

Section H1m

Rear sub-frame and suspension

Introduction

The rear sub-frame comprises a rear crossmember and a final drive crossmember with frame tubes fixed at angles between the two components to form a space frame assembly.

The trailing arms which are designed to give a swing axle effect, are attached to the rear crossmember. Each trailing arm carries a rear hub assembly and a mounting plate for the suspension strut lower mount. The stabilizer which is attached to both trailing arms is also mounted on the rear crossmember.

The final drive crossmember supports the final drive unit. Drive-shafts transmit the drive from the unit to the rear hubs.

The sub-frame assembly is secured to underbody brackets by the use of rubber mounts fitted at each end of the crossmembers.

Small longitudinal dampers are mounted at the ends of the rear crossmember to resist any forward or rearward movement of the sub-frame.

Warning

When the rear sub-frame is removed from the car, on no account must the frame tubes or crossmembers be dismantled unless an alignment jig is available for re-assembly.

Rear sub-frame and final drive unit - To remove

1. Drive the car onto a ramp and chock the front wheels.

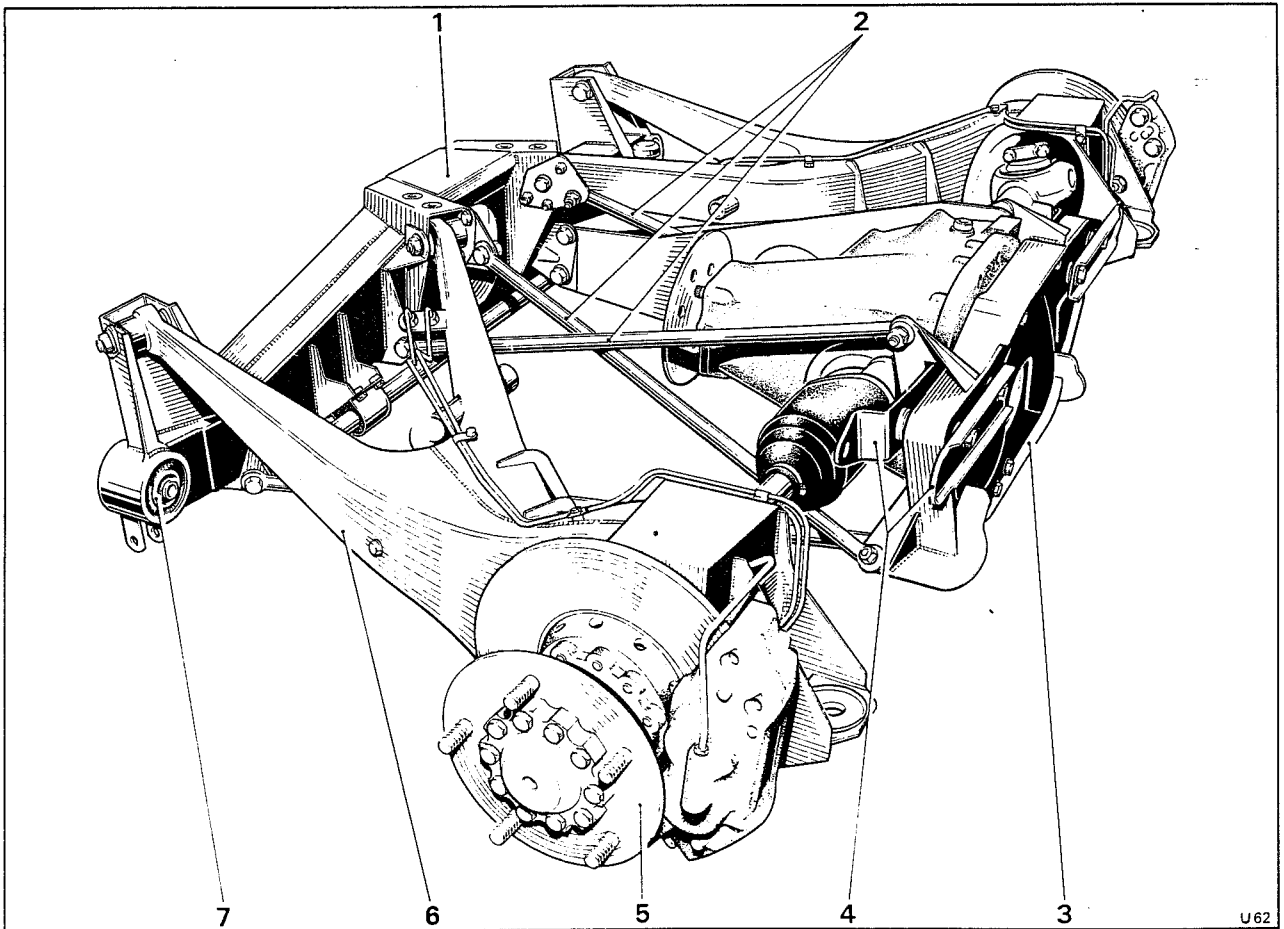
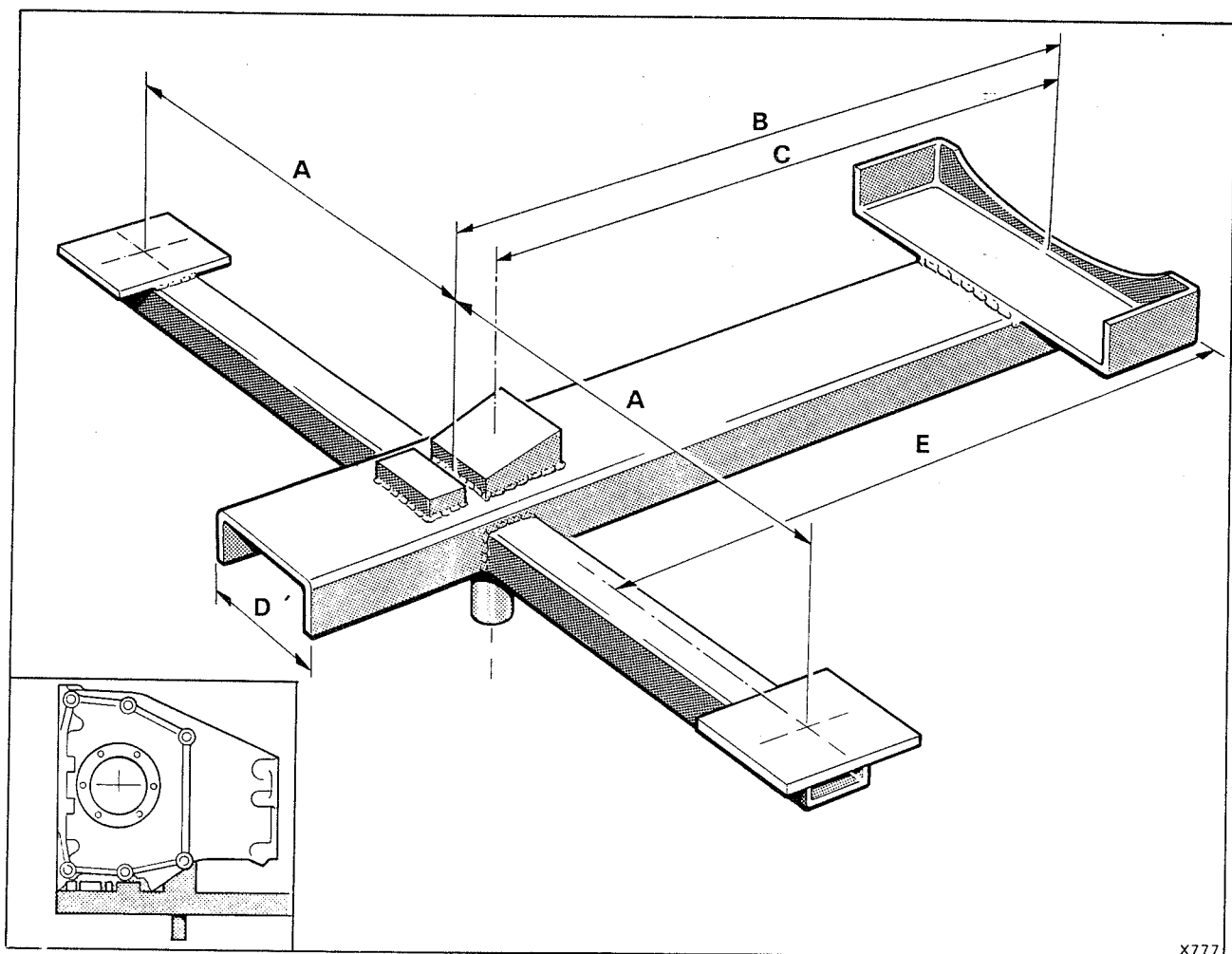


Fig. H1m Rear sub-frame, and associated components

- | | |
|-----------------------------------|---------------------|
| 1 Rear crossmember | 5 Hub unit |
| 2 Frame tubes | 6 Trailing arm |
| 3 Final drive crossmember | 7 Crossmember mount |
| 4 Brackets for final drive mounts | |

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2. Depressurize the hydraulic systems as described in Chapter G Part 11.
3. Move the gear range selector lever to the N Neutral position.
4. Disconnect the battery.
5. Remove the rear sections of the exhaust systems as described in Chapter Q.
6. Remove the rear wheel trims and slacken the wheel nuts.
7. Place a jack beneath the final drive casing and raise the rear of the car. Support the body on sill blocks.
8. Support the trailing arms with jacks and remove the rear road wheels.
9. Remove the rear road springs as described in Section H3m.
10. Disconnect the height control valve actuation links from the trailing arms.
11. Disconnect the brake hoses from the trailing arm brackets. Fit blanking plugs to the hose and pipe ends.
12. Disconnect the suspension strut from the rear of each trailing arm.
13. Disconnect the parking brake cables from the operating lever on the rear hubs. Pull back the convoluted sleeves to expose the outer cable securing nuts. Release the nuts and feed the cables through the slot in the brackets. Detach and ring clip supporting each cable beneath the rear stabilizer.
14. Remove the propeller shaft as described in Chapter F.
15. Disconnect the fuel pump inlet and outlet hoses. Fit blanks to the hose ends and pump ports. Disconnect the electrical connections from the pump.
16. Disconnect the earth braid from the rear of the final drive crossmember.
17. Remove the small damper situated at each end of the rear crossmember.
18. Fit a frame similar to that shown in figure H2m onto a trolley jack. Raise the jack and position the frame beneath the sub-frame with the central pad beneath the final drive casing. The two arms should support the trailing arms and the forward pan should support the rear crossmember.
19. With the sub-frame fully supported, remove the four bolts securing the rubber mounts to the body mounting brackets. On the right-hand side of the car



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Fig. H2m Rear sub-frame removal jig general dimensions

A 635 mm. (25.0 in.)

C 610 mm. (24.0 in.)

E 635 mm. (25.0 in.)

B 673 mm. (26.5 in.)

D 127 mm. (5.0 in.)

Inset Jig to final drive location

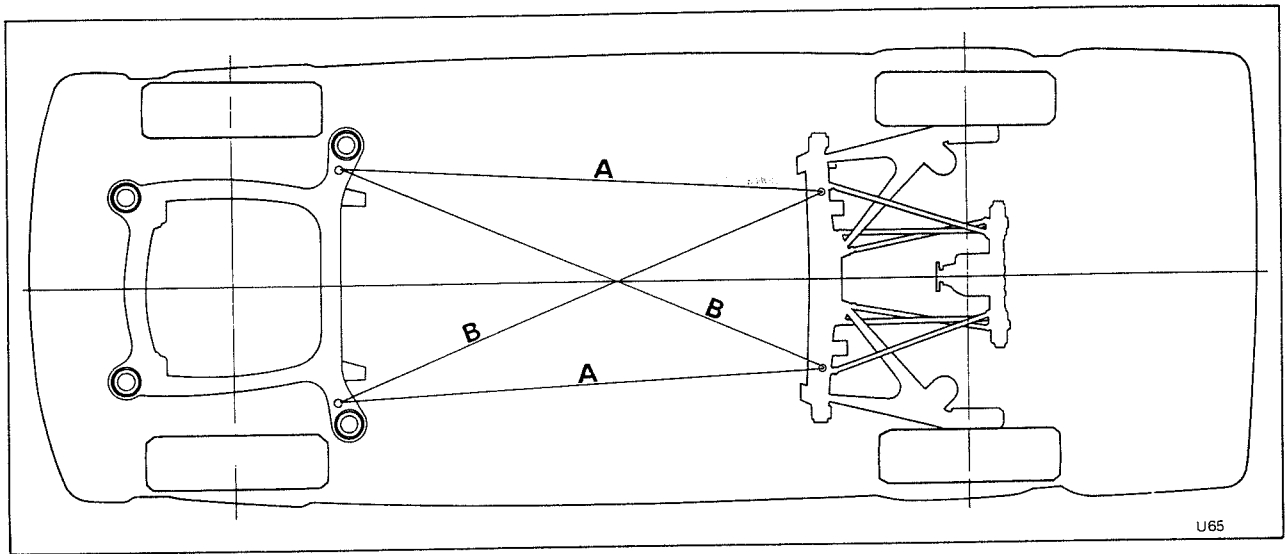


Fig. H3m Sub-frame alignment

Measurements to be equal within 1,60 mm. (0.062 in.)

access to the rear mounting bolt nut can be obtained by removing the grommet from the front wall of the luggage compartment well.

20. Carefully lower the sub-frame from beneath the car. When the sub-frame is clear of obstructions, pivot the support and sub-frame through 90° to allow the frame to pass between the ramp channels. If the ramp is too narrow to allow the sub-frame to be lowered in this manner, the sub-frame should be lowered onto the ramp and then carefully manoeuvred from beneath the car.

Note

When lifting the sub-frame assembly with a hoist, use pick-up points across the trailing arms and under the final drive unit. The rear crossmember should also be supported. **Do not lift the sub-frame on the frame tubes.**

Rear sub-frame and final drive unit - To fit

Fit the sub-frame and final drive unit assembly by reversing the removal procedure noting the following:

1. Inspect all the mounts and components for serviceability. Renew as necessary.
2. Ensure that the front and rear sub-frame are aligned by measuring the longitudinal and diagonal distances between the machined fixture locating pads (see Fig. H3m).

These measurements must be equal to within 1,60 mm. (0.062 in.).

3. Check the rear crossmember setting (see Fig. H7m) as described in Section H2m under Rear crossmember mounts - To renew.
4. When fitting the rear road springs ensure that the correct number and sequence of standing height washers are maintained.
5. Do not tighten the exhaust system joints until the pipes have been manoeuvred to obtain the best alignment which is free from possible fouls. When checking clearances always take into account the

exhaust growth that will occur during engine running.

6. Bleed the hydraulic system as described in Chapter G Part 11.
7. Check the standing and levelled height as described in Section H4m and Chapter G Part 11.
8. Torque tighten all nuts and setscrews to the figures quoted in Chapter P.

Frame tubes - To replace

If damage occurs to one or more of the frame tubes they can be replaced using the following method.

Important

Always ensure that all suspension load has been removed from the sub-frame prior to the removal of the frame tube bolts. Only remove one frame tube at a time.

1. Drive the car onto a ramp and chock the front wheels.
2. Move the gear range selector lever to the P Park position.
3. Depressurize the hydraulic systems as described in Chapter G Part 11.
4. Support the final drive unit with a jack.
5. Insert a spring retention tool (RH 9299) through the centre of each lower spring support. Screw the tool fully into the upper spring support.

Warning

Always examine the spring retention tool for signs of thread wear or damage prior to its use. Renew the tool if necessary.

6. Raise the rear of the car until the spring load is removed from the trailing arms. Position sill blocks beneath the car sills to support the body. Ensure the trailing arms are supported by the road wheels.
7. Remove one of the small dampers situated beneath each end of the rear crossmember and insert a jury bolt (RH 9575) as shown in figure H4m. With the jury bolt in position, replace the damper from the other end of the crossmember with a jury bolt.

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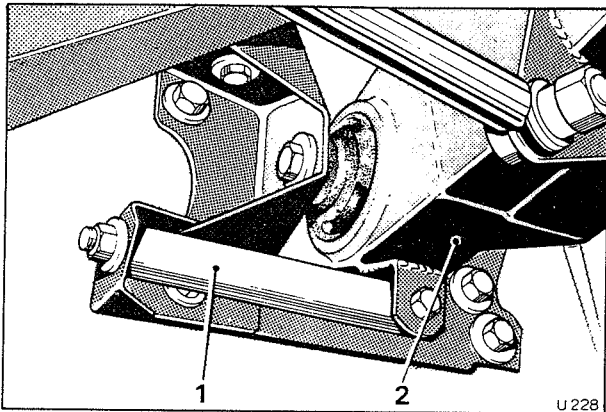


Fig. H4m Jury bolt in position

- 1 Jury bolt
- 2 Rear crossmember

The jury bolts should not exert any load on the crossmember.

8. Before removing the frame tube, note the mounting of the tube to the bracket, the bolt insertion direction and the washer positions.

The tube end faces are offset to allow the tube centre line to lie along the location face of the crossmember bracket. Ensure that the new tube is fitted in this manner.

9. Remove the frame tube.

10. Place the new frame tube into position. The alignment of the holes between the frame tube and the crossmember brackets should allow the securing bolts to be inserted without having to apply force to the tube or crossmember.

11. If alignment is correct fit and torque tighten the frame tube securing bolts.

Should hole misalignment be evident the cause should be investigated. Do not release the torque arm or other frame tubes to obtain hole alignment. This can cause sub-frame movement, resulting in incorrect sub-frame settings and necessitating the removal of the sub-frame to obtain correct alignment on a setting jig.

12. When all the frame tubes are secured, remove each jury bolt in turn and fit the small damper.

13. Remove the spring retention tools and all jacks and blocks.

14. With the gear range selector lever in the P Park position, remove the gear change isolator from the fuseboard.

15. Start and run the engine to pressurize the hydraulic systems.

Bump stop - To renew

1. Chock the front wheels.
2. Jack up the rear of the car and remove the road wheel.
3. Remove the two setscrews securing the bump stop.
4. Fit the new bump stop and torque tighten the setscrews to the figure quoted in Chapter P.

Note

On Corniche cars conforming to a North American specification a 14,22 mm. (0.560 in.) packing is fitted between the bump stop and the body.

Rebound stop

The rebound stop is incorporated into the rear suspension strut and no maintenance is necessary.

member bracket.

9. Remove the frame tube(s).

Frame tubes -- To fit (sub-frame in position)

To fit the frame tubes, reverse the procedure given for removal noting the following points.

1. Check that all nuts, bolts and washers attaching the frame tubes are not damaged. Replace if necessary.
2. The tube end face is offset to allow the tube centre-line to lie along the location face of the crossmember bracket. Ensure that the tube is replaced in this manner (see Fig. H19m).
3. Check that all bolt heads are fitted into the frame tubes in the direction of the arrows shown in Figure H19m.
4. Fit the new tubes and tighten to the figures quoted in Chapter P.
5. Slacken the nuts on the remaining tubes and then tighten to the figures quoted in Chapter P.
6. Slacken the nuts securing the torque arm to the rear crossmember bracket. Tighten to the figures quoted in Chapter P.
7. Remove each jury bolt in turn, replacing with the short in-line damper.
8. Remove the spring compressing tools and all jacks.
9. Start and run the engine to pressurize the hydraulic system.
10. Road test the car.

Rebound stop

The rebound stop is incorporated in the hydraulic suspension strut and no maintenance can be attempted. If a fault occurs, the unit must be replaced (see Chapter G).

Bump stop -- To replace

1. Remove the gear range selector thermal cut-out from the fuseboard.
2. Chock the front wheels.
3. Jack up the rear of the car and remove the road wheel.
4. The bump stop is attached to the rear wheel arch and is secured by two setscrews.
5. Replace the bump stop and torque tighten to the figures quoted in Chapter P.

Note

On Corniche cars destined for U.S.A. and Canada the 14,22mm (0.560 in.) packing must be replaced when fitting the bump stop.

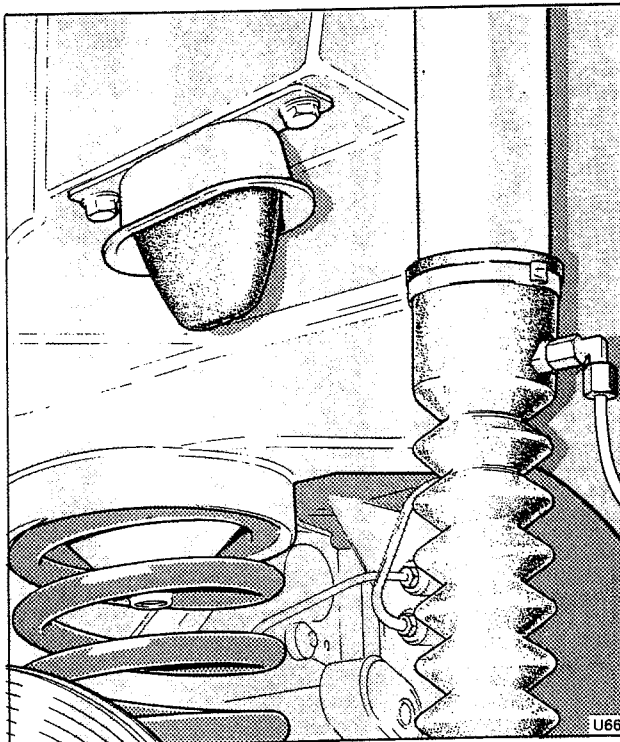


Fig. H7m Bump stop -- Rear wheel arch