Removing and Installing Suspension Arms

10 ST

Special tools:

P 70	Suspenion arm gauge
VW 150	Offset handle with
VW 156	Key 8 mm for loosening suspension arm retaining screws
VW 127	Facing cutter for refacing suspension arm eyes

Removal

1. Remove suspension arm link and stub axle (6 St)

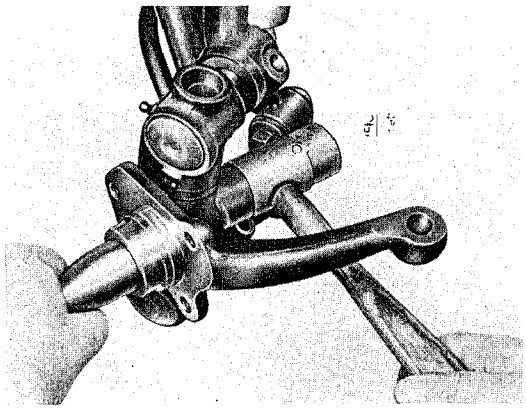

Fig. 42

2. Remove shock absorber (16 St)

3. Loosen shackle for anti-roll bar on lower suspension arm

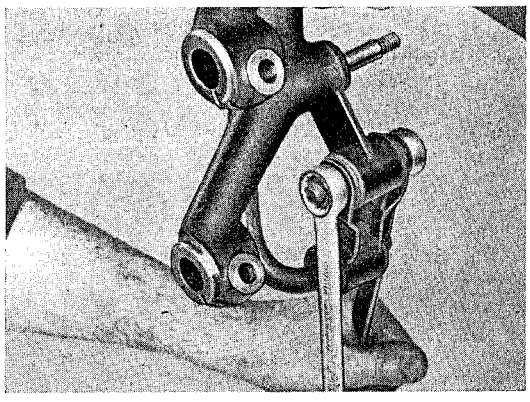

Fig. 43

4. Loosen lock nuts and threaded set pins on suspension arms with offset handle VW 150 or ratchet in connection with key VW 156

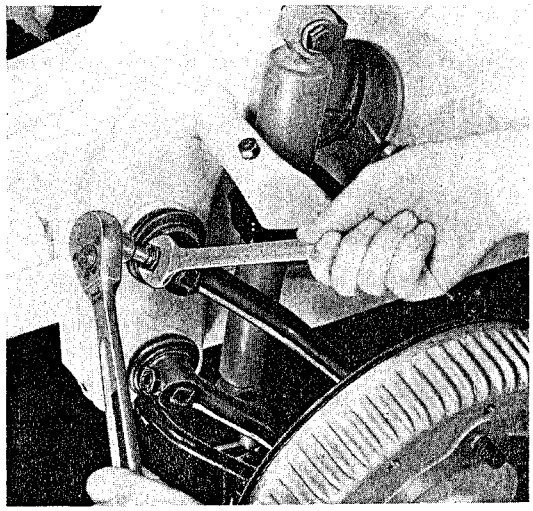

Fig. 44

5. Pull off suspension arm and rubber seal

6. Mark suspension arm needle bearings to avoid getting them mixed up when reinstalling

Checking Suspension Arms

1. Check suspension arms for parallelism and twist by placing suspension arms in test plate P 70.

   Prior to checking, remove rubber bearing for anti-roll bar on lower suspension arm

   Insert mandrel in suspension arm eye and tighten with clamping screw. Discrepancies from the test

plate values can be determined by means of a feeler gauge. Permissible out-of-parallel is .00787" (0,2 mm)

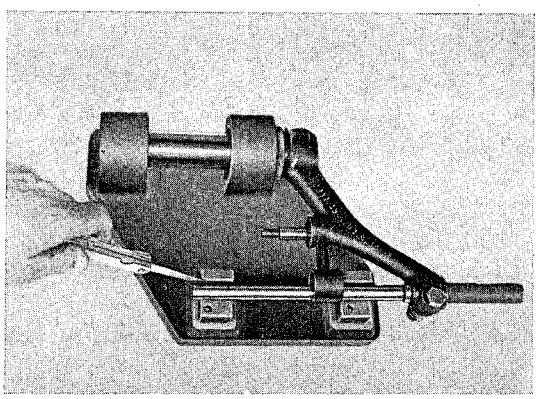

Fig. 45

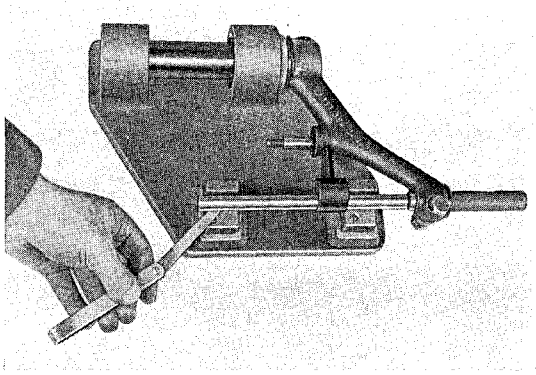

Fig. 46

No attempt should be made to straighten bent suspension arms, they must always be replaced

2. Check contact faces of suspension arm eyes for wear. If neccesary reface with cutter VW 217

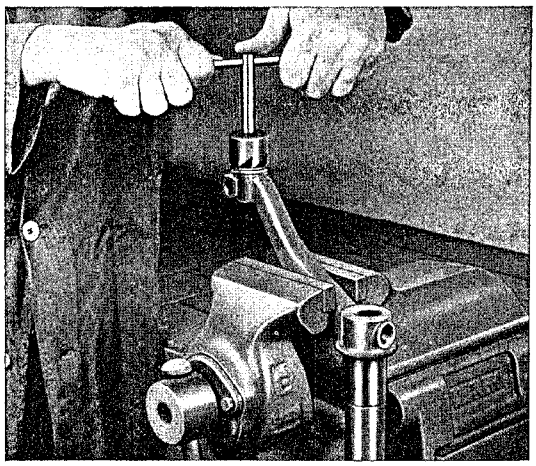

Fig. 47

3. Check suspension arm bearing points for wear. If heavy signs of wear or seizure are found, the suspension arm must be replaced

Installation

Installation is done in reverse order, observing the following points:

1. Check torsion bar adjustment. Make gauge according to sketch on page S 25

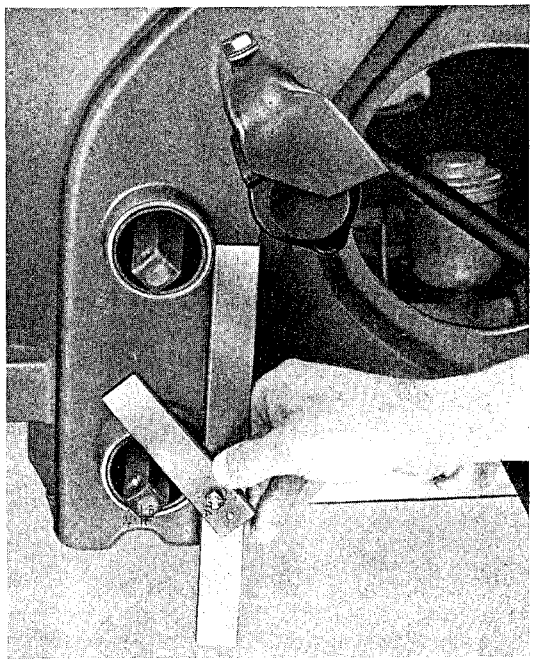

Fig. 48

2. Check suspension arm bearing bushings and needle bearings in front of axle tube for wear, replace if necessary.

3. If required, replace suspension arm rubber seal

4. Grease suspension arm with lithium-base grease and insert torsion bar until the countersink is in line with the recess in the suspension arm. Tighten threaded set pin and lock with counternut.

5. Re-install shock absorbers and firmly tighten retaining screws and nuts, using new lock plates or cotter pins resp.

Replacing Shock Absorber Mounting Stud on Suspension Arm

11 ST

General

When replacing the shock absorber mounting stud on suspension arm, in any case a .0197" (0,5 mm) oversize stud must be used. By pressing in the original stud, the hole in the suspension arm has been enlarged, so that a new stud of the same size would be a loose fit. Therefore replace standard studs of 11.989 mm dia. to 12,00 mm dia. by oversize studs of 12.489 mm dia. to 12,500 mm dia.

Removal

1. Remove suspension arm
2. Drive out retaining pin
3. Pull out stud. In case the stud is broken, center the piece remaining in the suspension arm by means of a center punch and drill a center hole of 1/8" (3 mm) dia. Then drill out the remaining piece using a 27/64" (10,75 mm) drill. The thin shell remaining around the drilled hole will come out during the final drilling revolutions.

Installation

1. Drill the hole in the suspension arm out with 31/64" (12,3 mm) dia; drill and ream with reamer 12,5 P 8 = 12,455 to 12,482 mm dia. If a reamer 12,5 P 8 is not available, make the stud to fit the hole by grinding it to the required size. A press fit of .0004" — .0020" (0,01 — 0,5 mm) must in any case be ensured.
2. Press oversize stud in place, ensuring that the free end has a length of 1.770" — 1.790" (45,0 to 45,5 mm).
3. Drill hole .1575" (4,00 — 4,08 mm) dia. in stud for retaining pin
4. Drive in retaining pin

Removing and Installing Torsion Bars

12 ST

Special tools:

VW 150 Offset handle with
VW 156 Key 8 mm for loosening suspension arm retaining screws

General

The front axle torsion bars consist of 8 steel leaves, welded together at both ends. The torsion bars are mounted in the center of the front axle tubes and secured in an adjustable clamping piece by means of retainings screws and counternuts.

The clamping piece is split and as the retaining screws are tightened, it is forced open and pressed against the axle tube. The clamping piece is further prevented from turning by an adjustment stop which is pressed from outside against the axle tube by the retaining screw nut.

A threaded set pin presses on the adjustment stop from the top and serves to readjust the torsion bars and prevents the adjustment stop at the same time from turning under heavy load.

Removal

1. Remove suspension arm of one side (10 St)

2. Loosen retaining screws and lock nuts of torsion bars in axle tube

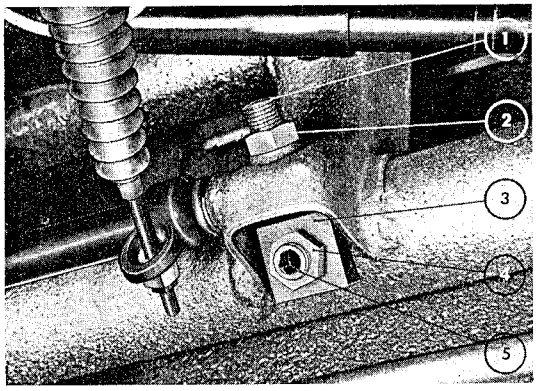

Fig. 49

① Threaded set pin
② Lock nut
③ Adjustment stop
④ Lock nut
⑤ Retaining screw

3. Pull out suspension arm of the opposite side together with the torsion bar

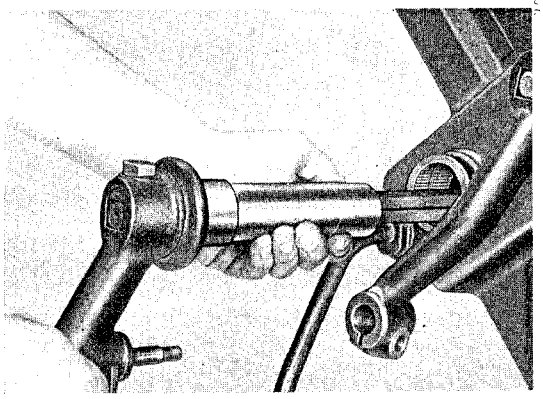

Fig. 50

Inspection

1. Clean torsion bars and check them for cracks and fractures. If necessary, replace
2. Loose torsion bar leaf ends must always be arc-welded

Installation

Install torsion bars in reverse order, observing the following points:

1. Check suspension arms, plastic bushings and needle bearings for wear, if necessary replace

2. Coat torsion bars with grease and place in position

3. Bring the countersink in the center of the torsion bar in line with the hole for the retaining screw. Tighten retaining screw slightly and press upward until the adjustment stop makes contact with the threaded set pin. Tighten retaining screw and check position of torsion bars

4. a) If the position of the torsion bar is correct, press adjustment stop against axle tube by tightening lock nut

   b) If the position of the torsion bars is incorrect, adjust them as outlined in page S 25

Important!

Offset of suspension arms and toe-in must be checked after every removal and reinstallation of torsion bars.

Checking and Adjusting Angular Position of Torsion Bars

13 ST

Checking

1. Remove left suspension arm

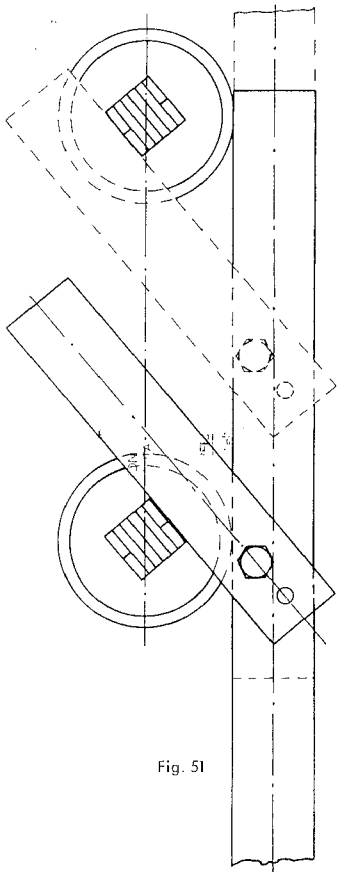

Fig. 51

Sketsch how to make gauge for checking torsion bar adjustment

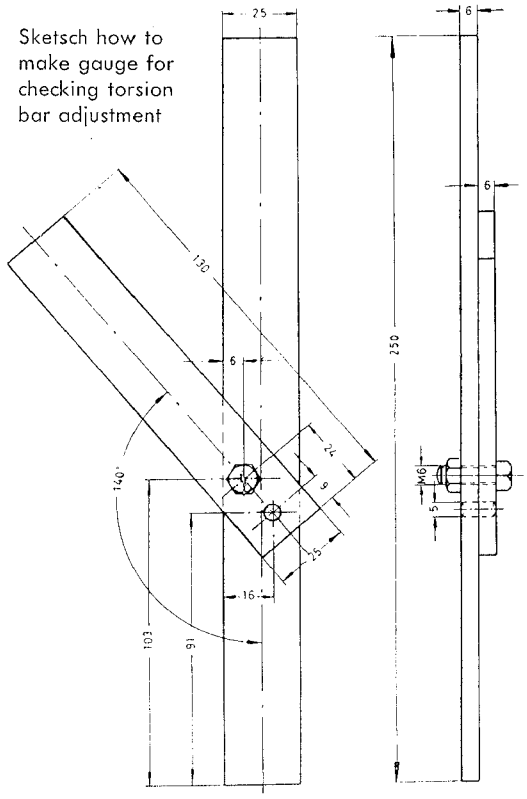

Fig. 53

2. Check angular position using homemade gauge (see fig. 52)

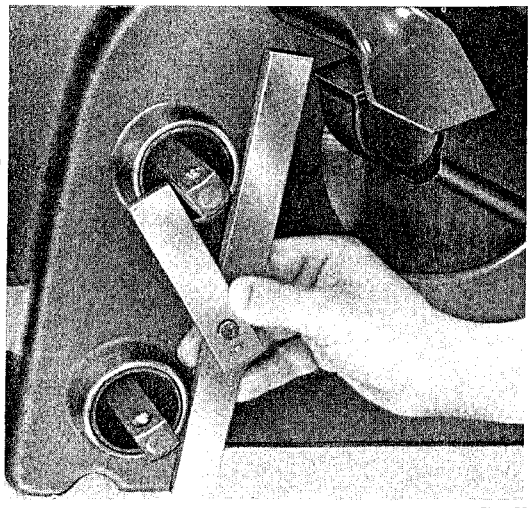

Fig. 52

Adjustment

1. Remove left suspension arm
2. Remove right stub axle
3. Loosen lock nut of retaining screw for torsion bar in the center of the axle tube
4. Loosen retaining screw with allen wrench (8 mm)
5. Loosen lock nut on threaded set pin
6. Correct torsion bar adjustment by turning threaded set pin, using allen wrench (8 mm)
   One full turn corresponds to an approximate angular correction on the torsion bar of 2° 50'
7. Check angular position, make sure that the adjustment stop makes contact with the threaded set pin
8. Tighten retaining screw and press adjustment stop against lock nut

9. Secure threaded set pin by tightening lock nut

10. Recheck torsion bar adjustment

Note:

If the adjustment range in the slot of the axle tube is not sufficient to correct the angular position of the torsion bar, the torsion bar to be adjusted must be removed and the slot refinished. Care should be taken that the slot is refinished .0394" (1 mm) longer than required, in order to make adjustment after setting of the torsion bars possible

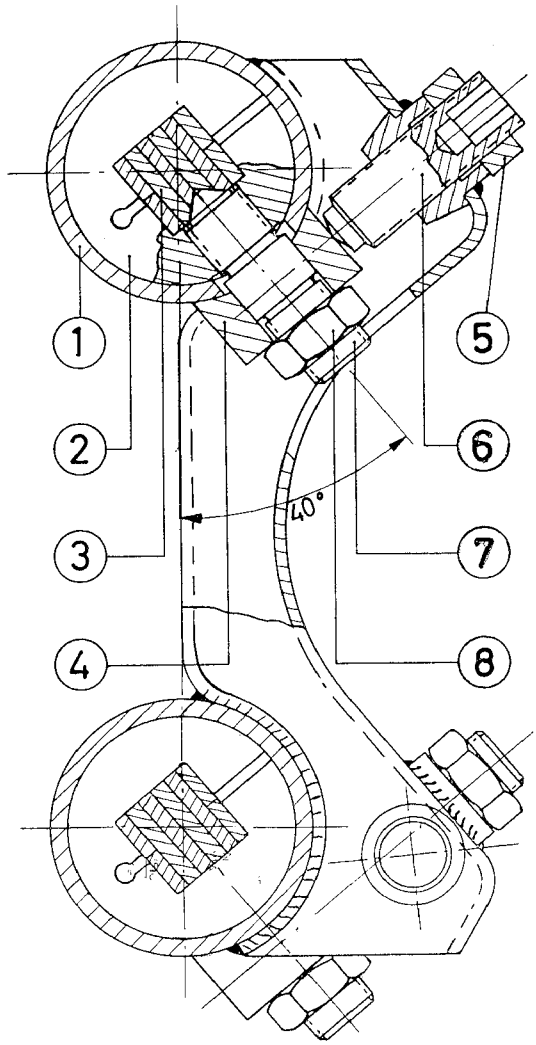

Fig. 54

① Front axle tube
② Clamping piece
③ Torsion bar
④ Adjustment stop
⑤ Lock nut
⑥ Threaded set pin
⑦ Retaining screw
⑧ Lock nut