(CIRCULAR)

# SERVICE Bulletin

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## EXCESSIVE OIL CONSUMPTION
## VALVE ROCKER SHAFT OIL CONNECTOR – REWORK

Investigations carried out on some recent production vehicles reported to be using excessive oil, have revealed that the condition was caused by excess oil passing down the valve guides due to oil splash from the spring coils. The vehicles concerned are above Engine No. 197344, which is the breaking point for the introduction of the 2nd type valve rocker shaft oil connector, Part No. 7409400, and valve rockers, Part No. 7409671—L.H., and Part No. 7409670—R.H.

On all vehicles after Engine No. 197344 which are reported to be using excessive oil, it is recommended that the oil flow to the overhead gear be reduced by increasing the size of the oil relief (over-flow) hole in the oil connector to $\frac{1}{8}$ in. MAXIMUM. This modification should always be carried out and the vehicle re-tested for oil consumption before any major overhaul is attempted.

*Note:* With the increased size of oil connector relief hole, excessive splash and oil loss may take place whilst adjusting the valve clearance unless some sort of deflector is used. A simple type of deflector can easily be fabricated from light gauge sheet metal $\frac{5}{8}$ in. wide x 6 in. long, shaped so that it can be readily hooked on to the oil connector and will deflect the oil from the connector relief hole into the centre drain back hole in the cylinder head, Fig. 1. The extended end of the deflector is to prevent the rocker cover being inadvertently replaced with the deflector in position.

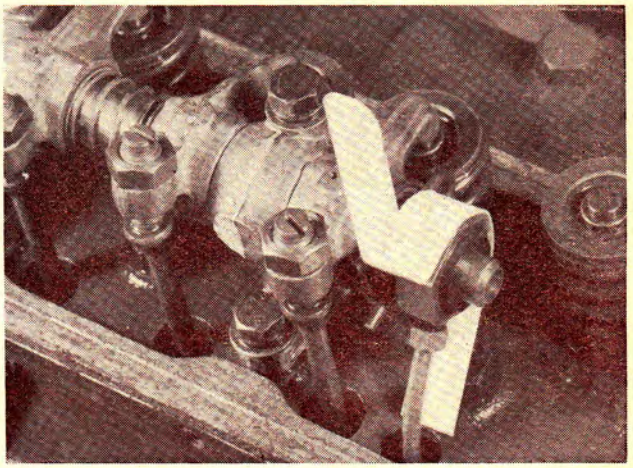

*Fig. 1*

## DIFFERENTIAL – REVISIONS TO ASSEMBLY AND ADJUSTMENT PROCEDURE

Extensive investigation into the cause of objectionable gear noise, which develops in some differentials after approximately 2000 to 3000 miles of operation, has revealed that the main contributing factors are:—

a. Excessive loss of side bearing preload.
b. Excessive loss of pinion bearing preload.

Tests conducted to isolate the main cause of excessive side bearing preload loss showed that after the preload has been adjusted on *new* bearings, it can drop by as much as 40% during the first few revolutions of the case and ring gear assembly due to seating of the bearings.

With respect to excessive pinion bearing preload loss, a pinion flange retaining nut torque of 100 to 120 ft. lbs. was found to have an abnormal elastic stretching effect on the pinion threaded end and, under severe operating conditions, the stretch became permanent. Although only minute, this permanent stretch of the pinion threaded end can cause a considerable reduction of pinion bearing preload.

To prevent the possibility of excessive bearing preload loss, the following revisions to differential carrier assembly procedure should be instituted in service.

### 1. Pinion Bearing Preload Procedure

a. Examine the pinion flange retaining nut and washer for evidence of dishing or other damage and replace if necessary. Also, check flange for damage at ends of splines.

b. Before assembly and adjustment of differential carrier assembly, the pinion nut should be checked to ensure that it is free to turn by hand on to the pinion. It may be necessary to run the nut up and down the pinion thread a few times to ensure that the nut is positively free.

NOTE: *Unless the nut is free to turn on to the pinion by hand, a false torque reading can be obtained when tightening nut.*

c. The pinion nut torque specification has been revised from 100-120 ft. lbs. to 80-90 ft. lbs. (85 ft. lbs. preferably) *with oiled threads.*

d. Before assembling used pinion bearings prior to adjustment, lubricate with hypoid gear oil GM 4655M. *Do not use engine or other oils as a misleading scale reading can be obtained.*
New pinion bearings do not require lubricating with GM 4655M gear oil as the special lubricant which is packed into the bearings at the time of manufacture for rust and corrosion prevention, is quite suitable.
NOTE: *After the correct bearing preload has been obtained, all units which are to be stored for any length of time must have the Hypoid Gear Oil GM 4655M washed from the bearings and the differential re-assembled, using engine oil.*

e. Whilst tightening the pinion flange retaining nut, turn the pinion assembly by hand to seat the bearings.

f. When checking pinion bearing preload, it is essential to have the pulley rotating at the correct speed to ensure accurate readings. If the pulley is rotated too slowly, the scale reading will be below the actual, and if the pulley is rotated too fast, the reading will be higher than actual. The correct rate of rotation is approximately 50-60 R.P.M.
As a guide until the mechanic becomes more familiar with the correct speed of rotation, mark the pulley with chalk in one location at its outer diameter. The pulley should be rotated at the speed of approximately one revolution per second. It is a good indication of correct pinion bearing preload when the initial torque required to start the pulley rotating does not vary greatly from the running torque.
The correct pinion bearing preload torque is 5-8 in. lbs. for used bearings, and 8-15 in. lbs. for new bearings.

*Note:* After adjustment of pinion bearing preload, the bearing should feel smooth and free from undue lumpy or gritty condition when turned by hand.

### 2. Side Bearing Preload Procedure

The side bearing preload adjustment procedure varies with new and used bearings due to the loss of preload encountered with new bearings during the first few revolutions of the case and ring gear assembly when seating of bearings takes place.

*Adjustment Procedure—Used Bearings:*

The procedure for adjusting the side bearings is as described in the "FJ" Holden Workshop Manual, except that prior to adjusting the side bearing adjusting nuts, it has been found that more consistent results can be obtained by tightening the cap retainer bolts to 15 ft. lbs. After adjustment, the retainer bolts must be tightened to their final torque of 30-35 ft. lbs.

If it is noticed in isolated cases that the side bearing outer races are too loose in the cap to permit accurate preload adjustment, indicated by inconsistent points where outer race just stops turning when unscrewing adjusting nut (refer Manual, Page 100, paragraph 13C), tighten the cap retainer bolts to their final tightening torque of 30-35 ft. lbs. before adjustment.

*Note:* It is preferable to adjust to nominal of 2½ notches bearing preload.

*Adjustment Procedure—New Bearings:*

The adjustment procedure on new bearings is similar to used bearings with the following additions:—

a. After adjusting the side bearing preload to the specified 2-3 notches (preferably 2½), rotate the pinion 30 to 40 revolutions, using a brace and socket, to allow the bearings to seat.

b. Screw the bearing adjuster nut an additional ½ notch to compensate for loss of bearing preload due to seating of bearings.

## DRIP-GUTTER WATERLEAK

When attending to drip gutter water leaks, check at the extreme forward end of gutter for a small hole by viewing upwards.

In some instances the production metal finishing operation has resulted in a small hole at this location; this must be sealed.

As from the following body number, this condition should not be experienced:—

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| Holden Special Sedan ... ... ... | 36561 |
| Holden Standard Sedan ... ... ... | 13786 |
| Holden Business Sedan ... ... ... | 3527 |
| Holden Utility ... ... ... ... ... | 17345 |

## REAR FENDER ORNAMENT
### HOLDEN FJ SPECIAL SEDAN

Coinciding with the change in material of the rear fender ornament from a pressed metal to a cast metal part, the rubber gasket previously fitted between the ornament and the fender has been deleted.