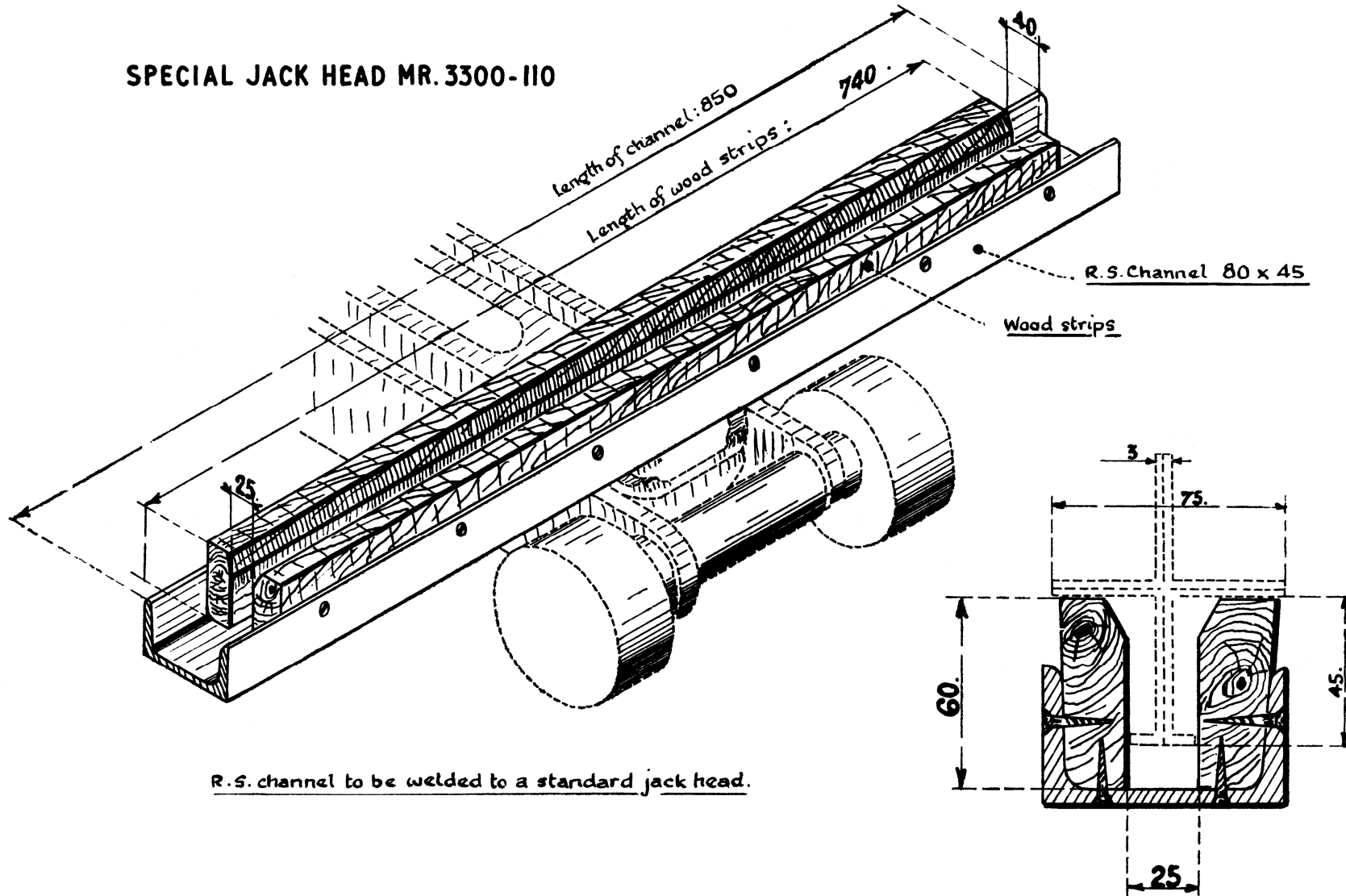


— REAR AXLE —

— LIFTING REAR AXLE —

SPECIAL JACK HEAD MR. 3300-110



R.S. channel to be welded to a standard jack head.

— REAR AXLE —
 — POSITIONING REAR AXLE —

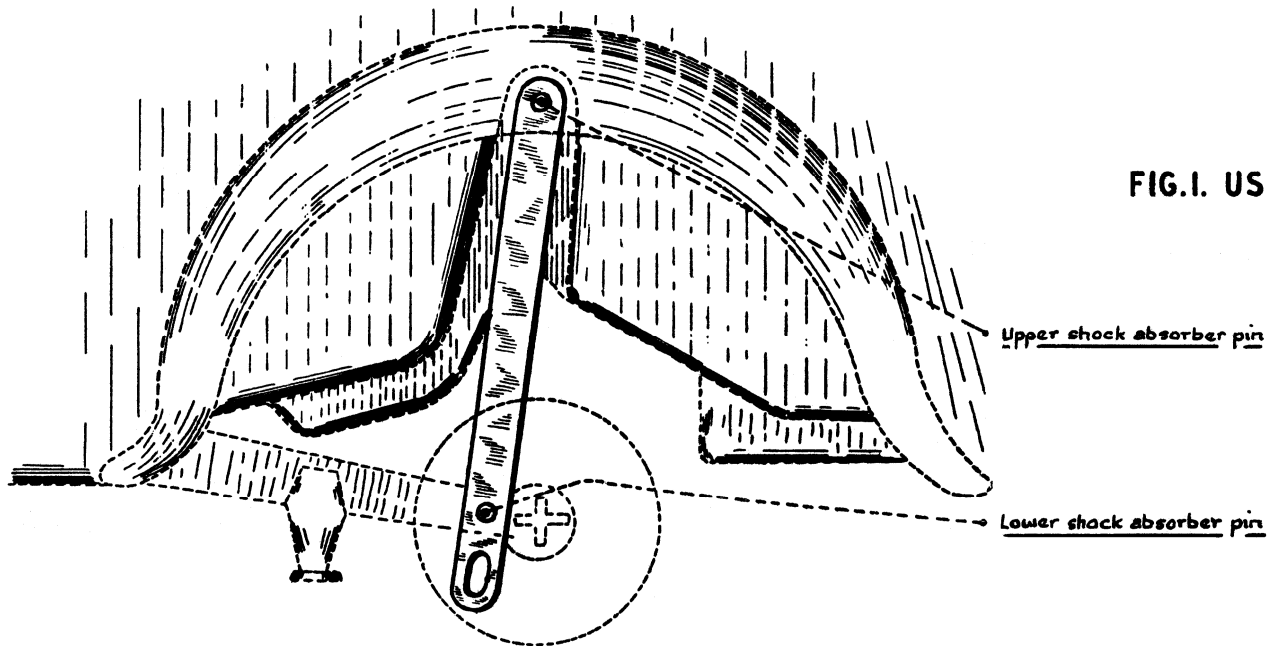
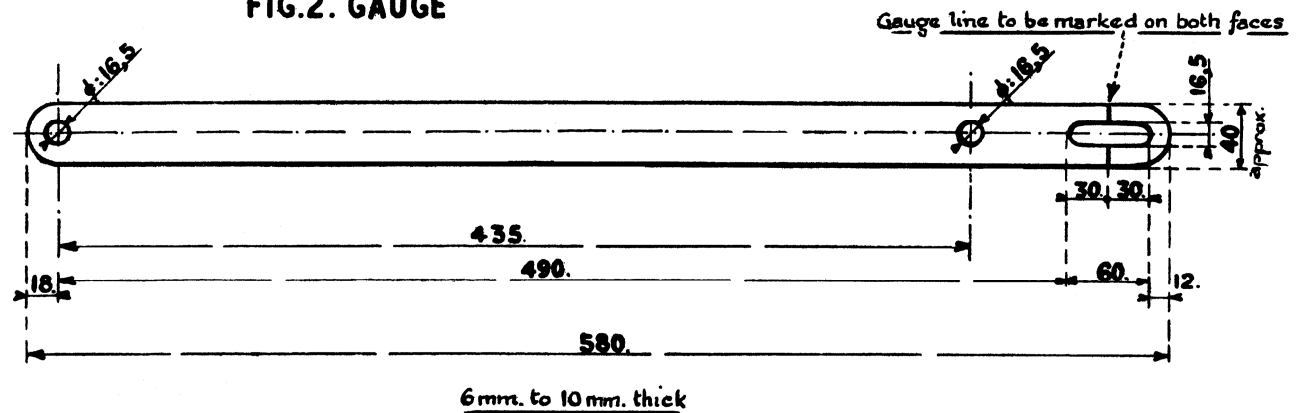
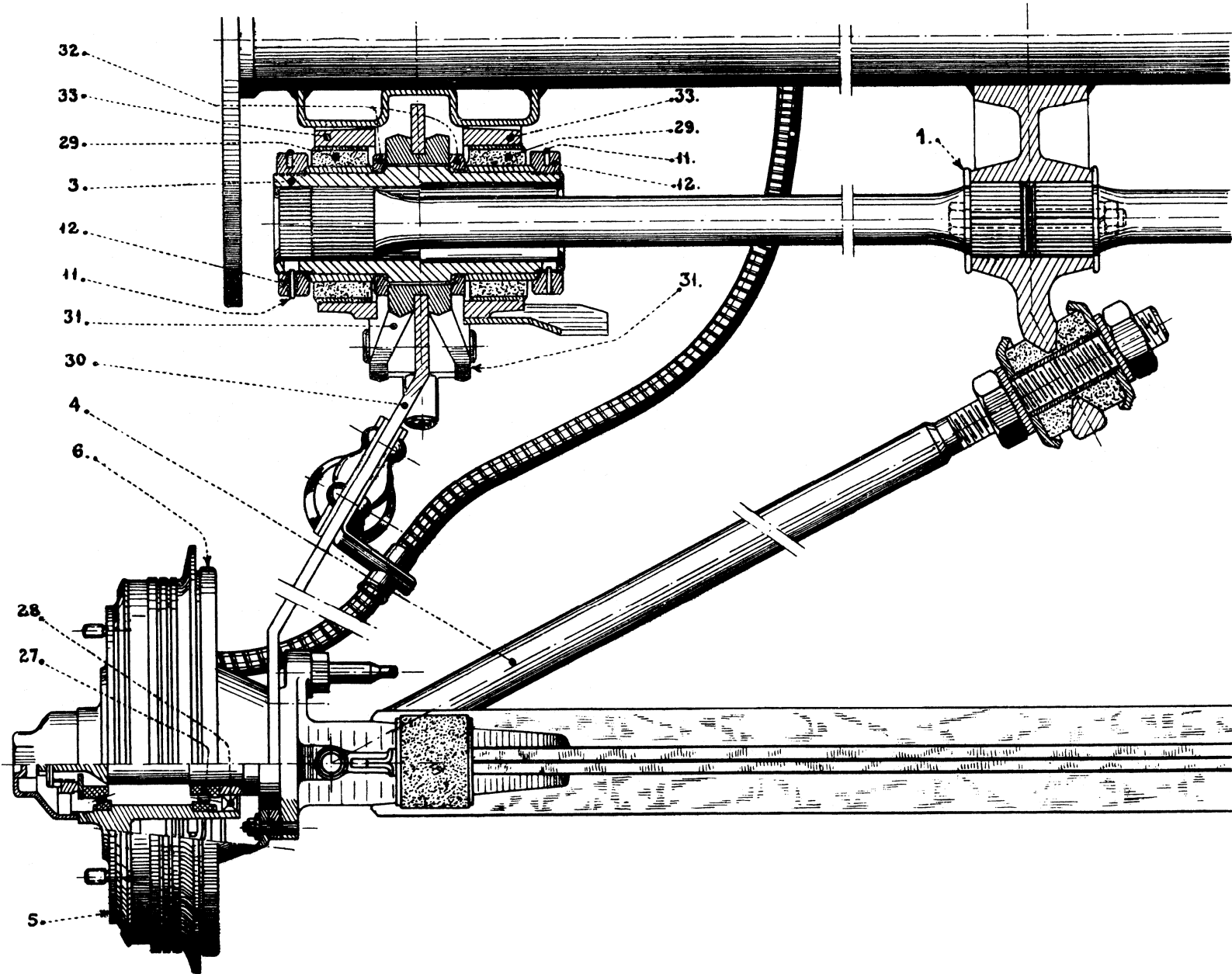


FIG.1. USE OF GAUGE

FIG.2. GAUGE



— REAR AXLE —
— PLAN VIEW —

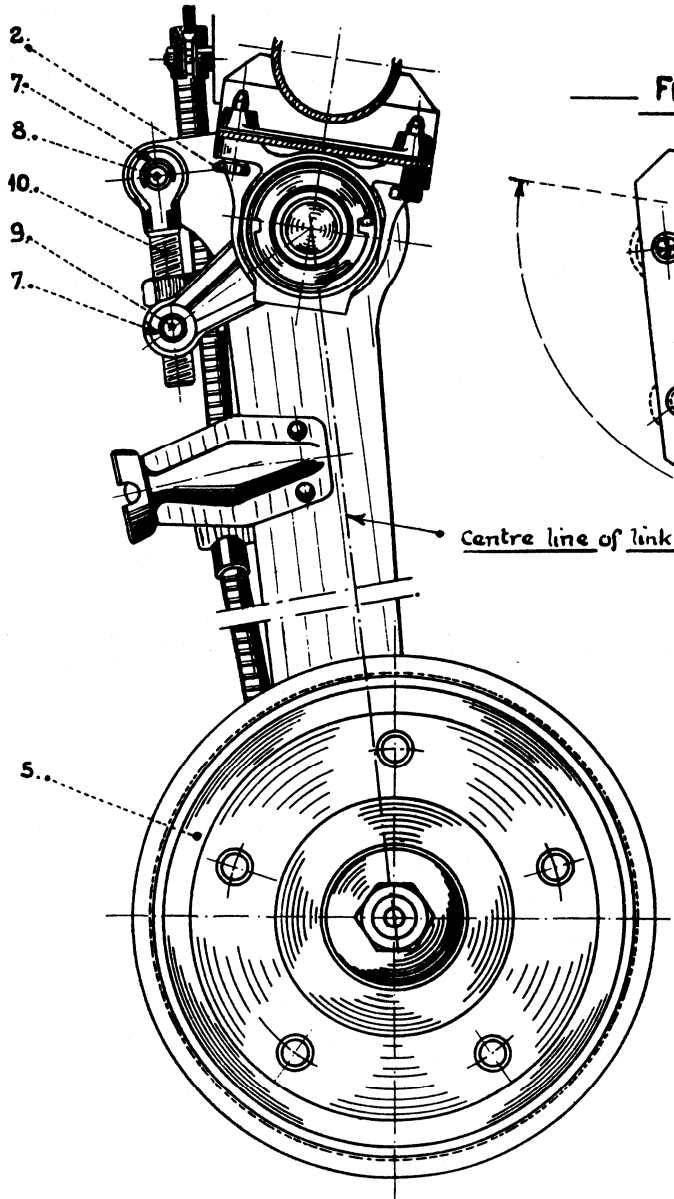


— REAR AXLE —

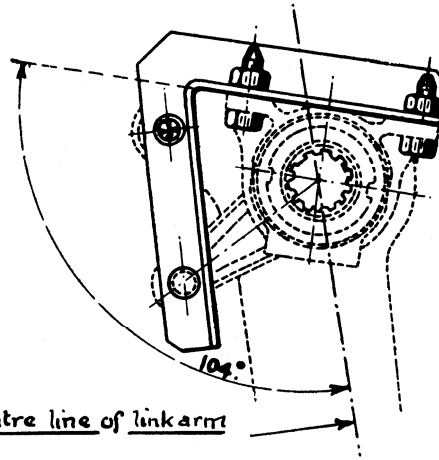
— LINK ARM —

USE OF FIXTURES

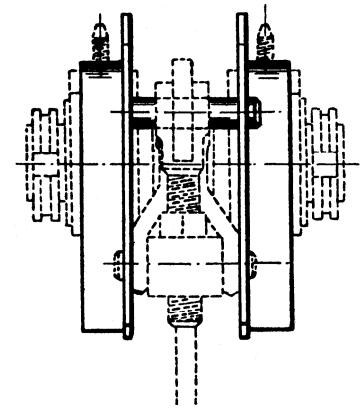
— Fig.1 —



— Fig.2. —

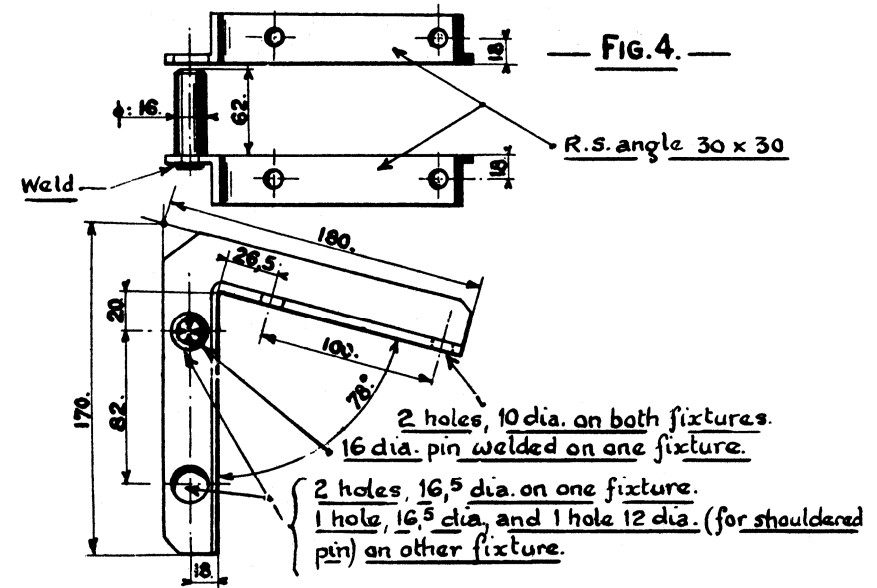


— Fig.3. —



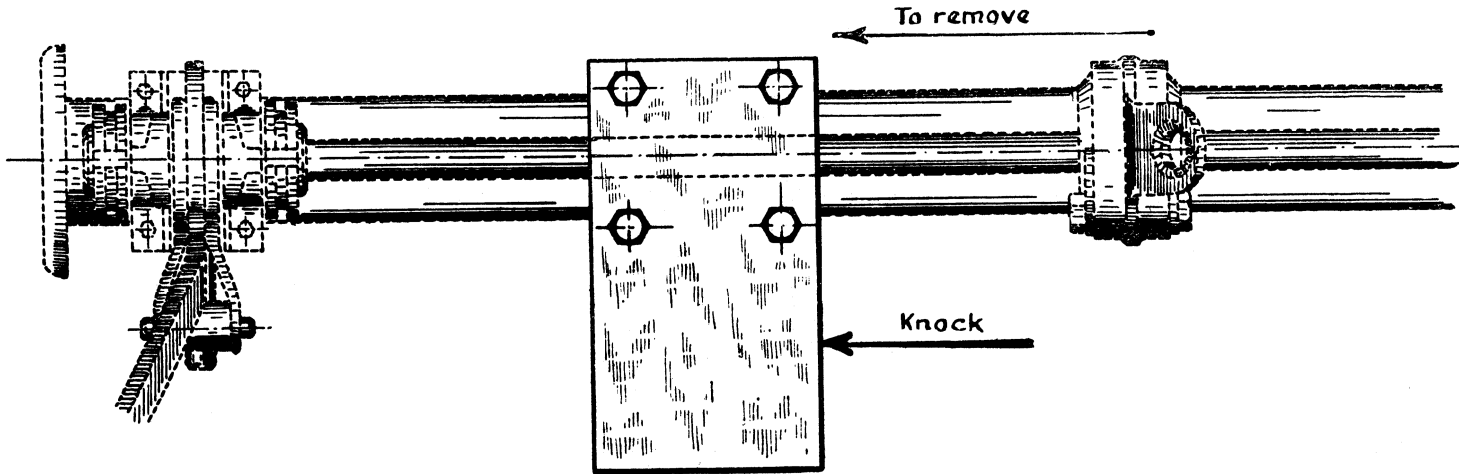
FIXTURES MR. 3336

— FIG.4. —

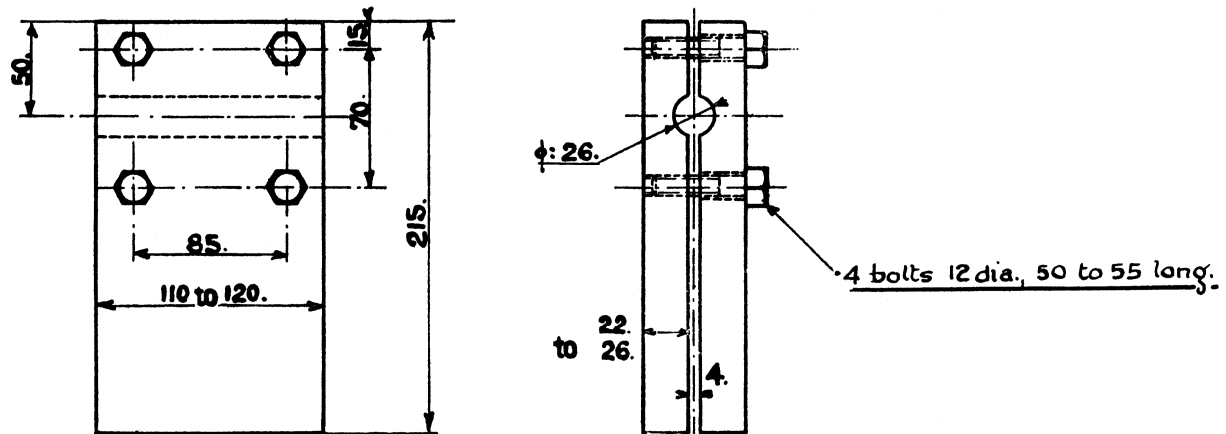


— REAR AXLE —
— REMOVING TORSION BARS —

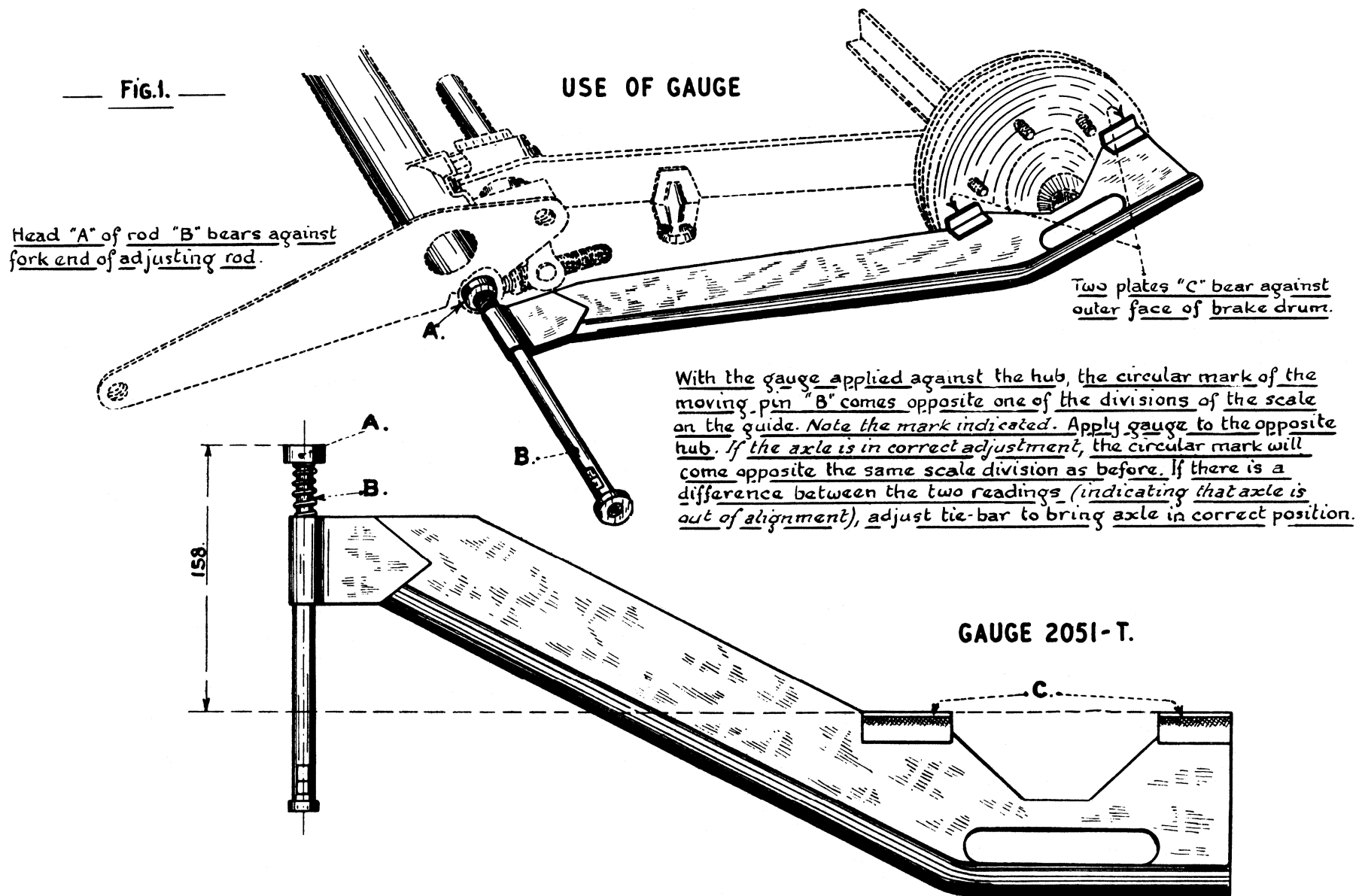
— Fig.1. — USE OF DRIVING BLOCK ASSEMBLY



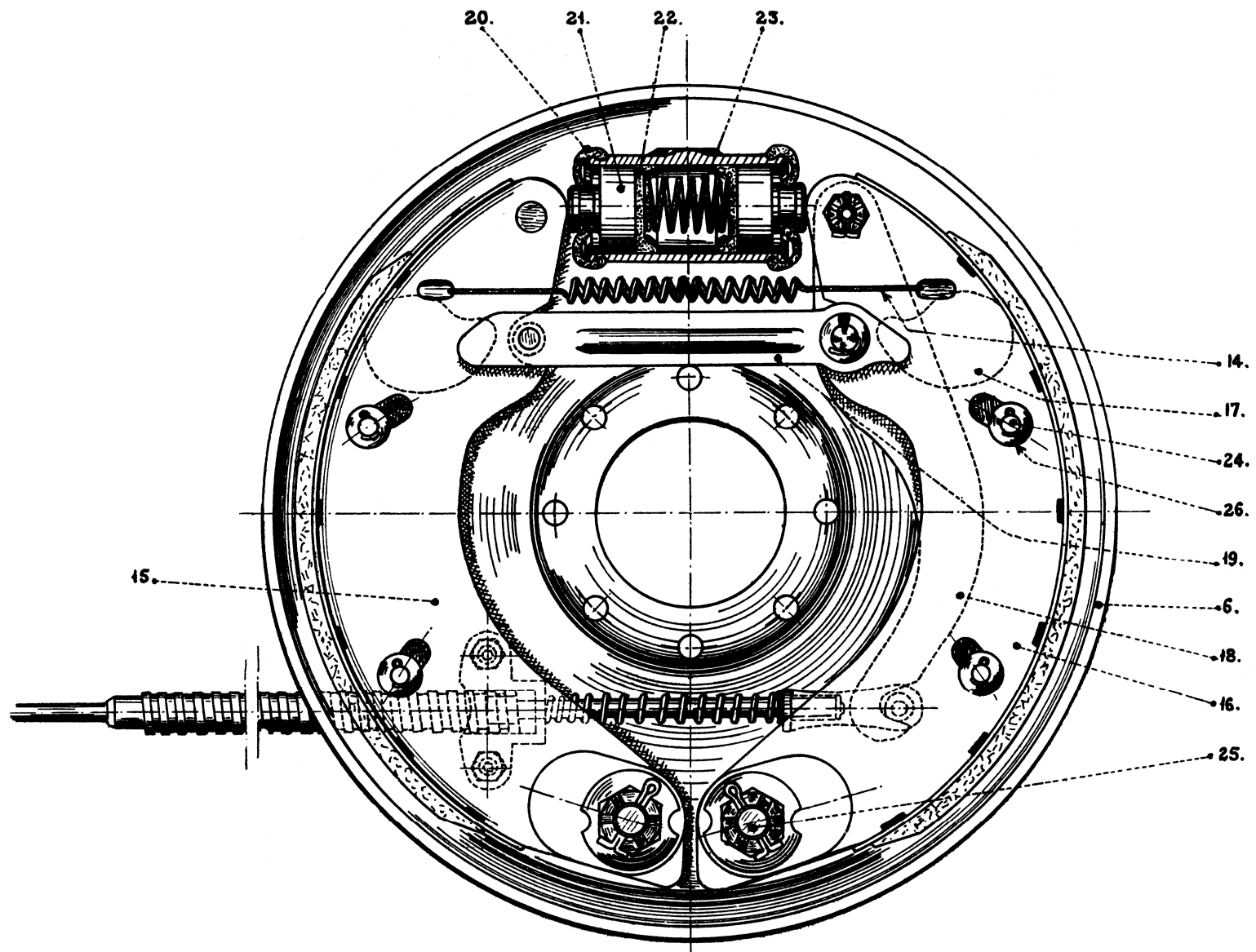
— Fig.2 — DRIVING BLOCKS MR.1578.



— REAR AXLE —
— LATERAL POSITIONING OF AXLE —



— REAR AXLE —
— BRAKE BACK PLATE —



— REAR AXLE —

— FITTING OR REMOVING BRAKE SHOE RETURN SPRINGS —

FIG. 1. REMOVING A SPRING.

Pointed tip of pliers placed
in nearest rivet hole.

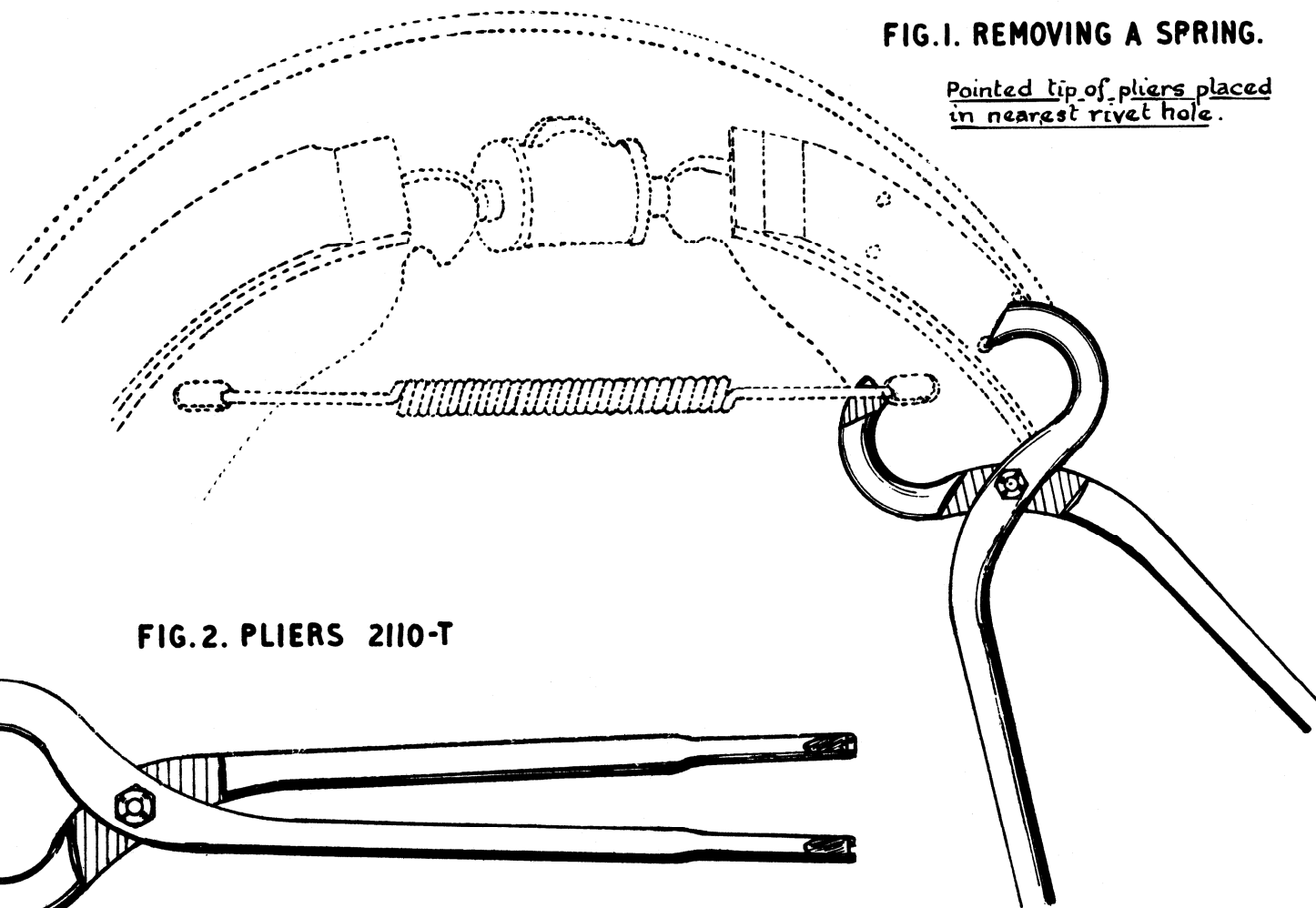
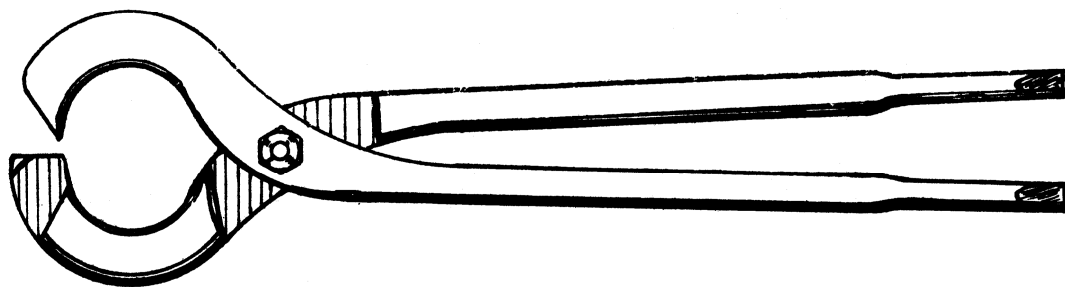
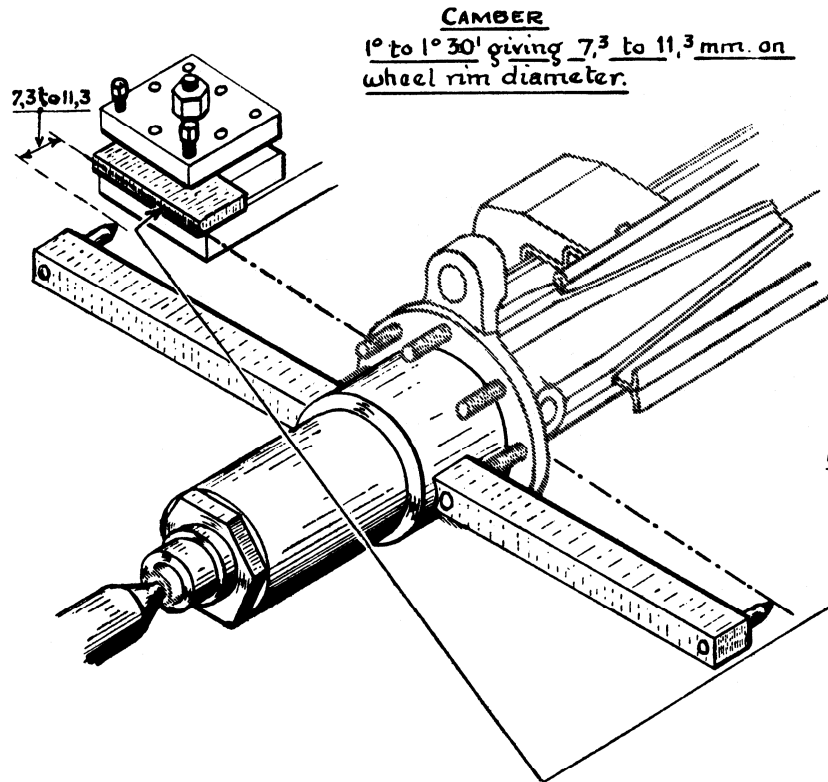


FIG. 2. PLIERS 2110-T



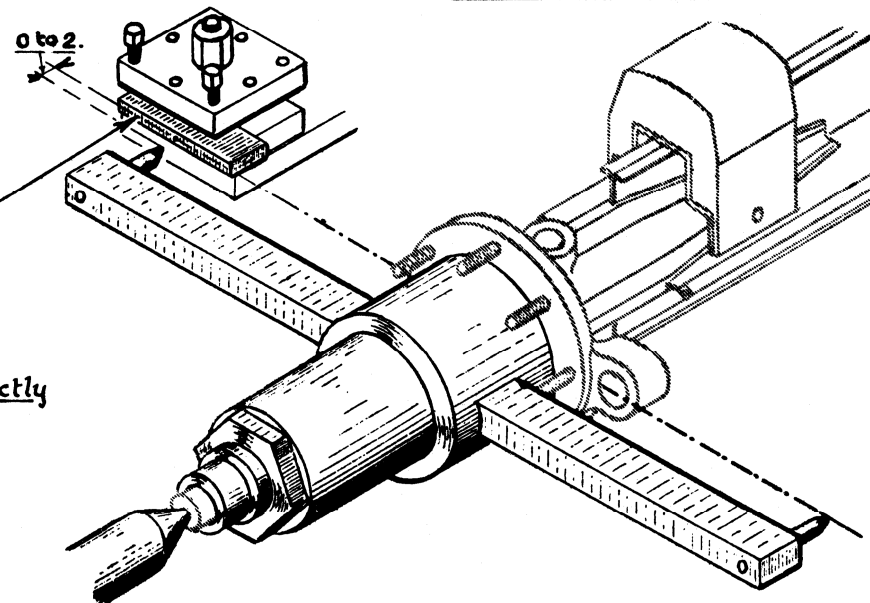
— REAR AXLE —
— CHECKING CAMBER AND TOE-IN OF REAR AXLE —

— FIG. 1. — CHECKING CAMBER



CAMBER
1° to 1° 30' giving 7,3 to 11,3 mm. on
wheel rim diameter.

— FIG. 2. — CHECKING TOE-IN



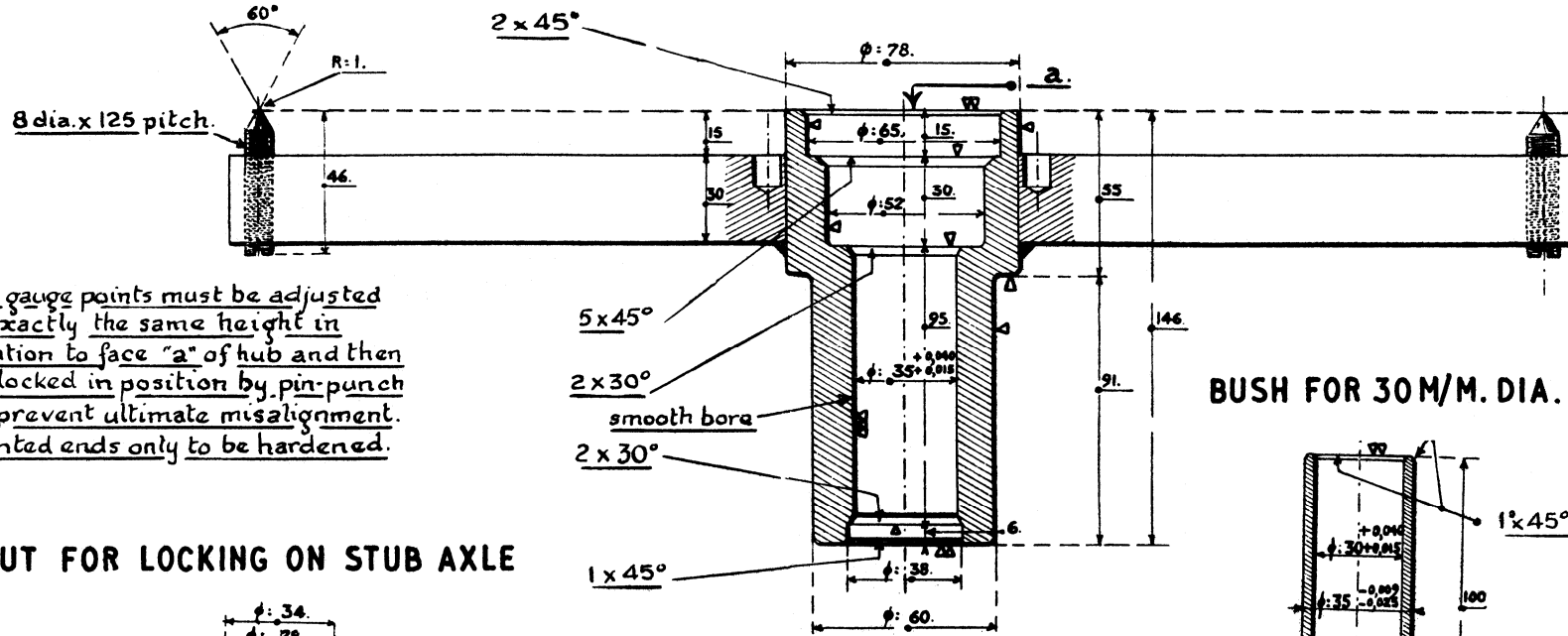
TOE-IN
0° to 0° 15' giving 0 to 2 mm.
on wheel rim diameter.

Working face of gauge must be perfectly
square with centre line of lathe.

On stub axles of 30 mm. dia. it is
necessary to fit a bush between
stub axle and gauge body.

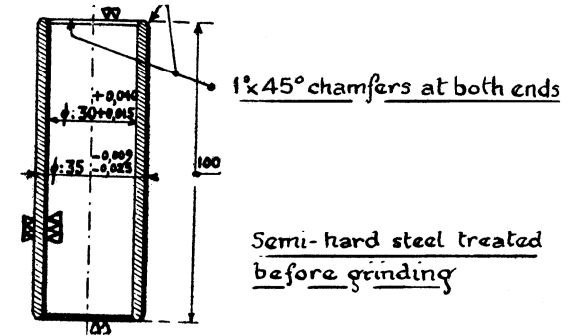
— REAR AXLE —
 — CHECKING CAMBER AND TOE-IN OF REAR AXLE —

APPARATUS 2052-T



Two gauge points must be adjusted to exactly the same height in relation to face "a" of hub and then be locked in position by pin-punch to prevent ultimate misalignment. Pointed ends only to be hardened.

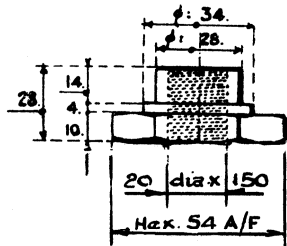
BUSH FOR 30M/M. DIA. AXLES



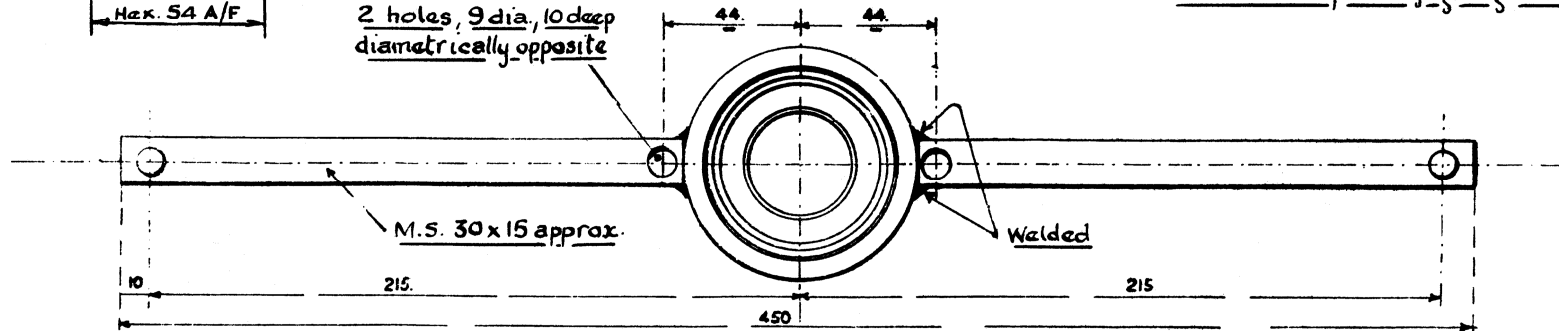
Semi-hard steel treated before grinding

This bush is part of gauge 2103-1

NUT FOR LOCKING ON STUB AXLE

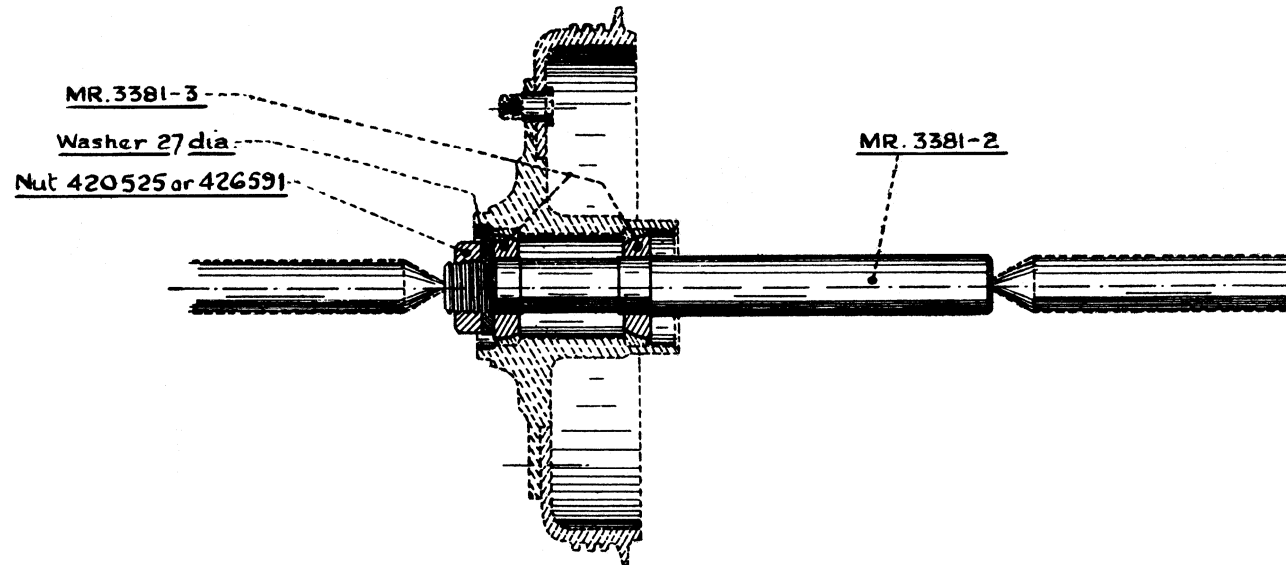


2 holes, 9 dia, 10 deep diametrically opposite

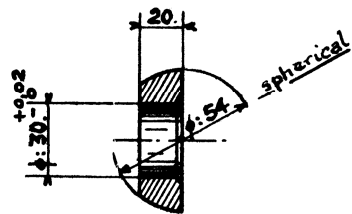


— REAR AXLE —
— RECTIFICATION OF BRAKE DRUMS —

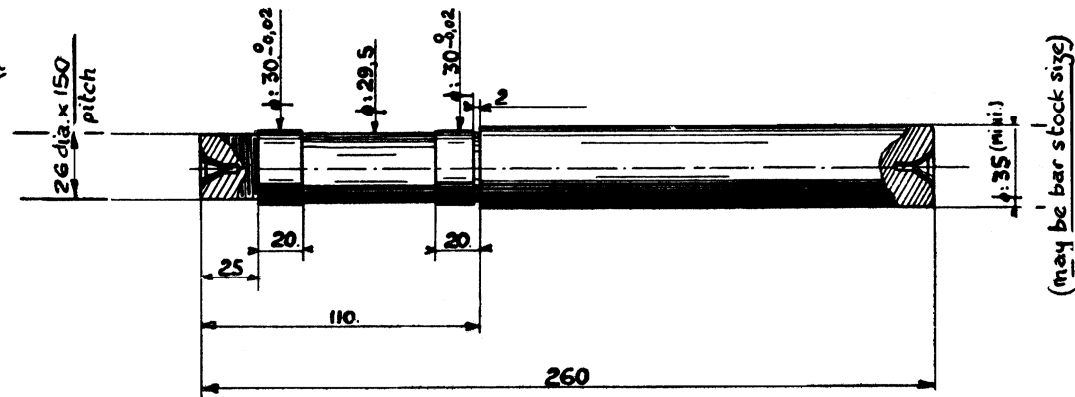
USE OF MANDREL



BUSH MR.3381-3

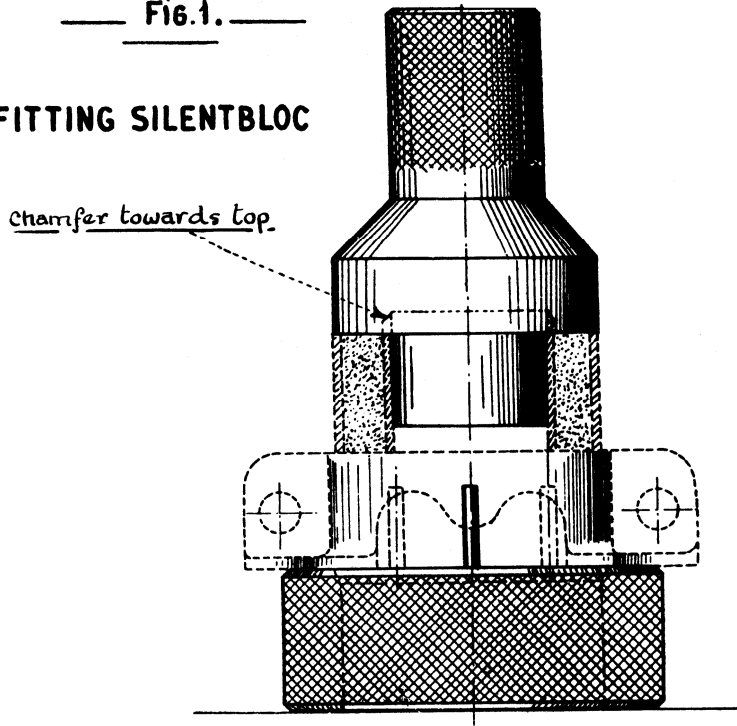


MANDREL MR. 3381-2

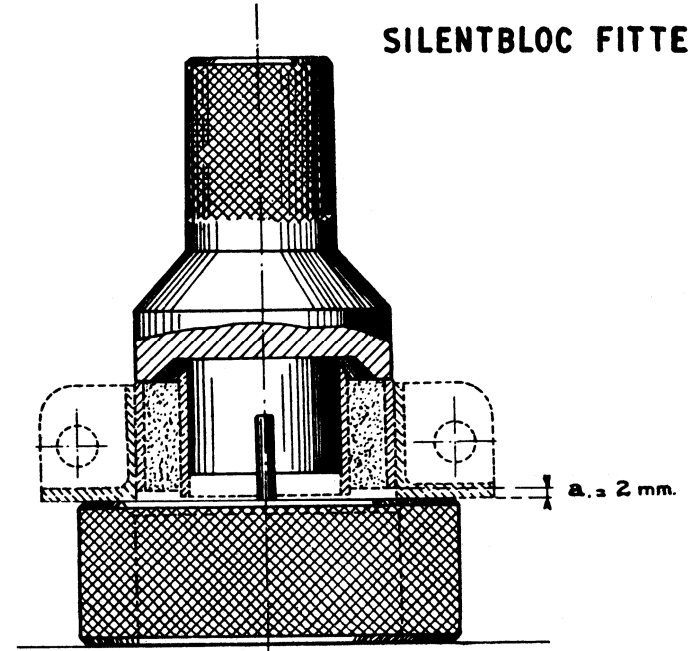


— REAR AXLE —
— REPLACEMENT OF SILENTBLOCS —

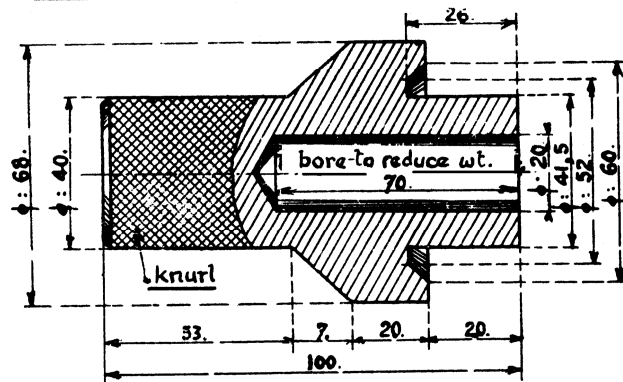
— Fig.1. —
FITTING SILENTBLOC



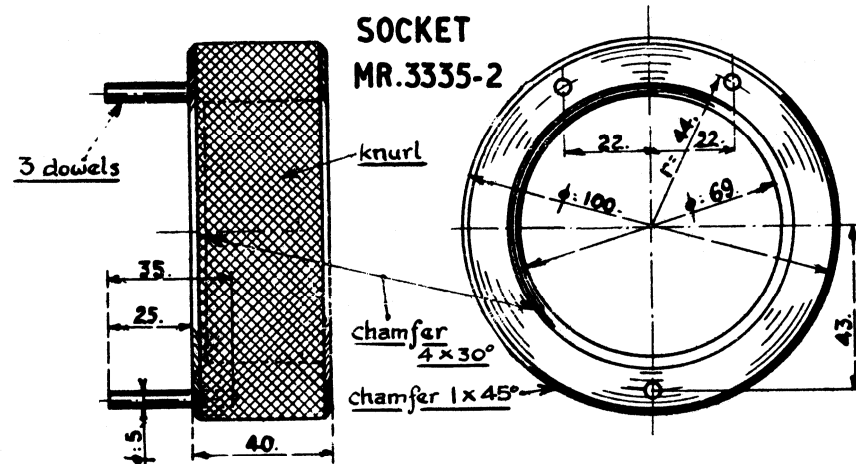
— Fig.2. —
SILENTBLOC FITTED



— Fig.3. — PLUNGER MR.3335-1

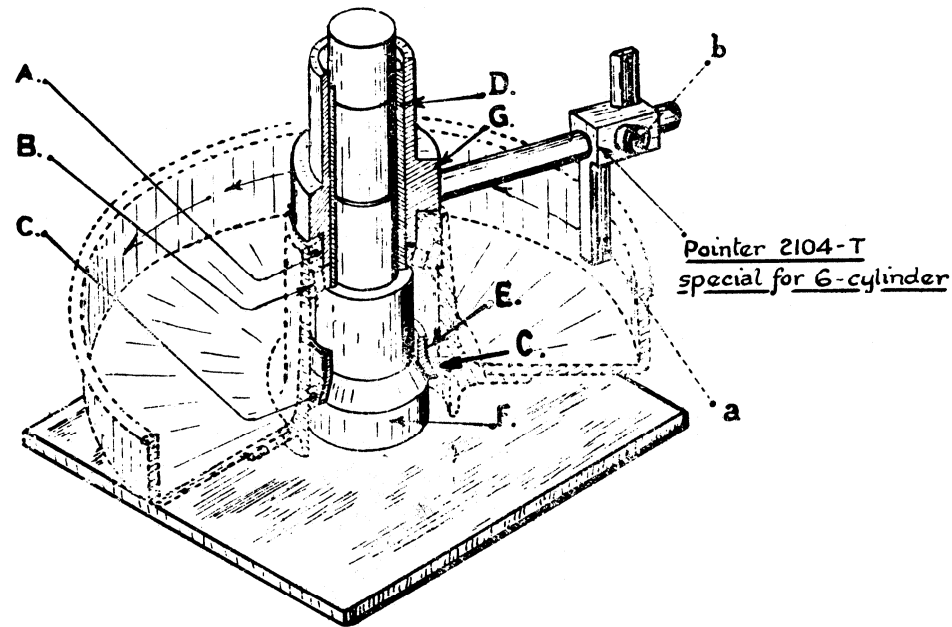


SOCKET
MR.3335-2



— REAR AXLE —
 — CHECKING BRAKE SHOE CONCENTRICITY —
 GAUGE 2103-T & 2104-T

— Fig.1. — CHECKING BRAKE DRUM DIA.



Brake drum equipped with S.P.I. oil seal, complete inner Timken bearing "B", and outer race only of outer Timken bearing "C".

Fit sleeve "D" and conical bush "E".

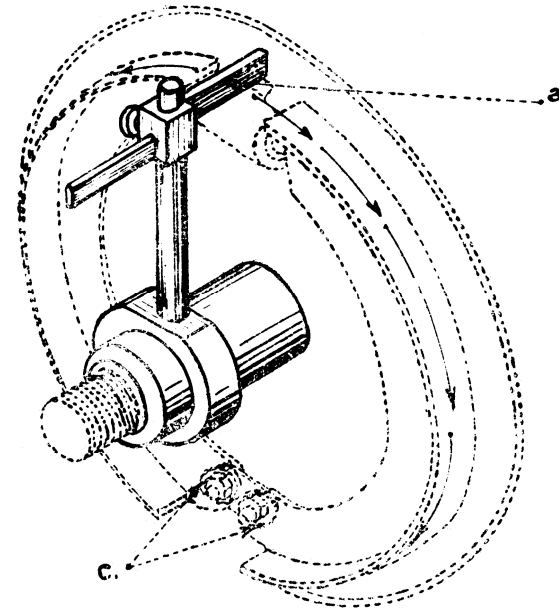
Fit brake drum on pivot "F".

Place on pivot, bush "G", carrying pointer.

Bring pointer "A" into contact with friction surface of drum, and describe a complete circle.

Lock the pointer in this position by means of screw "b".

— Fig.2. — CHECKING CONCENTRICITY OF LININGS



Do not use sleeve "D".

Place gauge on stub axle. Offer up pointer "a", as set in the previous operation, to brake linings.

The pointer must contact linings throughout circumference. (In order to obtain this result, adjust linings by eccentric bushes "c", and adjusting cams at rear of backplate, which are not shown on drawing).

Remove burrs and high spots on linings with a rasp.

After checking, release cams to allow fitting of brake drum. (For final adjustment of cams see operation 749, paragraph 2).

	REMOVING REAR AXLE (see Drawings 77 and 78)	
1	Jack up the vehicle. (Use special jack head MR.3300-110, see Drawing 75). Block up car at a point approximate to the rear pillars.	Special Jack head. MR.3300-110
2	Remove both rear wheels.	Wheelbrace
3	Remove both rear shockabsorbers, replacing them with gauges MR.3358 (see Drawing 76). The axle assembly is held in balance better this way than with a Jack.	Gauges MR.3338 Universal joint spanner 21
4	Remove the exhaust pipe. (Use spanner 1626-T, see Drawing 1, fig. 2) and silencer assembled, the tall pipe remaining fixed on the car.	Spanner 1626-T Flat spanners 12-14
5	Disconnect Lockheed feed pipe to three-way union on the tubular crossmember. Disconnect wheel cylinder feed pipes from brackets on rear axle arms.	Flat spanners 12-14
6	Remove rear axle tie rod.	Flat spanners 21-23
7	Remove torsion bar retaining plates (1). Disengage one torsion bar from centre bracket. (Use driving block assembly MR.1578, see Drawing 79). Repeat the method for the second bar. Remove bolts fixing rear link sllentbloc brackets.	Box spanners 14-16 Universal joint spanner with socket 16
8	Remove axle from car.	Block assembly MR.1578
	REMOVING TUBULAR CROSSMEMBER	
9	Disconnect petrol pipe from union and clip on hull and disengage towards the outside of the vehicle to give clearance for the crossmember.	Flat spanner 14
10	Remove trimming from both rear door sills.	
11	Remove bolts fixing crossmember to hull (three bolts on each flange removed from inside vehicle).	Box spanners 17-26- 35
12	By means of a lever disengage tubular crossmember from hull.	
	FITTING TUBULAR CROSSMEMBER	
13	Flt tubular crossmember in hull. Tighten fixing bolts with spring washers fitted under heads.	

14	Fit trimming to both rear door sills.	
15	<p>FITTING REAR AXLE (see Drawing 77) Fit torsion bars in hubs (3) of rear link silentbloc brackets. Right hand torsion bars have one painted identification mark and the Left hand bars two marks.</p>	
16	<p>Position axle assembly under vehicle. Locate the lower shockabsorber pins in the intermediate holes of gauges MR.3338 (see Drawing 76), IN THIS POSITION fit the rear link silentbloc brackets to the tubular crossmember. Tighten fixing bolts using spring washers under heads.</p>	<p>Gauges MR.333B Universal Joint spanner with socket 16</p>
17	<p>FIT THE TORSION BARS (a) Position lower shockabsorber pins in the gauge slots. (b) With the torsion bars already engaged in hubs of rear link silentbloc brackets, raise the rear axle so that lower shockabsorber pins are at the top of the gauge slots. At this point engage the torsion bars in the splines of the centre bracket of the crossmember. If necessary for engagement move the axle in the traverse permitted by the gauge slots. Complete fitting of torsion bars. (Use driving block assembly MR.1578, see Drawing 79) (c) Fit torsion bar retaining plates (1). Tighten nut securing bolt using a spring washer under.</p>	<p>Block assembly MR.1578 Box spanner 14</p>
18	Fit tie rod (4). Fit securing split pins.	Flat spanners 21-29
19	<p>Fit Lockheed brake pipes, petrol pipe, exhaust pipe and silencer, SECURELY TIGHTEN FLANGE NUTS. (Use spanner 1626-T, see Drawing 1, fig. 2).</p>	Spanner 1626-T
20	Fit and adjust handbrake cables. (See operation 749, paragraph 3).	Flat spanner 12
21	Remove gauges MR.3338. Fit shockabsorbers.	<p>Universal Joint spanner 21</p>
22	Adjust transverse location of rear axle. (Use gauge 2051-T, see Drawing 80).	<p>Flat spanners 21-29 Gauge 2051-T</p>
23	Bleed the Lockheed brake system. (See operation 749, paragraph 5).	
24	Fit the two rear wheels.	Wheelbrace
25	Lower the vehicle to the ground. (Use special Jack head, MR.3300-110 see Drawing 75).	<p>Special jack head MR.3300-110</p>
26	Adjust body heights (see operation 750, paragraphs 1, 2 and 3).	

	REMOVING A TORSION BAR (see Drawings 77 and 78)	
1	Jack up the vehicle on the side the torsion bar is to be removed. Block up under the rear of the body and under the axle.	
2	Remove a wheel and shockabsorber on the side the torsion bar has to be removed. If taking out right-hand bar disconnect the exhaust pipe under hull from the tubular crossmember and the silencer from the tail pipe. Let the exhaust pipe and silencer assembly rest on the ground. If removing a Left-hand torsion bar, disconnect the tie-rod (4) at the axle end only.	Wheelbrace Flat spanners 12-14 Box spanner 21
3	Remove the torsion bar retaining plates (1).	Box spanner 14
4	Disengage the torsion bar from the hub at centre of tubular crossmember. (Use block assembly MR.1578, see Drawing 79).	Block assembly MR.1578
5	Fit a gauge MR.3338 between upper and lower shockabsorber pins to hold the axle in position (see Drawing 76).	Gauge MR.3338
6	Remove silentbloc bracket from tubular crossmember by unscrewing the bolts (2).	Universal joint spanner with extension 16
7	Remove the torsion bar and take off the block assembly MR.1578. In cases where the torsion bar is broken close to the central hub it will be necessary to remove the second bar, in order to knock out the portion remaining.	
	REFITTING A TORSION BAR (see Drawings 77 and 78).	
8	Engage torsion bar in the silentbloc bracket (33) and let the outer splined end protrude from the bracket. Connect the silentbloc bracket to the tubular crossmember.	Universal joint spanner with extension 16
9	Locate the lower shockabsorber pin in the slot of the gauge MR.3338 by applying a heavy load on the link arm (see Drawing 75).	Gauge MR.3338
10	Engage the torsion bar in the central hub by moving the axle up and down, in the limit determined by the gauge slot, in order to engage splines. Fit the retaining plates (1). and tighten the bolts after fitting spring washers under nuts. In cases where the splines do not slide freely use block assembly MR.1578 to complete the engagement of the boss (see Drawing 79).	Box spanner 14 Block assembly MR.1578
11	Connect the tie (4) to the axle (when left-hand bar has been refitted).	Box spanner 21

12	Remove gauge MR.3338 and fit shockabsorbers.	Universal joint spanner 21
13	Fit the exhaust pipe and silencer assembly (when right-hand bar has been fitted).	Flat spanners 12-14
14	Fit the wheel.	Wheelbrace
15	Lower the vehicle to the ground.	
16	Adjust body heights (see Operation 750, paragraphs 1, 2, and 3).	
17	Check the weight distribution (see Operation 750, paragraphs 4, 5 and 6).	Weighing machines 2310-T

	DISMANTLING REAR AXLE (see Drawings 77, 78 and 81)	
1	Place the rear axle assembly on a convenient stand.	
2	Take off the Lockheed brake pipes. Remove the rear axle buffers.	Flat spanners 12-14-17-19-21
3	Remove the hub and brake drum assemblies.	Adjustable spanner
4	Remove the brake back plate (6). (Use a wire brush to clean the brake cable sheaths and oil them to allow easy sliding in the guides). Remove the link arms from the axle.	Brace spanner with extension 14 Wire brush
5	REMOVE LINK ARM SILENTBLOC BRACKETS (see Drawings 77 and 78). (a) Remove circlips (7) retaining pins (8 and 9) of adjusting rods (10). Knock out the pins. (b) Remove 'C' type circlips (11) retaining silentbloc bracket nuts. Unscrew the nuts (12) and with the aid of a mallet knock out the hub (3).	Flat spanner 23 Adjustable spanner
6	DISMANTLE THE BRAKE BACK PLATES (see Drawing 81). (Dismantle plates successively). (a) Unhook the return spring (14). (Use pliers 2110-T see Drawing 82). Remove the brake shoes (15 and 16), the wheel cylinder and the brake cable. (b) Remove the guide studs and adjusting cams (17). Disconnect the handbrake cable lever (18) from shoe (16) and the rod (19).	Box spanners 10-14- 21 Pliers 2110-T
7	DISMANTLE THE WHEEL CYLINDERS (All parts can be removed by hand). Remove dust covers (20), pistons (21), cups (22), and spring (23).	
8	DISMANTLE THE HUB AND BRAKE DRUM ASSEMBLIES Knock out the inner bearing (which carries out the oil seal). Use a drift to knock out the bearing cups.	
9	Clean the parts. CHECKING CAMBER AND TOE-IN OF CRUCIFORM AXLE BEAM (see Drawings 83 and 84).	
10	CHECK THE CAMBER (see Drawing 83) (a) Set up the axle to be checked in a lathe with centres at least 225 mm, above the bed and a capacity of 1800 mm. between centres. On one of the flanges where the link arm is fitted mount apparatus 2052-T (see Drawing 84) VERTICALLY, the axle being in its normal position, that is to say, with buffers at the top.	Apparatus 2052-T

- (b) Rotate the axle a quarter of a turn to bring the lower arm of the straight edge of apparatus 2052-T into contact with an index plate mounted in the tool post.
- (c) Rotate the axle an additional half turn to bring the other end of the straight edge opposite the index plate. Measure the gap between the straight edge finger and the index plate. This should be 11.3 mm., plus 0 mm. minus 4 mm, for a straight edge of 430 mm. long. This dimension corresponds to an angle of 1° to 1°30'.
- (d) If the required dimension is not realised, remove the axle from the lathe, and in the cold state, beat out the upper web if the camber is insufficient or the lower web if it is too great.
- (e) Treat the other end of the axle in a similar manner.

11 CHECK THE TOE-IN (see Drawing 84)

- (a) Set up the axle again in the lathe in its normal position (with buffers at the top) and mount apparatus 2052-T HORIZONTALLY on one of the link arm flanges.
- (b) Bring the forward arm of the straight edge into contact with the index plate in the tool post.
- (c) Rotate the axle half a turn to bring the other end of the straight edge opposite the index plate. The gap between the straight edge finger and the index plate should be 0 mm. to 0.5 mm. If necessary set the beam by beating out, in the cold state, the rear web if the toe-in is insufficient and the front web if the toe-in is too great.
- (d) Treat the other end of the axle in a similar manner.

IMPORTANT NOTE. REINFORCED AXLES CAN ONLY BE CORRECTED IN THE COLD STATE BY MEANS OF A PRESS. On certain axles the brake back plates are fixed by bolts instead of studs. In this case use one of the bolts for setting up apparatus 2052-T.

ASSEMBLING REAR AXLE

12 REPLACE SHOCKABSORBER PINS

- (a) Chisel off fillets of arc welding.
- (b) Unscrew pin.
- (c) Fit new pin and tighten up hard (tension 15 mkg. approx. - 108.5 foot pounds).

Flat spanner 26

Flat spanner 26

	(d) Lock pin by a fillet of arc welding to avoid heating the axle.	
13	<p>PREPARE WHEEL CYLINDERS</p> <p>Use only alcohol or Lockheed fluid to clean the parts as any other substance will cause a rapid deterioration of the rubber cups. Lubricate cylinder and cups with Lockheed fluid (see Drawing 81 for order of re-assembling parts).</p>	
14	<p>PREPARE BRAKE BACK PLATES (Build up each plate successively (see Drawing 81).</p> <p>(a) Fit adjusting cans (17), rivet over pins. (Use fixture MR.3354, see Drawing 59, figs. 3 and 4). Fit guide studs (24), anchor pins (25), brake cable, and road (19) to lever (18). Fit lever to brake shoe (16), tighten nut and secure with a split pin.</p> <p>(b) Fit brake shoes (15 and 16) (the linings must be perfectly dry and have no grease spots). Lightly oil adjusting washers (26) of the guide studs. Tighten nuts of anchor pins (25) to a tension of 3 mkg. (21.5 foot-pounds) and secure with split pins.</p> <p>(c) Fit the wheel cylinder. Hook on the brake shoe return spring (14). (Use pliers 2110-T, see Drawing 82). Make sure that the shoes articulate normally and that there is sufficient thrust by the guide stud washers.</p>	<p>Fixture MR.3354 Box spanners 10-12-14</p> <p>Box spanner 14</p>
15	<p>REPLACE WHEEL STUDS IN BRAKE DRUM</p> <p>(a) Use fixture MR.3445 (see Drawing 57) In order to ensure correct bearing of the drum when driving out studs and to prevent breaking the casting.</p> <p>NEVER COMPLETELY DISENGAGE BRAKE DRUM FROM HUB. REPLACE STUDS ONLY ONE OR TWO AT A TIME. The drum, after being assembled to the hub during manufacture, is machined with the utmost precision. Faulty centering of the drum will cause the brakes to judder. Clinch in the wheel studs by means of a press of 1 to 10 tons capacity. Although it is not recommended the studs may be clinched over with a hammer if a press is not available.</p> <p>(b) Drill hole for wheel stud dowel diametrically opposite to the old position. Drive in dowel and make sure that it fits flush. Lock dowel with a centre punch.</p>	<p>Fixture MR.3445</p>
16	Fit bearing cups in hub with the aid of a drift. Make sure that cups are correctly seated.	
17	<p>RECTIFY BRAKE DRUMS</p> <p>True up drum in a lathe. (Use Mandrel MR.3381-2, see Drawing 85). The maximum eccentricity allowed is 0.04 mm. This should be checked with a clock gauge. To ensure locking of the brake drum on the hub during this operation, fit washer 4 mm. thick on each stud and secure with wheel nuts tightened to a tension of 5 mkg. (36 foot pounds). Never increase the original diameter of 305 mm., plus or minus 0.1 mm., by more than 2 mm.</p>	

18		
19		Socket and plunger MR.3335
20		Fixtures MR.3336 Adjustable spanner
21		Adjustable spanner

22	Fit the Lockheed brake pipes.	Flat spanners 14-17-19-21
23	Fit the rear axle buffers, tighten bolts and turn back lockwasher tabs.	Box spanner 12
24	Paint the unit.	
25	Remove the assembly from the stand.	