

60A

— TRANSMISSION —  
— UNCOUPLING AND COUPLING DRIVE SHAFT SLIDING INNER FLANGE —

FIG.1. LEFT SIDE

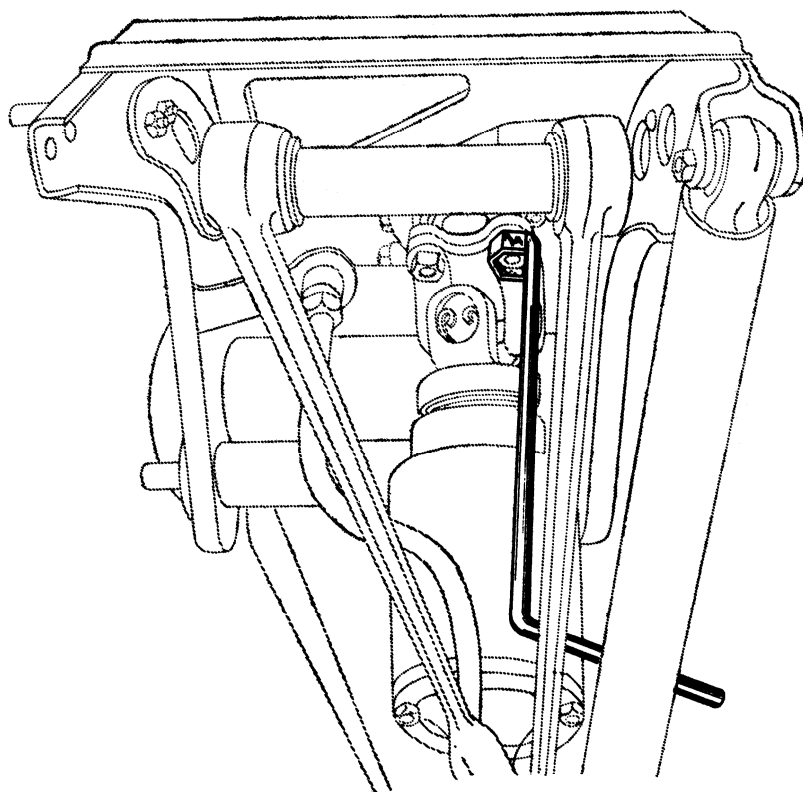
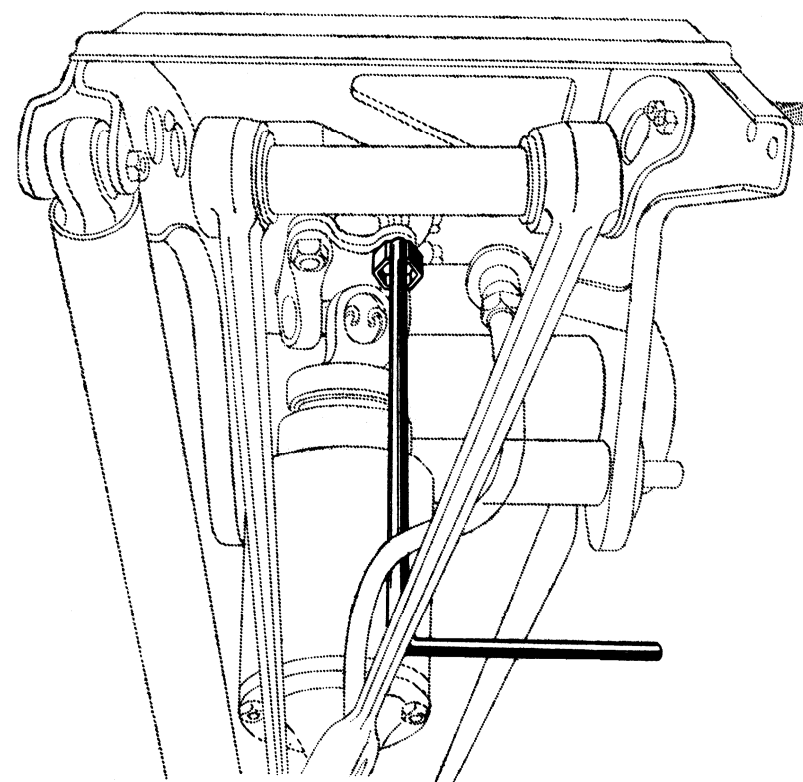
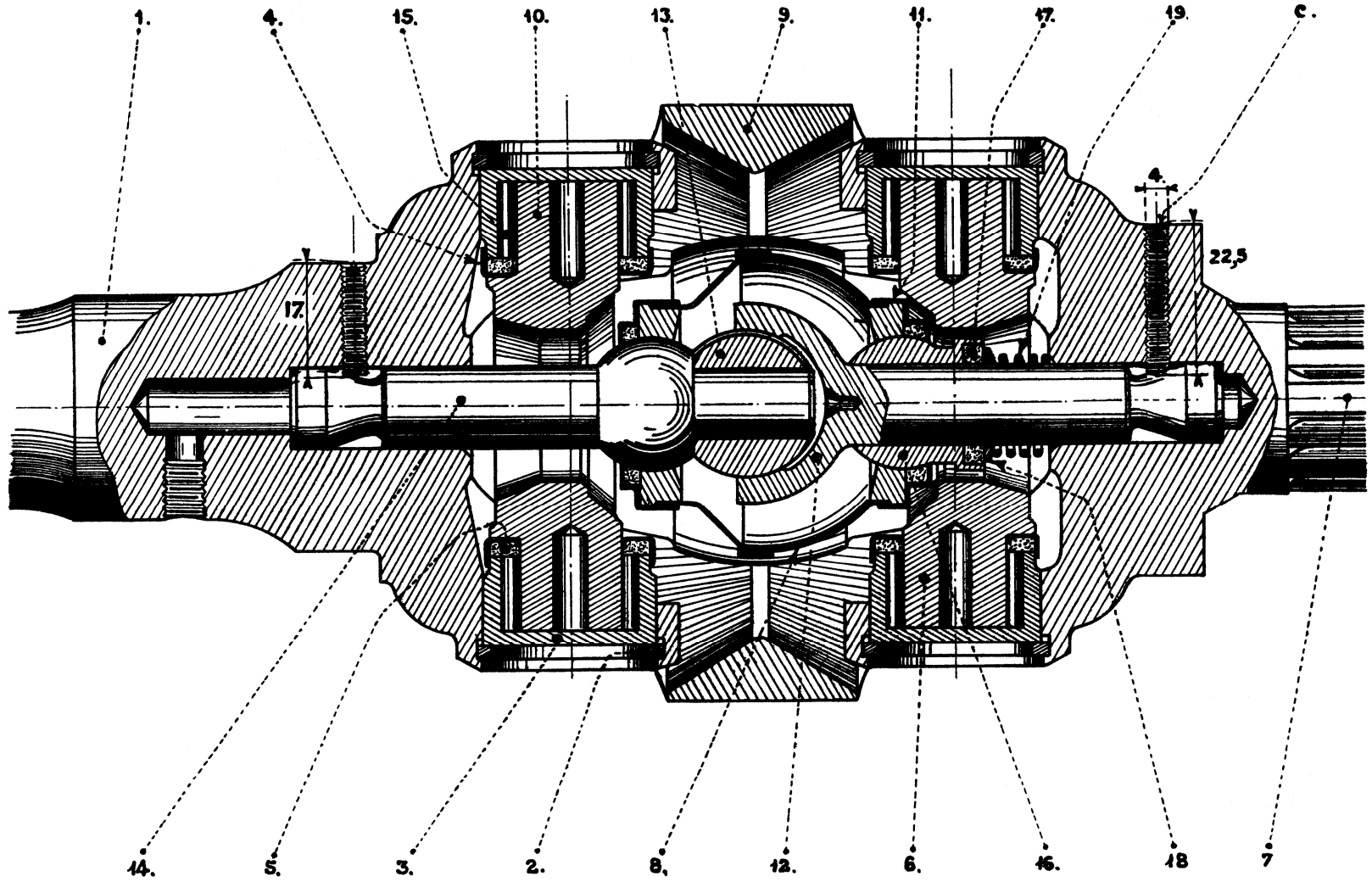


FIG.2. RIGHT SIDE



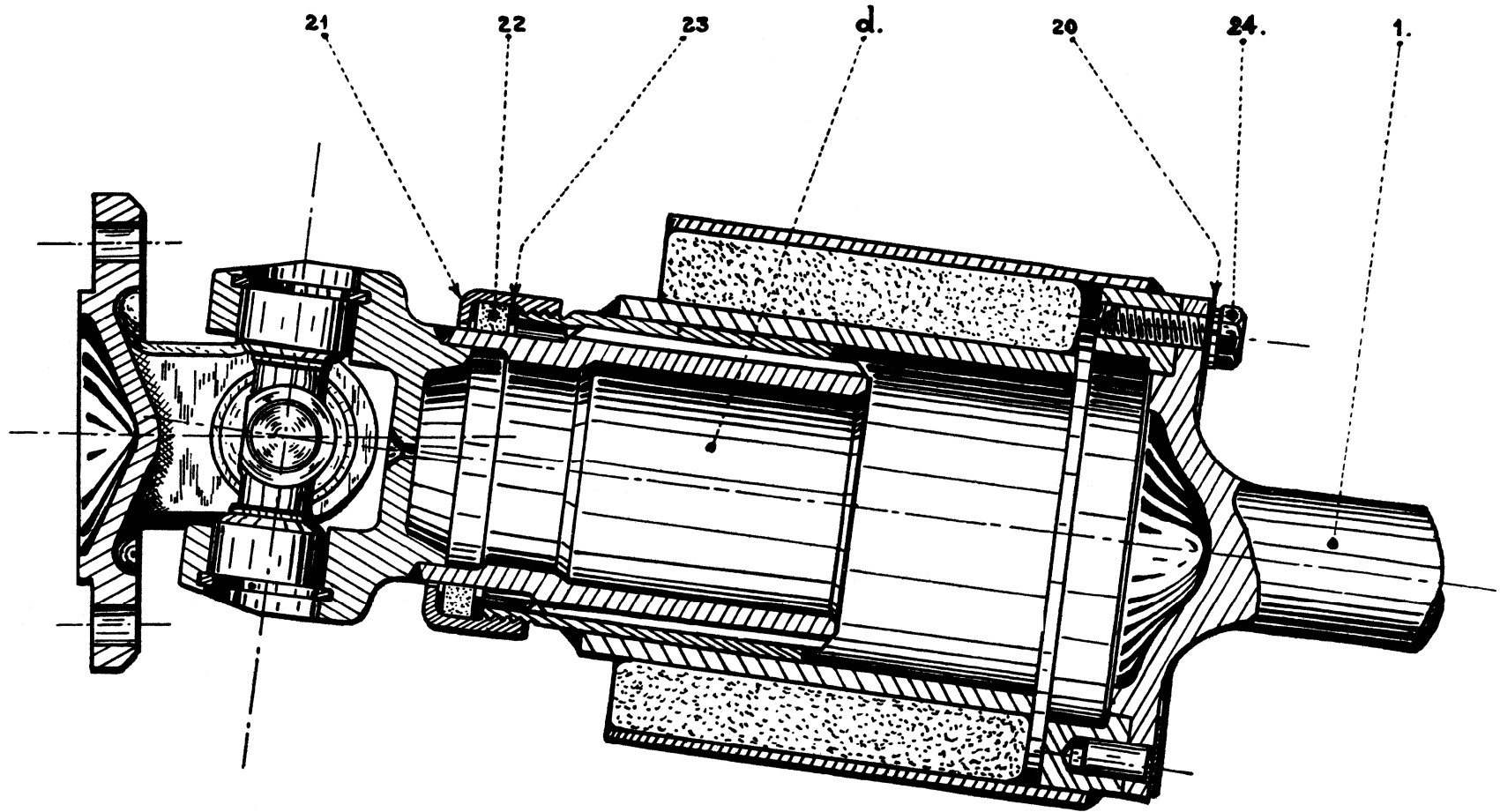
SPANNER 1832-T

— TRANSMISSION —  
— LONGITUDINAL SECTION THROUGH DOUBLE COUPLING —



## — TRANSMISSION —

## — LONGITUDINAL SECTION THROUGH FLEXIBLE COUPLING —



— TRANSMISSION —  
— DISMANTLING —

FIG.1. REMOVING CIRCLIPS

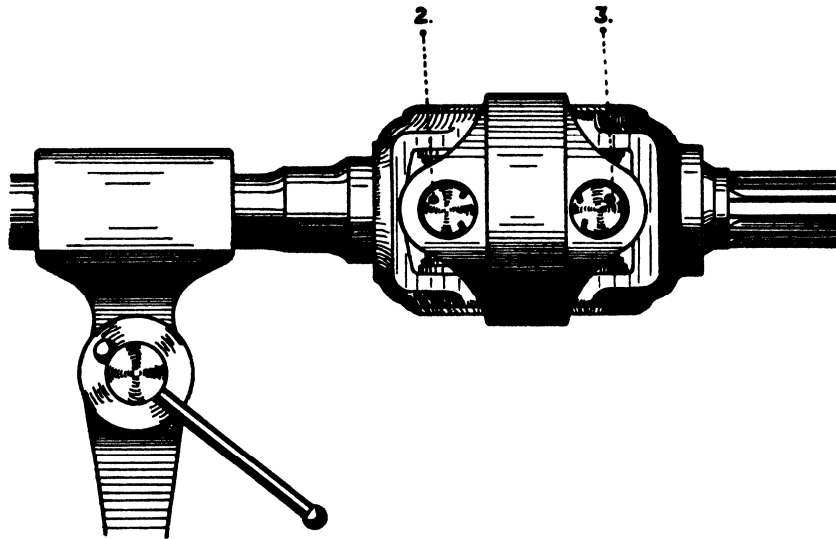


FIG.2. REMOVING NEEDLE BEARING CUPS.

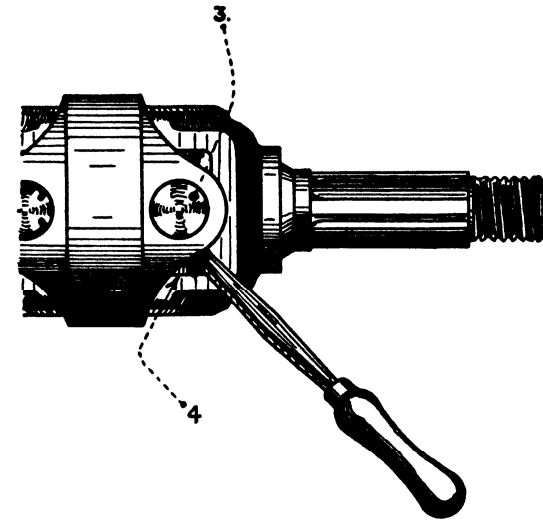


FIG.3. REMOVING STUB AXLE

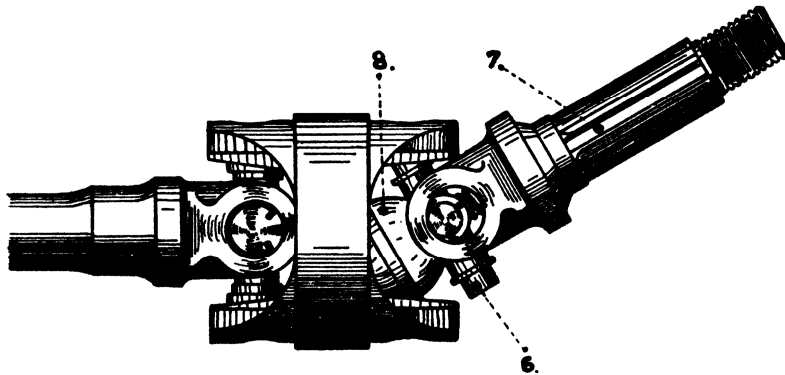
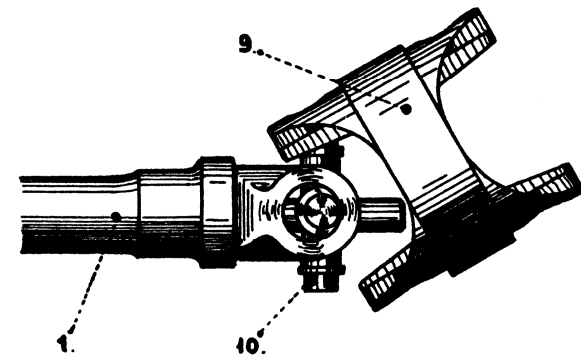


FIG.4. REMOVING DOUBLE YOKE



— TRANSMISSION —  
— DISMANTLING —

FIG. 5. REMOVING PROTECTING CUPS.

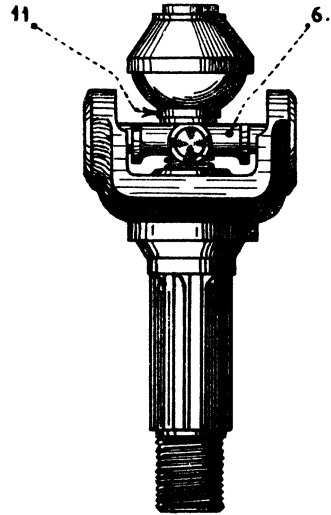
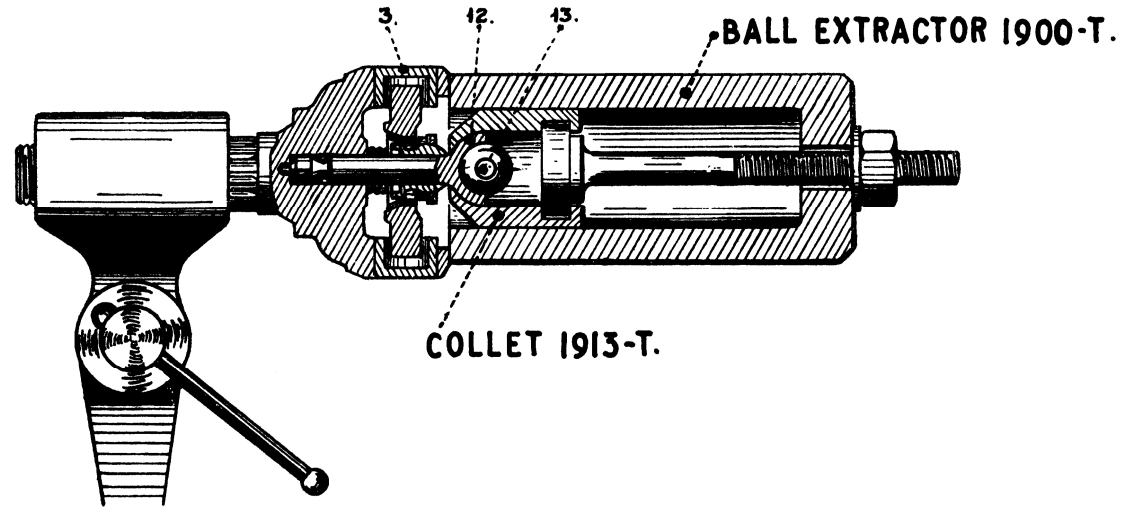
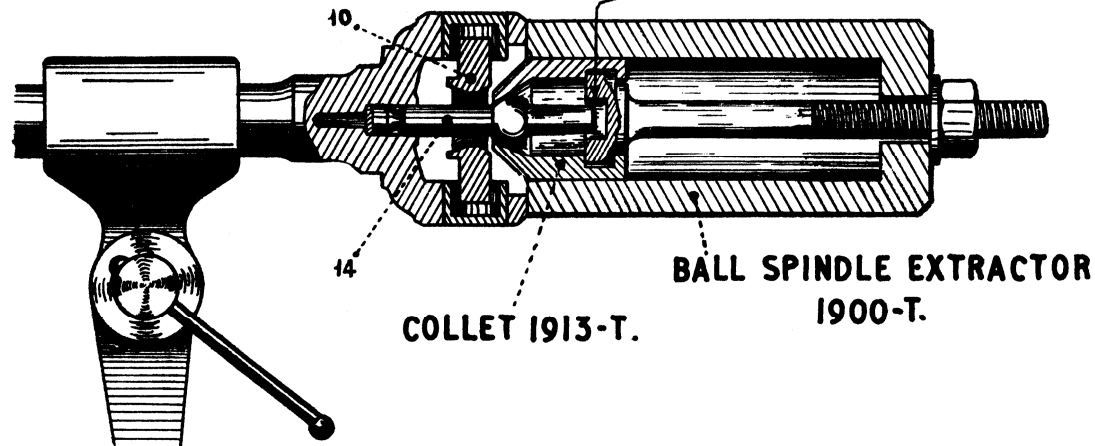


FIG. 6. EXTRACTING SPIGOT BALL AT STUB AXLE SIDE.



— FIG. 7. — EXTRACTING BALL SPINDLE.



*To use collets 1913-T, it is necessary to modify the extractor screw by drilling a 14dia. hole, 10 deep.*

— TRANSMISSION —  
— ASSEMBLING —

FIG.9. FITTING CROSSHEAD.

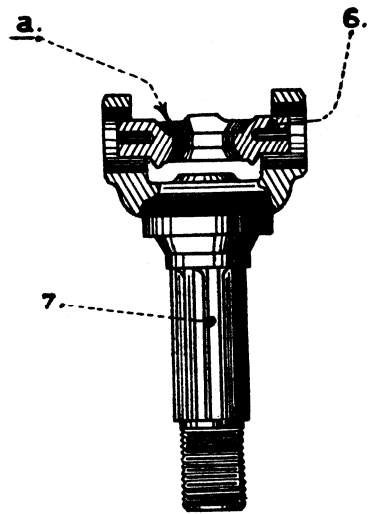


FIG.10. FITTING BALL-PIN.

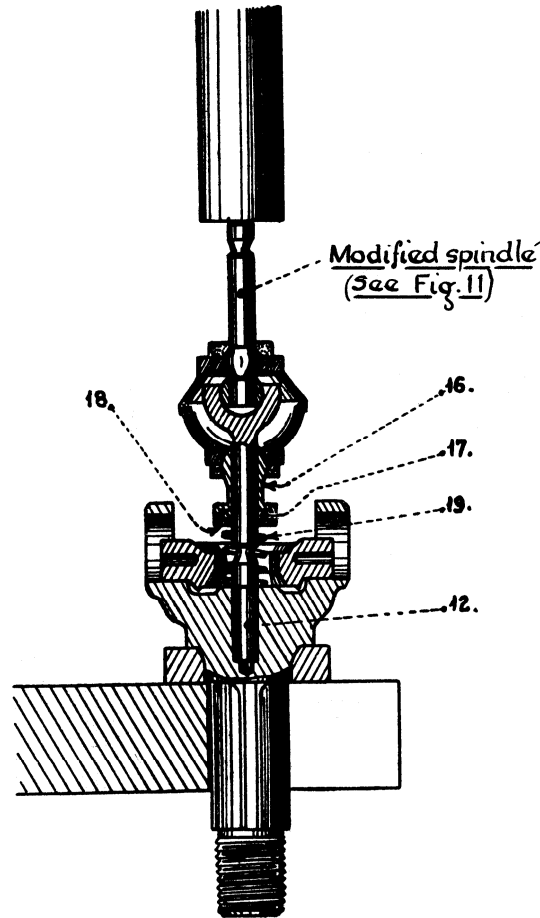


FIG.11. MODIFIED BALL SPINDLE.

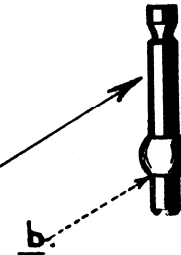


FIG.12. CHECKING POSITION OF INNER BALL.

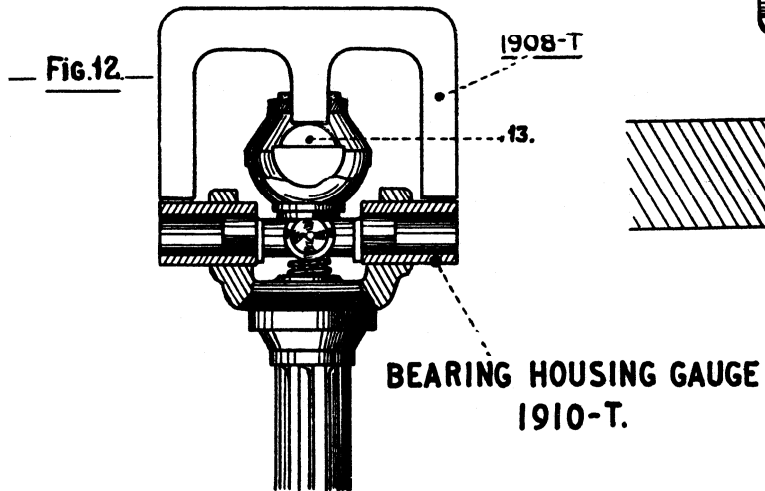
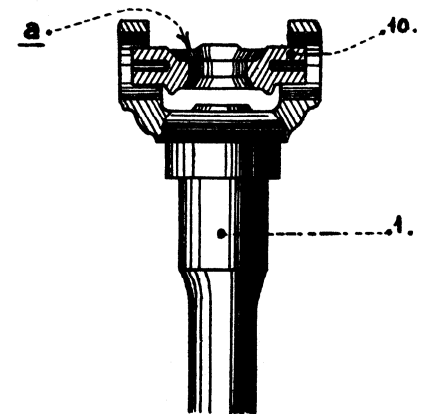
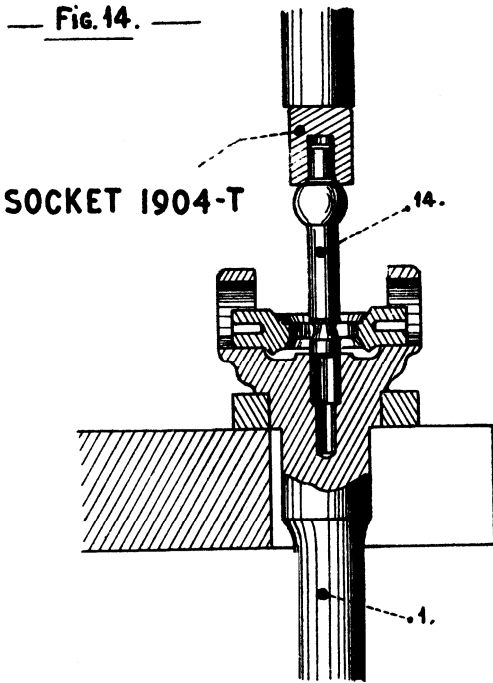


FIG.13. FITTING CROSSHEAD.

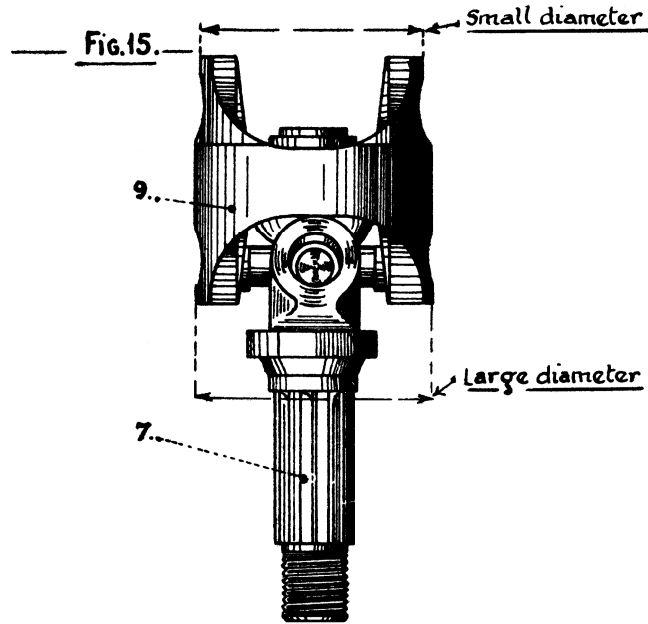


— TRANSMISSION —  
— ASSEMBLING —

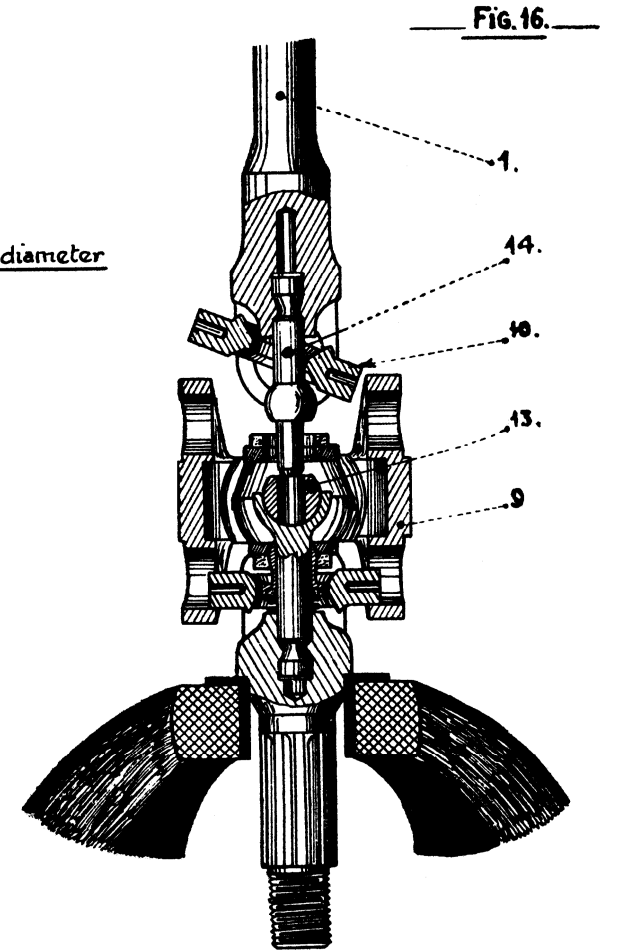
FITTING BALL PIN SPINDLE



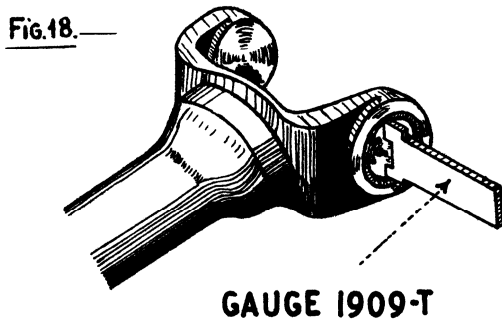
FITTING DOUBLE YOKE



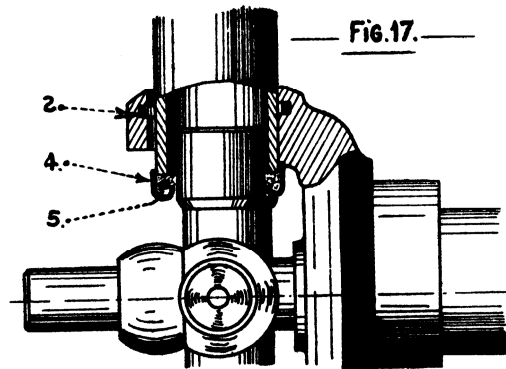
FITTING DRIVE SHAFT



CHECKING FITTING OF CIRCLIPS



FITTING CUPS AND CORK WASHERS



	REMOVE TRANSMISSION (see Drawing 62)	
1	Remove hub cap from wheel. Unscrew hub nut. (Use spanner 1810-T. see Drawing 46).	Box spanner 16 Spanner 1810-T
2	Jack up vehicle at the front and block it up under lower link arms.	
3	Unscrew bolts (24) assembling drive shaft and flexible coupling, and also the nuts fixing coupling flange to driving flange on gearbox. (Use spanner 1832-T, see Drawing 60A).	Spanner 1832-T Flat spanners 14-17
4	Separate the drive shaft (1) from the flexible coupling. When necessary, dismantle the parts by tapping lightly with a mallet and if necessary finally disengage with a screwdriver or small lever.	
5	Disengage the drive shaft from the hub and brake drum assembly. Next disengage the flexible coupling assembly and the sliding coupling.	
	FITTING TRANSMISSION (see Drawing 62)	
6	Fit the flexible coupling assembly and the sliding coupling to the gearbox driving flange and provisionally tighten nuts fitted with shakeproof washers under each.	Flat spanner 17
7	Engage drive shaft (1) in hub and brake drum assembly after having lightly oiled the stub axle splines. (To ensure constant velocity of the transmission joints, it is essential for one of the crosshead pins in the single cardan coupling to be parallel with one of the double cardan couplings).	
8	Fit drive shaft to flexible coupling, tighten bolts (24), and turn back lockwasher tabs.	Flat spanner 14
9	TIGHTEN UP HARD THE NUTS FIXING COUPLING FLANGE to the gearbox driving flange. (Use spanner 1832-T, see Drawing 60A).	Flat spanner 17 Spanner 1832-T
10	Lower vehicle to the ground.	
12	Lightly oil the face of the hub nut and tighten to a tension of 30 mkg. (217 foot pounds). (Use spanner 1810-T and torsion gauge 2472-T). Secure nut with a split pin.	Spanner 1810-T Torsion gauge 2472-T
	Fit hub cap to wheel.	



DISMANTLING TRANSMISSION (see Drawings 61, 63, and 64)

- 1 Disconnect drive shaft (1) from 'Bibax' (flexible coupling).

Box spanner 14

DISMANTLE SLIDING COUPLING FROM STUB AXLE

- 2 Hold the assembly in a vice. Remove the four circlips (2) retaining the bearing cups (3) on the stub axle side.

With a scraper remove burrs of metal and paint likely to impede the extraction of bearing cups (see fig. 1).

By means of a bent screwdriver prise out the four sheet steel cups (4), thereby disengaging the needle bearing cups (3). Remove bearing cups with needles. (See fig. 2). Do not forget to remove the cork washers (5) fitted in cups (4), as well as the cups or the dismantling of the assembly will be obstructed ( see Drawing 61).

Tilt the crosshead (6) so that its trunnions emerge from the double yoke by way of the release aperture. The crosshead being free, draw out stub axle (7) together with crosshead (6) and the ball joint assembly (8) (see fig. 3).

- 3 Remove drive shaft yoke. Remove bearing cups according to paragraph 2 (see figs. 1 and 2.)  
Remove the double yoke. (9) by tilting crosshead (10), the latter remaining on the drive shaft (1) (see fig. 4).

- 4 Remove crosshead (6) from stub axle (see Drawing 64). Unsolder cup (11) from the ball joint projecting cups at the stub axle side. This cup is soft soldered. Remove grease retaining cups to allow, use of ball joint extractor. If protecting cups are unsoldered at the central joint, it is still necessary to unsolder cup (11) (fig. 5).

NOTE. THE BALL PINS ARE LOCKED BY EITHER DOWEL PINS OR GRUB SCREWS. THE PINS SHEAR THEMSELVES WITHOUT DIFFICULTY AT THE MOMENT OF EXTRACTION OF BALL PINS. GRUB SCREWS MUST BE REMOVED BEFORE EXTRACTING BALL PINS. (Grub screws are locked by centre punching at two points).

- 5 Remove the ball pin (12) with ball (13) remaining in ball pin cup. (Use extractor I900-T together with collets 1913-T. See fig. 6). To prevent distortion, place two bearing cups (3.) without needles into bearing cup housings (see fig. 6).

Extractor 1900-t  
Collets 1913-T

- 6 Remove the crosshead (10) from drive shaft end. Use the method, described in paragraph 5. (Use extractor 1900-T with collets 1913-T (see fig. 7).

Extractor 1900-T  
Collets 1913-T

ASSEMBLING TRANSMISSION (see Drawings 61-64-65-56)

- 7 PREPARE NEEDLE BEARING CUPS (3)

<p>Fill each needle bearing cup with grease similar to Mobilcompound . Fit twenty- five needles (15) in each cup.</p> <p>8 PREPARE CROSSHEADS (6 and 10) Fill the lubrication holes in each crosshead with grease similar to Mobilcompound .</p>	
<p>9 PREPARE THE STUB AXLE (see Drawing 65) Fit the crosshead (6). The hollow face 'a' must be facing away from the stub axle (see fig. 9). Fit to the ball pin (12), equipped with its protecting cups (assembly (8) sold by our Spare Parts Department), the sliding ball (16), cork washer (17), plain washer (18), and the spring (19) (see fig. 10). Make sure that the central hole in the stub axle and the stem or the ball pin (12) are perfectly clean. By means of a press fit the ball pin (12) so that it is right home in stub axle (the pressure required may be as much as 12 tons). Use an olc ball pin spindle (14) that has been modified. Grind down the diameter of the spindle ball so that it will pass easily into the protecting cups. Also grind away the corner radius at 'b' to prevent the modified spindle seizing in the inner ball (13) on assembly (see fig. 11). FIT THE ASSEMBLY IN THE VERTICAL POSITION TO PREVENT STRESS IN THE BALL PIN STEM. Check the position of the inner bail ( 13). (Use Three-point gauge 1908-T and two bearing cup housing gauges 1910-T, see fig. 12). If the baall pin is locked by a dowel, drill hole 'c' into centre of stub axle. (Use a 4 mm. diameter drill and drill to 22.5 mm. deep (see Drawing 61). Drive in dowel pin and file off flush. If the ball pin is locked by a grub screw, screw it right home and secure by centre punching at two points. Fill the protecting cups (8) with grease similar to Mobilcompound.</p>	<p>Three-point gauge 1908-T Bearing housing gauge 1910-T</p>
<p>10 PREPARE THE DRIVE SHAFT (see Drawings 65 and 66) Fit the crosshead (10). The hollow part 'a' must be facing away from the drive shaft (see fig. 13) Press the ball pin spindle (14) right home. (Use socket 1904-T, see fig. 14). FIT THE SPINDLE IN THE VERTICAL POSITION TO PREVENT STRESS IN THE STEM. Drill hole for dowel (4 mm. diameter drill to a depth of 17 mm.) or fit grub screw (see paragraph 4).</p>	<p>Socket 1904-T</p>
<p>11 FIT THE DOUBLE YOKE Fit the yoke (9) on the stub axle (z). If the double yoke has two different outside diameters fit it for preference with the larger diameter at the stub axle side (see fig. 15).</p>	
<p>12 FIT THE DRIVE SHAFT Fit drive (1) to the double yoke (9). This operation is best undertaken holding the parts vertically in a vice. Introduce a trunnion of the crosshead (10) on the drive shaft side into</p>	

the corresponding bearing cup housing of the double yoke (9). At the same time engage the ball pin spindle (14) into the inner ball (13) and position the second trunnion of the crosshead (10). This is a delicate operation and force must not be used. Make sure that the inner ball (13) is positioned correctly to receive the stem of spindle (14) (see fig. 16).

13 FIT THE NEEDLE BEARING CUPS (see fig. 17)

With the aid of a tube fit a sheet steel cup (4) fitted with a cork washer (5) coated with Hermetical. Fit the bearing cup MAKING SURE THAT THE NEEDLE BEARINGS ARE CORRECTLY PLACED. Fit circlip (2) and make sure that it is correctly seated. (Use gauge 1909-T, see fig. 18). Repeat these operations for the other bearing cups. Make sure, by operating by hand, that there is no play or tightness in the coupling.

Tube 20 x 24 x 100  
Gauge 1909-T

RECONDITIONING CARDAN COUPLING ON GEARBOX SIDE

14 DISMANTLE COUPLING

Remove bearing cups, cork washers, sheet steel cups, and crosshead using the same method as for the drive shaft (see Drawing 63, figs. 1, 2 and 3, and paragraph 2).

15 ASSEMBLE COUPLING

Use same method as for assembling a drive shaft crosshead (see Drawing 66, figs. 17 and 18, and paragraphs 7, 8 and 13).

16 Fit "Bibax" flexible coupling to drive shaft (see Drawing 62)

Fit washer (20) for securing pins. Fit spring washers under heads of bolts and tighten. Fill the bore 'd' of the sliding coupling with grease of the Mobilcompound type. Grease also the sliding coupling splines. Engage sliding coupling in flexible coupling.

To ensure constant velocity of couplings, IT IS ESSENTIAL that one of the crosshead pins of the sliding yoke is parallel with a crosshead pin of the double yoke. Tighten cap (21) fitted with felt washer (22) and splined washer (23). Lock the cap by centre punching on the outside diameter of the threaded portion.