Checking and Repair of Front Axle Half

Steering Knuckle:

1. Check the concentricity of the wheel spindle and check the steering arm for straightness. Permissible run-out of wheel spindle, 0.01 mm (Fig. 33 — 5/1).

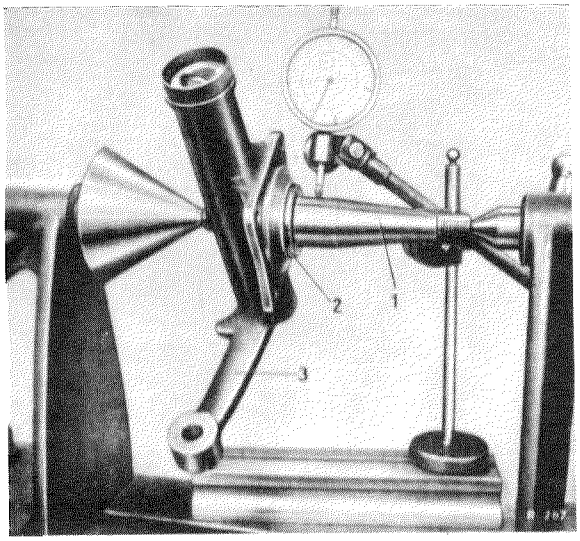

Fig. 35 — 5/1

1 Wheel spindle
2 Spacer ring
3 Steering arm

2. Check the sealing surface of the spacer ring (2). If the sealing surface is badly worn, turn the spacer ring off or carefully tap it off the spindle, using a hammer and chisel to tap on the end face of the spacer ring.

3. If necessary, shrink a new spacer ring onto the wheel spindle. To do this, heat the spacer ring up to approx. 80° C. on an electric hot-plate.

The spacer ring must grip the wheel spindle firmly when cold. Force — fit oversize 0.02 mm.

Note: Use the proper spacer ring.

The spacer rings have been given a right-hand or left-hand thread pattern on the circumference. For purposes of distinction, the letter

L = left side (right-hand thread)
or R = right side (left-hand thread)
have been electroprinted on the bevelled face.

The side of the inner bore with the bevelled face must point toward the steering knuckle.

4. Check the rivets of the brake anchor plate and the brake shoe suspension bolts for tightness.

   If any loose rivets are discovered, remove the rivets from the brake anchor plate.

   Clean and de-burr the separating surfaces of the steering knuckle and the brake anchor plate and screw the two parts together with 3 screws. Ream out the 4 rivet holes one after the other to 9.20 mm diameter, moving a screw each time.

   Then hot-rivet the brake anchor plate to the steering knuckle with 4 button-head rivets 9×20 DIN 660.

Note: If the brake anchor plate rivet bores are badly worn, the brake anchor plate must be replaced.

5. Check the king pin and the king pin bushings for wear (see table).

Dimensions and Tolerances for King Pins and King Pin Bushings in mm

King pin diameter	King pin bushings			Base bore in steering knuckle
	External diameter	Internal diameter rough-turned	Internal diameter final	
19.980 / 19.959	24.048 / 24.035	19.700 / 19.750	20.000 / 20.021	24.000 / 24.021

Note: Radial play of king pin 0.02—0.062 mm.

6. If necessary, knock the bushings with the aid of Special Tool 136 589 09 39 (Forcing Arbor) out of the steering knuckle (Fig. 33 — 5/2).

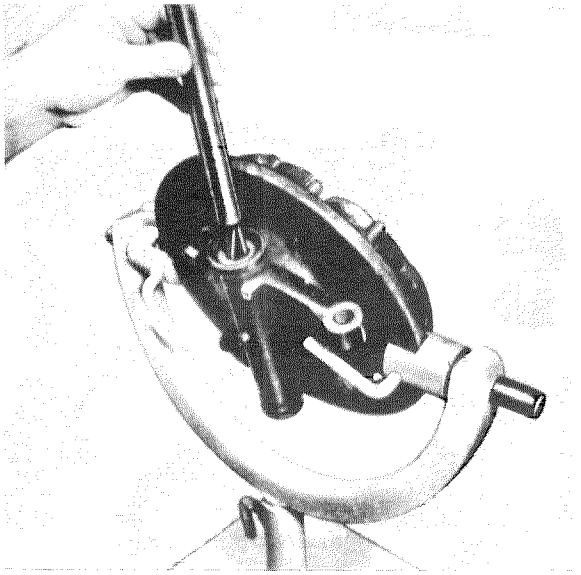

Fig. 33 — 5/2

7. Press in new bushings and ream out to the specified dimension (see Table), using Hunger Reamer 000 589 03 53. The specified radial play of the king pin must be maintained.

8. If necessary, knock the dowel pin (17) for anchoring the lower thrust washer into the upper shoulder of the steering knuckle (see Fig. 33 — 4/6).

9. Check brake shoes and brake wheel cylinders (see Job No. 42 — 8 and Job No. 42 — 7).

Control Arm:

10. Check the mating threaded bushings and threaded pins for wear.

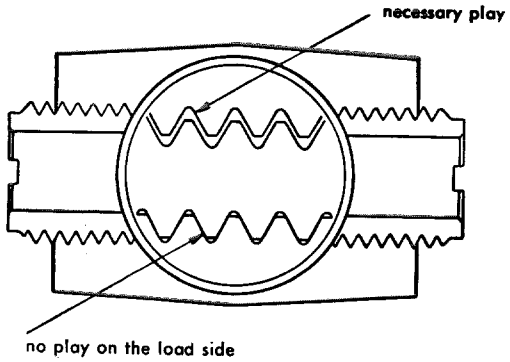

Fig. 33 — 5/3

Here it should be noted that when new, the threaded pin may have 0.46 mm play at the bottom in the steering knuckle support, the threaded bushing may have 0.32 mm in the top part of the king pin and that the pivot pin (at the inside of the control arm) may have 0.45 mm radial play at the top and at the bottom.
These clearances are necessary in order to ensure proper lubrication. When bushings and pins which have been in use are being checked for serviceability, this fact should be taken into account so that no unnecessary replacements are made.

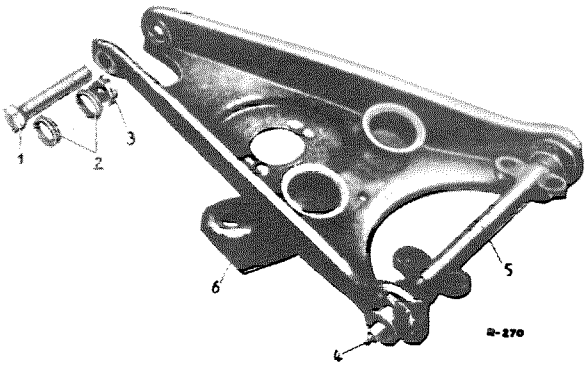

Fig. 35 — 5/4

1 Threaded pin
2 Sealing ring
3 Castle nut
4 Pinion rim grease fitting for threaded bushing
5 Pivot pin
6 Lug with eye for torsion bar mounting

11. Check the upper control arm for distortion, using Alignment Gage 120 589 04 21, and check the alignment of the threaded bores (Fig. 35 — 5/5).

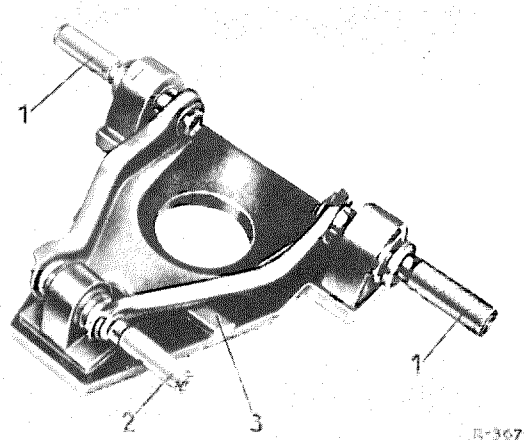

Fig. 35 — 5/5

1 Alignment gage
2 Alignment gage
3 Rest for control arm

12. Check the lower control arm with Alignment Gage 120 589 05 21 in the same way (Fig. 33 — 5/6).

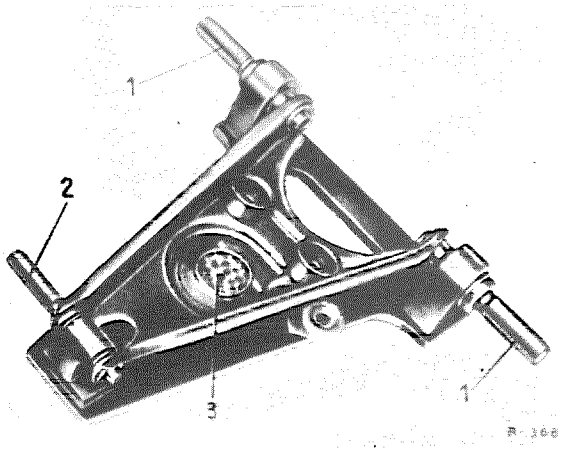

Fig. 33 — 5/6

1 Alignment gage
2 Alignment gage
3 Rest for control arm

13. Check that Cheese-head Screws 120 990 10 20 in the lower control arm are firmly seated and that the threads are in perfect condition. Check the control arm for cracks.

Control arms with loose cheese-head screws or with any cracks must always be replaced.

Recently, lower control arms with a large through-way hole (58 mm diameter instead as previously, 48 mm diameter) have been used for the shock-absorbers. If the car is used on bad roads and shock-absorbers of a larger diameter, Part No. 180 323 03 00 (see Job No. 32 — 1, Section B) are to be used, control arms with a large through-way hole should be subsequently installed. These control arms can be ordered under Part No. 180 330 08/01 08.

Front Wheel Hub:

14. Check that the wheel fixing bolts are tightly held on the wheel hub and check that the threads are in perfect condition (Fig. 33 — 5/7).

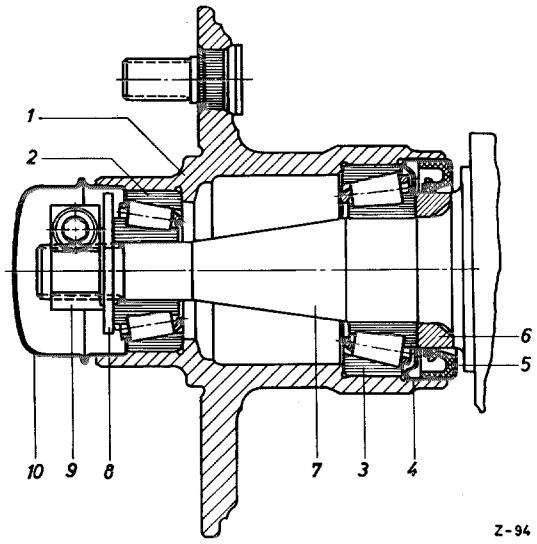

Fig. 33 — 5/7

1 Wheel hub
2 Taper roller bearing
3 Taper roller bearing
4 Puller ring
5 Seal
6 Spacer ring
7 Wheel spindle
8 Ground steel washer
9 Clamping nut
10 Hub cap

15. Check the taper roller bearings and the bearing mountings in the wheel hub.
The information given in Job No. 26 — 5, Checking and Repair of Transmission, should be applied in judging the bearings.

Dimensions and Tolerances of Front Wheel Hub in mm

Taper roller bearing, designation	Diameter, wheel spindle in mm	Internal diameter, roller bearing	External diameter, roller bearing	Internal diameter, wheel hub
DIN 720 30 303	16.994 16.983	16.992 17.000	47.000 46.989	46.997 46.992
DIN 720 32 206	30.000 29.987	29.989 30.000	62.000 61.987	61.971 61.991