Packard SERVICE TECHNICAL Bulletin

55T-12
Dealer 10
February 15, 1955

To: ZONES AND DEALERS

Subject: TORSION-LEVEL SUSPENSION WORM SHAFT LOCK RING

We have received a few reports on Torsion-Level Suspension equipped cars which, after being raised to the limit with the compensating mechanism, could not be lowered with the compensator motor. When this particular condition existed, the motor armature would turn freely but without turning the compensating mechanism gears.

Disassembly of the gear housing revealed that the lock ring which holds the worm shaft and bearing at the forward end had not been properly installed in its groove in the housing and the worm shaft had moved forward, disconnecting the worm shaft from the motor. When the worm shaft moved forward on the worm gear, a shoulder at the rear of the worm shaft came into contact with teeth on the worm gear and as a result broke some of the teeth off the gear.

Manufacturing, as of January 28, started inspecting the lock rings 100% and they are stamped with the letter "R" on the web of the worm shaft housing just above the small vent fitting. However, we feel that this condition warrants an inspection on those Torsion-Level equipped cars shipped prior to January 28. The inspection should be performed in the following manner:

1. Level the car by grounding either the front or rear terminal on the limit switch, or by grounding either the "A" or "B" terminal on the control switch with the instrument panel switch in off position. Disconnect the motor cables and remove the two long bolts that attach the motor to the compensator. Measure the distance that the rear end of the worm shaft (slotted end) extends rearward from the oil seal. It should extend 3/8" from the seal.

2. If the end of the shaft is approximately 3/8" from the seal, insert a punch in the hollow end of the shaft and hit it a few good raps with a hammer.

   If the shaft does not move forward, you may consider the lock ring properly seated in the groove and reassemble the motor to the compensator, and connect the cables.

3. If when hitting the shaft with a punch and hammer it moves forward to about flush with the seal then the lock ring was not properly installed. If the ring is out of position, use a long heavy sharpened punch, drive a hole in the welsh plug at the forward end of the worm shaft housing and pry out the plug.

   Remove the old lock ring, tap the bearing and shaft rearward as far as possible and install a new lock ring making sure it is in the groove. Tap the shaft forward again to make sure the lock ring is holding properly. Install a new welsh plug and expand it with a punch and hammer. It might be well to stake it in a few places. Reinstall the compensator motor.

LITHO IN U.S.A.

4. If the worm shaft is found flush with the seal after the motor was removed, it may be assumed that the lock ring came out during compensator operation and possible damage to the gears may have occurred. Inspection and replacement of any parts in the compensator assembly will require removing the unit from the car.

5. Before removing the compensator assembly, it will be necessary to take the load of the body and frame off the compensator bars and links. This can be accomplished by loosening the seven bolts and nuts which hold the two sections of the gear housing together. This will permit the stationary ring gear to turn, taking the load off the compensator bars.

6. Disconnect the two wires from the limit switch. Disconnect the wire from one of the compensator solenoids that leads from the engine starting motor. Remove the two screws that attach the limit switch and solenoids bracket to the compensator mounting bracket and remove this assembly. Unscrew the ball joint plugs at the outer ends of the two compensator links and disconnect the links from the levers at the forward ends of the compensator bars. Remove the two compensator mounting bracket screws that are attached to the frame X member and rotate the mounting bracket toward the front of the car. Remove the two long bolts that attach the compensator upper cover to the cross member and then remove the assembly.

7. Remove the seven gear housing retaining bolts and nuts and lift off the top housing.

   Use a brass drift and knock the worm shaft forward to knock the expansion plug out of the housing.

8. Inspect the condition of the teeth on both the worm shaft and the large worm gear. Install new parts if necessary. If teeth have been broken from the large worm gear, thoroughly clean all parts and repack with one lb. of new grease when assembling the unit. Use special grease part number 474028 (1 lb. cans).

9. To assemble the unit, place the worm shaft and bearing assembly in the housing and install a new lock ring, making certain the ring is in its groove around its full circumference in the housing. Again rap the rear of the worm shaft a few times to make certain the lock ring is properly seated. Install the expansion plug in the end of the housing. After expanding the plug it might be advisable to stake it at a few points around the plug.

10. Before assembling the upper cover, turn the compensator shaft and lower lever assembly so that the widest angle of the lever between the two ball studs is toward the left side of the car and parallel with the worm shaft. With the lever in this position, install the cover and torque tighten the bolt nut at the center of the worm shaft to 6 ft. lbs. and the balance of the cover nuts to 12 ft. lbs.

    NOTE: The long link attaches to the right compensator bar and to the rear ball stud on the compensator lever.

11. To install the compensator assembly in the car, reverse the procedure outlined in item 6.

    Torque tighten the ball stud link plugs to 20 ft. lbs., back off 1/8 to 1/4 turn, stake the link at one slot in the plug. The parts necessary for servicing the compensator are available at the Central Parts Warehouse and may be ordered as follows:

Part Number 445845	Compensator Worm Gear
Part Number 445955	Compensator Worm Shaft Bearing Retaining Ring
Part Number G106517	Compensator Upper Housing Expansion Plug
Part Number 474028	Special Grease (1 lb. cans)

Labor and material will be handled on an RFA in the usual manner for the time allowed for one of the following operations:

XA. Removing motor, testing lock ring and installing motor described in items 1 and 2. Labor 0.7 hours.

XB. Removing motor, testing lock ring, replace lock ring, welsh plug and installing motor described in items 1 and 3. Labor 1.7 hours.

XC. Removing motor, compensator, replacing necessary parts, reinstalling compensator and motor described in items 1 and 4 through 12. Labor 4.2 hours.

Very truly yours,

H. N. Johnson
Assistant Service Manager

HGL:tf