PARTS • ACCESSORIES • PRODUCT

SERVICE Counselor

PACKARD MOTOR CAR COMPANY

VOL. 28, NO. 5 MAY, 1954

Differential Carrier Replacement

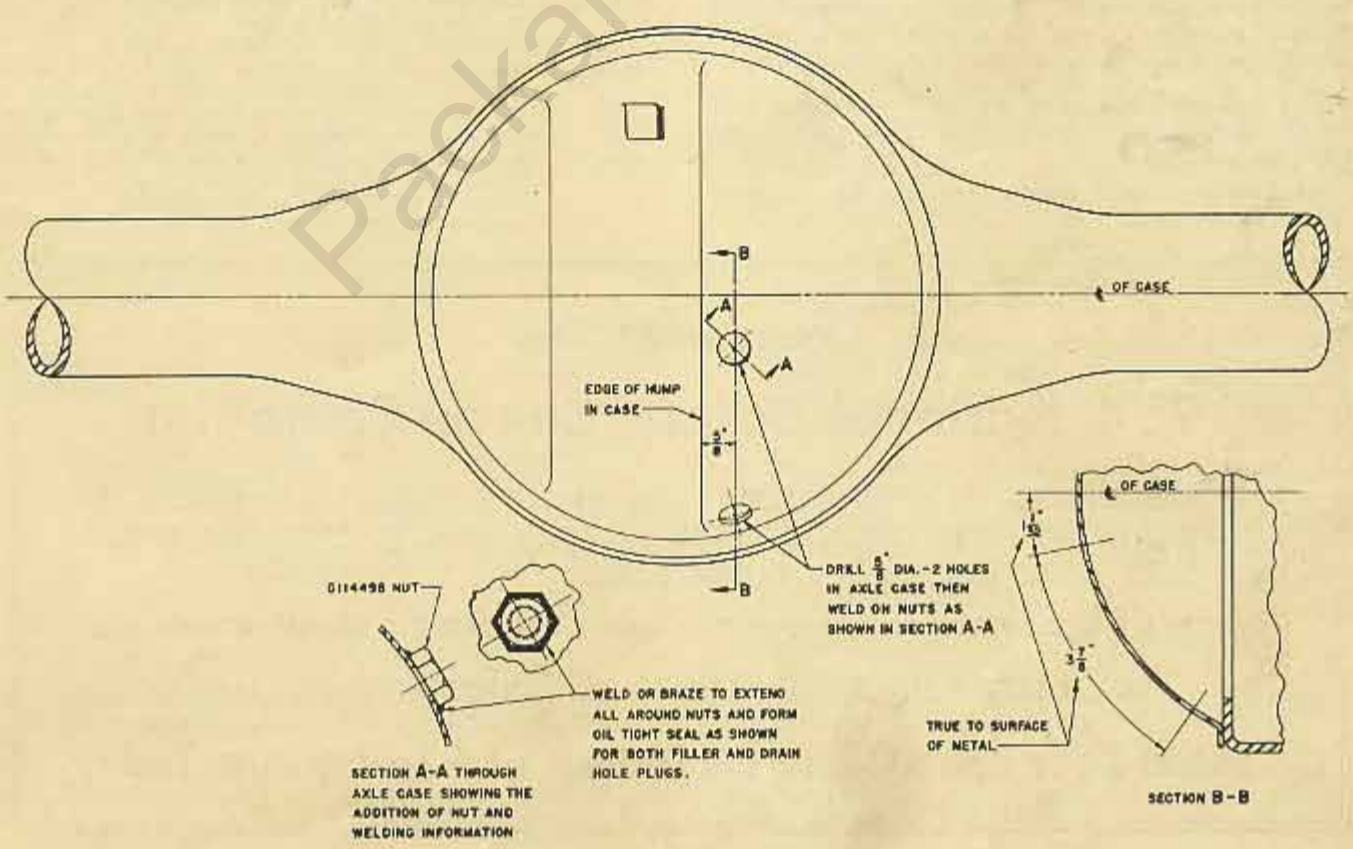
24th-25th Series

The newly designed 54th Series differential carrier which is heavier and stronger in every respect is now available as service replacement for the 24th and 25th Series cars except the 2413, 2513 Models.

When making this installation, it will be necessary to install the drain and filler grease plugs in the rear axle case welded on cover.

The "Illustration" is a rear view of the rear axle case and shows the measurements and instructions for drilling and installing the drain and filler plug nuts. Follow the instructions as outlined.

1. After the carrier assembly and axle shafts have been removed, wash out the rear axle case thoroughly.



Using a chalk line or flexible scale, mark a center line across the exact center of the rear axle case as shown. Measure $\frac{5}{8}$" from inner edge of the ring gear clearance hump and mark a vertical line on the cover as shown.

2. "SECTION B-B". Measure down $1\frac{1}{32}$" from horizontal center line and center punch this location on the vertical line for the filler plug. Measure down $3\frac{7}{8}$" from filler plug punch mark and center punch this location on the vertical line for the drain plug.

   Drill $\frac{5}{8}$" holes at the two center punch locations.

3. Center the two nuts No. G114498 directly over the $\frac{5}{8}$" holes and clamp them in place to the case with $\frac{5}{16}$" bolts, washers and nuts.

4. Weld or braze all around each nut to form an oil tight seal as shown on the illustration. Clean off the face of the nut so that the gasket will seal properly. Clean out the nut threads with a $\frac{5}{8}$—18 thread tap so that the plugs will screw in without binding.

   Wash out the case thoroughly to remove all chips and dirt.

When installing the new carrier assembly in the rear axle case, it is important that the No. 334889 carrier gasket be used along with the new sealing ring. The gasket acts as a shim so as to obtain perfect axle shaft to side gear alignment. Install the nine carrier to bolt seals after the old type carrier gasket is in place.

Install the spacers No. 446722 (one each) between the ends of the rear axle case and the brake backing plate to compensate for the larger axle shaft thrust block in the differential. Adjust the axle shaft end play and complete the carrier installation as described in the Rear Axle Section of the Service Manual.

The kits are available at the parts warehouse and consist of a carrier assembly and adaptor kit under one part number.

Listed for your ready reference are the kit numbers for the various gear ratios:

Part No.	*DESCRIPTION*
436829	Rear axle differential carrier assembly and adapter kit (3.9 to 1) (Models 2401-02-2501-02-31) (Std. trans. & O.D. with Spicer U Joint)
436830	Rear axle differential carrier assembly and adapter kit (4.1 to 1) (Models 2401-02-2501-02-31) (Std. trans. & O.D. with Spicer U Joint)
436831	Rear axle differential carrier assembly and adapter kit (3.54 to 1) (Models 2401 Ultra—Bodies 2462-65-92-95-98 2501 Ultra. & 2501 Ultra. with 300 Eng and 2½" Universal Products Shaft)
436832	Rear axle differential carrier assembly and adapter kit (3.54 to 1) (Models 2401 Ultra—Bodies 2467-69, 2401 Ultra with 300 Eng., 2402-06 Ultra, 2501 Ultra with 300 Eng. and 2¾" Universal Products Shaft, 2502-06-31 Ultra.)

Kit consists of:		*No. Required*
446722	Rear axle shaft bearing spacer	2
426205	Rear axle case drain & filler plugs	2
433248	Rear axle case drain & filler plug gaskets	2
G114498	Rear axle case drain & filler plug nuts	2
334889	Rear axle differential carrier to case gasket	1
446724	Brake support plate (rear) screw	8
434692	Rear axle differential carrier to case bolt seal	9
443649	Rear axle differential carrier to axle case seal	1

For your information we are listing the carrier assembly numbers used in the above kits, the carrier and cap assembly, and the side gear numbers.

The differential side gears are designed to accommodate the 24th and 25th Series axle shaft splines. The carrier and cap assembly is slightly different because the pedestal set screws are not used. Otherwise, the rest of the carrier assembly is the same as used in the 54th Series cars.

Part No.	*DESCRIPTION*
436824	Rear axle differential carrier assembly (3.9 to 1) Models 2401-02-2501-02-31 Std. trans. or O.D. with Spicer U. Joints.
436825	Rear axle differential carrier assembly (4.1 to 1) Models 2401-02-2501-02-31 Std. trans. or O.D. with Spicer U. Joints.
436826	Rear axle differential carrier assembly (3.54 to 1) Models 2401 Ultra.—Bodies 2462-65-92-95-98 Models 2501 Ultra.—2501 Ultra. with 300 engine and 2½" dia. Universal Products propeller shaft.
436827	Rear axle differential carrier assembly (3.54 to 1) Model 2401 Ultra.—Bodies 2467-69 Model 2401 Ultra. with 300 engine Models 2402-06 Ultra.

Model 2501 Ultra. with 300 engine and 2¾" dia. Universal Products propeller shaft
Models 2502-06-31 Ultra.

446719 Rear axle differential gear
Models 2401-02-06-2501-02-06-31

446723 Rear axle differential carrier and cap assembly
Models 2401-02-06-2501-02-06-31

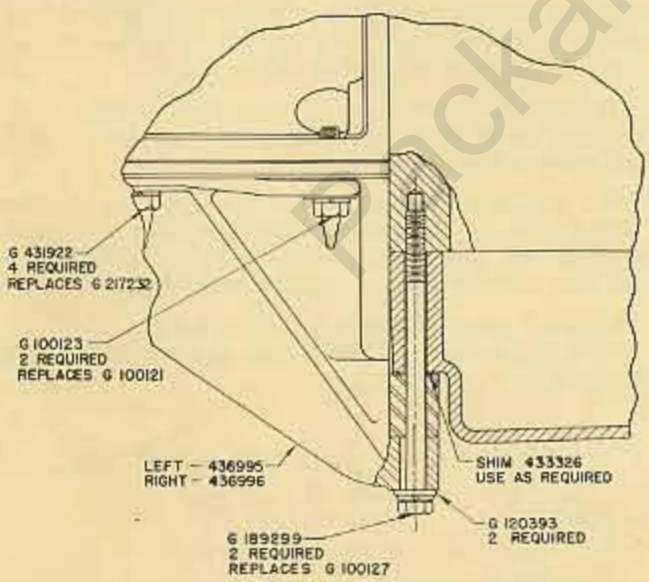
NOTE: Part No. 436830 Carrier Assembly and adapter kit is not available at the present time. The Central Warehouse has a sufficient supply of Part No. 901825 Carrier Assemblies to handle service requirements until the 436830 carrier kit becomes available. The 901825 carrier assembly (4.1 to 1 ratio) is used in models 2401-02-2501-02-31 when equipped with Standard transmission & O.D. with Spicer U. Joint.

High Speed Vibration

24th-25th-26th-54th Series
Standard Transmission and Overdrive

High speed motor vibration has been reported occasionally on the 24th, 25th, 26th and 54th series cars when equipped with standard transmission or overdrive. The disturbance, when it exists, is particularly noticeable between 60 and 80 miles per hour. In some instances, a disturbance also may be noticeable to a lesser degree at speeds below 60 miles per hour.

A flywheel housing support kit has been developed for the standard transmission and overdrive (for service only) similar to the one used for the Ultramatic transmission. While it may reduce overdrive noise, it is essentially designed to eliminate high speed motor vibration.



It is important that the following instructions be followed when making this installation:

1. Place a hydraulic jack under the flywheel housing and raise the engine slightly to relieve the load at the rear support.

2. Install the brackets as shown in the illustration. Be sure the brackets are fitted and aligned properly. Start the two long screws No. G189299 to hold the brackets in alignment. Install and tighten the four screws No. 431922 and two screws No. G100123 that attach the brackets to crankcase.

3. Remove the two long screws and add shims No. 433326 if necessary to obtain a snug fit between the brackets and the flywheel housing. Install the two long screws with washers and tighten securely.

The motor cylinder to flywheel housing support kit Part No. 436998 is available at the parts warehouse. Details of the kit are shown on the illustration.

New Cooling System Thermostats

(Capsule Type)

A characteristic of the bellows type thermostat has been that the cooling system pressure exerted against the bellows tends to close the thermostat valve which may cause overheating up to a certain point. Above this point the extreme heat causes the bellows to expand, opening the valve, thus overcoming any coolant pressure that can be maintained within the limits of the pressure cap.

In other words, a 160° bellows type thermostat will open at 160° temperature without coolant pressure, but under pressure it may not open until 170° or 180° temperature is reached, depending on the pressure in the cooling system.

To obtain the utmost in performance and economy it is necessary to maintain regulated engine and underbonnet temperatures at a normal level. The temperature should be controlled so as not to cause vapor lock, boiling, or the loss of coolant from the cooling system due to expansion.

The desired controlled temperature can only be accomplished by a pressurized cooling system and an effective cooling system thermostat. For every pound of coolant pressure maintained, the boiling point of the coolant rises 3 degrees, therefore, the radiator cap has three functions—it controls the pressure in the cooling system, raises the boiling point of the coolant, and prevents the loss of coolant from the overflow pipe within the limits of the radiator cap predetermined pressure setting.

The capsule type thermostat is not affected by cooling system pressure; therefore, it will open at its predetermined temperature calibration regardless of cooling system pressure.

When overheating of the cooling system is encountered with the 24th, 25th or 26th Series cars and the trouble is not caused by—poor circulation in the core, faulty water pump, loose or broken fan belt, defective radiator cap or hoses—the outlined procedure should be followed:

Note: With the normal 20° temperature rise after stopping an engine in hot weather, it may be necessary to install a 12 lb. radiator cap to prevent the coolant from spilling out of the overflow pipe.

1. If coolant is being lost through the overflow pipe and the temperature gauge reading is normal, install a new capsule type thermostat, Part No. 440066.

In some cases it may be necessary to install the 12 lb. radiator cap.

2. If coolant is being lost through the overflow pipe and the temperature gauge reading is high, install a new capsule type thermostat, Part No. 440066 and a new temperature gauge sending unit, Part No. 439368. In some cases it may be necessary to install the 12 lb. radiator cap.

Caution: Under no circumstances should the new sending unit, Part No. 439368, be installed on the early 26th Series cars having the gauge regulator as described in Service Counselor Vol. 27, No. 4 April, 1953, unless the gauge regulator is removed.

The capsule type thermostats and the 12 lb. radiator caps are available at the Parts Warehouse and may be ordered as follows:

Part No. 440066 Thermostat 170 Deg. (Alcohol Anti-Freeze)

Part No. 436846 Thermostat 180 Deg. (Permanent Anti-Freeze)

Part No. 446546 Radiator Cap 12 lb.

Low Speed Cooling

24th-25th-26th Series

The Factory Parts Warehouse can supply heavy duty Service fans for 24th, 25th and 26th Series cars in which coolant boiling is reported at idle or at low speeds in heavy traffic.

The greater capacity fan is not intended as a general service replacement and should only be used when boiling occurs because of sustained idling periods and low speed driving.

The new fans are carried under Part No. 436856.

Parking Lamp Cable and Sockets

A few cases of rusted out front parking lamp sockets have been encountered on the 24th and 25th Series cars. This condition is caused by water entering the upper end of the cable conduits.

Replacement cables and sockets are now available for service which eliminates the high cost of replacing the parking lamp assemblies. It is not necessary to remove the parking lamps to install these sockets.

Installation of the cables and sockets is as follows:

1. Remove the parking lamp lens and bulbs. Place a heavy punch in the center of the sockets and drive them out of the lamps. Remove the radiator upper splasher that attaches to the grille. Disconnect the parking lamp wires from the junction block and the connector and remove the old cables and sockets.

NOTE: It may be necessary to reverse the terminals on some of the first cable assemblies. The bayonet type terminal should be on the blue wire which feeds the directional light.

2. Attach a piece of stove pipe wire to the two cable terminals and thread them through the parking lamp rear retaining plate from the front side of the plate. A tool for pulling the socket into the lamp and holding it in place while bending the prongs can be made from a piece of strap iron approximately one foot long. Cut a vee in one end of the tool and then bend this end to form a hook so that it can be inserted in back of the socket to pull and hold the socket in place.

3. While holding the socket firmly in place, bend over the prongs with a screw driver or small punch. Be sure the prongs are tight against the lamp to obtain a good ground and good seat between the gasket and lamp body. Insert the cables and conduit through the opening in the splasher. Connect the bayonet type terminal wire to the connector and the other one to the junction block. Flow some rubber cement or dum-dum into the upper end of the conduit to prevent water from entering the conduit.

4. *Always* support the sockets with your fingers at the rear of the lamp when installing bulbs in this type socket to prevent loosening or pushing out the socket. Check both the parking and directional lights for lighting and correct wire hook-up. Install the lens and the radiator upper splasher.

The socket and cable assemblies are available at the Parts Warehouse and may be ordered as follows:

436861 Lamp (parking and directional) socket and cable assembly. All 24th Series—2 required

436862 Lamp (parking and directional) socket and cable assembly. All 25th Series—2 required)

Mag-Nu-Matic Windshield Washer Control Button

A few reports have been received of Mag-Nu-Matic windshield washer failures on late 26th Series and early 54th Series production cars.

In most instances, the control knob button shaft was too short which did not permit proper contact with the control switch.

To determine if the control knob button shaft is at fault, remove the control knob assembly and insert a small nail far enough into the switch opening to see if the switch makes contact properly.

Control knob buttons having a longer shaft are available at the Central Warehouse and may be ordered under Part No. 448727.

Universal Joint and Axle Shaft Bearing

Lubrication Period Revised

Recently a change was made in service recommendations whereby both front and rear universal joints on 24th, 25th, 26th and 54th Series Ultramatic Drive equipped cars should be repacked at 15,000 mile intervals.

The rear axle shaft bearing repack period is now recommended at 20,000 mile intervals instead of every 30,000 miles.

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