REAR AXLE

Material Provided by Dave Schulte

The rear axle used on the DURANT cars is known as the semi-floating type, in which the revolving parts are mounted on heavy-duty tapered roller and ball bearings. (See Fig. 28.)

The driving gear is a spiral bevel of heavy tooth section capable of withstanding any reasonable load. The drive pinion gear and shaft are forged integral of special alloy steel.

Adjustment of Bearings

The axle carries the differential thrust on tapered roller bearings at the outer end of the axle housing. The thrust is taken through the bearings and axle shafts, which butt against a spacer block in the center of the differential. The wheel bearings must be adjusted snugly without endplay but not so tight that the bearings will bind. To remove the axle shaft end play; or to adjust backlash between the ring gear and drive pinion, remove wheels and tighten wheel bearing adjusting nuts, as follows:

To adjust for proper backlash between the ring gear and drive pinion, which should be between .006" and .010" wheels must be removed first. Next, back off the right hand adjusting nut enough so that the left hand nut can be turned up far enough to remove all backlash between drive pinion and ring; then back off left hand adjusting nut three notches; then screw in right hand nut until axle shafts turn snugly by hand.

NOTE: Moving out the right hand adjusting nut and moving in the left hand adjusting nut decreases backlash. Backlash between ring gear and pinion should be .006" to .010".

Most rear axle troubles come from failure to keep these parts in proper adjustment. As the loads carried by the bearings are both radial and thrust, they are subjected to continual changes in stresses; therefore, it is to be expected that some wear will take place and that from time to time they must be adjusted to eliminate play.

It is a good plan to examine the axle at the end of each 2,500 miles and have bearings adjusted if necessary. In the rear axle the change in direction of thrust is very rapid, due to side sway of the car and contour of road surfaces; therefore, if the bearings become loosened, there is a constant hammering action set up in the bearing which will crack the races or damage the rollers or balls. When removing endplay of axle shafts at wheel bearings, be sure that the backlash is maintained between ring and drive pinion.

To Remove pinion Housing Assembly

The entire drive pinion assembly can be removed by disconnecting propeller shaft rear universal joint. Remove the four cap screws holding pinion housing to axle housing and the pinion housing is then free to lift off. Care should be exercised to keep shims between pinion housing and axle housing in place.

Removing Pinion

To remove drive pinion from housing, remove nut and flange from pinion shaft; then remove lock nut, lock and adjusting nut. Then tap pinion shaft and drive pinion will come out at large end of housing.

NOTE: Never adjust backlash between ring gear and drive pinion by removing or placing shims between pinion housing and axle face.

Adjustment of Drive Pinion and Ring Gear

To secure long life and quiet running gears the drive pinion and ring gear must be in pitch, which is obtained mechanically by adding or removing shims between pinion housing and axle face as shown in Fig. 28.

Reassembling Pinion and Shaft Assembly

Tapered roller bearings are used in the pinion housing assembly. These bearings are to be adjusted with from .002" to .005" endplay. This amount of endplay is not perceptible to the eye, so this adjustment all depends on feel and good judgment. No difficulty should be experienced in making this adjustment if made as follows:

First, see that the cups are properly seated in the housing and free from dirt. Press inner bearings on the drive shaft, making sure that the bearing is kept clean and place in housing. Then assemble the outer bearing, 'making sure that it is properly seated; the inner felt washer retainer is then assembled so that the turned edge rests on the bearing cup-make sure that this retainer does not ride on the bearing cage. The felt washer and outer retainer are then assembled.

Run the adjusting nut down tight and then back off 1/8 of a turn and lock in this position. Assembly should rotate freely but should have no perceptible endplay.

This is a very important adjustment. Noisy gears may result from excessive endplay, and noisy bearings and bearing failures may result from too tight an adjustment.

Drive Pinion Adjustment

When pinion adjustment is necessary it is made by adding or eliminating shims between the rear axle and pinion housing until the distance from the end of the pinion to the shims on the face of the pinion housing measures 1.252'.

This measurement should be determined with a depth gauge. This distance is very important and must be correct. The face of pinion housing, axle housing and shims must be clean and free from burrs so as to insure a perfect fit.

Fig. 28-Rear Axle