 2,000 miles if the car is operated under normal driving and climatic conditions. However, it may be necessary to change the oil more frequently if the following conditions prevail.

- (a) **Dust:** When driving through dust storms or on very dusty roads, the dust may get into the engine oil in spite of the engine air cleaners.
- (b) **Cold Weather:** Frequent starts and short runs in cold weather does not permit the engine to warm up thoroughly, and water may get into the oil from condensation of moisture.
- (c) **Hard Driving:** Hard driving and heat tends to thicken the oil, and this may interfere with easy starting in cold weather.

### OIL GRADE AND TEMPERATURE CHART

If the expected temperature will be:	Use grade:
Not lower than 32° F above zero .....	SAE 20 or 20-W
As low as 10° F above zero.....	20-W
As low as 10° F below zero.....	10-W
Below 10° F below zero .....	5-W or 10-W Plus 10% Kerosene

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The 24th Series Packard Chassis Lubrication Chart

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## Air Cleaners

The mesh in the combination oil filler cap and air cleaner should be cleaned and re-oiled each time the engine oil is changed. Clean the mesh by swishing the cap in gasoline; shake dry, and then dip it in clean engine oil.

The mesh in vertical or upright carburetor air cleaners also should be cleaned and re-oiled at each engine oil change. After the mesh has been cleaned in gasoline, re-oil it with engine oil, using an oil can.

The heavy duty oil bath cleaner oil should be changed and the oil reservoir cleaned every 5,000 miles or oftener if driving conditions warrant. When refilling, use approximately one pint of SAE 50 engine oil in warm weather, and SAE 20 in cold weather.

## Engine Oil Filter

The oil filter used on Packard cars is the by-pass replaceable element type. It is connected in such a manner that clogging of the filter element will not stop the flow of the oil to the engine bearings; however, when the filter element becomes clogged, it fails to filter the oil. It is recommended that the oil filter element be replaced by a new one every 8,000 miles to coincide with the engine oil change. However, under extreme dusty areas or under hard driving conditions, it may be advisable to change the filter element oftener or whenever the oil appears to be excessively dirty between regular oil changes.

## 1,000 MILE OR 30 DAY LUBRICATION

Packard cars should be lubricated every 1,000 miles or 30 days, whichever occurs first. The transmission and overdrive lubricant level, as well as the rear axle lubricant level, should be checked at every 1,000 mile lubrication and lubricant added if necessary. The Ultramatic Drive fluid level should be checked and fluid added if necessary. There are other operations such as: checking and adding water to the battery, and checking and adding water to the cooling system, which should be performed at each 1,000 mile lubrication.

## Front Suspension Upper Support Arms

Use a viscous chassis lubricant. Eight lubrication fittings are used, four on each side of the chassis; one for each vertical support pivot pin bushing, front and rear, and one for each support arm pivot bar bushing, front and rear.

## Front Suspension Lower Support Arms

Use a viscous chassis lubricant. Six lubrication fittings are used, three on each side of the chassis, one for the vertical support lower pivot pin bushing, one

for the front, and one for the rear lower support arm pivot bar bushings.

## Steering Knuckle Pins

Use a viscous chassis lubricant. Two lubrication fittings are used: one on each side of the chassis in the upper plug in the steering knuckle.

## Steering Connecting Rod

Use a viscous chassis lubricant. Two lubrication fittings are used: one near each end of the connecting rod.

## Steering Cross Tube Ends

Use a viscous chassis lubricant. Two lubrication fittings are used: one in each cross tube end ball socket assembly.

## Clutch and Brake Pedals

Use a viscous chassis lubricant. One lubrication fitting is used on early production models, located on the outer end of the pedal shaft. Late production models have two lubrication fittings.

## Clutch Relay Torque Shaft

Lubricate the felt washers with a few drops of engine oil.

## Transmission Gear Shift Relay Levers

On Uni-mesh transmissions, use a viscous chassis lubricant. Two fittings are used, one at each relay lever. On Ultramatic Drive equipped cars, lubricate the relay lever pivot with engine oil.

## Hand Brake, Gearshift, and Pedal Linkage

Use engine oil. Lubricate the clevis pins and rod ends.

## Distributor

Turn the grease cup one-half turn. Repack the grease cup when empty with number 3 cup grease.

## Generator

Use light engine oil. One oil cup at the front end, and an oil hole with a cover at the rear end. Two to five drops of oil in each.

## Starting Motor

Use light engine oil. Two to five drops in the oiler cup at the front end.

## Steering Gear

Use SAE 90 gear oil. Remove the filler plug, and inspect the lubricant level. Add necessary lubricant to bring it up to the proper level.

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## Transmission and Overdrive

Use SAE 90 gear oil. Remove the filler plug to check the level. Add lubricant if necessary to bring it up to the proper level.

## Rear Axle

Use SAE 90 Hypoid Gear Lubricant. Remove the filler plug to check the lubricant level. Add lubricant if necessary to bring it up to the proper level.

## Ultramatic Drive

Use Packard Ultramatic Drive Fluid or any type "A" automatic transmission fluid which has an "AQ" or "ATF" designation. Check the fluid level immediately after operating the engine. Add fluid if necessary to bring it up to the proper level.

## Universal Joints

On Uni-mesh transmission equipped cars which are equipped with *Mechanics* universal joints having a fitting in each cross, the cars should be lubricated with SAE 140 oil every 1,000 miles, using a pressure gun to force the oil into the joints. All other type universal joints are the sealed type and require repacking with universal joint grease every 30,000 miles.

## 2,000 MILE OR 60 DAY LUBRICATION

### Engine Oil

Drain the engine crankcase and refill with the proper grade of engine oil.

### Engine Crankcase Filler Cap Filter

Whenever the engine crankcase oil is changed, the mesh in the oil filler cap should be cleaned with gasoline and re-oiled with clean engine oil.

## 5,000 MILES OR SIX MONTHS

### Carburetor Air Cleaner

Clean the air cleaner filtering element with clean gasoline and re-oil with clean engine oil. On the oil bath type air cleaners, clean the oil reservoir and refill to the "oil level mark" with clean engine oil. Use SAE 50 in the summer, and SAE 20 in the winter. This operation may be performed oftener if the driving conditions require it.

## 10,000 MILES OR ONE YEAR

### Front Wheel Bearings

Remove the front wheel hubs. Remove the bearings and oil seal. Clean and repack the bearings with number 2 short fiber wheel bearing grease, working the grease in and around the rollers. Coat the inside of the hub with 2½ ounces of the wheel bearing

grease. Install the bearings and oil seal. Use a new oil seal if necessary. Install the hub and adjust the wheel bearings. Do *not* put any lubricant in the hub dust cap.

## Body and Bonnet

The door hinges, door locks, striker plates, dovetails, lock rotors, and bonnet hinges and lock should be lubricated with "Lubriplate." Lubricate the luggage compartment lid lock and hinges with "Lubriplate." Other hard-to-get-at points may be lubricated with dripless penetrating oil.

## Accelerator and Throttle Linkage

The accelerator and throttle valve linkage connections should be washed with gasoline and relubricated with Lubriplate.

## Speedometer

Two or three drops of 10-W engine oil should be installed in the oil hole in the cable flange at the back of the speedometer.

## Rear Axle

Use SAE 90 hypoid lubricant. The rear axle should be drained each fall and refilled with SAE 90 hypoid lubricant to the proper level.

## Transmission and Overdrive

Use SAE 90 mineral gear oil. Drain the transmission and overdrive each spring, and refill to the proper level.

If difficulty is experienced during extremely cold weather, use SAE 80 mineral gear oil.

## 25,000 MILES

### Ultramatic Drive

Use Packard Ultramatic Drive Fluid or any "A" type automatic transmission fluid. Drain and refill to proper level every 25,000 miles.

## 30,000 MILES

### Rear Wheel Bearings

Remove the axle shafts and bearings. Clean the bearings and cups. Repack the bearings with number two short fiber wheel bearing grease, working the grease in and around the rollers. Install ½ ounce wheel bearing grease in the cups. Install new oil seals. Install the axle shafts and adjust the end play. Install the brake supports and rear wheel hubs and drums.

## Propeller Shaft Universal Joints

Use universal joint lubricant. On cross type joints,

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disassemble, clean, and repack with fiber universal joint lubricant. Use new cross bearing oil seals and lock rings. On the ball-trunnion type joint, remove the front dust cover, clean out the old lubricant, and repack with 2 ounces of heavy fiber universal joint lubricant. Do *not* force lubricant into the universal joint boot (outer dust cover).

**Caution:** Do not lubricate the rear springs, rubber mountings, or insulators under any circumstances.

## Speedometer Cable

Disconnect the cable at the speedometer. Remove the speedometer inner drive cable. Coat the inner cable with chassis lubricant and install the cable.

## Clutch Release Bearing

The clutch release bearing is packed with a lifetime supply of lubricant at the time of manufacture, and requires no further attention. Should a clutch release bearing become noisy, it should be replaced with a new bearing.

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