



PACKARD MOTOR CAR COMPANY

**Counselor**

VOL. 28, NO. 2

FEBRUARY, 1954

Power Steering Pump Bracket and Belt Adjusting Tool

25th, 26th, 54th Series

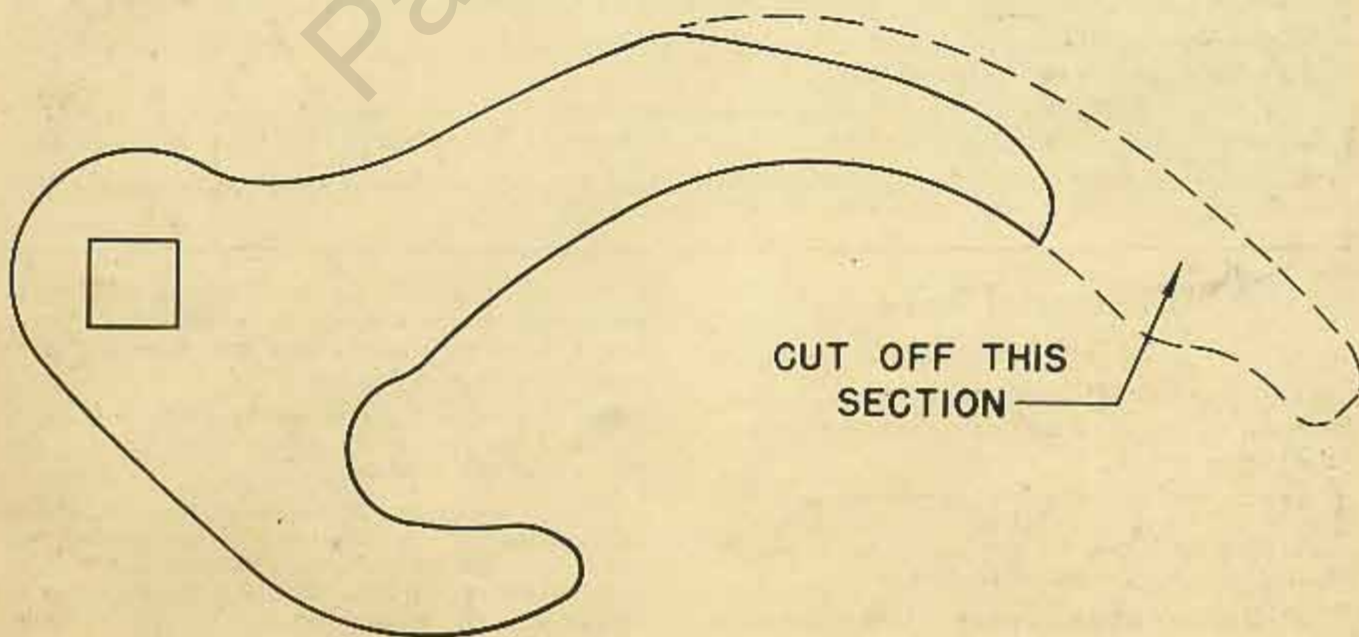
The power steering pump bracket assembly has been redesigned to prevent breakage and started in production with the 54th Series cars.

The new bracket assembly is available as service replacement for the 25th and 26th Series cars and may be ordered under Part No. 455321.

To adjust the belt tension on a power steering pump which has the new bracket, it will be necessary to rework the adjusting tool "PK-12" by cutting and grinding off the section indicated by the dotted line as shown on the illustration.

NOTE: Illustration is actual size of the tool.

The reworked tool can still be used with the old type bracket.

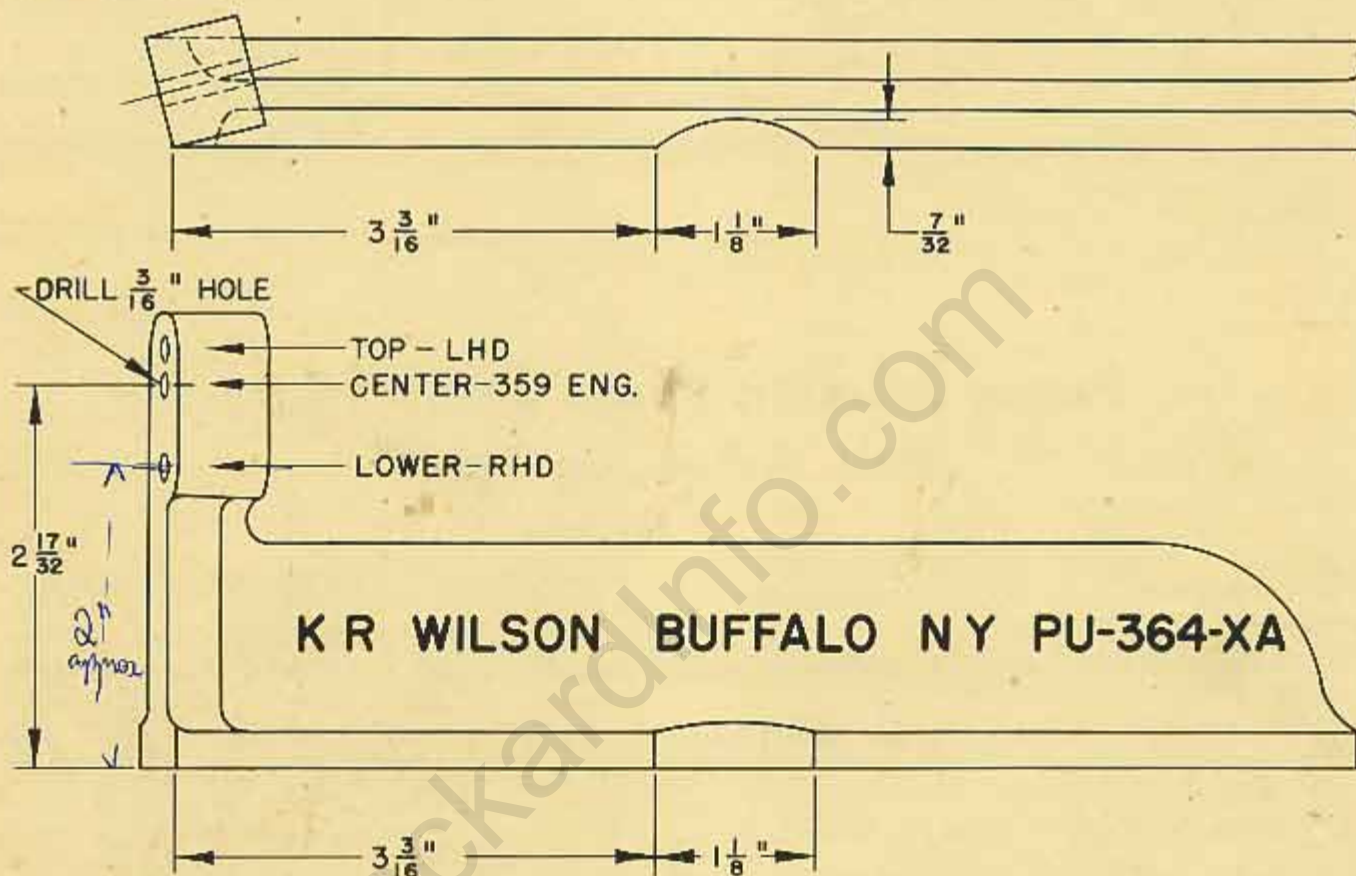


Throttle Cross Shaft to Carburetor Rod Tool

359 Cu. In. Engine
Ultramatic

The throttle cross shaft and carburetor throttle rod has been changed slightly on the 359 cu. inch engine.

Because of the throttle linkage change, it will be necessary to rework your present throttle adjusting gauge PU-364 to properly make this adjustment on all 54th Series cars that are equipped with the 359 cu. in. engine and Ultramatic Drive.



Using the measurements on the illustration, carefully drill a $\frac{3}{16}$ " hole through the gauge as shown.

Grind out a section from the forward side of the gauge base $1\frac{1}{8}$ " long and $\frac{7}{32}$ " deep $3\frac{3}{16}$ " from the end of the gauge as shown on the illustration.

Do not use .050" shim stock under the gauge with either the old or new gauges when setting the throttle linkage on a 359 cu. in. engine as described on page 10 of Volume 27, No. 2, February 1953 Service Counselor.

It is suggested that the $\frac{3}{16}$ " gauge holes be identified by stamping the following information on the back side of the gauge "TOP-LHD," "Center-359 Eng.," "Lower-RHD."

Differential Data

54th Series

A recent alteration, now effective in production, increased the length of the driving pinion gear teeth $\frac{3}{32}$ of an inch.

The outside diameter of the ring gear was increased slightly so that the ring gear teeth will properly center into the longer pinion gear teeth. However, the ring gear teeth were not lengthened.

Not all of the 54th Series cars will have differentials

incorporating the longer tooth pinion gears, also some 54th Series differentials will have 40° rear pinion bearings while others will have 25° rear pinion bearings.

The following information with illustrations is furnished for your ready reference in servicing the 54th Series differentials.

1. Fig. 1 shows the 25° rear pinion bearing and cup indicated by "A." The 40° rear pinion bearing and cup is indicated by "B." Note the difference in the angle of the rollers, also that the flat end section is wider on the 40° bearing cup.

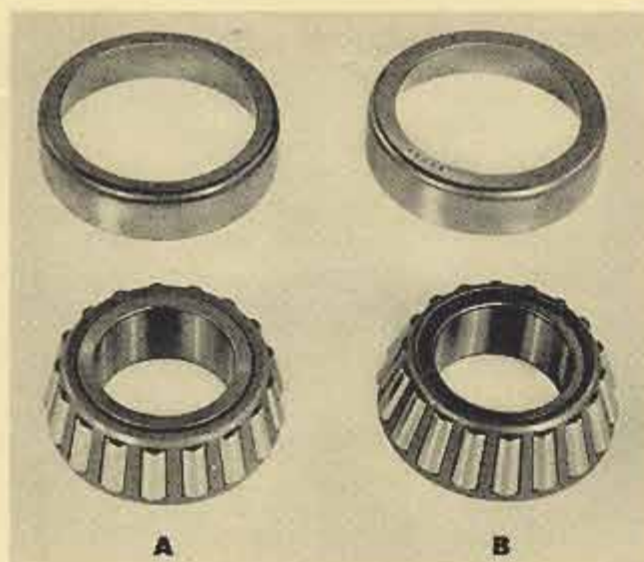


Fig. 1

Fig. 2 shows the pinion bearing sleeve used with the 25° bearing indicated by "A." The sleeve used with the 40° bearing is indicated by "B." The knurled section on the 25° bearing sleeve (A) is provided for identification purposes.

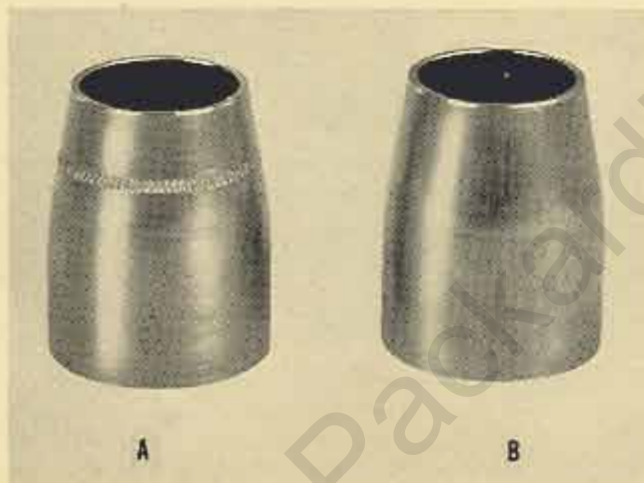


Fig. 2

It is permissible to use either the 25° or 40° rear pinion bearings in the 54th Series differentials provided the proper sleeve is also used.

Note: The front pinion bearing is always a 40° bearing therefore; to identify the rear bearing, compare the angle of the rollers with the front bearing.

2. The diameter of the differential case and the length of the differential pinion pin have been reduced to allow sufficient clearance for the longer pinion gear. Only those 54th Series differentials that are equipped with the long pinions have the case machined to a smaller diameter and have the slightly shorter pinion pin.

Fig. 3 illustrates the two differential cases which can be identified as follows:

"A" shows a differential case that has the diameter near the pinion pin hole machined down to give

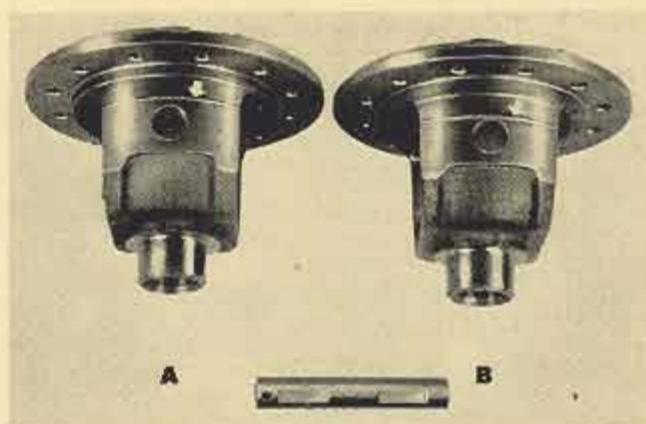


Fig. 3

clearance for the long pinion gear. Note the ridge indicated by the arrow is approximately $\frac{1}{4}$ " from the pin hole.

"B" shows a differential case that has not had the diameter reduced. Note the ridge indicated by the arrow is quite close to the pin hole.

Ring and pinion gear sets with the long pinion gear teeth *cannot* be used on the differential case "B."

Ring and pinion gear sets either long or short can be used on the differential case "A." Do not use a long pinion pin in differential case "A."



Fig. 4

3. All 54th Series differentials that are equipped with a long driving pinion gear and the smaller diameter differential case are stamped with the letter "O" as shown in Fig. 4.

Listed are the detail parts for your ready reference:

PART NO.	DESCRIPTION	NO. REQ'D.
455509	Differential case (Small dia.).....	1
446136	Differential case (Large dia.).....	1
455508	Differential pinion pin (Short).....	1
446137	Differential pinion pin (Long).....	1
446227	Driving pinion bearing (Rear) (40 deg.)	1
434855	Driving pinion bearing (Rear) (25 deg.)	1

446087	Pinion bearing sleeve (Used with 40 deg. bearing).....	1
434856	Pinion bearing sleeve (Used with 25 deg. bearing).....	1
902500	Differential driving gear and pinion assembly (3.23 to 1 gear ratio) (Short tooth pinion gear).....	1
902501	Differential driving gear and pinion assembly (3.54 to 1 gear ratio) (Short tooth pinion gear).....	1
902503	Differential driving gear and pinion assembly (3.9 to 1 gear ratio) (Short tooth pinion gear).....	1
902502	Differential driving gear and pinion assembly (4.1 to 1 gear ratio) (Short tooth pinion gear).....	1
902504	Differential driving gear and pinion assembly (4.55 to 1 gear ratio) (Short tooth pinion gear).....	1
902509	Differential driving gear and pinion assembly (3.23 to 1 gear ratio) (Long tooth pinion gear).....	1
902505	Differential driving gear and pinion assembly (3.54 to 1 gear ratio) (Long tooth pinion gear).....	1
902507	Differential driving gear and pinion assembly (3.9 to 1 gear ratio) (Long tooth pinion gear).....	1
902506	Differential driving gear and pinion assembly (4.1 to 1 gear ratio) (Long tooth pinion gear).....	1

Air Conditioning Expansion Valve Trouble Diagnosis

Most complaints which tie in with the expansion valve operation are: Insufficient cooling, erratic cooling, or no cooling. Any of the complaints could be attributed to other parts of the system just as well as the expansion valve. However, if the system has been checked for proper refrigerant supply, leak tested, and a good visual inspection reveals it to be in good physical condition, then the expansion valve may be checked as follows:

- A. Stuck open or leaky needle of expansion valve:
Indicated by: 1. High suction pressure.

2. Suction line frosted outside cooling coil housing.

Correction: At normal operating pressures, and being sure the valve screen is clean, open the expansion valve stem several turns. This will permit a rush of refrigerant through the valve and thus remove any foreign matter. Readjust the expansion valve. If trouble still exists, replace the valve.

- B. Stuck shut needle of expansion valve:
Indicated by: 1. Warm cooling coil.

2. Very low suction pressure.

Correction: Same as for stuck open or leaky needle.

- C. Improperly adjusted expansion valve:

1. Valve open too far:

Indicated by frost on suction line outside the cooling coil housing and high suction pressure.

2. Valve closed too far:

Indicated by low suction pressure and only part of the coil cold.

Correction: Properly adjust the expansion valve by closing the valve stem completely (clockwise) and then opening it (counterclockwise) 10 complete turns. If this does not provide satisfactory operation, replace the valve.

NOTE: Inability to adjust the expansion valve may be a result of one of the following:

- Leaky needle.
- Valve power element discharged.
- Plugged or dirty valve screen.
- Defective valve.

An attempt should be made to correct conditions "a" and "c" before changing the valve. Correction of item "a" is covered under stuck open or leaky needle. Correction for item "c" is clean or replace screen.

- D. Thermobulb of valve not in good contact with suction line at proper location:

- Indicated by: 1. Suction line frosted outside cooling coil housing.
2. "On" and "off" or spasmodic control of refrigerant to coil.
3. Thermotube contacting coil.

Correction: Tighten bulb clamp on suction line, being sure bulb is in its original intended location and does not touch any other line. Be sure the thermotube does not contact the coil.

Temperature Gauge Adapter

2003-06, 2103-06-26

Please refer to your Service Counselor Vol. 27, No. 7, July, 1953, on the subject "Service Replacement Engine."

The temperature gauge used on the 20th and 21st Series Super and Custom Eight is a bulb type and will not fit into the cylinder head on the service replacement engine.

When making a service replacement engine installation in the 20th and 21st Series Super and Custom Eight, it will be necessary to install Part No. 403052 Cylinder Head Thermometer Adapter which is available at the Central Warehouse.