

Chapter H SUB-FRAMES AND SUSPENSION

Section H1 SUB-FRAMES AND SUSPENSION

Front sub-frame, engine and transmission— To remove as a unit

1. Disconnect the battery.
2. Remove the bonnet as described in Chapter S – Body.
3. De-pressurise the hydraulic system (*see Chapter G – Hydraulic System*).

4. On cars fitted with refrigeration, release the pressure from the system and disconnect the pipes from the compressor (*see Chapter C – Air Conditioning*).

5. On all cars drain the cooling system. There are three drain points, one at the base of the radiator bottom tank and one on either side of the crankcase.

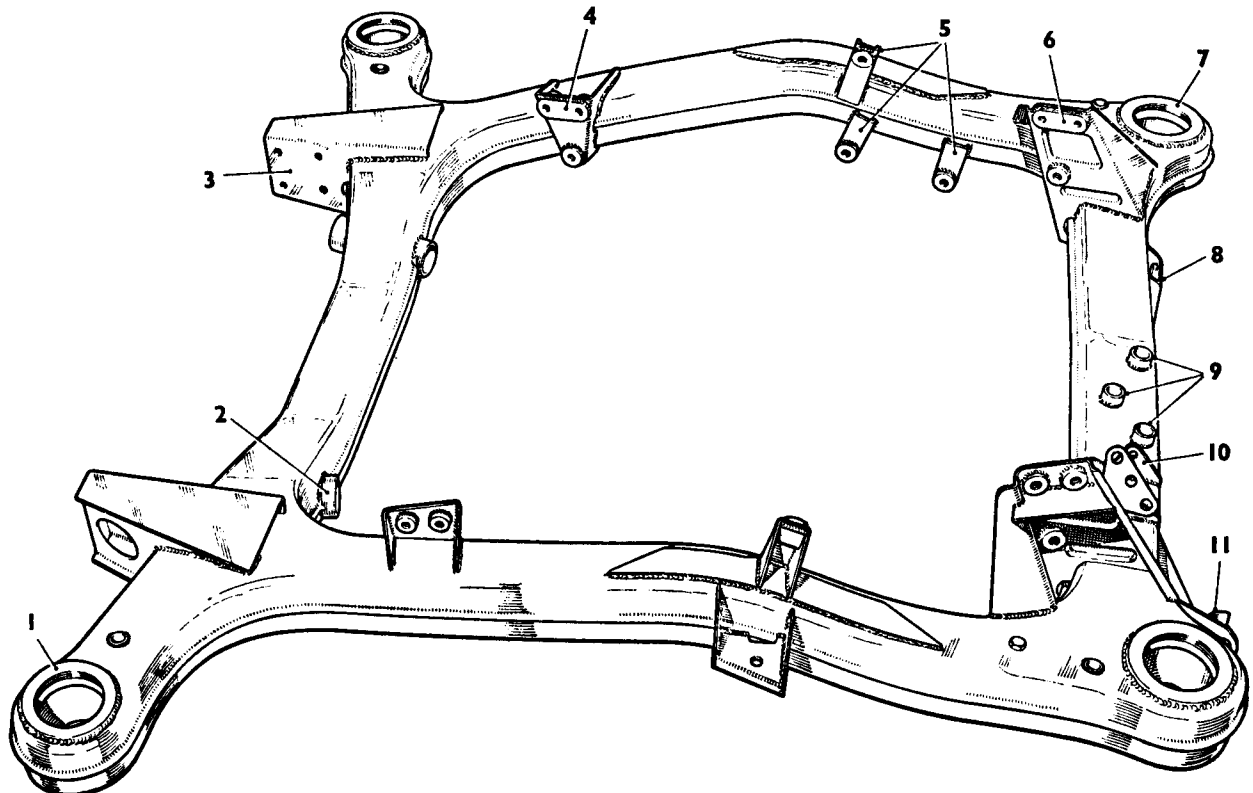
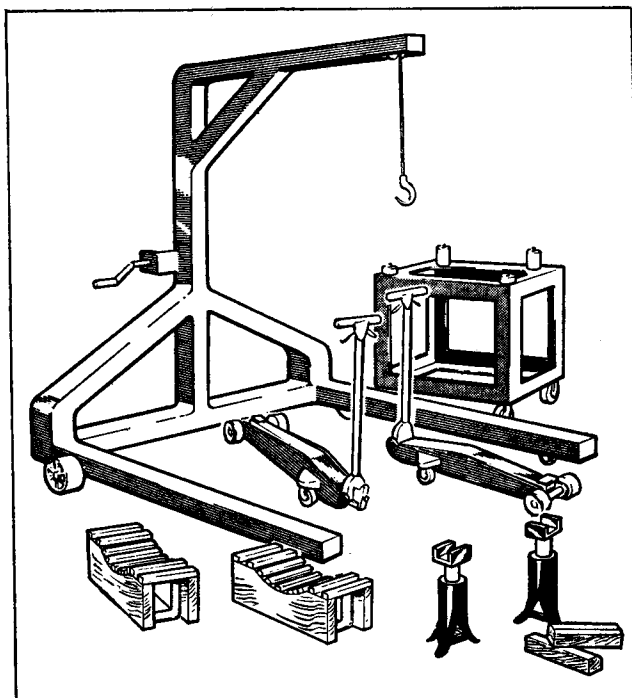


FIG. H2 PICTORIAL VIEW OF FRONT SUB-FRAME

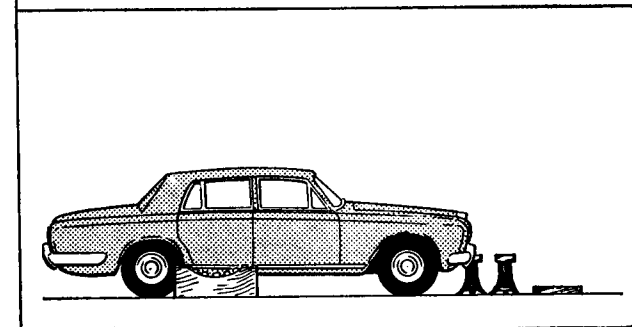
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|---|---|
| 1 Sub-frame rear mounting points | 7 Sub-frame front mounting points |
| 2 Rear lower triangle levers mounting points | 8 Front stabiliser bar mounting brackets |
| 3 Engine rear mounting brackets | 9 Front lower triangle levers mounting points |
| 4 Upper triangle levers rear mounting brackets | 10 Front height control valve bracket |
| 5 Steering box/idler box mounting brackets | 11 Panhard rod mounting bracket |
| 6 Upper triangle levers front mounting brackets | |

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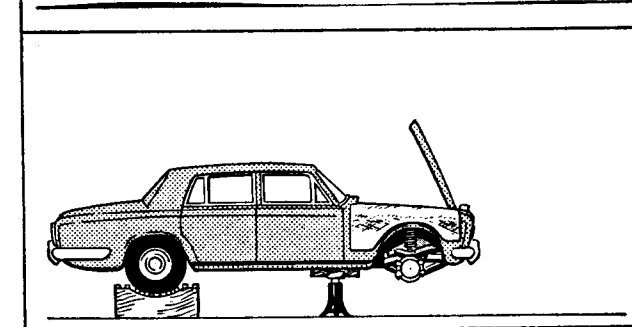


Equipment required—Mobile crane, two hydraulic jacks, two stands, two sill shaped blocks, engine stand and two wooden cradles.



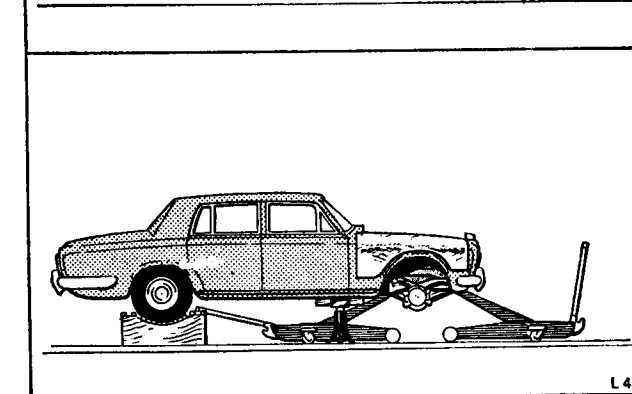
Operations 1 – 10

Disconnect battery, discharge refrigeration and disconnect coolant hoses.



Operations 11 – 14

Place car on wooden cradles and stands.



Operations 32 – 35

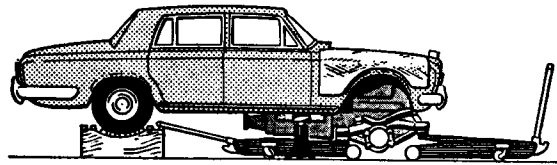
Place hydraulic jacks beneath transmission and lower triangle levers pivot point.

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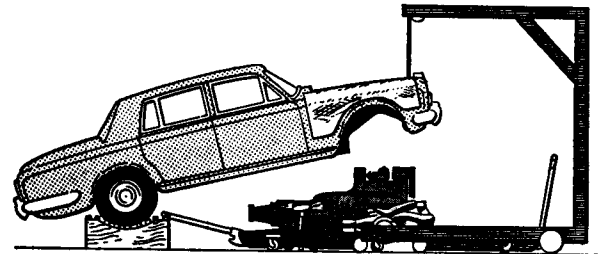
FIG. H3A FRONT SUB-FRAME, ENGINE AND TRANSMISSION REMOVAL

Operations 36 - 37

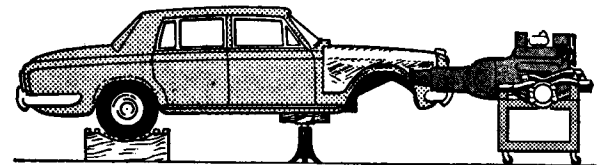
Unscrew and remove sub-frame centre bolts. Check all hoses, etc., are disconnected; then lower jacks simultaneously.

**Operations 38 - 39**

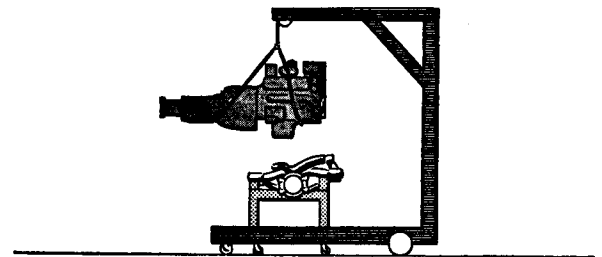
Using crane, lift car body clear of engine, transmission and sub-frame; remove unit from beneath car.

**Operation 40**

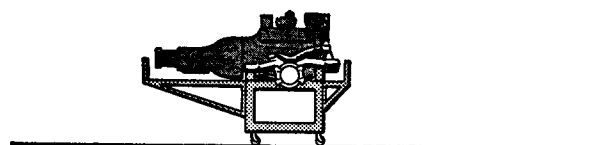
Using crane, lift engine, transmission and sub-frame on to mobile stand.

**Operation 41**

Remove the engine and transmission from sub-frame.

**Operations 4 - 15**

(see *Engine and transmission - To fit to sub-frame.*)



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FIG. H3B FRONT SUB-FRAME, ENGINE AND TRANSMISSION REMOVAL

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6. Remove the air silencer/cleaner hose by releasing the large hose clips at each end and by removing the two setscrews securing the hose bracket to the cylinder head.
7. Blank off the choke butterfly housing and the air silencer/cleaner outlet, to prevent ingress of foreign matter.
8. Disconnect the heater hoses from the cylinder head and remove the hoses from the coolant system.
9. On cars fitted with torque converter transmission, disconnect the coolant hose at the outlet connection of the fluid cooler.
10. On cars fitted with exhaust emission control, the pipe connecting the air filter of the carburettor weakening device to the 'A' or 'B' bank carburettor float chamber must be disconnected.
11. Using a hydraulic jack, raise the rear of the car sufficiently to place the wooden cradles (see Fig. H3) beneath each rear wheel. Lower and remove the jack.
12. Position the jack head and a piece of hardwood beneath the lower triangle levers pivot point then raise the front of the car.

13. Position a stand fitted with a piece of hardwood (see Fig. H3) beneath the sill just rearward of the front wheel arch.
14. Lower the car onto the stands and remove the jack.
15. On all cars, disconnect the exhaust downtake pipes from the manifolds and at the rear of the front silencer box; remove the exhaust.
16. Disconnect the engine electrical system loom at the nine-way socket and plug situated on the right-hand valance plate (see Fig. H5).

Note The importance of cleanliness when working on the hydraulic system cannot be over emphasised. All connections must be cleaned with methylated spirit prior to being disconnected. All pipes and apertures must be suitably blanked off immediately they are disconnected or exposed.

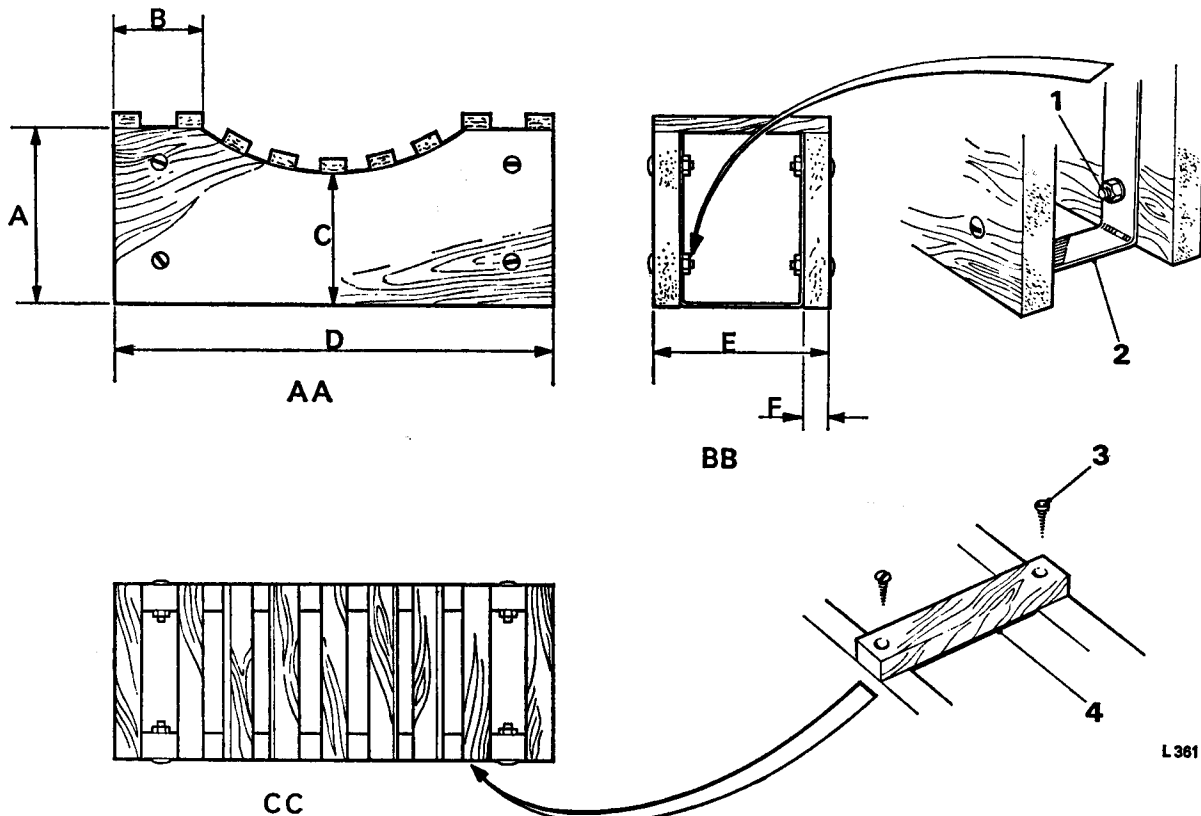


FIG. H4 WOODEN CRADLE DIMENSIONS

A-A Side view	B-B End view	C-C Plan view
A 12 in. (30,48 cm.)	C 9 in. (22,86 cm.)	E 12 in. (30,48 cm.)
B 5 in. (12,70 cm.)	D 36 in. (91,44 cm.)	F 1.50 in. (38,10 mm.)
1 Nut, bolt and washer (8 off)	2 Steel bracing (2 off)	3 Wood screws
4 Cross-piece 12 in. × 1½ in. × 1 in. (30,48 cm. × 38,10 mm. × 25,4 mm.)		

The blanks should be thoroughly cleaned with **methylated spirit** before use and all foreign matter, e.g. grease, oil, paint or grit removed.

The ingress of foreign matter will seriously impair the efficiency of the hydraulic system (see Chapter G – Hydraulic System).

17. Disconnect the pipes between the hydraulic accumulators and the braking and height control systems at the junction on the left-hand body side-member. Blank off the pipes and apertures.

18. Disconnect the hoses between the brake fluid reservoir at the brake pump end of the hose. Immediately blank off the hoses to prevent the hydraulic fluid draining from the reservoir.

19. **On right-hand drive cars**, the two flexible hoses on the right-hand side of the sub-frame for the braking system must be removed.

On left-hand drive cars, these hydraulic pipes are situated on the left-hand side of the sub-frame.

20. **On all cars**, disconnect the low pressure return pipes connecting the accumulators to the hydraulic fluid reservoir. Immediately blank off the pipes and apertures.

21. Disconnect the three flexible hoses on the right-hand side of the front sub-frame cross-member.

22. Disconnect the fuel supply pipes from the fuel pumps, at the point just rearward of the right-hand front wheel arch, then blank off the pipe.

23. Remove the accelerator control rod and tie-bar situated at the rear of 'A' bank cylinder head. The control rod and tie-bar are mounted on the bracket supporting the electrically operated starter switch to the valance.

24. **On cars fitted with the Saginaw steering pump**, disconnect the steering pump fluid cooler pipes; blank off the pipes and apertures.

25. Unscrew and remove the speedometer flexible drive cable from the transmission rear extension.

26. Unscrew and withdraw the multi-pin plug and socket from the transmission gear change actuator motor.

27. Unscrew and remove the nuts and bolts securing the propeller shaft to the transmission output flange; separate the flanges.

28. Unscrew and remove the two nuts and bolts securing the upper part of the steering column to the intermediate link.

29. Release the panhard rod at its inner end by unscrewing the nut from the shouldered bolt; push the rod away from the body bracket.

Note Do not alter the setting of the rod.

30. **On cars between Car Serial Numbers 6000 and 6404**, disconnect the hand brake cable and the hand brake pulleys.

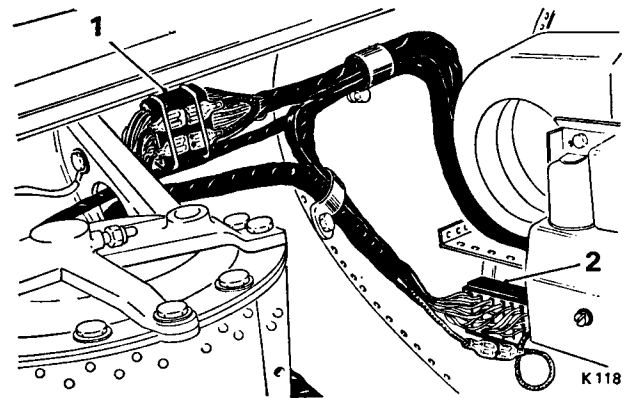


FIG. H5 ENGINE LOOM PLUG AND SOCKET

1 Connector block 2 Connector block

31. Remove the front road springs as described in Section H4 – Front road spring – To remove.

32. Place a hydraulic jack under the lower triangle levers pivot point.

33. Disconnect the battery cable from the starter motor solenoid and from the bracket on the bell housing.

34. Detach the earth strap from the bell housing.

35. Place a second hydraulic jack fitted with a block of hardwood beneath the transmission sump; remove the front wheels.

36. Unscrew and remove the sub-frame centre bolts.

37. Check that all hoses, pipes, etc., are disconnected, then lower **both** hydraulic jacks simultaneously.

38. Using an overhead crane, place a sling through both bonnet hinges and carefully lift the front of the car sufficiently to allow the engine, transmission and sub-frame assembly to be wheeled from beneath the car.

39. Lower the car back onto the stands; remove the slings.

40. Using the overhead crane, lift the engine, transmission and sub-frame onto the special mobile stand (RH 7761).

41. Remove the engine and transmission from the sub-frame as described in 'Engine and transmission – To remove from sub-frame'.

Front sub-frame resilient metal mounts— To fit (with sub-frame, engine and transmission removed)

1. Use the centralising fixture (RH 7846) to centralise each mount in turn, prior to fitting to the sub-frame. This enables the mount centre tube to be