

SECTION P

THE CHASSIS FRAME

and

THE JACKING SYSTEM

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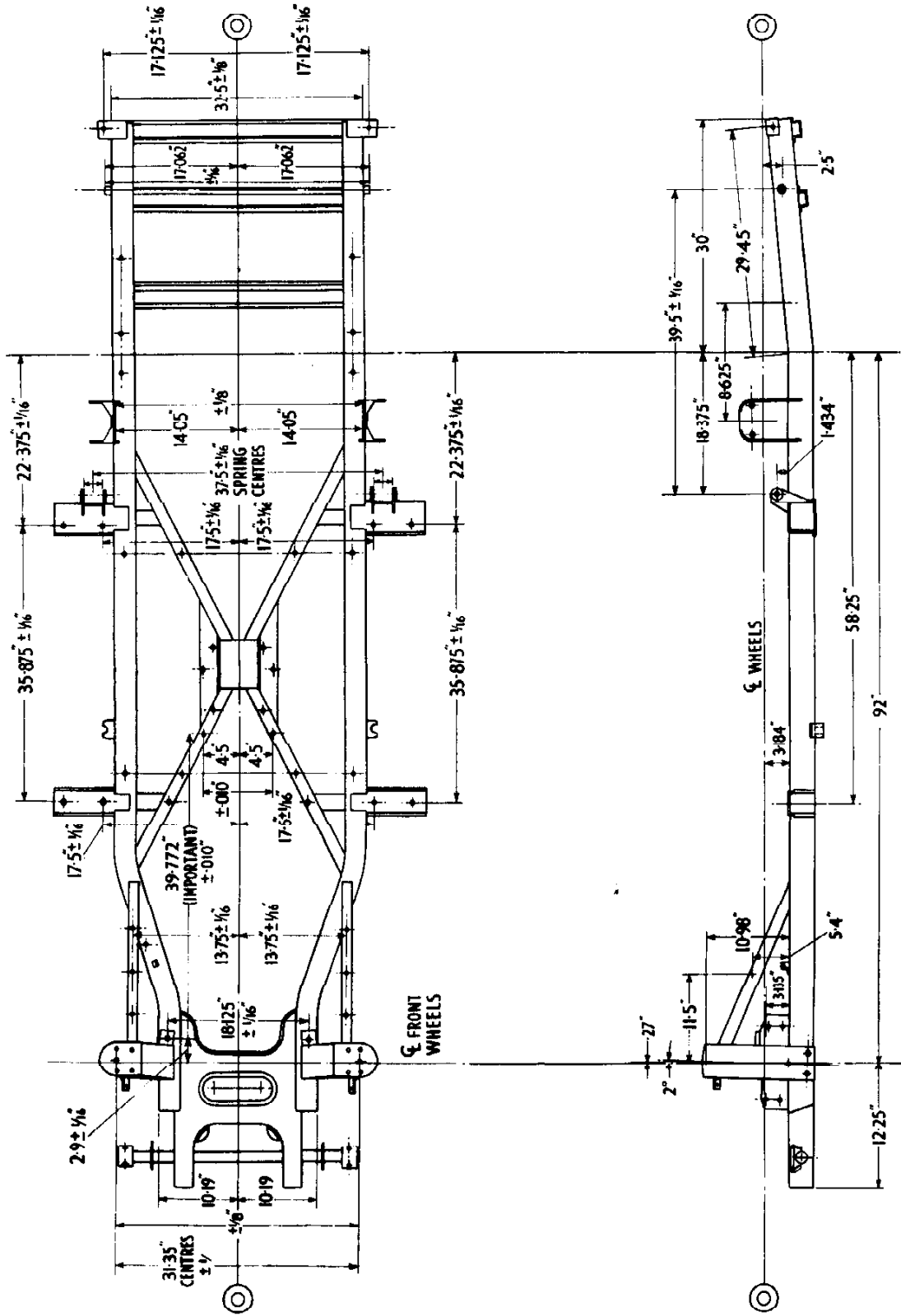


Figure P1.

Plan and side view of chassis frame giving the dimensions necessary for the assessment of accidental damage.

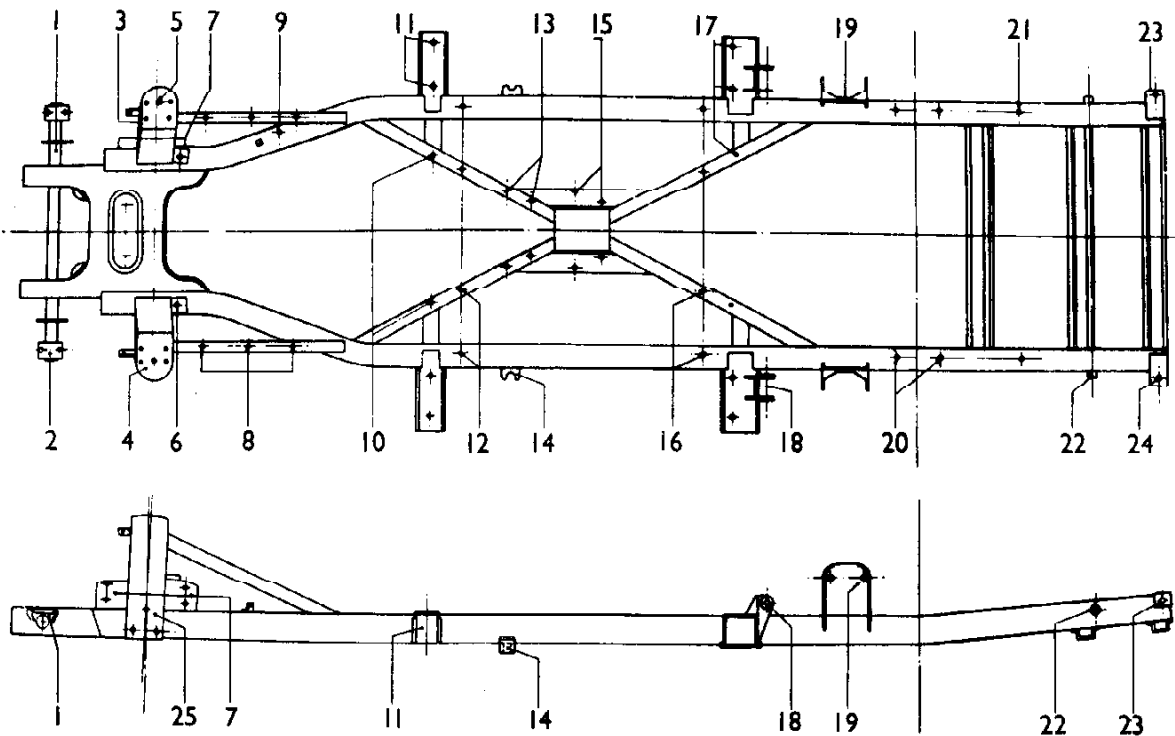


Figure P2.

Plan and side view of chassis frame showing component mounting positions.

COMPONENT MOUNTING POSITIONS Fig. P2.

The component mounting positions listed below are notated in the illustration. Many of them are on both sides of the chassis frame with the exception of those marked thus ✕-

- | | |
|--|--|
| 1. Steering unit or idler bracket. | 14. Jacking bracket. |
| 2. Front body. | 15. ✕-Handbrake. |
| 3. Front suspension pillar bracing member. | 16. Rear exhaust silencer. |
| 4. Top wishbone fulcrum pin. | 17. Rear outrigger body bracket. |
| 5. Top front roadspring damper. | 18. Front rear road spring. |
| 6. Engine unit. | 19. Rear road spring damper bracket. |
| 7. Bottom inner wishbones. | 20. Rear axle bump and rebound strap. |
| 8. Body wing valance. | 21. Body. |
| 9. ✕-Brake hydraulic system, five way connector. | 22. Rear road spring bottom shackle pin. |
| 10. Body floor. | 23. Rear exhaust system. |
| 11. Front outrigger body bracket. | 24. Body. |
| 12. Front exhaust silencer. | 25. Front suspension rebound rubber bracket. |
| 13. Gearbox crossmember. | |

THE CHASSIS FRAME

DESCRIPTION

The chassis frame is a rigid construction of pressed steel channelling; the chassis side members being formed from two "U" shaped steel pressings welded together, giving a structure of hollow section. The front end of the chassis frame is built up to form the two front suspension pillars together with the top and bottom wishbone mountings. These two pillars are braced together by a detachable cross member and further strengthened from the rear by a rectangular shaped support welded to the top faces of the chassis side members. The centre of the chassis frame is a cruciform structure of channelled steel pressings strengthened at the centre by heavy gauge steel plates, the top one forming the support member for the handbrake lever. A tubular cross member is welded into the front ends of the two chassis side members and incorporates the mounting plates for the steering and idler unit mounting brackets.

REMOVAL AND REPLACEMENT

FRONT SUSPENSION PILLAR BRACING MEMBER

1. REMOVAL

Detach the front suspension pillar bracing member from the front faces of the two suspension pillars by withdrawing two bolts at each side.

2. REPLACEMENT

The replacement of the suspension pillar bracing member is the reversal of the removal sequence.

DATUM HEIGHT OF CHASSIS FRAME

The datum height of the chassis frame is set by loading the cockpit of the car until the chassis frame, forward of the rear road spring damper brackets is the specified height above ground level. The length of the chassis frame behind the road spring damper brackets rises upwards and a false datum height would be obtained if this section of the chassis frame were used.

	English	Metric
Height of underside of chassis frame above the ground.	6.250"	152.750 mm.

THE ASSESSMENT OF ACCIDENTAL DAMAGE

The plan and side view illustrations will give all the dimensions necessary for checking the alignment of the chassis frame for the assessment of accidental damage. By following other illustrations later in this section, it will be observed that the chassis frame can be checked for misalignment without removing the body, all that is necessary is to remove a number of body mounting details. When it is necessary to check the chassis frame for the assessment of accidental damage it is suggested that the assessment is carried out in the following sequence:-

- (i) Twist, one corner of the chassis frame higher than the others.
- (ii) Cradling, centre of chassis frame lower or higher than the ends.
- (iii) Squareness, one chassis frame side member forward of the second.
- (iv) Bowing, the chassis frame centre line curved to left or right.

CHECKING FOR "TWIST" Fig. P3.

Raise the car over a clean, level and smooth stretch of ground with four small jacks positioned between the front end of the chassis frame and the rear damper mounting brackets. The portion of the chassis frame behind these brackets must not be used as the chassis frame rises upward and would make their anchoring uncertain. Remove the four roadwheels.

Adjust the height of the two front jacks so the underside of the front ends of the chassis frame side members are 10.0" (254 mm.) above the level of the ground. Adjust the height of the two rear jacks so both underside of the chassis frame side members are the same height above the ground as the front.

When it is impossible to obtain an equal height at all four points, the chassis frame can be considered "twisted". However, should all these dimensions be identical, in addition, ascertain the height above the ground of the two extreme rear corners. When these determined dimensions are unequal the chassis frame can be considered "twisted" between the rear road spring damper mounting brackets and the rear ends of the chassis frame members.

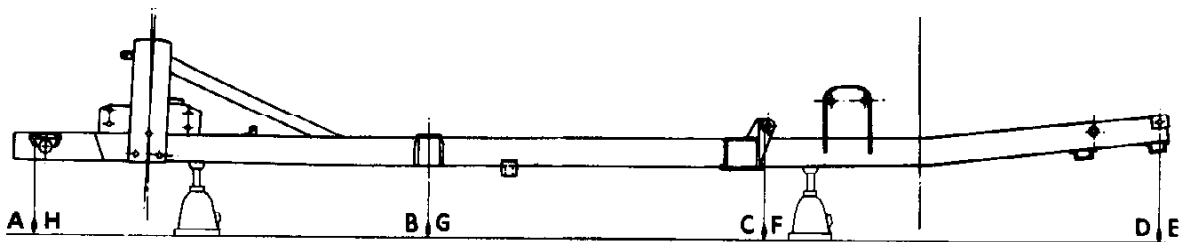


Figure P3.

Side view of chassis frame jacked up for the "cradling" check and the eight points for projection; four shown, other four symmetrically opposite.

CHECKING FOR "CRADLING" Fig. P4.

Having checked the chassis frame for "twist" remove the following body and rear road spring securing details:-

- AH. The front nut and bolt from each body mounting bracket situated on the two ends of the front tubular cross member.
- BG. The outer of the two bolts in each front outrigger body mounting bracket.
- CF. The nut on the inside of the rear road spring eye bolt and eject the bolt approximately 0.25" (6.350 mm.)
- DE. The top bolt from each body mounting bracket situated at the extreme rear end of the two chassis frame side members.

Measure the height of the eight points mentioned and compare with the following:-

	English	Metric
A and H	12.619"	320.5226 mm.
B and G	13.264"	336.6056 mm.
C and F	14.851"	377.2154 mm.
D and E	15.939"	404.8506 mm.

When the determined dimensions B and G, C and F are less than those specified the chassis frame is cradled downward and when found to be greater than those specified the chassis frame is cradled upward.

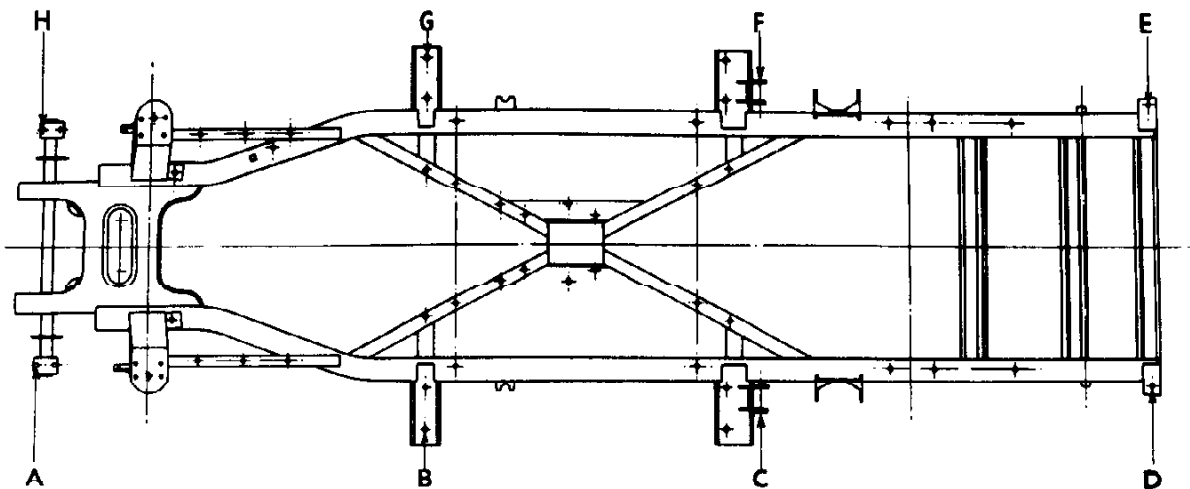


Figure P4.

Plan view of chassis frame showing eight points for projection on surface beneath or in the instance of a bare chassis frame can be taken direct from the top face.

CHECKING FOR "SQUARENESS" Fig. P5.

Pass the cord of the plumb bob through the bolt holes A, B, D, E, G and H, marking the ground immediately beneath the plumb bob pointer as A, B, D, E and G. Hang the plumb bob cord over the shank of the road spring eye bolt, between the head of the bolt and the eye of the road spring, the same way on each side and mark the ground immediately beneath the plumb bob pointer as C and F. Replace the roadspring nut and the body bolts, fit the roadwheels lower the car to the ground and move it away.

Determine the dimension:-

Between AG and HB

Between BF and GC

Between CE and FD

When each pair is found to be equal the chassis frame is considered to be square.

When AG, BF and CE are of a greater length than HB, GC and FD the R. H. chassis side member is forward of the L. H. chassis side member.

When HB, EC and FD are of a greater length than AG, BF and CH, the L. H. chassis side member is forward of the R. H. side member.

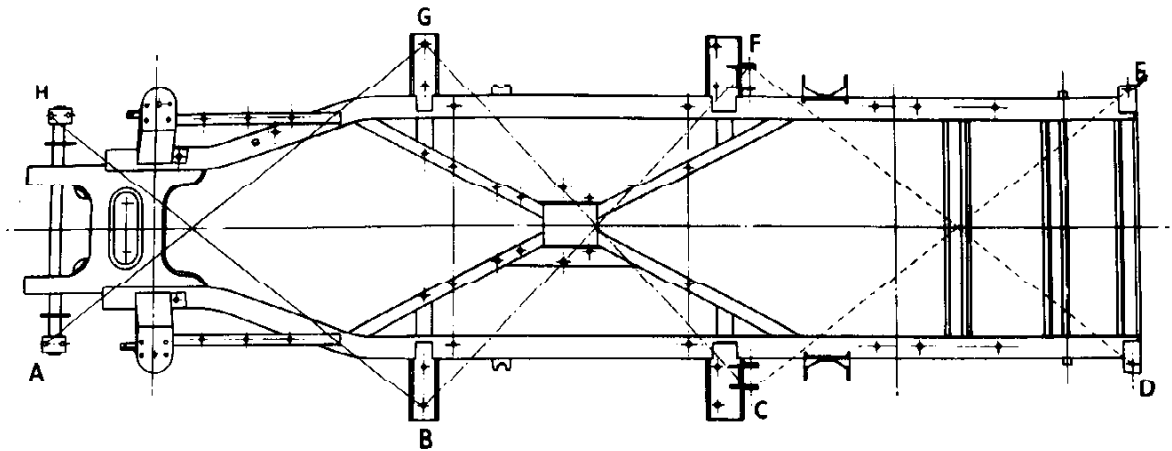


Figure P5.

Plan view of chassis frame showing the dimensions necessary for the checking of "squareness". Compare those dimensions having the similar styled lines.

CHECKING FOR "BOWING" Fig. P6.

Join the marked points on the ground right to left A to H, B to G, C to F and D to E. Accurately determine the centre points of these lines and mark them I J K and L front to rear. Join the two marks I and L.

When the marks J and K are to the right of I, L the chassis frame is "bowed" to the right.

When the marks J and K are to the left of I, L the chassis frame is "bowed" to the left; when the marks J and K are on the line I, L the chassis frame is straight.

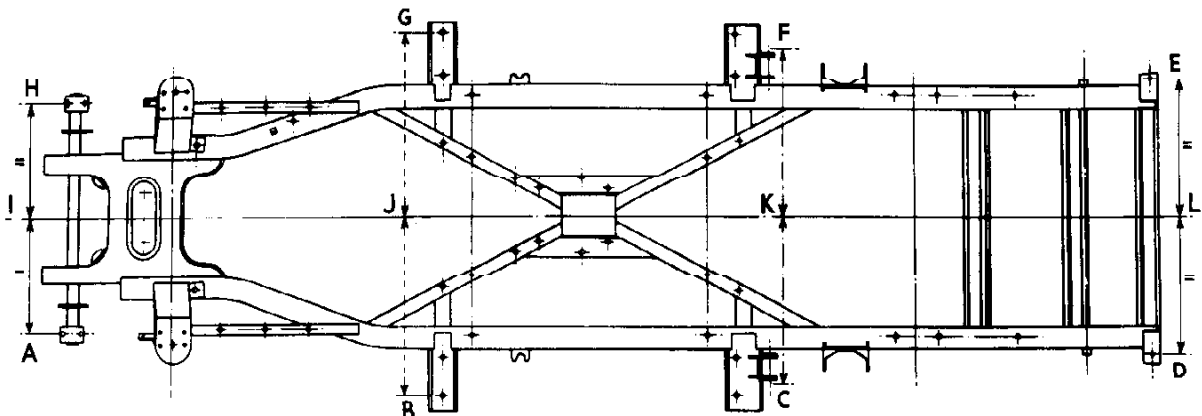


Figure P6.

Plan view of chassis frame showing the dimensions necessary for the checking of "bowing". Compare those dimensions having similar styled lines.

THE PETROL PIPE AND MUD SHIELDS

REMOVAL AND REPLACEMENT PETROL PIPE AND MUD SHIELD

1. REMOVAL

Detach the petrol pipe shield from the rear of the L. H. front roadwheel arch by withdrawing two screws; remove the mud shield from the rear of the same front roadwheel arch by withdrawing two more screws. Detach the mud shield from the R. H. front road wheel arch by withdrawing four screws.

2. REPLACEMENT

The replacement of the petrol pipe and mud shields is the reversal of the removal sequence.

THE JACKING SYSTEM

DESCRIPTION

Two jacking brackets are welded approximately mid-way along the outside faces of the chassis frame side member to accommodate the hook of the screw type lifting jack. The jack operating handle is stamped on its side faces and indicates the action required to raise or lower the car.

This jacking system is designed to enable the driver to raise either side of the car to effect a wheel change in the event of tyre failure. It is not intended that the jacking system should be used for prolonged periods to effect lengthy underside overhauls.



Figure P7.
The jack inside the car.

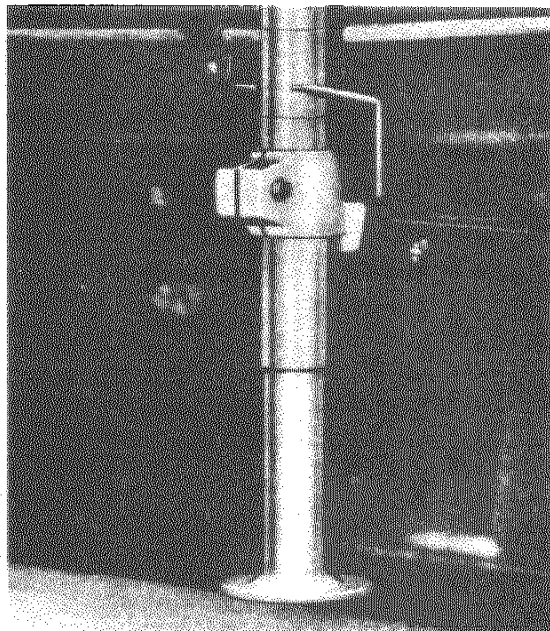


Figure P8.
The jack under the car, note the engagement of the chassis jacking bracket.

**JACKING UP THE CAR
TO EFFECT A ROAD WHEEL CHANGE Figs. P7 and P8.**

ENSURE THAT THE HANDBRAKE IS HARD ON.

Roll the carpet aside and remove the rubber plug in the floor just in front of the front seat and viewed through the hole in the bracket welded to the chassis frame side member. Pass the jack through the hole in the floor and engage its hook in the chassis frame jacket. Hold the jack in this position with one hand and turn the jack handle clockwise until its base contacts solid ground beneath the car. When the ground beneath is observed to be soft, position a stout piece of wood between the foot of the jack and the soft ground.

**JACKING UP THE CAR
FOR UNDERSIDE OVERHAUL**

1. CHASSIS FRAME

The car may be jacked up at the front end by positioning the padded cradle of a trolley jack under the rear section of the front chassis cross member and anywhere along the two chassis side members in front of the rear road spring damper brackets provided that:-

- (i) The head of the jack is cushioned by a stout piece of wood.
- (ii) The front roadwheels are chocked when the rears are lifted from the ground.
- (iii) The chassis is raised equally on both sides.

2. REAR AXLE

The rear of the car can be jacked up by chocking the front road wheels and positioning a trolley jack beneath the differential unit of the rear axle. Care must be exercised to ensure that the jack does not disturb the rear cover of the differential unit and cause an oil leak.