

COMMER

KARRIER

WORKSHOP MANUAL

for

6 CYL. SUPERPOISE (MK. IV) MODELS

**5 & 7 TON FORWARD CONTROL
(MK. III) MODELS**

“GAMECOCK” (MK. II) MODELS

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ROOTES
GROUP SERVICE

CHASSIS FRAME AND SUSPENSION

DESCRIPTION

The chassis frames are of riveted construction and consist of two, channel section, pressed steel sidemembers braced by steel crossmembers.

The road springs are of the semi-elliptic type and shackled at the rear end to allow for free movement under operating conditions. All the spring eyes and the shackles are bushed, steel on "B" models, phosphor bronze on "C" and "E" models.

Hardened steel pins secure the springs to the frame and the springs are clamped to their seats on the respective axles by "U" bolts.

On models C.589, CD.589, C.510, CD.510, C.5FT and C.5FP, shock absorbers are fitted to the front and rear to damp the rebound movements of the springs.

Single front and twin rear road wheels of the two piece steel disc type with wide base rims are fitted.

On any particular vehicle the wheels and tyres are identical and interchangeable as between front and rear.

LUBRICATION

All models except C.589, CD.589, C.510, CD.510, C.5FT and C.5FP have lubricating nipples fitted to all the spring and shackle pins. Lubricate at these points with the recommended grade of lubricant every 1,000 miles (1,500 kms.).

On models C.589, CD.589, C.510, CD.510, C.5FT and C.5FP, grouped nipple lubrication is provided. The lubricators are grouped in two

batteries at the front and the rear of the chassis frame.

The front battery group is located on the underside of the front crossmember, immediately beneath the radiator. In addition to the lubricating nipples for the front spring and shackle pins, the nipple for the steering box (also the fixed starting handle on models C.5FT and C.5FP) is included in this group.

The rear battery group is located in the channel of the rear crossmember. This includes the nipple for the centre bearing in addition to those for the rear spring and shackle pins.

Each nipple is connected to its respective component by a pipe. By referring to Fig. 1, the component served by each nipple becomes immediately apparent.

CHASSIS FRAME

If any frame has sustained damage and therefore requires checking for alignment, reference should be made to the dimensioned illustrations at Figs. 2—14.

Damaged crossmembers should be removed for repairs, and this will simplify the job of straightening the sidemember involved. Cut off existing rivet heads with a cold set and always use hot rivets or **high-tensile steel bolts** when refitting frame members.

In the event of bolts being employed for the above operation, the existing rivet holes must be accurately reamed to take the next size bolt. Thoroughly tighten the bolts and use spring washers.

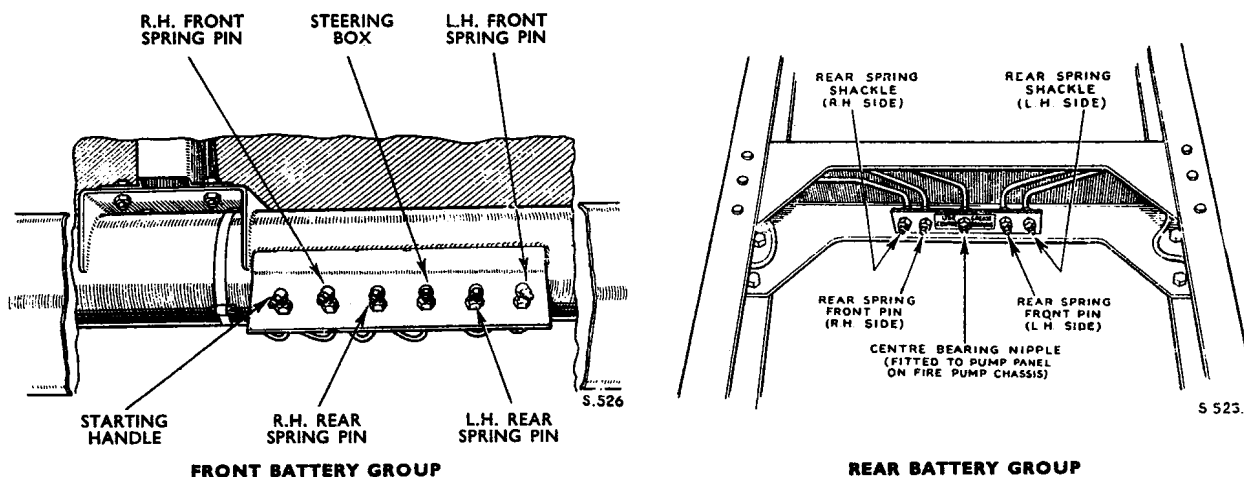
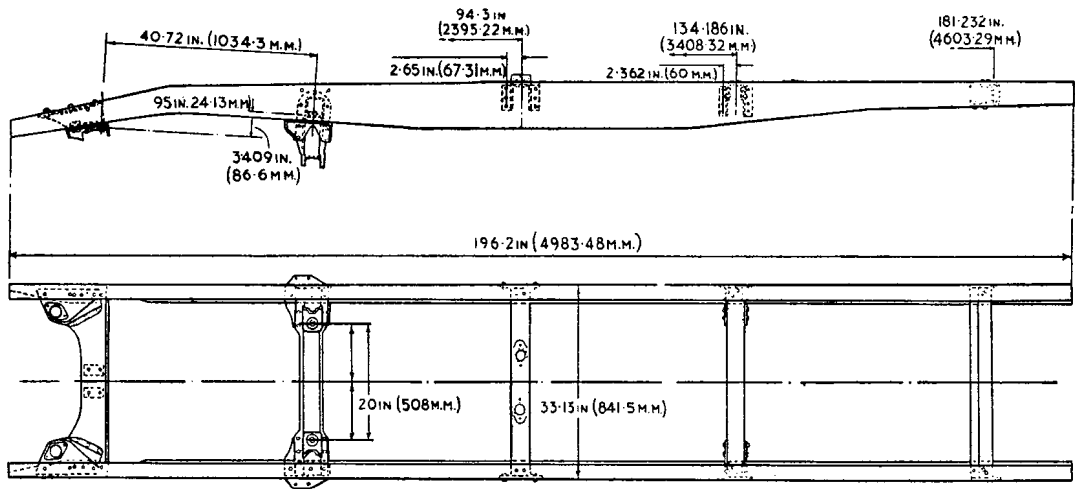


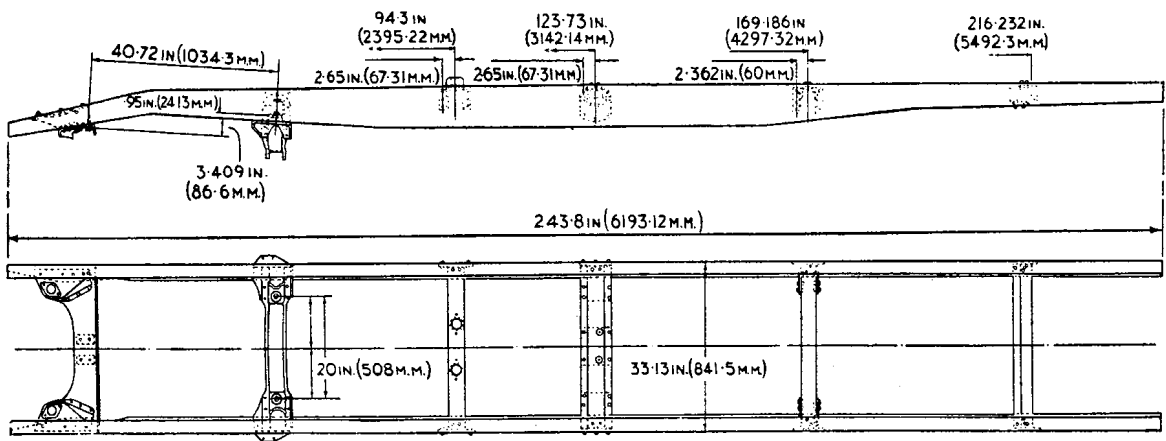
Fig. 1. Group Nipple Lubrication

CHASSIS FRAME AND SUSPENSION



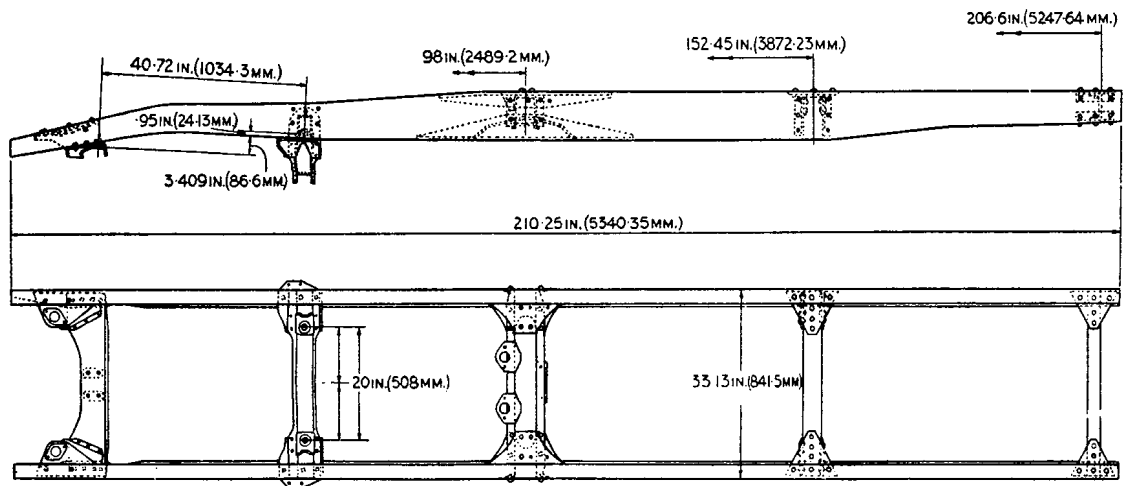
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Fig. 2. Chassis Frame—B.222, B.322 and BP.322



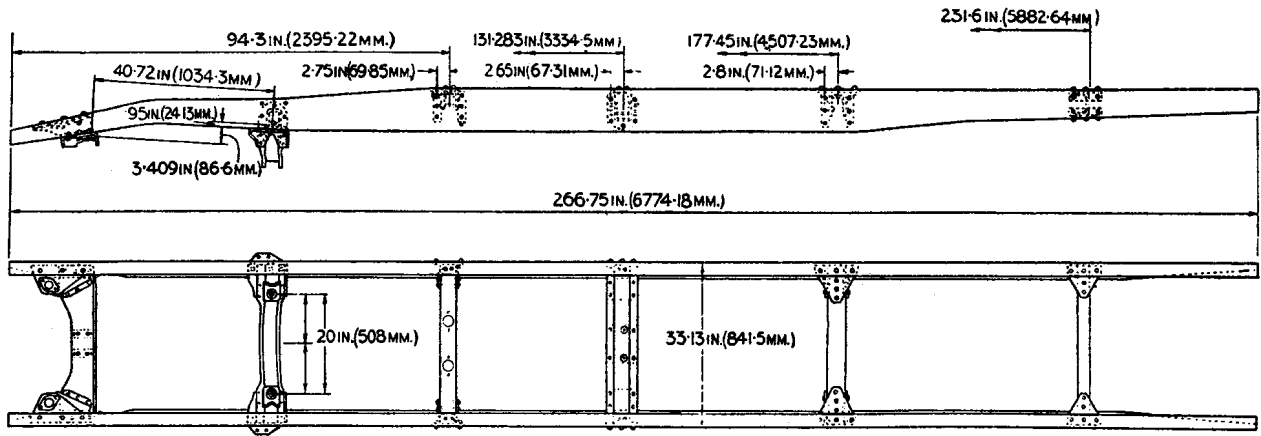
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Fig. 3. Chassis Frame—B.257, B.357 and BP.357



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Fig. 4. Chassis Frame—B.544, BP.544 and BR.544



S.756

Fig. 5. Chassis Frame—B.569, BP.569 and BR.569

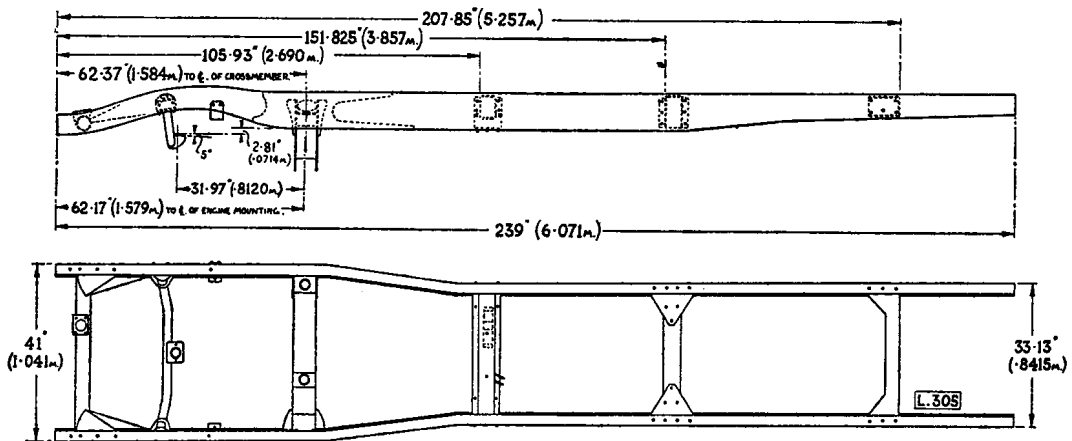


Fig. 6. Chassis Frame—C.541, CD.541, C.741, CD.741 and C.5FP (See also Fig. 14)

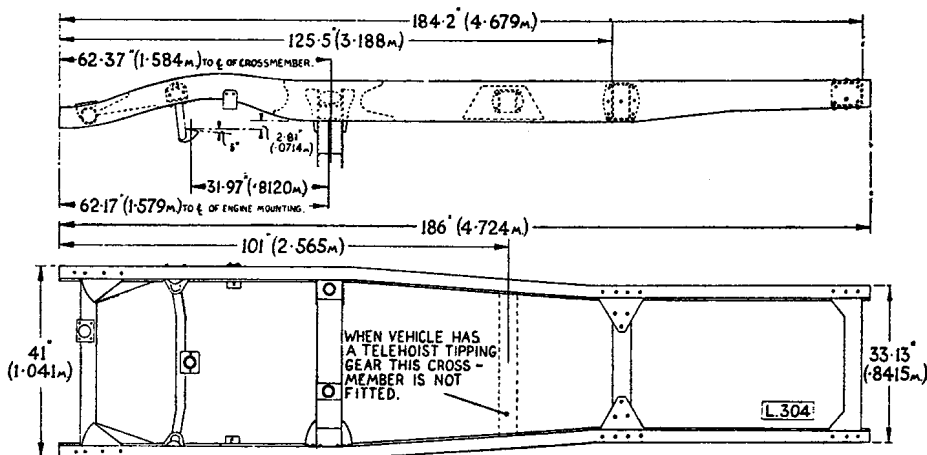


Fig. 7. Chassis Frame—C.715 and CD.715 (See also Fig. 14)

CHASSIS FRAME AND SUSPENSION

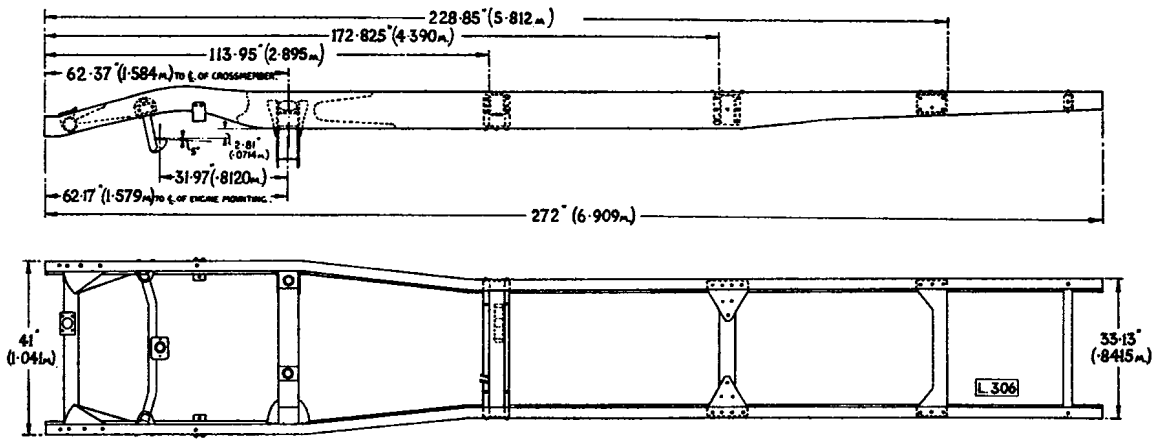


Fig. 8. Chassis Frame—C.762 and CD.762 (See also Fig. 14)

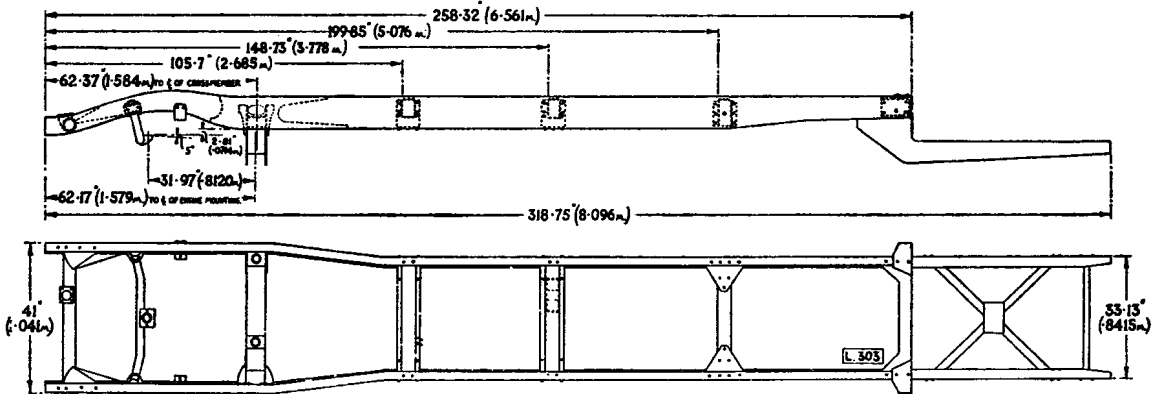


Fig. 9. Chassis Frame—C.589 and CD.589 (See also Fig. 14)

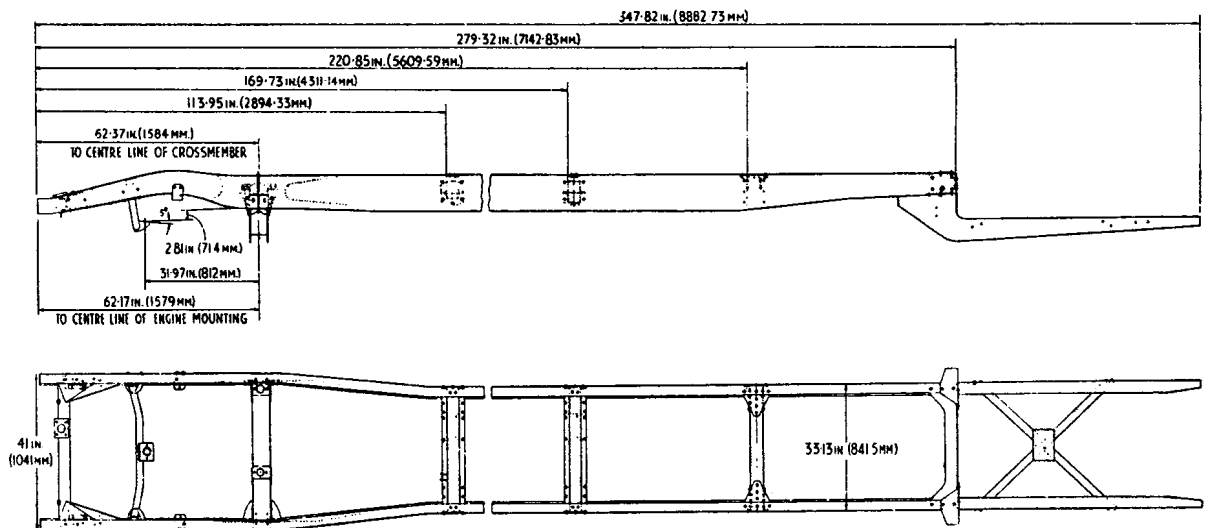


Fig. 10. Chassis Frame—C.510 and CD.510 (See also Fig. 14)

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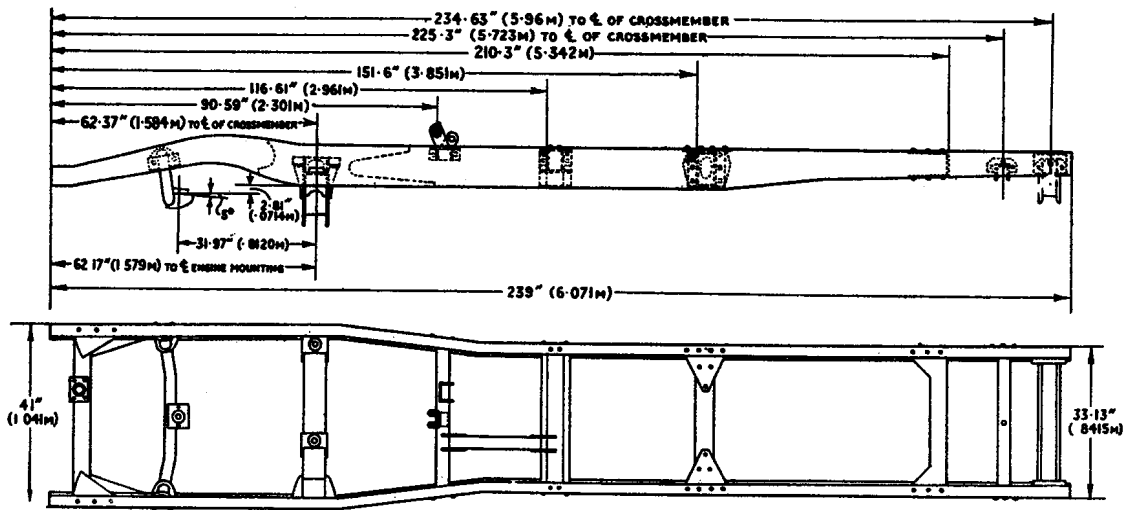


Fig. 11. Chassis Frame—C.5FP

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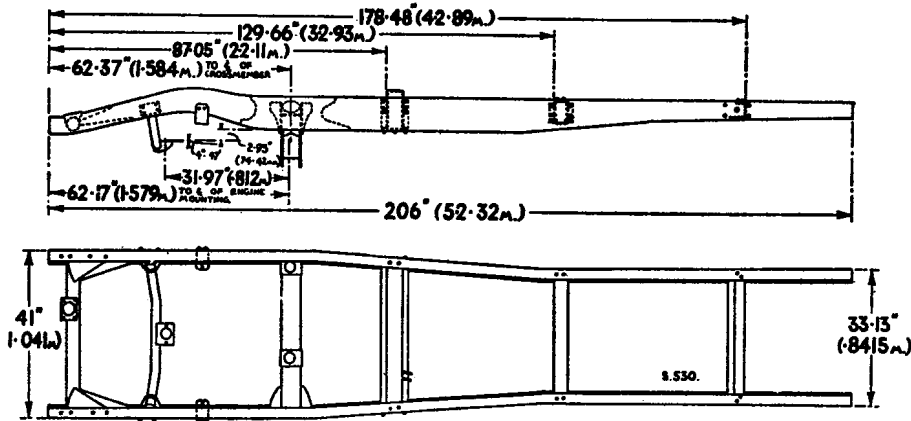


Fig. 12. Chassis Frame—E.315 and ED.315 (See also Fig. 14)

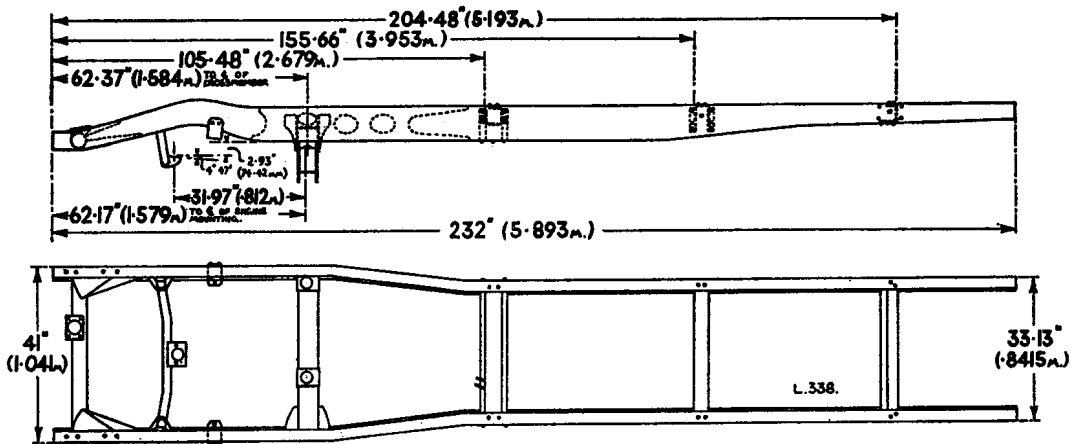


Fig. 13. Chassis Frame—E.341 and ED.341 (See also Fig. 14)

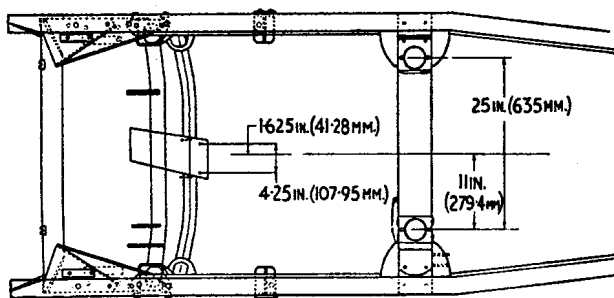
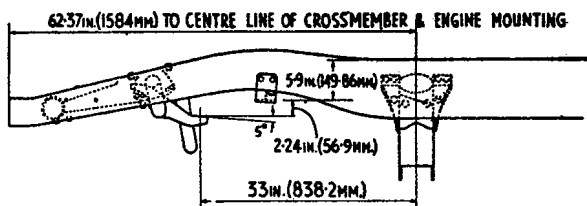
ROAD SPRINGS

To Remove.

1. Jack up the chassis under the front or rear axle, dependant upon which spring is being removed, until the road wheels clear the ground, then place a stand under the chassis sidemember immediately behind the spring rear bracket.
2. Remove the road wheel.
3. Remove the nuts from the "U" bolts. Withdraw the "U" bolts together with the spring pad.
4. Remove the lubricators and adaptors from the spring pins (on models fitted with group nipple lubrication disconnect the pipes and withdraw the adaptors from the spring pins).
5. Drive out the cotters locating the spring pins, after removing the securing nuts.
6. Lower the jack under the axle just sufficient to remove the load from the spring pins. Withdraw the pins (Churchill Tool R.G.65 will be found suitable for this operation).
7. Remove the road springs. It may be necessary to lower the jack under the axle to obtain sufficient clearance.

To Dismantle.

Clamp the spring in the centre to relieve the tension from the dowel bolt nut, then remove the nut, followed by the spring clip bolts and distance pieces.



S.757

Fig. 14. Front of Chassis Frame—"C" and "E" models fitted with a Diesel Engine

Release the clamps gradually to relieve the tension in the spring leaves, then lift the leaves off the dowel bolt.

Inspection and Overhaul.

1. Scrape each leaf and clean with thin oil. Dry thoroughly, then examine for cracks. Any leaf that is cracked must be renewed. Grind or file away any signs of ridging at the tips of the leaves.
2. Examine the dowel bolt and renew if ridged or stretched. Should the original bolt be used again, redress the threads.
3. Check the spring pins and bushes for wear, renewing any which show signs of excessive wear. Press the bushes out of and into the spring eyes. If the spring pins and bushes are renewed, the shackle pins and bushes should be renewed also. Remove the shackle pin in a similar manner to the spring pin. The shackle bushes are an interference fit in the front spring rear bracket or the rear spring shackle.
4. Any spring clips that are bent should be staightened.

To Reassemble.

Prior to reassembling, smear the spring leaves with graphited grease.

Reassemble the spring by reversing the dismantling procedure, clamping the leaves together to facilitate the fitting of the dowel bolt nut and the spring clip, bolts, nuts and distance pieces.

To Refit.

1. Position the spring on the axle pad, spring clip nuts on the inside and registering the dowel bolt in the axle pad dowel hole.
2. Raise the axle to align the spring front eye with the hole in the front bracket. Fit the front pin then align the spring rear eye with the shackle. Fit the rear pin. Locate the pins with cotters and nuts.

Note : Care must be taken not to damage the thread for the lubricating nipple when driving in the pins. Ensure the nuts and plain washers securing the cotters are tightened on to the machined face of the bracket or the shackle boss.

3. Position the "U" bolt pad over the dowel bolt nut. Fit the "U" bolts and tighten the securing nuts.
4. Refit the adaptors and lubricators and lubricate all points.

5. Refit the road wheels, then remove the jack and the chassis stand.

Note : " U " bolt nuts should be finally tightened with the vehicle laden.

SHOCK ABSORBERS

On models C.589, CD.589, C.510 and CD.510, Armstrong type DAS.12 shock absorbers are fitted to the front and Girling type PR.9 to the rear.

On models C.5FT and C.5FP, Armstrong type DAS.12 are fitted to the front and rear.

To Remove.

1. Remove the nuts and bolts securing the shock absorber to the chassis frame sidemember.
2. Remove the nut securing the link pin. At the front the link pin passes through a bracket located between the spring and axle, whilst at the rear the pin passes through a lug incorporated in the " U " bolt pad.
3. Lift the shock absorber clear.

Inspection and Overhaul.

1. Place the shock absorber in a vice and hold by the fixing lugs to avoid distorting the cylinder body. Move the lever arm up and down through its complete stroke. A moderate resistance should be felt throughout the stroke.

If the resistance is erratic, and free movement of the lever arm is noted it may be caused through lack of fluid. If the addition of fluid (see para. 2) gives no improvement, a replacement shock absorber should be fitted and the original returned for reconditioning by the manufacturer.

Too much resistance, when it is not possible to move the lever arm, indicates a faulty internal part in which case the shock absorber should be replaced.

2. Top up with fluid as follows :—

- (a) Thoroughly clean the exterior of the shock absorber to prevent the ingress of foreign matter, then remove the filler plug (Armstrong) or the top cover (Girling).
- (b) Top up with the recommended fluid (page 7), at the same time working the lever arm through its full stroke to expel any air.
- (c) Add fluid until it is level with the bottom of the filling orifice, then replace the plug or the top cover.

3. Check the link rubbers and renew if deteriorated.

To Refit.

Refit the shock absorbers by reversing the removal procedure.

WHEELS AND TYRES

To Remove.

1. Loosen the wheel nuts with a brace, noting that the left-hand side nuts have a left-hand thread and the right-hand side a right-hand thread.
2. Jack up the axle sufficiently for the wheel to clear the ground. Completely unscrew the nuts and remove the wheel.

To Dismantle.

1. Lay the wheel and tyre on the ground, locking ring upwards and deflate the tyre by removing the valve core.
2. Employing a standard tyre lever, remove the locking ring.
3. Turn the wheel and tyre completely over and support the wheel centre on a block. With the aid of a wooden block, drive the tyre and the tube off the wheel.

Inspection and Overhaul.

1. Ensure the rims are clean and free from rust. Examine the wheel for cracks and elongated stud holes. If either are apparent, renew the wheel.
2. Clean any oil or grease from the tyres with petrol and also remove any flints or nails that have become imbedded in the treads.
3. Cuts on the treads and sidewalls should be cleaned and filled with tread-filling compound. If the cut is severe, penetrating two or more of the casing plies, the repair should be carried out by a tyre repair specialist or the manufacturer.
4. Renew the valve caps if the rubber seating has deteriorated.

To Reassemble.

1. Position the wheel, flange downwards, on the ground.
2. Slightly inflate the tube until it is just rounded out, then insert into its cover and place the flap in position, ensuring the flap is not creased.
3. Lay the tyre on the wheel with the valve aligned with its recess, then lower the tyre into position on the wheel.
4. Refit the locking ring, making certain it goes fully into the groove.
5. Inflate the tyre to its correct pressure.

Note : To guard against possible inaccurate fitting and its results, always turn the locking

rim side of the wheel towards the ground or wall before and during inflation. Use a safety cage if available.

WHEEL STUDS

To Remove.

1. Remove front or rear hub assembly, whichever is applicable.
2. Remove the backnuts securing wheel studs to the outer flange of the hub (in some instances these secure the brake drum), then drive out the studs, taking care not to lose the dowel peg fitted to prevent the stud from rotating.

Inspection and Overhaul.

1. Renew the backnuts.
2. As a precaution against the backnuts working

loose, the wheel studs are staked. Before using the original studs again the threads must be redressed. Renew the stud if the threads are damaged beyond repair.

To Refit.

1. Line up the semi-circular recess in the shoulder of the stud with the small hole drilled through the flange of the hub, then drive in the stud.
2. To the small hole in the flange of the hub, fit the dowel peg.
3. Refit the brake drum (if necessary), then fit and tighten thoroughly the backnut. Lock the backnut by staking the stud.

Note : Ensure the dowel peg is not protruding above the flat face of the hub flange.

4. Complete the operation by reversing the removal procedure.

MANUFACTURING DIMENSIONS

CHASSIS FRAME

See Figs. 2 to 14.

FRONT ROAD SPRINGS

| | | |
|---|--------|-------------|
| Width of leaves—" B " models | 2½ in. | (57·15 mm.) |
| " C " and " E " models | 2¾ in. | (69·85 mm.) |
| Spring eye centres—laden " B " models | 42 in. | (1067 mm.) |
| " C " and " E " models | 48 in. | (1219 mm.) |

| <i>Model</i> | <i>Number of leaves</i> | <i>Thickness of leaves</i> | <i>Free camber to main leaf</i> | <i>Deflection per 2240 lb. (1016 kgm.)</i> |
|--|-------------------------|---|----------------------------------|--|
| B.569—Export B.544—Home and Export | 11 | $\frac{5}{16}$ in. (7·9 mm.) | 2 in. (50·8 mm.) | 2·4 in. (61 mm.) |
| B.2 and B.3—Export B.569—Home | 11 | Top 6 $\frac{9}{16}$ in. (7·14 mm.) Bottom 5 $\frac{1}{4}$ in. (6·35 mm.) | 2·8 in. (71·12 mm.) | 3·8 in. (96·52 mm.) |
| B.2 and B.3—Home | 10 | Top 5 $\frac{9}{16}$ in. (7·14 mm.) Bottom 5 $\frac{1}{4}$ in. (6·35 mm.) | 3½ in. (82·55 mm.) | 4½ in. (108 mm.) |
| " E " Home and Export C.541 and CD.541—Home | 9 | $\frac{3}{8}$ in. (9·52 mm.) | 1¾ in. (44·45 mm.) | 2·07 in. (52·58 mm.) |
| C.541 and CD.541—Export C.741, CD.741 } Home C.762, CD.762 } C.5FT and C.5FP | 10 | $\frac{3}{8}$ in. (9·52 mm.) | 1·36 in. (34·54 mm.) | 1·86 in. (47·24 mm.) |
| C.741, CD.741 } Export C.762, CD.762 } C.715 and CD.715— Home and Export C.589, CD.589 } Export C.510, CD.510 } | 12 | $\frac{3}{8}$ in. (9·52 mm.) | 0·4 in. (10·16 mm.) | 1·57 in. (39·88 mm.) |
| C.510, CD.510 } Home CD.589 } | 17 | Main leaf $\frac{3}{8}$ in. (9·52 mm.) Remaining $\frac{9}{16}$ in. (7·14 mm.) | 0·895 in. (22·73 mm.) | 2·44 in. (61·98 mm.) |
| C.589—Home | 13 | Top 8 $\frac{5}{16}$ in. (7·9 mm.) Bottom 5 ·285 in. (7·24 mm.) | 2 $\frac{3}{16}$ in. (55·56 mm.) | 2·74 in. (69·6 mm.) |

REAR ROAD SPRINGS

| | | |
|---|--------|------------|
| Width of leaves—B.2, B.3 and " E " models | 2½ in. | (63.5 mm.) |
| —B.5 and " C " models | 3 in. | (76.2 mm.) |
| Spring eye centres—laden | | |
| B.2, B.3 and " E " models | 46 in. | (1168 mm.) |
| B.5 and " C " models | 54 in. | (1372 mm.) |

| Model | Number of leaves | Thickness of leaves | Free camber to main leaf | Deflection per 2240 lb. (1016 kgm.) |
|------------------------------------|------------------|---|--------------------------|-------------------------------------|
| B.2 | 13 | Top 10 ⅝ in. (7.94 mm.) Bottom 3 ½ in. (12.7 mm.) | 4⅛ in. (103 mm.) | 1.4 in. (35.56 mm.) |
| B.3 and " E " models | 16 | Top 12 ⅝ in. (7.94 mm.) Bottom 4 ¾ in. (12.7 mm.) | 2.93 in. (74.42 mm.) | 1.10 in. (27.94 mm.) |
| B.5, C.541 and CD.541 | 11 | Main leaf ⅞ in. (11.11 mm.) Remaining 10 ⅝ in. (11.9 mm.) | 2¼ in. (57.15 mm.) | 1.15 in. (29.21 mm.) |
| C.741, CD.741 } C.762, CD.762 } | 12 | Main leaf ⅞ in. (11.11 mm.) Remaining 11 ⅝ in. (11.9 mm.) | 2 in. (50.8 mm.) | 1.05 in. (26.67 mm.) |
| C.510, CD.510 | 18 | Damper and 15 bottom leaves ⅞ in. (8.73 mm.) Remaining 2 ⅝ in. (9.52 mm.) | 1.345 in. (34.16 mm.) | 1.70 in. (43.18 mm.) |
| C.589, CD.589 | 13 | ⅝ in. (9.52 mm.) | 3⅞ in. (79.38 mm.) | 1.87 in. (47.5 mm.) |
| C.5FT, C.5FP | 9 | Main ⅞ in. (11.11 mm.) Remaining 8 ⅝ in. (11.9 mm.) | 3½ in. (88.9 mm.) | 1.41 in. (35.81 mm.) |

SPRING AND SHACKLE PINS

| | inches | mm. |
|---|--------------|-------------|
| Diameter—front—" B " models | .809/.8085 | 20.55/20.53 |
| " C " and " E " models | .8125/.81225 | 20.64/20.63 |
| rear— B.2, B.3 and " E " models | .809/.8085 | 20.55/20.53 |
| B.5 and " C " models | 1.0/1.00025 | 25.4/25.41 |

