

Rear Axle Overhaul

The oscillating axle of Type 220 and the single-joint-axle of Type 220a are provided with a hypoid gearset like the rear axles of our other passenger car types. This means that the center line of the bevel gear is set off center by a definite amount, in our case by 25.4 mm (1"). In the case of standard Gleason spiral gearsets the center lines intersect in the center.

The principal advantages of hypoid gearsets are longer duration of mesh and smoother operation. Furthermore it is possible to lower the propeller shaft.

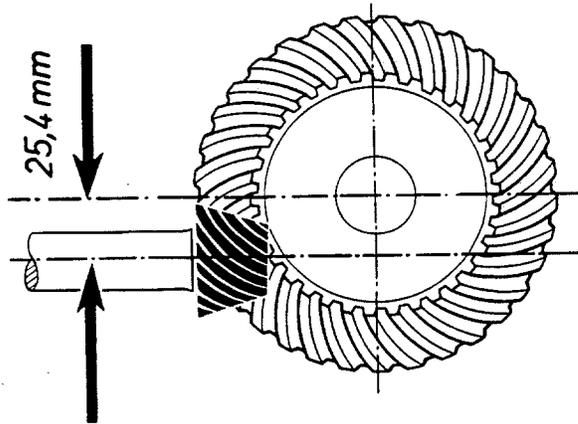
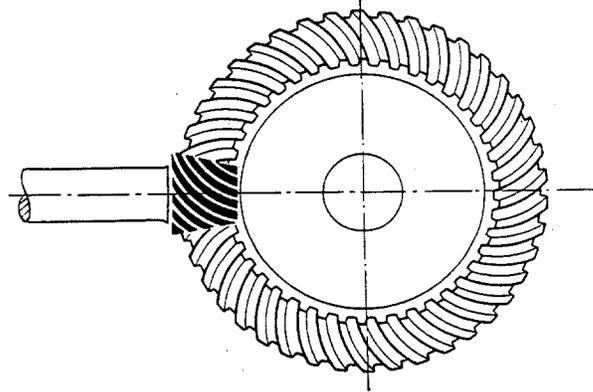


Fig. H 3/01
Gleason hypoid gearset



25,4 mm = 1 in.

Fig. H 3/02
Gleason spiral gearset

Rear Axle Overhaul

Type 220

Operation No.
H 3

Special Tools:

Torque wrench 0–26 mkg (0–188 ft.lb.)	000 589 23 21	Mounting punch for bevel bearing race / housing and bearing flange	191 589 00 39
Puller for taper bearing / differential housing	187 589 05 33	Three brake drum removing screws M 8 x 1 with chain	191 589 00 35
Pin wrench for threaded ring / bevel gear shaft	191 589 05 07	Nose wrench for slotted nut / rear axle shaft	136 589 09 07
Pin wrench for slotted nut / bevel gear shaft	136 589 00 07	Puller for bearing / rear axle shaft	136 589 20 33
Three-piece puller for bearing / bevel gear shaft	187 589 00 35	Puller for bearing race in rear axle tube	191 589 00 33
Mounting punch for cylinder bearing race / housing	191 589 01 39	Four-piece milling attachment for rear axle tube journal bores	191 589 01 61
		Milling cutter	191 589 00 51

Seven-piece milling attachment for end face of journal bearing of rear axle tube	191 589 02 61
Milling cutter	191 589 01 51
Mounting punch for ball washers and differential bevel gears	187 589 08 61
Two-piece mounting punch for bevel bearing / differential housing	191 589 02 39
Torque wrench insert for tightening slotted nut / bevel gear shaft	136 589 01 07
Pressing-in washer for grease retainer / bevel drive gear (add shims)	187 589 06 61
Two-piece adjusting device for dial gauge	191 589 02 23
Bracket for gearset with gauge holder	191 589 03 23

Three-piece tooth play gauge	191 589 01 21
Dial gauge with a travel of 10 mm (0.4")	000 589 14 21
Pin wrench for threaded ring / bevel bearing, with connection for torque wrench	191 589 02 07
Pressing-in punch for grease retainer / brake anchorage plate	187 589 09 39
Mounting sleeve, diameter 48 mm (1.89"), for grease retainer / rear axle shaft	191 589 03 61
Test instrument for checking true run of three-arm flange on rear axle	136 589 04 21
Equipment:	
Assembly stand for rear axle	BE 9771/1 + 2
Assembly stand for rear axle housing	BE 9891

I. Disassembly

Procedure:

1. Place rear axle housing into assembly stand BE 9771 and drain the oil.
Loosen cable roller housing on right and left-hand brake anchorage plate as well as cable roller bracket on rear axle housing and remove with hand brake cable.
Loosen nuts and screws on bearing caps and remove rear axle tubes and spiders.

Rear Axle Housing:

2. Place rear axle housing in assembly stand BE 9891 and clamp in place. Loosen all screws on side bearing flange, knock with

a plastic hammer against projecting nose of cover and remove flange (see arrow in Fig. H 3/2). Take differential assembly out.

3. Check right and left-hand bevel bearing on differential housing and pull with puller 198 589 05 33, if necessary (Fig. H 3/3).

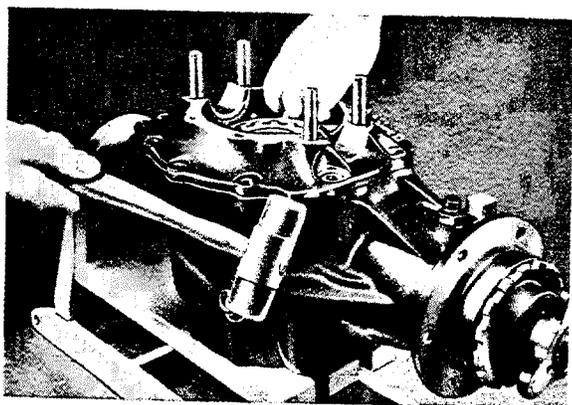


Fig. H 3/2

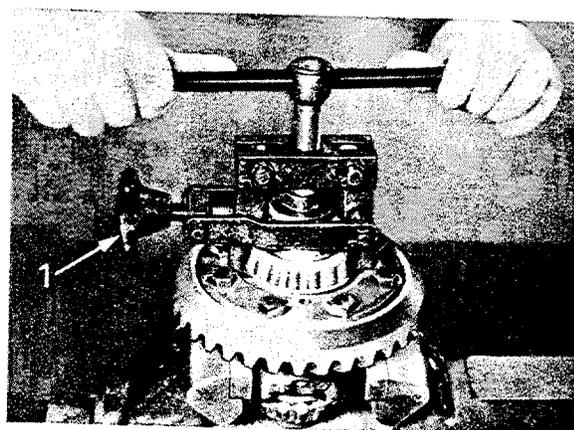


Fig. H 3/3

Note: Tighten screw (1) so that roller cage can still be moved, otherwise the cage will be damaged.

4. Sever peened side of retaining pin for bolt in transmission housing with a chisel (Fig. H 3/4) and drive retaining pin out. Take bolt and differential bevel gears out of differential housing together with the contact washers.

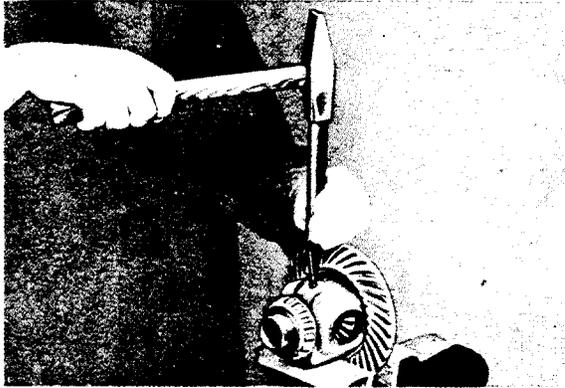


Fig. H 3/4

Note: After the rear axle shaft gears have been dismantled, mark the left one "1" and the right one "2" to ensure that they will be returned to their original position.

5. Loosen fastening screws on light-metal support for rear axle suspension and take the support off.
6. Free the two adjusting screws (1 and 2) on the housing (loosen check nuts) and back them off, then screw threaded ring out with wrench 191 589 05 07 (Fig. H 3/6) and pull bevel drive gear out (Fig. H 3/6a).

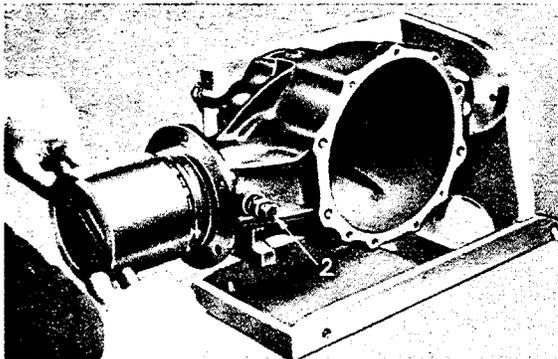


Fig. H 3/6

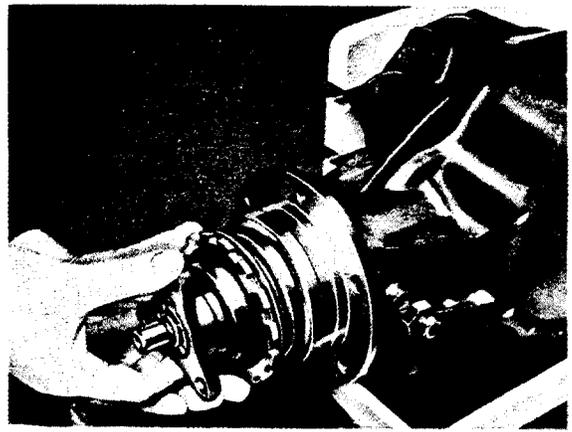


Fig. H 3/6a

7. Free slotted nut for fastening the three-arm flange and unscrew with wrench 136 589 00 07. Pull three-arm flange and remove threaded ring with adjusting washers and shoulder ring.
8. Press bevel drive gear out of cylinder and inclined bearing by means of device 187 589 00 35 (Fig. H 3/8).

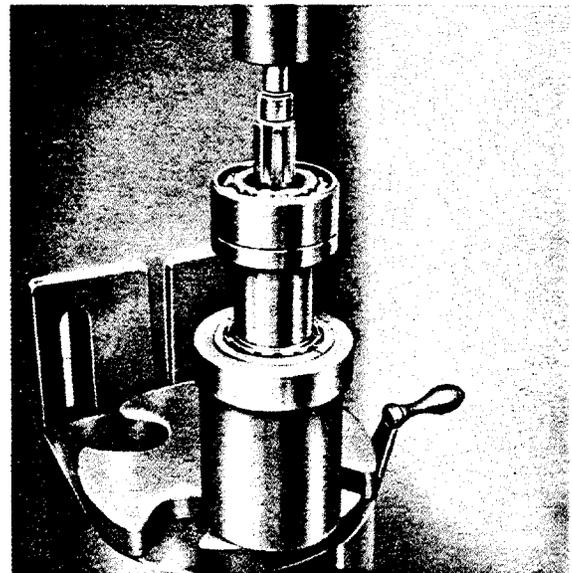


Fig. H 3/8

9. Remove front and rear snap ring in rear axle housing for retaining outer race of cylinder bearing and force outer race out with punch 191 589 01 39.

10. Check outer races of bevel bearings in housing and side bearing flange and press them out with punch 191 589 00 39, if necessary. Before this is done, free the two adjusting nuts and screw them out.

Rear Axle Tubes:

11. Loosen rubber boots on rear axle tubes and bearing caps.
12. Press brake drums off with screws 191 589 00 35 and remove brake shoes.
13. Loosen screws fastening the brake anchorage plates to the rear axle tube flanges and drive rear axle shafts out of bearing seats.

14. Free slotted nuts on rear axle shafts and unscrew with nose wrench 136 589 09 07. Pull grooved collar bearing with puller 136 589 20 33 (Fig. H 3/14).

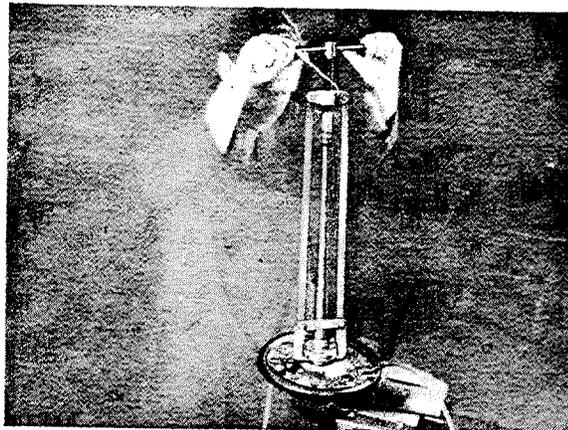


Fig. H 3/14