Chapter H

Sub-frames and suspension

This chapter is in two parts. Part I covers the front sub-frame and suspension and the rear suspension of cars produced prior to car serial number 50 000.

Part II covers the rear sub-frame and suspension fitted to cars produced from car serial number 50 001.

Part I Front sub-frame and suspension and rear suspension.
Applicable to Silver Shadow II, Bentley T2, Silver Wraith II, Corniche and Camargue cars prior to serial number 50 000.

Part II Rear sub-frame and suspension.
Applicable to Corniche and Camargue cars from serial number 50 001.

It should be noted that in Part II all Section, Page and Figure reference are prefixed (m) to denote cars filled with hydraulic system mineral oil.

Sub-frames and Suspension

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Chapter H

Part I
Sub-frames and suspension

Applicable to Silver Shadow II, Bentley T2, Silver Wraith II, Corniche and Camargue cars prior to serial number 50 000

Section

H1 Front sub-frame and suspension
H2 Front shock dampers, road springs and ball joints
H3 Compliance assembly, triangle levers, suspension ball joints and stabilizer
H4 Front hubs
H5 Front suspension settings
H6 Bump and rebound stops
H7 Rear crossmember
H8 Rear suspension settings
H9 Rear shock dampers
H10 Rear road springs
H11 General dimensions
H12 Workshop tools

Introduction

As a result of continuous development various changes have taken place to the sub-frames and suspension of the Silver Spirit, Silver Spur, Mulsanne, and Corniche motor cars. These changes have been implemented at various times and are detailed as follows.

Silver Spirit, Silver Spur, and Mulsanne, (including Turbo) from vehicle identification number *SCAZS0008BCH02290*. A fibre gasket is fitted between the front road spring cover plate and the valance tower. Fibre washers are also fitted to the spring cover securing bolts and are located between the cover plate and the steel washer beneath the bolt head.

Silver Spirit and Mulsanne (other than Turbo) from vehicle identification number *SCAZS0004BCH03694*and Silver Spur from *SCAZN42AXBCX03717* including
SCAZN0000BCH03425
SCAZN0002BCH03653
SCAZN0008BCH03656
SCAZN42A9BCX03661
SCAZN0003BCH03662
SCAZN42A2BCX03663

A new horizontally located front engine mount is fitted. This mount is of a voided cylindrical rubber construction having reduced stiffness and is fitted in conjunction with a new crossmember. The engine forward stop plate previously fitted is deleted.

New rear engine mounts are fitted which although of the same physical shape as those previously fitted, use softer rubber. These mounts can be identified by the part number which is moulded into the rubber.

An engine steady bar is fitted at the front of the engine and is attached to a stabilizer arm which is secured by the two engine crossmember bolts. The steady arm is secured to the engine through two shouldered rubber bushes and to the stabilizer arm through a voided cylindrical rubber bush.

A reshaped bottom radiator hose is fitted to obtain clearance with the steady bar and stabilizer arm.

Further changes include the fitting of tie-bars to the rear of the front sub-frame, adjacent to the rear engine mounts. To enable the tie-bars to be fitted, the front sub-frame is modified to include additional mounting brackets. Additional mounting brackets are also welded to the underside of the body longeron.

Due to the fitting of the rear tie-bars the transmission cooler pipes are repositioned. These pipes are redesigned to allow fitment to the inner side of the body longeron, adjacent to the tie-bars, and are then routed and clipped on the underside of the longeron forward of the tie-bars, as on cars prior to the modification.

The following information is not applicable to cars fitted with petrol injection engines.

Two small hydraulic dampers are fitted to the rear of the engine. The upper end of each damper is located in a bracket which is part of a new transmission adapter plate. The lower end of each damper is located in a mounting bracket, secured to the sub-frame by the two foremost setscrews which secure the rear engine mount bracket.

On cars fitted with petrol injection engines the two small hydraulic dampers are located at the top by a slotted bracket. The bracket is fitted between the transmission adapter plate and the rear engine mount and secured by the two rear engine mount bolts. The lower end of each damper is located by a bracket attached to the sub-frame by the two rear setscrews which secure the rear engine mount brackets. These dampers were fitted to cars from the following vehicle identification numbers.
Silver Spirit and Mulsanne*SCAZS42A1BCX03954*
Silver Spur*SCAZN42A7CCX03983* including
SCAZN42A4BCX03860
SCAZN42A9BCX03899
SCAZN42A3BCX03901
SCAZN42A6BCX03908
SCAZN42A6BCX03911
SCAZN42A3BCX03915
SCAZN42A6CCX03926
SCAZN42AXCCX03928
SCAZN42A7CCX03983

A redesigned accelerator cross-shaft is also fitted to cars with petrol injection engines as the position of the new engine dampers prevents correct operation of the previously fitted cross-shaft.

Silver Spirit and Mulsanne from vehicle identification number *SCAZS42AXCCX04702* including
SCAZS0007CCH04632
SCAZS0009CCH04633
SCAZS000XCCX04637
SCAZS0001CCH04657
Silver Spur from vehicle identification number
SCAZN0009CCX04846 including
SCAZN42A2CCX04765
SCAZN42A6CCX04770
SCAZN42A8CCX04771

Changes are made to the lower triangle levers, pivots, bushes, and front sub-frame mounts.

The front sub-frame mounts, although of similar appearance to the original mounts, are produced from

a lower rated rubber. The new mounts can be identified by the part number moulded into the rubber.

A 2.54 mm (0.10 in) spacer is used in conjunction with the new mounts.

The inner end of the lower triangle levers are redesigned to allow shouldered rubber pivot bushes and distance pieces to be inserted. The levers pivot on bolts which also secure the levers to the rear of the sub-frame and to a new mounting bracket at the front.

The new front mounting bracket provides shim adjustment to ensure that pre-load is not applied to the pivot bushes.

A steel distance piece is fitted between the front sub-frame and each stabilizer bearing support bracket, to ensure sufficient clearance is obtained between the stabilizer link and the link support bracket securing bolts. On some cars however, the distance pieces have been omitted. On these cars sufficient clearance is obtainable without their use.

On left-hand drive cars from vehicle identification number
Silver Spirit and Mulsanne*SCAZS42A5BCX03696*
and Silver Spur*SCAZN42AXBCX03717*including
SCAZN42A9BCX03661
*SCAZN42A2BCX03663*the two hydraulic pipes from the distribution valves to the front sub-frame have been changed to allow the connection of the two flexible hoses to be made on the outside of the body longeron. A new hose mounting bracket is also used.

Introduction

As a result of continuous development and modification to the ride and handling characteristics of the various models produced, changes have taken place to the sub-frames and suspension. These changes have been implemented at various times and are detailed as follows:-

Front road spring towers
A fibre gasket is now fitted between the front road spring cover plate and the valance spring tower.

Fibre washers are also fitted to the cover plate securing bolts and are located between the cover plate and the steel washers beneath the bolt heads.

Engine mounts and steady bar
On Silver Spirit and Mulsanne (other than Turbo) cars from vehicle identification *SCAZS0004BCH03694* to *SCAZS0007FCH13643* and Silver Spur from
SCAZN42AXBCX03717 to
SCAZN0003FCH13145 including
SCAZN0000BCH03425
SCAZN0002BCH03653
SCAZN0008BCH03656
SCAZN42A9BCX03661
SCAZN0003BCH03662
SCAZN42A2BCX03663
but excluding *SCAZN42A6FCX13103*
SCAZN42AXFCX13105
SCAZN42A1FCX13140 to
SCAZN42A9FCX13144
SCAZN42A2FCX13146 and
SCAZN42A6FCX13148
a horizontally located front engine mount is fitted. This mount is of a voided rubber contruction and is fitted in conjuction with a modified engine mount crossmember. When this type of mount is fitted rear engine mounts are used which, although of the same physical shape as those initially fitted, have softer rubber.

The mounts may be identified from the part number moulded into the rubber.

An engine steady bar is also fitted at the front of the engine and is attached to a stabilizer arm which is secured by two of the engine crossmember bolts. The steady bar is secured to the engine through two shouldered rubber bushes and to the stabilizer arm through a voided cylindrical rubber bush.

A reshaped bottom radiator hose is fitted to obtain clearance when the stabilizer arm and steady bar are fitted.

Front sub-frame tie-bars and dampers
Further changes include the fitting of tie-bars to the rear of the front sub-frame, adjacent to the rear mounts. To enable the tie-bars to be fitted, the front sub-frame is modified to include additional mounting brackets. Additional mounting brackets are also welded to the underside of the body longeron. In conjunction with the tie-bars, two small hydraulic dampers are also fitted to certain models dependent on design requirements. These dampers are situated at the rear of the engine, each damper being mounted between the engine/transmission adapter plate and the sub-frame.

Front sub-frame mounts
Two types of front sub-frame mounts have been fitted. Although of similar appearance the hardness of the rubber is different. The mounts may be identified from the part number moulded into the rubber. A 2.54 mm (0.10 in) spacer is used in conjunction with the mounts in certain circumstances and should be used on assembly if initially fitted.

In the event of a new sub-frame being used the spacer will not be required.

Lower triangle levers
The inner ends of the lower triangle levers are re-designed to allow parallel rubber pivot bushes and distance pieces to be used. The levers pivot on bolts which also secure the levers to the rear of the sub-frame and to a modified mounting bracket at the front. The front mounting bracket provides shim adjustment to ensure that pre-load is not applied to the pivot bushes.

Front stabilizer bar
On some cars a distance piece has been fitted between the front sub-frame and each stabilizer bearing support bracket. This is to ensure that sufficient clearance is obtained between the stabilizer link and the link support bracket securing bolts.

Front suspension dampers
Changes have been made to the type and damping bleed rate of the suspension dampers. When fitting a new damper always ensure that it is of the same rating as that being removed.

If a damper of the correct type is unobtainable both dampers should be renewed.

Section H1m

Rear sub-frame and suspension

Introduction

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

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 fixing plate for the suspension strut lower mount. The stabilizer bar which is attached to both trailing arms is also mounted on the rear crossmember.

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

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

Small longitudinal shock 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.

*Metalastik is a registered trade mark of Dunlop Holdings.

Rear sub-frame and final drive unit — To remove

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

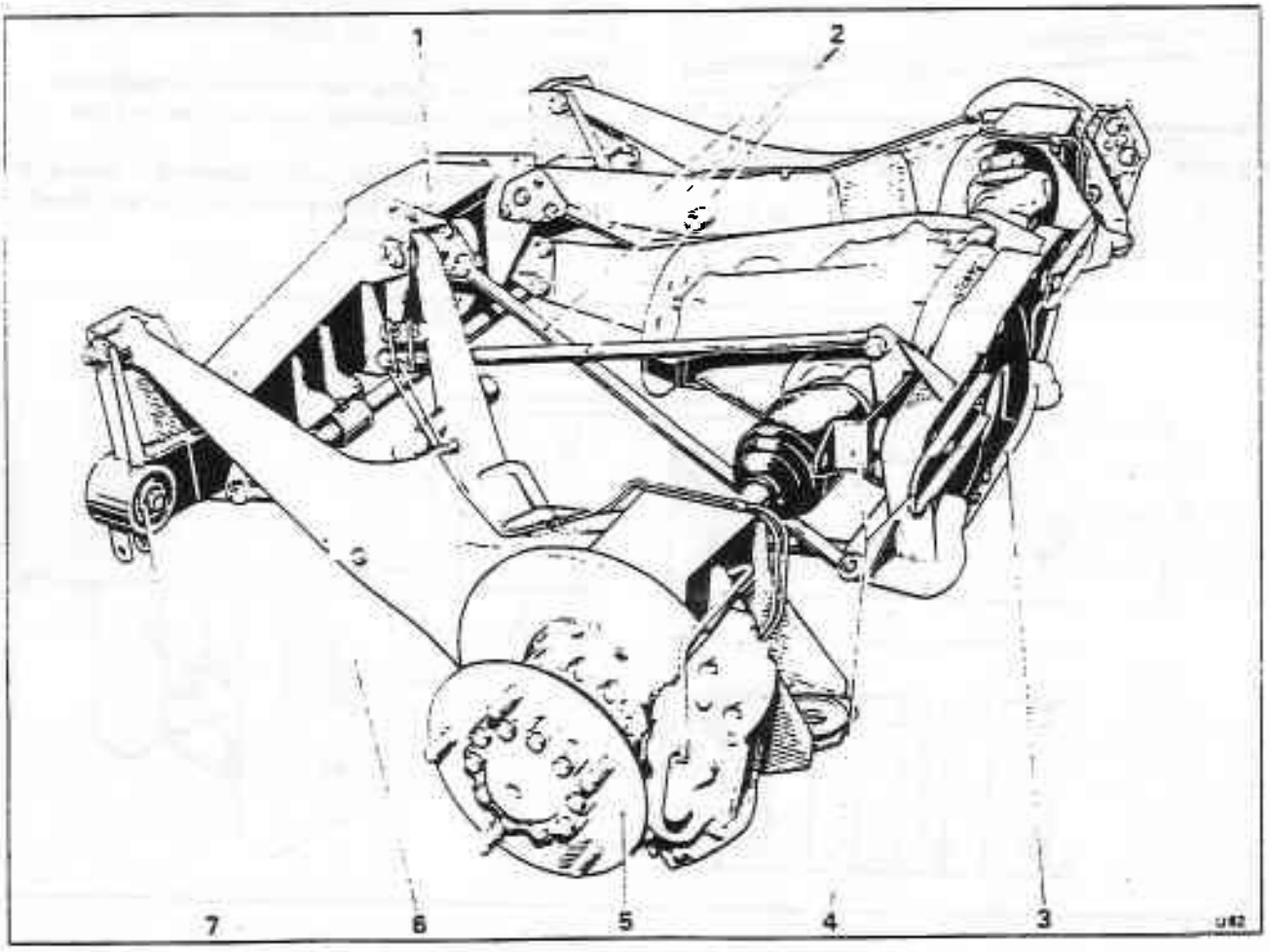


Fig. H1m Rear sub-frame, trailing arms, final drive and hub units

1. Rear crossmember
2. Frame tubes
3. Final drive crossmember
4. Brackets for Metalastik mounts
5. Hub unit
6. Trailing arm
7. Metalastik mount

2. Set the gear range selector to 'P' Park and remove the thermal cut-out from the fuseboard.
3. Raise the ramp.
4. Remove the rear section of the exhaust system and any grass-fire shields. Refer to Chapter Q.
5. Position a hardwood spacer of approximately 76 mm. x 76 mm. x 90 mm. (3 in. x 3 in. x 3½ in.) between the bump rubber and upper face of the trailing arm hub cover.

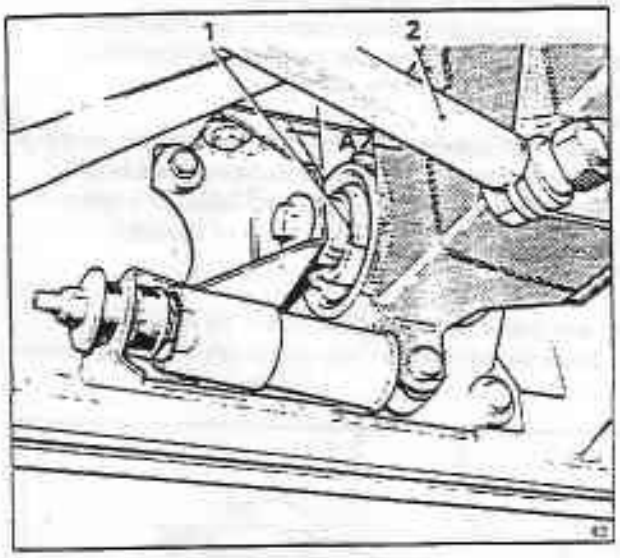


Fig. H2m Short in-line damper and rear crossmember mount
1. Metalastik mount
2. Frame tube
A. 10,60 to 12,07 mm (0.40 in. to 0.475 in.)

6. Compress the road spring with tool (RH 9299) screwed into the upper bell-shaped spring support. Remove the spring as described in Section H3m.
7. Depressurise the hydraulic system. Refer to Chapter G Part II Section G2m.
8. Detach the brake pipes at the brackets on the trailing arms. Fit blanking plugs to prevent the ingress of dirt.
9. Disconnect the levelling valve operating links by releasing the lock-nut on the lower face of the ball joint housing and unscrewing the adjusting stud.
10. Release the parking brake linkages at the operating lever attached to the rear hubs. Pull back the convoluted sleeve to expose the adjusting nut and bracket attached to the lower spring support. Release the nut and feed the cable through a slot in the bracket.

Temporarily secure the cables so that they will not impede the removal of the rear suspension.
11. Disconnect the flexible fuel line to the inlet side of the fuel pump. Fit a clean 5/16 in. diameter bolt into the inlet pipe. Tighten the jubilee clip to stop fuel leakage and the ingress of dirt into the fuel line. Blank off the aperture to the pump.

Repeat the operation on the flexible outlet pipe. It will be necessary only to blank off the connections to prevent ingress of dirt; the adjacent non-return valve will restrict fuel leakage.
12. Remove the short in-line dampers attached to the rear suspension crossmember and body brackets (see Fig. H2m).
13. Remove the propeller shaft as described in Chapter F.
14. Detach the body earthing strip from the rear face of the final drive crossmember.

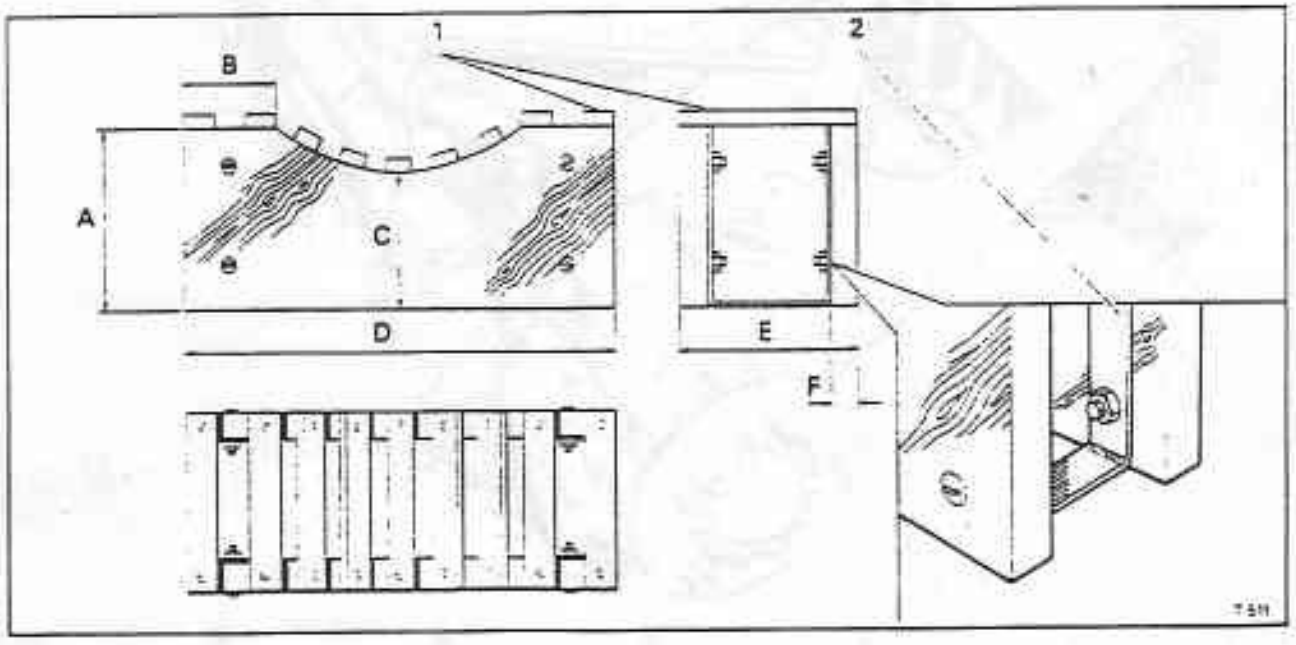


Fig. H3m Wooden cradle dimensions
1. Crosspiece 30,48 cm. x 3,81 cm. x 2,54 cm. (12 in. x 1½ in. x 1 in.)
2. Steel bracing
A. 30,48 cm. (12.0 in.)
B. 12,7 cm. (5.0 in.)
C. 22,86 cm. (9.0 in.)
D. 91,44 cm. (36.0 in.)
E. 30,48 cm. (12.0 in.)
F. 3,81 cm. (1.50 in.)

Front sub-frame and suspension

Introduction

This section describes the removal of the front sub-frame, engine, and torque converter transmission as one unit. Details for removal of the engine only are given in Chapter E.

Before removal, reference should also be made to Chapter C and Chapter G. These chapters give details of the procedures necessary to discharge the air conditioning refrigeration system and depressurize the hydraulic braking and levelling systems. On cars fitted with an exhaust gas emission control system, reference should also be made to Chapter U.

The following operations are the basic requirements for removal of the sub-frame as a complete unit. It should be noted that the operations given relate to varying types of engine and car model. Modifications may also have been introduced as a result of improvements to the vehicle. Always ensure that all relevant looms, pipes, hoses, etc. are disconnected prior to raising the body from the sub-frame and engine unit.

When disconnecting hose and pipe connections, suitable blanks should always be fitted to prevent the ingress of foreign matter and the loss of lubricants and fuel.

Front sub-frame, engine, and torque converter transmission - To remove

1. Reverse the car onto a ramp and chock the rear road wheels.
2. Fit car protection kit RH 2662, wing covers RH 2684, and wing cover liners RH 2685.
3. Discharge the air conditioning refrigeration system as described in Chapter C.

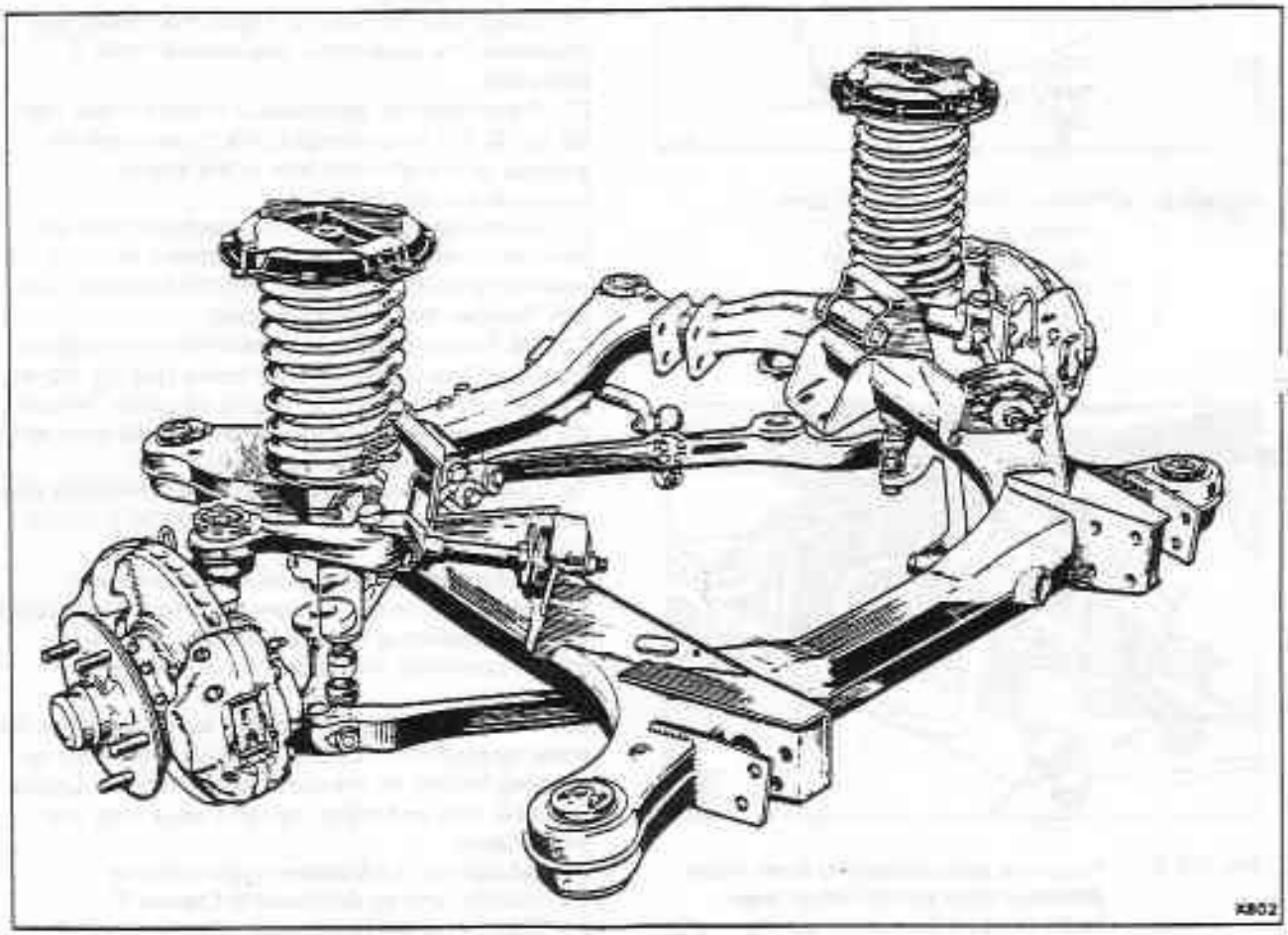


Fig. H2-1 Front sub-frame and suspension assembly

4. Depressurize the hydraulic systems as described in Chapter G.
5. Drain the engine cooling system as described in Chapter L.
6. Switch on the ignition and move the gear range selector lever to the neutral position. Switch off the ignition.
7. Disconnect the battery.

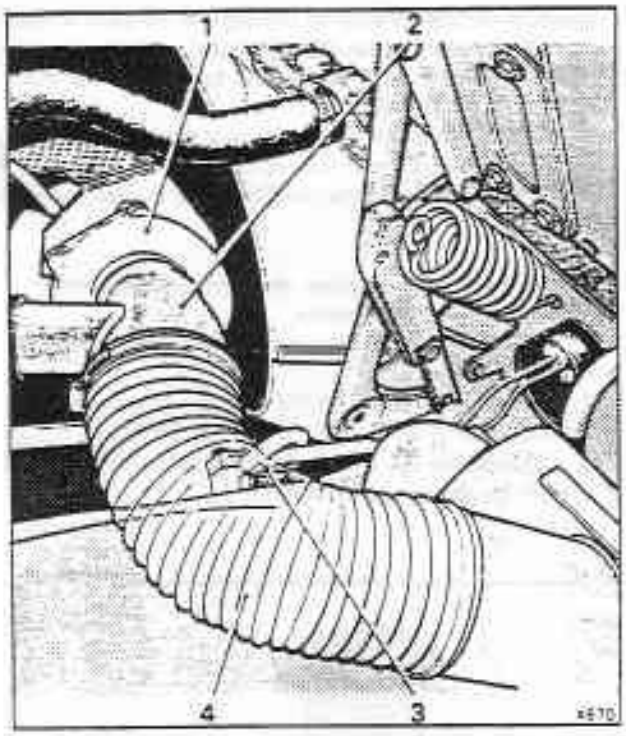


Fig H2-2 Air intake (Turbocharged cars)
1 Turbocharger
2 Turbocharger intake adapter
3 Oil cooler pipe mount
4 Air intake trunk

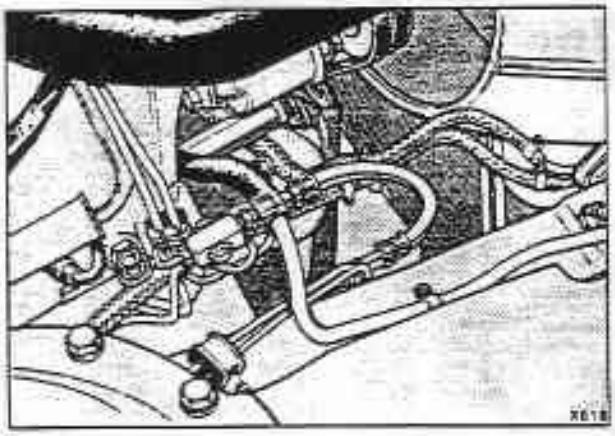


Fig. H2-3 Hydraulic accumulator to body hoses disconnection points (other than Turbocharged cars, early arrangement shown)

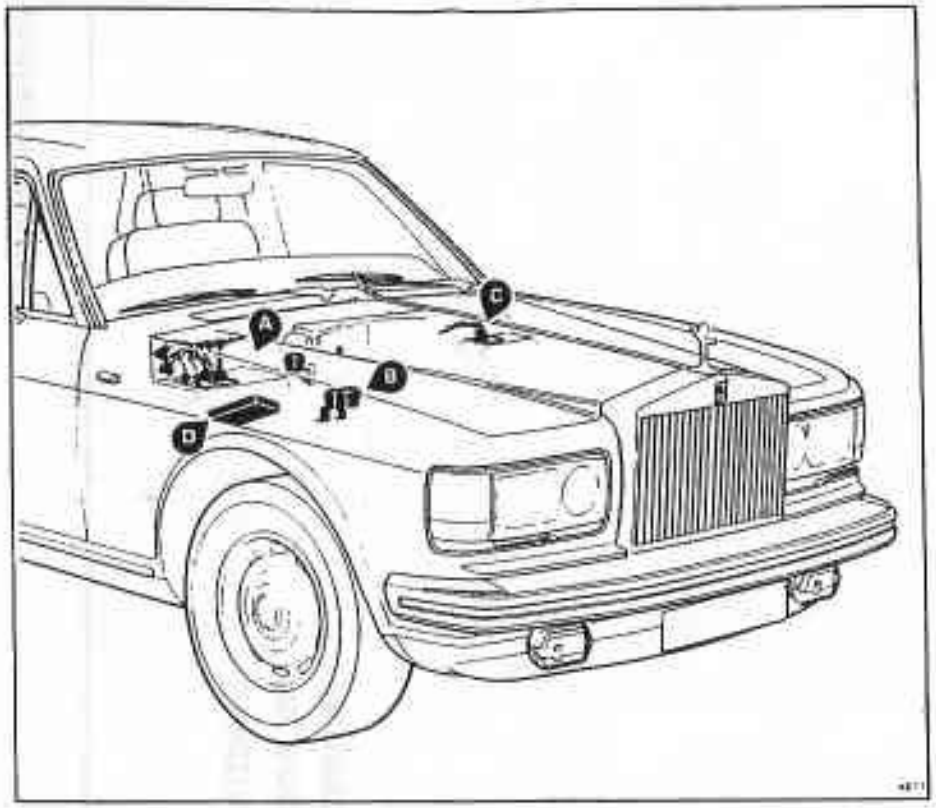
8. Remove the bonnet as described in Chapter S.
9. Remove the radiator top and bottom hoses. On Corniche and Continental cars also disconnect the coolant hose from the radiator header tank.
10. Remove the engine fan as described in Chapter L.
11. Disconnect the heater tap feed hose and return hoses from the crankcase pipes.
12. Disconnect the two refrigeration pipes from the rear of the compressor.
13. Clamp the hydraulic system reservoir to brake pump hoses to prevent reservoir drainage, then disconnect the hoses from the pump inlet pipes. Fit blanks to the pipe ends.
14. Disconnect the steering pump and steering rack to oil cooler hoses. Allow the oil to drain into a container.
15. On cars fitted with SU carburetters, remove the air intake and hot air intake trunks. Disconnect the vacuum hose from the air blending valve.
16. On cars with petrol injection engines, remove the air intake trunk and air meter adapter.
17. On Turbocharged cars, remove the air intake trunk, air dump (recirculation) pipe, air delivery pipe heat shield, and turbocharger intake adapter (see fig. H2-2). Blank off the turbocharger to prevent the ingress of foreign matter.
18. On Corniche and Continental cars with Solex carburetters, remove the two air intake hoses from the air silencer housing.
19. Disconnect the body to engine fuel hoses, also disconnect the evaporative loss canister hose if applicable.
20. Disconnect the accumulator to body hoses (see fig. H2-3). On Turbocharged cars these hoses are situated on the left-hand side of the engine compartment (see fig. H2-5).
21. Disconnect the accelerator down rod from the equalizer linkage. Remove the setscrews securing the equalizer bracket to the body and the equalizer pivot bolt. Remove the equalizer bracket.
22. On Turbocharged cars, disconnect the hydraulic mineral oil low pressure return hoses (see fig. H2-4).
23. On cars, fitted with an engine oil cooler, remove the oil cooler pipe mounting situated at the front of the right-hand longeron (see fig. H2-2).
24. Disconnect the relevant electrical connectors and clipping points to release the looms. Refer to figure H2-6 for details.
25. Disconnect the sub-frame to body hydraulic braking system hoses. On early right-hand drive cars, it will be necessary to remove the brake actuation linkage protection tray to gain access to the pipe connections.
26. Disconnect the parking brake front cable from the equalizer assembly. Release the outer cable from its securing bracket on the centre body member. Detach the cable clips and move the cable away from the transmission.
27. Disconnect the propeller shaft from the transmission unit as described in Chapter F.
28. Disconnect the gearchange actuator loom as described in Chapter T.

Electrical disconnection points for engine and sub-frame removal

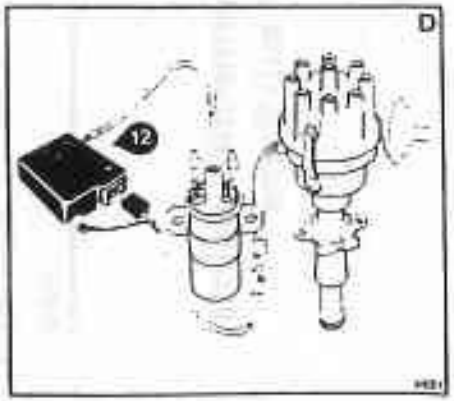
TSD 4400

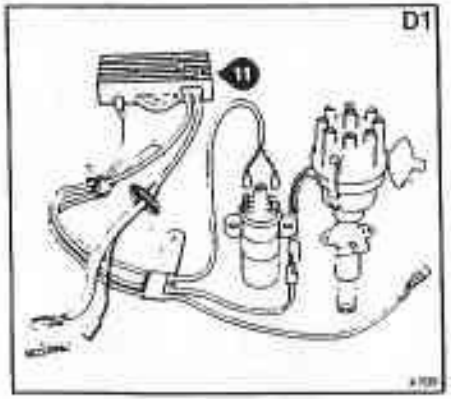
Printed in England

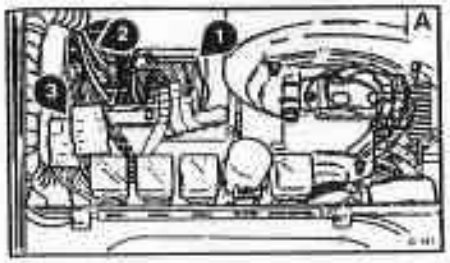
October 1983

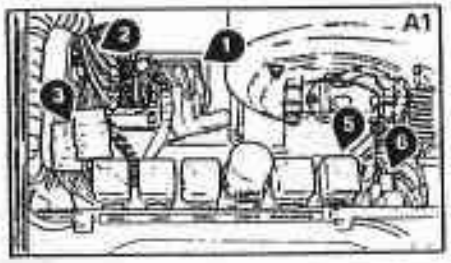


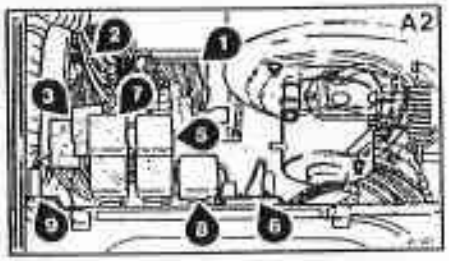
Component locations

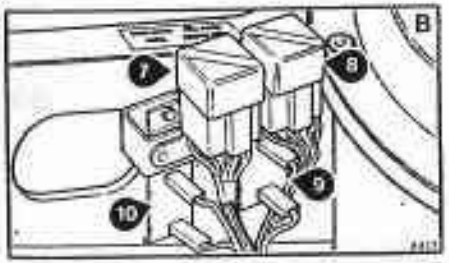












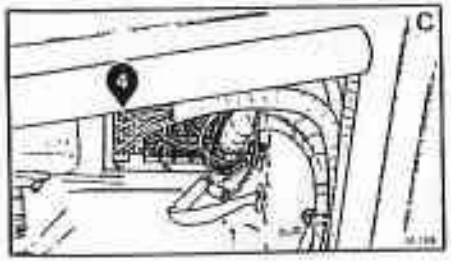


Fig. H2-6 Electrical disconnection points for engine and sub-frame removal

A Silver Spirit, Silver Spur, Mulsanne, and Corniche with SU carburetters or petrol injection engine

A1 Mulsanne Turbo

A2 Corniche with Solex carburetter

B Mulsanne Turbo

C Silver Spirit, Silver Spur, Mulsanne, and Corniche with petrol injection engine

D All cars other than Mulsanne Turbo from vehicle identification numbers

Cars other than those conforming to a North American specification
Silver Spirit and Mulsanne *SCAZS0001DCH06751*
Silver Spur *SCAZN0003DCH06645*
Corniche *SCAZD0003DCX06662*

Cars conforming to a North American specification
Silver Spirit and Mulsanne *SCAZS42A3DCX06339*
Silver Spur *SCAZN42A9DCX06305*
Corniche *SCAZD42A6DCX05700*

D1 Mulsanne Turbo
Note
It is not necessary to disconnect the interior connection block

1 Toeboard sockets (3)
2 Toeboard end connectors (2)
3 Loom block connectors (2)
4 Toeboard socket
5 Choke heater relay
6 Choke heater resistor
7 Pulldown heater relay
8 Choke control relay
9 Choke control resistor
10 Choke control resistor
11 Ignition amplifier
12 Ignition amplifier

rear of the compressor.
13. Clamp the hydraulic system reservoir to brake pump hoses to prevent reservoir drainage, then disconnect the hoses from the pump inlet pipes. Fit blanks to the pipe ends.
14. Disconnect the steering pump to oil cooler hoses. Allow the oil to drain into a container.
15. On cars fitted with SU carburetters, remove the air intake and hot air intake trunks. Disconnect the vacuum hose from the air blending valve.
16. On cars with petrol injection engines, remove the air intake trunk and air meter adapter.
17. On Mulsanne Turbo cars, remove the air intake trunk, air dump (recirculation) pipe, air delivery pipe heat shield, and turbocharger intake adapter (see fig. H2-2). Blank off the turbocharger to prevent the ingress of foreign matter.
18. On Corniche cars with Solex carburetter, remove the two air intake hoses from the air silencer housing.
19. Disconnect the body to engine fuel hoses.
20. Disconnect the accumulator to body hoses (see fig. H2-3). On Mulsanne Turbo cars these hoses are situated on the left-hand side of the engine compartment (see fig. H2-4).
21. Disconnect the accelerator down rod from the equalizer linkage. Remove the setscrews securing the equalizer bracket to the body and the equalizer pivot bolt. Remove the equalizer bracket.
22. On Mulsanne Turbo cars, disconnect the hydraulic mineral oil low pressure return hoses (see fig. H2-5).
23. On Mulsanne Turbo cars, remove the oil cooler pipe mounting situated at the front of the right-hand longeron (see fig. H2-2).
24. Disconnect the relevant electrical connectors. Refer to figure H2-6 for details.
25. Disconnect the sub-frame to body hydraulic braking system hoses. On right-hand drive cars, it will be necessary to remove the brake actuation linkage protection tray to gain access to the pipe connections.
26. Disconnect the parking brake front cable from the equalizer assembly. Release the outer cable from its securing bracket on the centre body member. Detach the cable clips and move the cable away from the transmission.
27. Disconnect the propeller shaft from the transmission unit as described in Chapter F.
28. Disconnect the gearchange actuator loom as described in Chapter T.
29. Remove the two bolts securing the steering link to the steering column.
30. Disconnect the two transmission to oil cooler flexible pipes situated on either the right-hand side of the transmission unit or above the steering rack (see fig. H2-7). Allow the oil to drain into a container.
31. On Mulsanne Turbo cars, disconnect the two engine to oil cooler flexible pipes situated adjacent to the steering rack (see fig. H2-7). Allow the oil to drain into a container.
32. On left-hand drive cars, remove the accelerator cross-shaft.
33. On right-hand drive cars, remove the accelerator lever securing bolt and slide the lever along the pivot shaft; away from the transmission unit filler tube.
34. On cars other than Mulsanne Turbo remove the front exhaust silencer/s. On Mulsanne Turbo cars, disconnect the exhaust at the joint forward of the front silencers. Support the exhaust system and disconnect

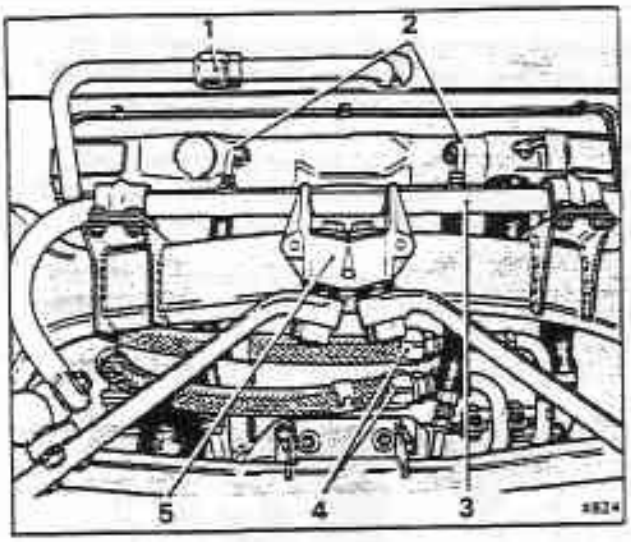


Fig. H2-7 Engine and transmission cooler pipes (Mulsanne Turbo cars)
1 Engine oil cooler pipe
2 Transmission oil cooler pipes
3 Stabilizer bar
4 Engine oil cooler pipes
5 Front triangle lever mount

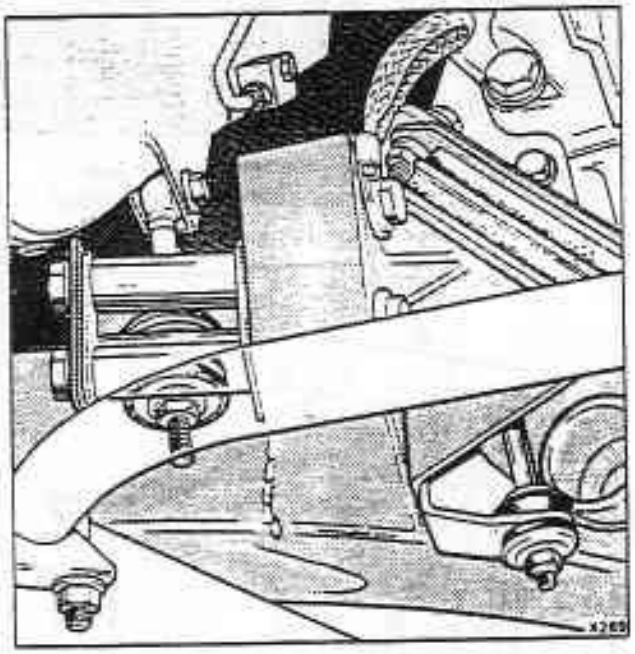


Fig. H2-8 Sub-frame to longeron tie-bar and engine damper (other than petrol injection cars)

the system from its mount situated between the two front silencers. Carefully lower the exhaust system and move it away from the transmission unit. Secure the system to body in this position. Do not allow the exhaust system to rest on the rear sub-frame tubes.
35. If applicable remove the exhaust heat shield fitted above the exhaust silencer, adjacent to the transmission unit.
36. On cars fitted with tie-bars at the rear of the sub-frame, (see figs. H2-8 and H2-9) disconnect the tie-bars from the body.
37. Disconnect the sub-frame to body earth braids.

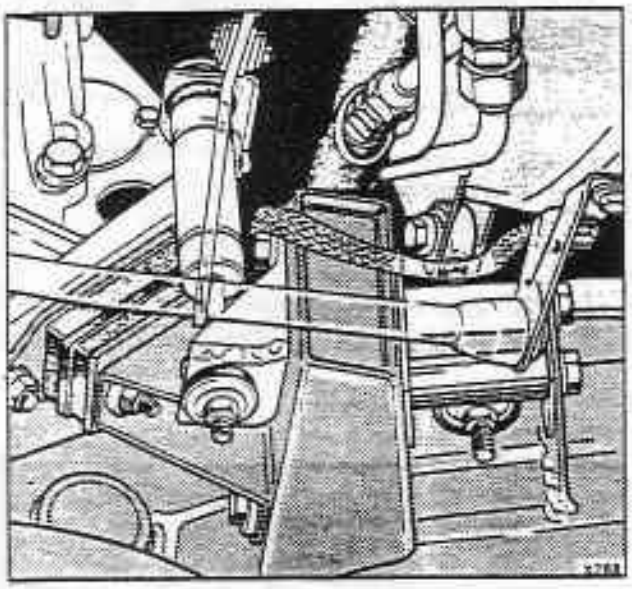


Fig. H2-9 Sub-frame to longeron tie-bar and engine damper (petrol injection cars)

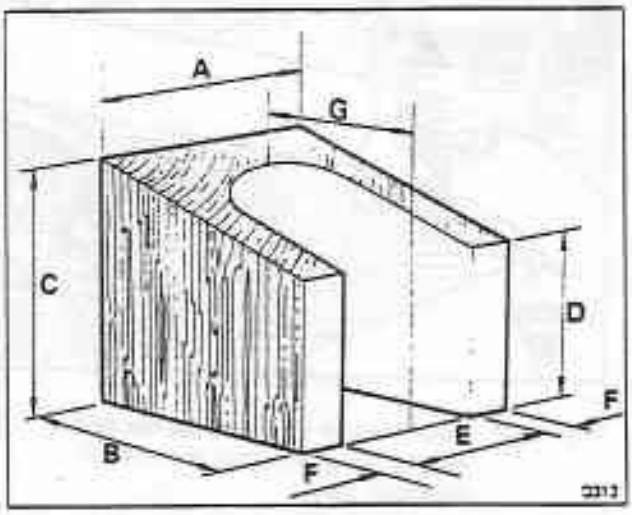


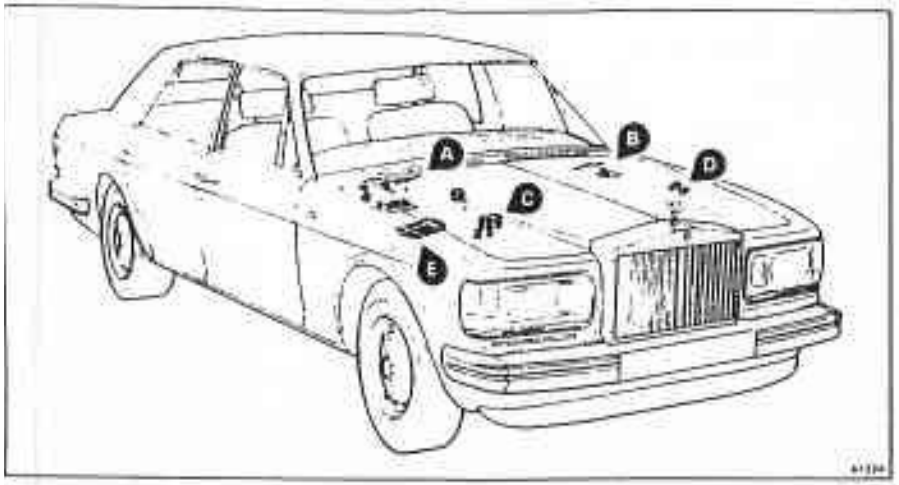
Fig. H2-10 Wooden support block
A, B and C 76 mm (3.0 in)
D 51 mm (2.0 in)
E 28 mm (1.5 in)
F 19 mm (0.75 in)
G 57 mm (2.25 in)

38. Remove the front road springs as described in Section H3. Fit the wooden support blocks (see fig. H2-10) between the bump stop and the lower triangle levers. Lower the car onto its wheels, ensuring the wooden blocks remain in position.
39. Ensure that all the relevant components have been disconnected and that any component that will prevent the raising of the car body off the sub-frame and engine unit has been removed. The sub-frame mounting bolts should not be removed at this stage.
40. Lower the ramp to the ground. Carefully push the car forward off the ramp until the front of the car overhangs the ramp sufficiently to allow the ramp to be raised without any crossbeam or part of the ramp fouling the transmission unit (see fig. H2-11). Place blocks beneath the front road wheels to maintain the car in a horizontal plane.
41. Place sill blocks beneath the car body sills as far forward as possible to maintain the body on the ramp in the horizontal position (see fig. H2-11).
42. **To prevent any possibility of the body pivoting forward when the ramp is raised, secure the rear of the car to the ramp by passing ropes over the final drive crossmember on each side of the axle case and suitably securing them to the ramp.** This can be achieved for example, by placing a steel bar across the underside of the ramp and securing the ropes to the bar. Do not use the rear sub-frame tubes to secure the car.
43. Place a jack beneath the rear crossmember of the front sub-frame and also beneath the front triangle lever mounting bracket.
44. Carefully remove the bolts and setscrews securing the front sub-frame to the body.
45. Ensure that all relevant components have been disconnected and that clearance between the sub-frame and engine unit and the car body has been obtained. Slowly raise the ramp, thus lifting the body off the sub-frame and engine unit. During this operation, continuous observations should be made to ensure that clearance is maintained and that hose or loom connections between the body and the sub-frame and engine unit have not been overlooked. When the body is clear of the engine, fully raise the ramp and carefully wheel the sub-frame and engine unit from beneath the car.
46. Lift the sub-frame and engine unit onto a suitable stand.

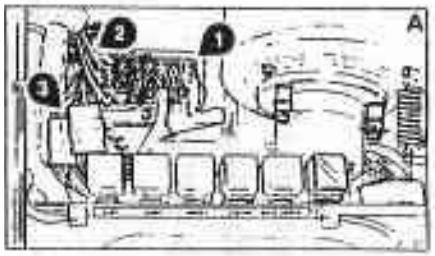
Engine and torque converter transmission - To remove from the sub-frame

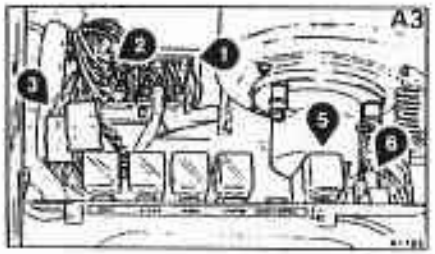
1. Remove the exhaust system downtake pipes from the engine exhaust manifolds.
2. Disconnect the steering pump supply hose from the steering rack. Allow any oil to drain into a container.
3. On cars fitted with the small dampers adjacent to the rear engine mounts, disconnect the top of the dampers from the transmission adapter plate (see figs. H2-12 and H2-13).
4. Remove the steady bar (if fitted) from the front of the engine (see fig. H2-14).

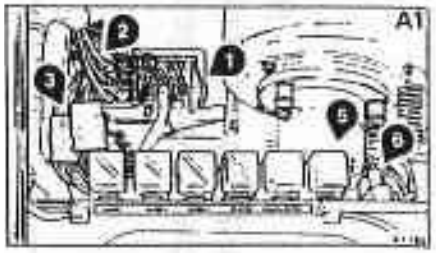
Electrical disconnection points for engine and sub-frame removal

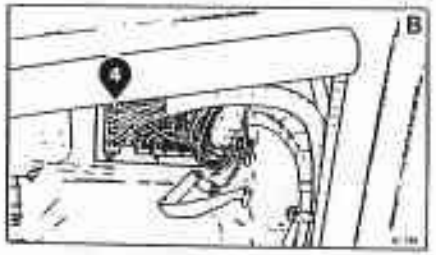


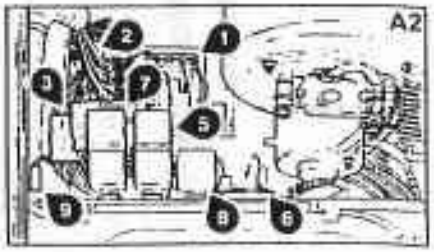
Component locations

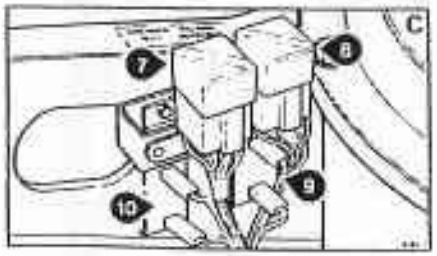


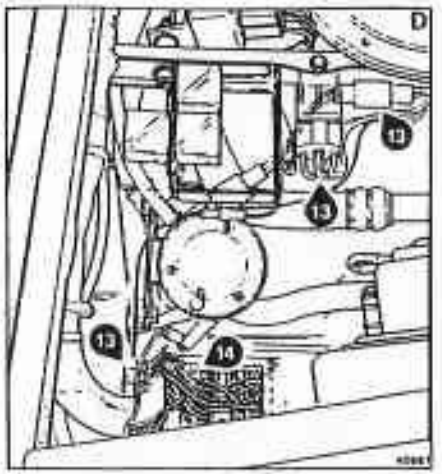


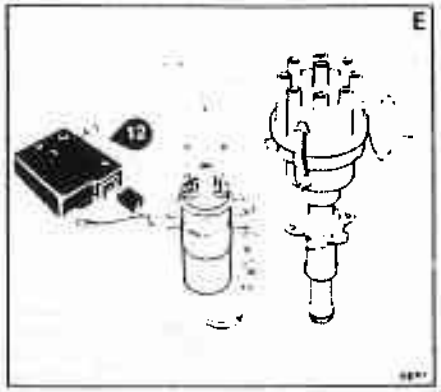












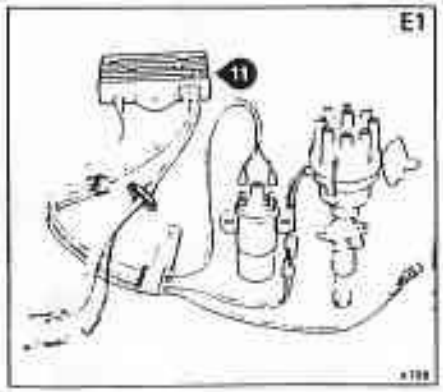


Fig. H2-6 **Electrical disconnection points for engine and sub-frame removal**

- **A** Silver Spirit, Silver Spur, Mulsanne, and Corniche with SU carburetters or petrol injection engine
- **A1** Mulsanne Turbo
- **A2** Corniche with Solex carburetter
- **A3** Turbo R
- **B** Silver Spirit, Silver Spur, Mulsanne, and Corniche with petrol injection engine
- **C** Turbocharged cars
- **D** Cars fitted with cycling clutch air conditioning systems
- **E** All cars other than Turbocharged from vehicle identification numbers

Cars other than those conforming to a North American specification
Silver Spirit and Mulsanne
SCAZS0001DCH06751
Silver Spur *SCAZN0003DCH06645*
Corniche* SCAZD0003DCX06662*

Cars conforming to a North American specification
Silver Spirit and Mulsanne
SCAZS42A3DCX06339
Silver Spur *SCAZN42A9DCX06305*
Corniche *SCAZD42A6DCX05700*

- **E1** Turbocharged cars
  Note
  It is not necessary to disconnect the interior connection block

1. Toeboard sockets (3)
2. Toeboard end connectors (2)
3. All cars other than Turbo R
   Loom block connectors (2)
   Turbo R cars
   Loom block connector and end connectors (2)
4. Toeboard socket
5. Choke heater relay
6. Choke heater resistor
7. Pulldown heater relay
8. Choke control relay
9. Choke control resistor
10. Choke control resistor
11. Ignition amplifier
12. Ignition amplifier
13. Air conditioning connections
14. Speed control unit socket (Turbo R and late Mulsanne Turbo cars)

29. Remove the two bolts securing the steering link to the steering column.
30. Disconnect the two transmission to oil cooler flexible pipes situated on either the right-hand side of the transmission unit or adjacent to the front engine mount (see fig. H2-7). Allow the oil to drain into a container.
31. On cars fitted with an engine oil cooler disconnect the engine to oil cooler flexible pipes situated adjacent to the front engine mount (see fig. H2-7). Allow the oil to drain into a container.
32. On left-hand drive cars, remove the accelerator cross-shaft.
33. On right-hand drive cars, remove the accelerator lever securing bolt and slide the lever along the pivot shaft; away from the transmission unit filler tube.
34. On cars other than Turbocharged models remove the front exhaust silencer/s. Disconnect the oxygen sensor connection on cars fitted with catalytic exhaust systems (see fig. H2-8). On Turbocharged cars, disconnect the exhaust at the joint forward of the front silencers. Support the exhaust system and disconnect

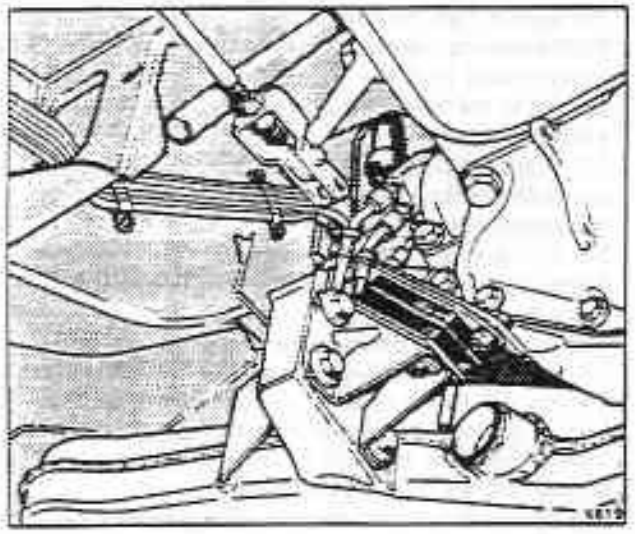


Fig. H2-5 **Hydraulic accumulator to body hoses disconnection points (Turbocharged cars, early arrangement shown)**

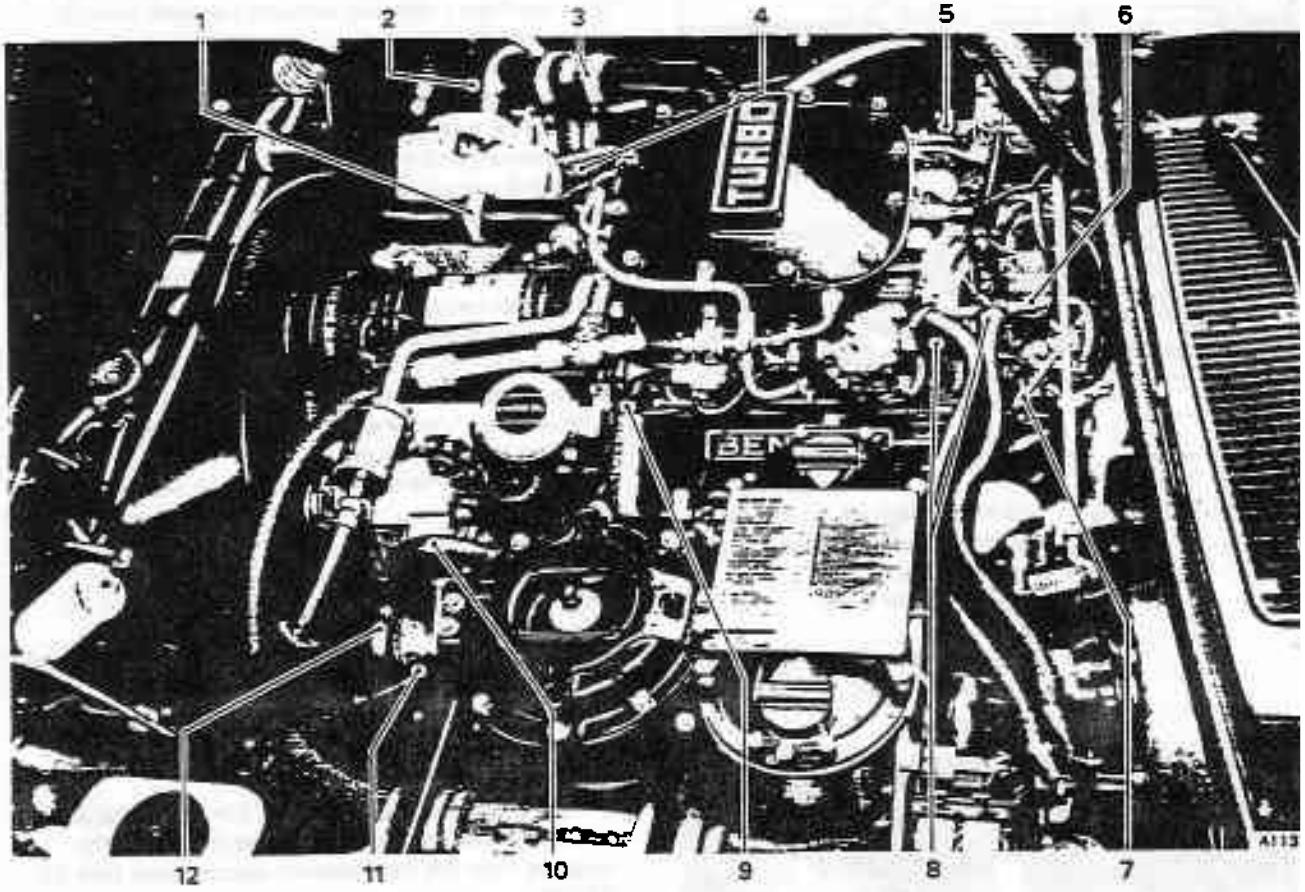


Fig. H2-4 **Disconnection points (Turbocharged cars)**

1 Radiator top hose
2 Turbocharger intake adapter
3 Air dump (recirculation) pipe
4 Air delivery pipe heat shield
5 Accelerator linkage
6 Rear brake pump supply pipe
7 Hydraulic mineral oil return hoses
8 Fuel pipes
9 Front brake pump supply pipe
10 Heater hose
11 Power steering hose
12 Radiator bottom hose

the system from its mount situated between the two front silencers. Carefully lower the exhaust system and move it away from the transmission unit. Secure the system to the body in this position. Do not allow the exhaust system to rest on the rear sub-frame tubes.
35. If applicable remove the exhaust heat shield fitted above the exhaust silencer, adjacent to the transmission unit.
36. On cars fitted with tie-bars at the rear of the sub-frame, (see fig. H2-9) disconnect the tie-bars from the body.
37. Disconnect the sub-frame to body earth braids.
38. Remove the front road springs as described in Section H3. Fit the wooden support blocks (see fig. H2-11) between the bump stop and the lower triangle levers. Lower the car onto its wheels, ensuring the wooden blocks remain in position.
39. Ensure that all the relevant components have been disconnected and that any component that will prevent the raising of the car body off the sub-frame and engine unit has been removed. The sub-frame mounting bolts should not be removed at this stage.
40. Lower the ramp to the ground. Carefully push the car forward off the ramp, until the front of the car overhangs the ramp sufficiently to allow the ramp to be raised without any crossbeam or part of the ramp fouling the transmission unit (see fig. H2-12). Place blocks beneath the front road wheels to maintain the car in a horizontal plane.
41. Place sill blocks beneath the car body sills as far forward as possible to maintain the body on the ramp in the horizontal position (see fig. H2-12).
42. **To prevent any possibility of the body pivoting forward when the ramp is raised, secure the rear of the car to the ramp by passing ropes over the final drive crossmember on each side of the axle case and suitably securing them to the ramp.** This can be achieved for example, by placing a steel bar across the underside of the ramp and securing the ropes to the bar. **Do not** use the rear sub-frame tubes to secure the car.
43. Place a jack beneath the rear crossmember of the front sub-frame and also beneath the front triangle lever mounting bracket.
44. Carefully remove the bolts and setscrews securing the front sub-frame to the body.
45. Ensure that all relevant components have been disconnected and that clearance between the sub-frame and engine unit and the car body has been obtained. Slowly raise the ramp, thus lifting the body off the sub-frame and engine unit. During this operation, continuous observations should be made to ensure that clearance is maintained and that hose or loom connections between the body and the sub-frame and engine unit have not been overlooked. When the body is clear of the engine, fully raise the ramp and carefully wheel the sub-frame and engine unit from beneath the car.
46. Lift the sub-frame and engine unit onto a suitable stand.

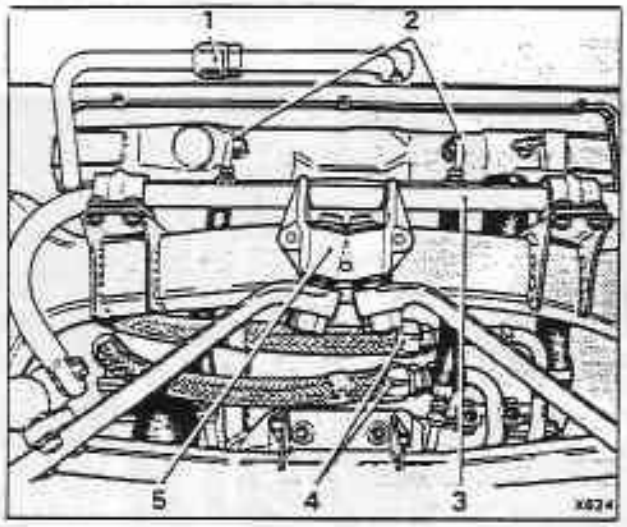


Fig. H2-7 Engine and transmission oil cooler, pipes (Mulsanne Turbo shown)
1 Engine oil cooler pipe
2 Transmission oil cooler pipes
3 Stabilizer bar
4 Engine oil cooler pipes
5 Front triangle lever mount

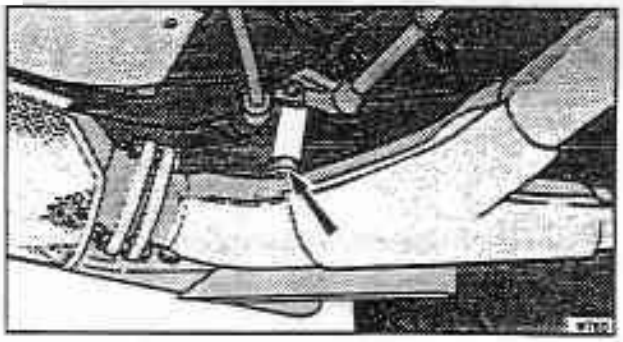


Fig. H2-8 Oxygen sensor

Engine and torque converter transmission – To remove from the sub-frame
1. Remove the exhaust system downtake pipes from the engine exhaust manifolds.
2. Disconnect the steering pump supply hose from the steering rack. Allow any oil to drain into a container.
3. On cars fitted with the small dampers adjacent to the rear engine mounts, disconnect the top of the dampers from the transmission adapter plate (see fig. H2-13).
4. Remove the steady bar (if fitted) from the front of the engine (see fig. H2-15).
5. To lift the engine and transmission unit from the sub-frame use the lifting slings RH 9732 together with a further sling to support the transmission.
Important
On Turbocharged cars, the front sling supplied with RH 9732 should not be used.

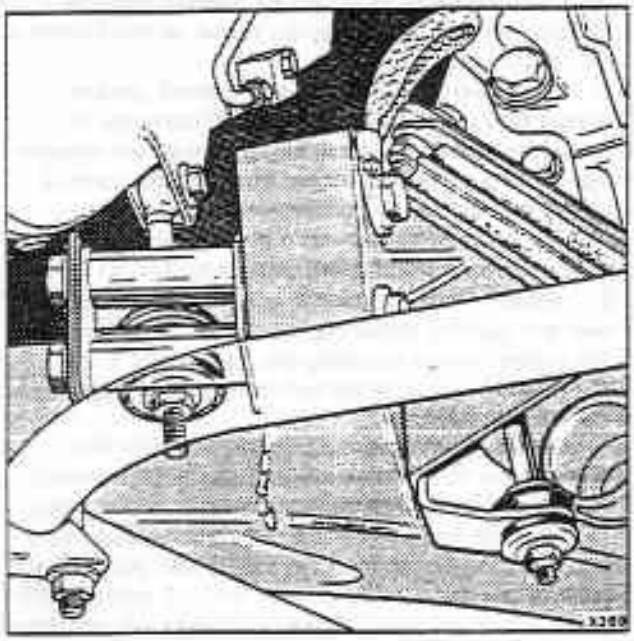


Fig. H2-9 Sub-frame to longeron tie-bar

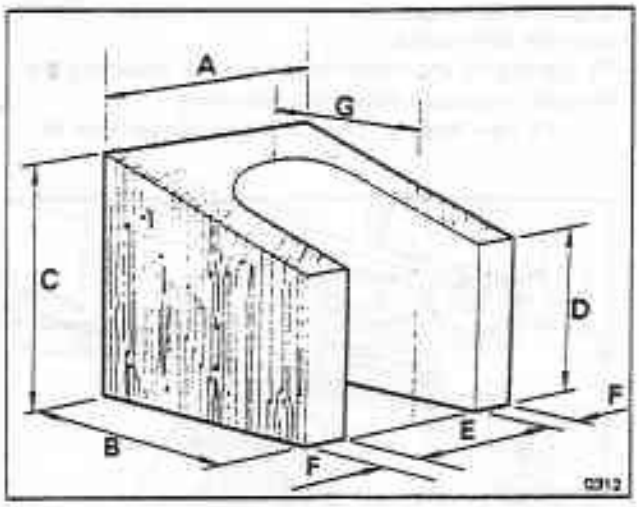


Fig. H2-11 Wooden support block

A, B, and C	76 mm (3.0 in)
D	51 mm (2.0 in)
E	38 mm (1.5 in)
F	19 mm (0.75 in)
G	57 mm (2.25 in)

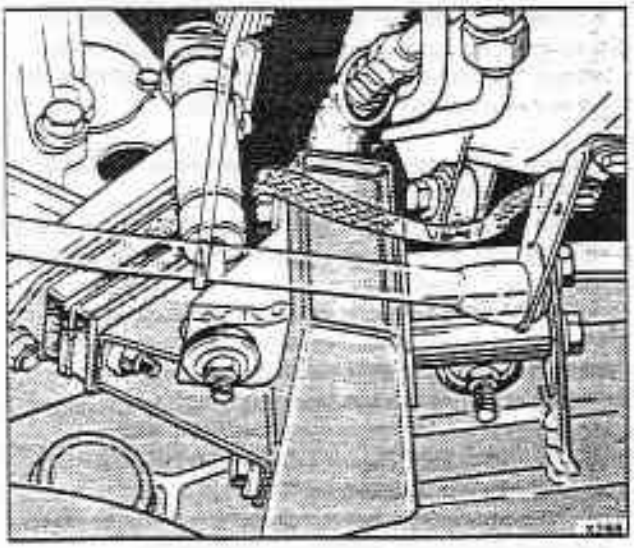


Fig. H2-10 Sub-frame to engine damper (early cars shown)

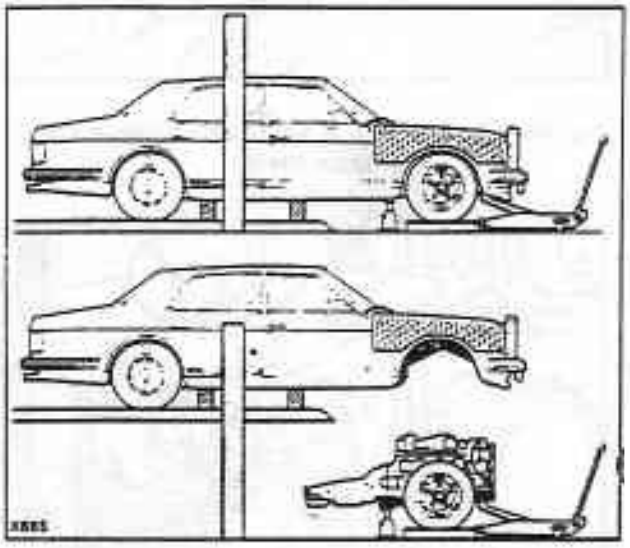


Fig. H2-12 Sub-frame, engine, and transmission unit removal

Lifting eye RH 9730 should be fitted to the two holes situated on the fridge compressor mounting bracket. The use of a front sling on these engines can cause damage to the heat shields.

6. Carefully position the sling/s around the engine, one at the front of the crankcase (cars other than Turbocharged models), and one at the rear of the transmission casing. Using a overhead hoist, take the weight of the engine and transmission on the slings.

Always ensure before taking the full engine load that the slings are not in positions that may cause damage to the engine or transmission components.

7. Disconnect the front and rear engine mounts.

8. Carefully check that nothing will impede the removal of the engine, then, lift the engine and transmission unit from the sub-frame. Note the position and quantity of all packing plates fitted to the engine mounts.

9. If the front engine mount crossmember or the rear engine mount brackets are to be removed, co-relation marks should be made between the component and the sub-frame. These marks will enable the crossmember and mounting brackets to be correctly positioned and the engine to be centralized in the sub-frame when assembly is carried out.

Engine and torque converter transmission – To fit into the sub-frame

Fit the engine and transmission unit by reversing the removal procedure noting the following.

1. If a new bush is fitted to the cylindrical type of front engine mount, it should be pressed into the housing with the cut-out in the rubber at the bottom of the mount (see fig. H2-14).
2. If new rear engine mounts are fitted, always ensure they are of the correct type. Two types of mount have been used and although they are visually the same, the hardness rating of the rubber used is different. Always identify the mounts by the part number which is moulded into the rubber of the mount. For further information refer to Section H1.
3. Attach the front and rear engine mounts, together with any packing plates that have been removed, to the engine prior to lowering the engine and transmission unit into the sub-frame. Do not tighten the bolts at this stage.
4. Lower the engine and transmission unit into position and fit the bolts securing the engine mounts to the sub-frame. Tighten all the engine mount bolts.

   On cars fitted with the front engine mount stop plate, the distance between the plate and the bracket must be set at between 1,5 mm and 2,2 mm (0.060 in and 0.090 in) when all the operations are completed.
5. On cars fitted with the small dampers adjacent to the rear engine mount, the dampers should be fitted with the rod downwards (see H2-13). Ensure that the two tapered rubbers are fitted either side of the bracket on the rear engine mounting plate with the taper pointing downwards and the large cup washer on top. The two smaller cup washers and rubbers fit on each side of the sub-frame bracket.

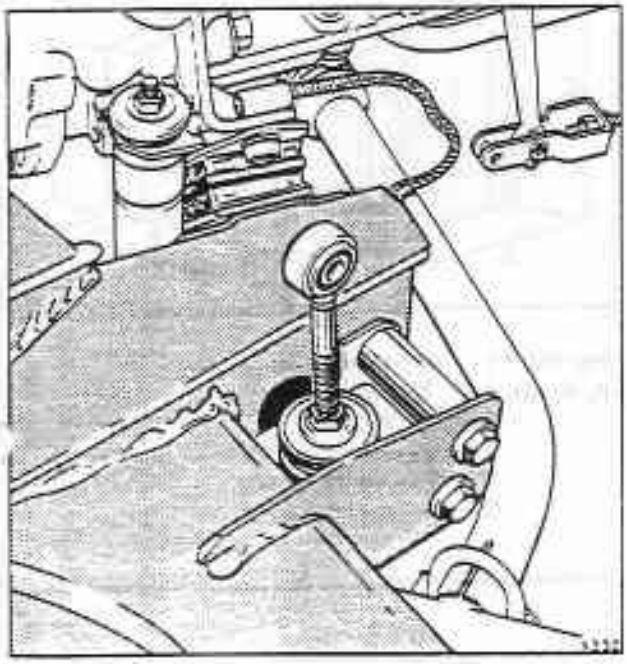


Fig. H2-13 Engine to sub-frame damper and sub-frame tie-bar

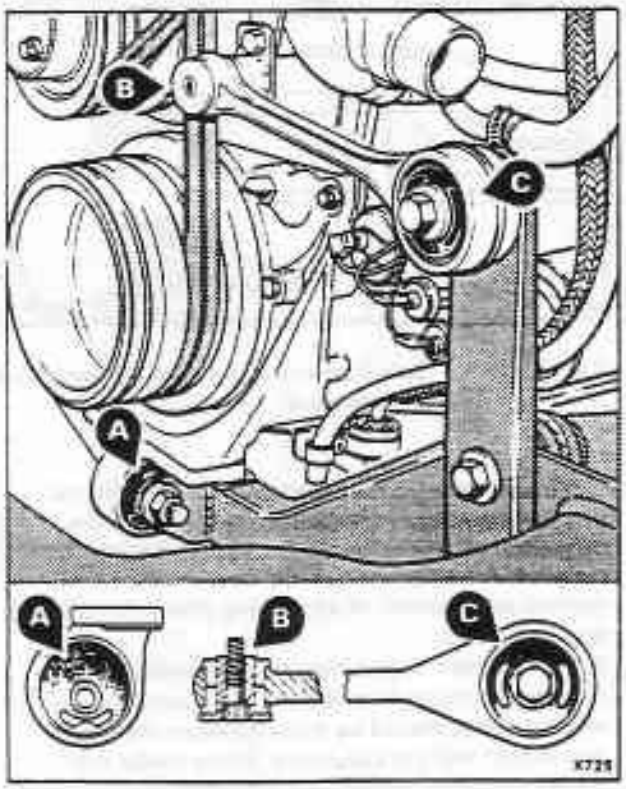


Fig. H2-14 Front engine mount and steady bar

Engine, torque converter transmission, and sub-frame – To fit into car

Fit the engine, torque converter transmission, and sub-frame to the body by reversing the removal procedure noting the following.

1. If new sub-frame mounts are fitted, ensure they are of the correct type. Two types of mount have been used and although they are visually the same, the hardness rating of the rubber used is different. Always identify the mounts by the part number which is moulded into the rubber of the mount. For further information refer to Section H1.
2. The sub-frame mounting points in the body have a limited amount of movement to allow for centralization of the sub-frame. Ensure that the plain-bobbin (front mounts) and threaded bobbin (rear mounts) are free in the longeron to allow sub-frame adjustment to be carried out.
3. Inspect all relevant pipes and hoses prior to fitting the sub-frame into the body and renew any that show signs of deterioration or damage.
4. When fitting the sub-frame to the body mounting points, ensure that the main bearing washer for each mount is in position, together with any additional washers that may have been fitted in order to correct individual differences of the mounting points.
5. With the engine and sub-frame positioned in the engine compartment, assemble the rear steady brackets onto the rear mount centre setscrews together with any washers previously removed. Pass the setscrews through the sub-frame mounts and

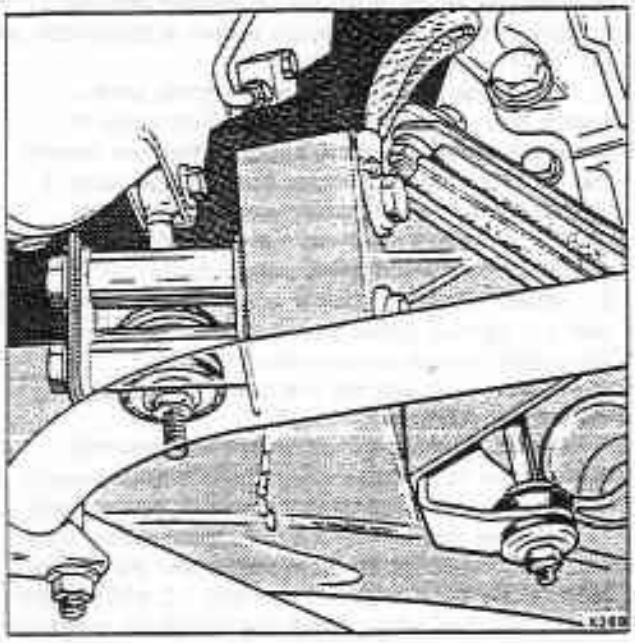


Fig. H2-9 Sub-frame to longeron tie-bar

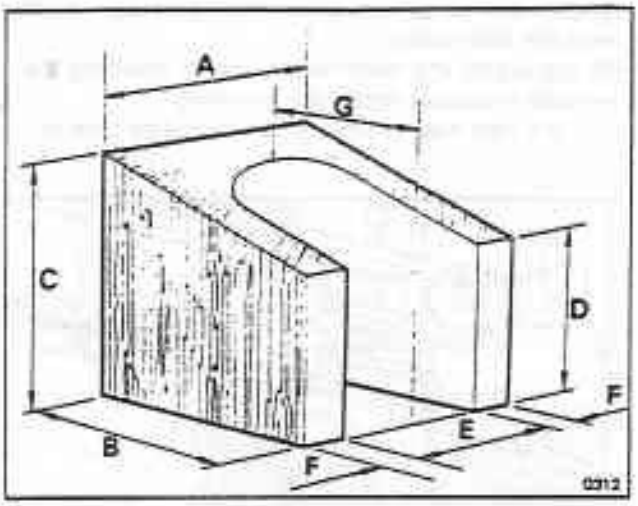


Fig. H2-11 Wooden support block

A, B, and C	76 mm (3.0 in)
D	51 mm (2.0 in)
E	38 mm (1.5 in)
F	19 mm (0.75 in)
G	57 mm (2.25 in)

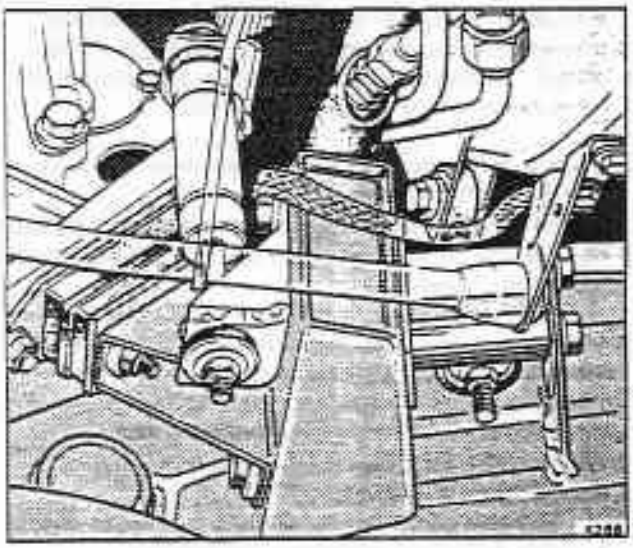


Fig. H2-10 Sub-frame to engine damper (early cars shown)

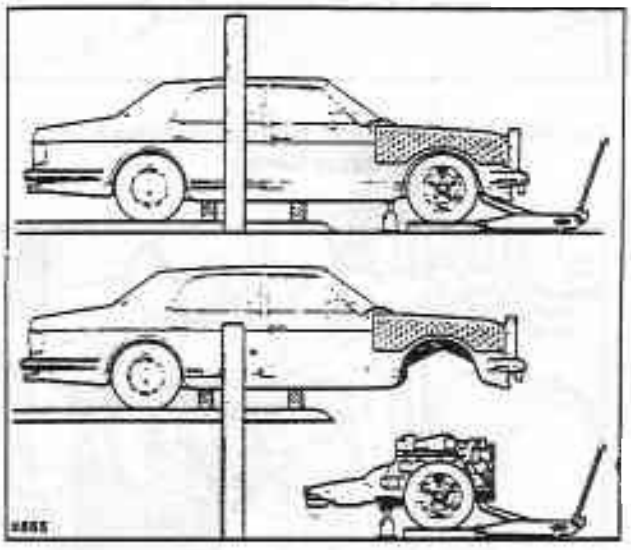


Fig. H2-12 Sub-frame, engine, and transmission unit removal

Lifting eye RH 9730 should be fitted to the two holes situated on the fridge compressor mounting bracket. The use of a front sling on these engines can cause damage to the heat shields.

6. Carefully position the sling/s around the engine, one at the front of the crankcase (cars other than Turbocharged models), and one at the rear of the transmission casing. Using a overhead hoist, take the weight of the engine and transmission on the slings.

Always ensure before taking the full engine load that the slings are not in positions that may cause damage to the engine or transmission components.

7. Disconnect the front and rear engine mounts.

8. Carefully check that nothing will impede the removal of the engine, then, lift the engine and transmission unit from the sub-frame. Note the position and quantity of all packing plates fitted to the engine mounts.

9. If the front engine mount crossmember or the rear engine mount brackets are to be removed, co-relation marks should be made between the component and the sub-frame. These marks will enable the crossmember and mounting brackets to be correctly positioned and the engine to be centralized in the sub-frame when assembly is carried out.

Engine and torque converter transmission – To fit into the sub-frame

Fit the engine and transmission unit by reversing the removal procedure noting the following.

1. If a new bush is fitted to the cylindrical type of front engine mount, it should be pressed into the housing with the cut-out in the rubber at the bottom of the mount (see fig. H2-14).
2. If new rear engine mounts are fitted, always ensure they are of the correct type. Two types of mount have been used and although they are visually the same, the hardness rating of the rubber used is different. Always identify the mounts by the part number which is moulded into the rubber of the mount. For further information refer to Section H1.
3. Attach the front and rear engine mounts, together with any packing plates that have been removed, to the engine prior to lowering the engine and transmission unit into the sub-frame. Do not tighten the bolts at this stage.
4. Lower the engine and transmission unit into position and fit the bolts securing the engine mounts to the sub-frame. Tighten all the engine mount bolts.

   On cars fitted with the front engine mount stop plate, the distance between the plate and the bracket must be set at between 1,5 mm and 2,2 mm (0.060 in and 0.090 in) when all the operations are completed.
5. On cars fitted with the small dampers adjacent to the rear engine mount, the dampers should be fitted with the rod downwards (see H2-13). Ensure that the two tapered rubbers are fitted either side of the bracket on the rear engine mounting plate with the taper pointing downwards and the large cup washer on top. The two smaller cup washers and rubbers fit on each side of the sub-frame bracket.

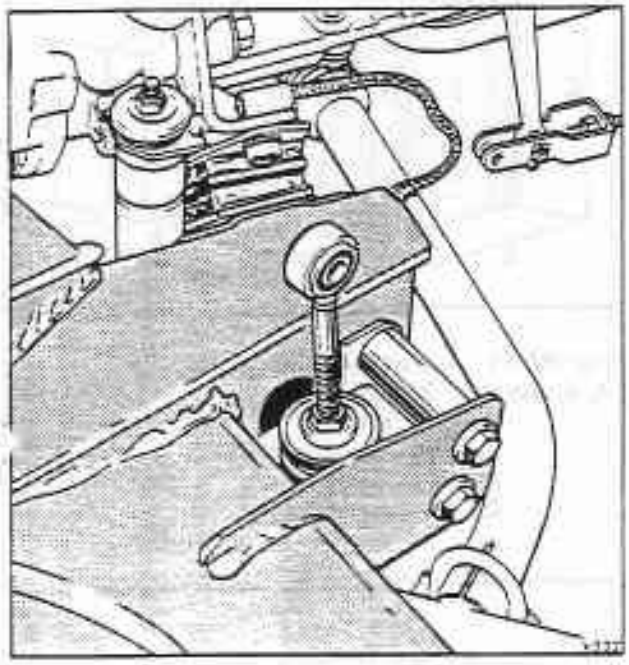


Fig. H2-13 Engine to sub-frame damper and sub-frame tie-bar

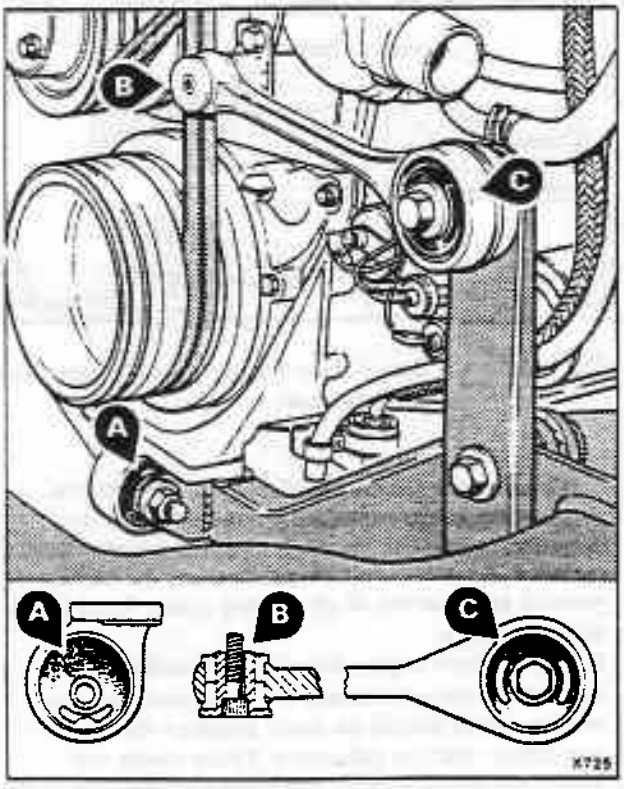


Fig. H2-14 Front engine mount and steady bar

Engine, torque converter transmission, and sub-frame – To fit into car

Fit the engine, torque converter transmission, and sub-frame to the body by reversing the removal procedure noting the following.

1. If new sub-frame mounts are fitted, ensure they are of the correct type. Two types of mount have been used and although they are visually the same, the hardness rating of the rubber used is different. Always identify the mounts by the part number which is moulded into the rubber of the mount. For further information refer to Section H1.
2. The sub-frame mounting points in the body have a limited amount of movement to allow for centralization of the sub-frame. Ensure that the plain-bobbin (front mounts) and threaded bobbin (rear mounts) are free in the longeron to allow sub-frame adjustment to be carried out.
3. Inspect all relevant pipes and hoses prior to fitting the sub-frame into the body and renew any that show signs of deterioration or damage.
4. When fitting the sub-frame to the body mounting points, ensure that the main bearing washer for each mount is in position, together with any additional washers that may have been fitted in order to correct individual differences of the mounting points.
5. With the engine and sub-frame positioned in the engine compartment, assemble the rear steady brackets onto the rear mount centre setscrews together with any washers previously removed. Pass the setscrews through the sub-frame mounts and

screw them into the threaded body mount bobbins. Fit the bolts, nuts, and washer which secure the steady brackets to the body. Fit the front mounting bolts and steady brackets in a similar manner. Do not tighten the mounting bolts at this stage.

Note
If during dismantling, the upper nut from the front mounting stud is removed, it must be torque tightened onto the stud to the standard torque figure quoted in Chapter P before locating the stud through the body longeron.

6. Centralize the sub-frame by utilizing the movement in the body mounting bobbins. To check the sub-frame position, diagonal and parallel measurements should be taken from the jig location points on the rear sub-frame to the jig location points on the front sub-frame (see fig. H2-15). With the sub-frame centralized torque tighten the sub-frame mounting bolts and setscrews.
7. Assemble the sub-frame to body tie-rods (if fitted) and set them to the length shown in figure H2-16. Connect the assemblies to the longerons and sub-frame. Do not tighten the bolts and setscrews at this stage.
8. Connect the steering column ensuring that the road wheels and the steering wheel are in the straight ahead position. Refer to Chapter N for details.
9. Torque tighten all relevant nuts, bolts, and setscrews. Always refer to the special torque figure section of the respective component Chapter and to Chapter P for the correct torque required.
10. Fill the engine coolant system and check the engine, torque converter transmission, and steering pump oil levels as described in their respective chapter.
11. Bleed the hydraulic systems as described in Chapter G.
12. Charge the refrigeration system as described in Chapter C.
13. Check all components for leaks and ensure that the necessary clearances have been obtained.
14. Check the ride height of the car as described in Section H6.
15. With the car ride height correctly set, torque tighten the bolts and setscrews securing the sub-frame to longeron tie-rods (see Operation 7) to the figures quoted in Section H12.
16. On cars fitted with the front engine mount stop plate, check that the distance between the plate and the bracket is between 1,5 mm and 2,2 mm (0.060 in and 0.090 in). Adjust if necessary.

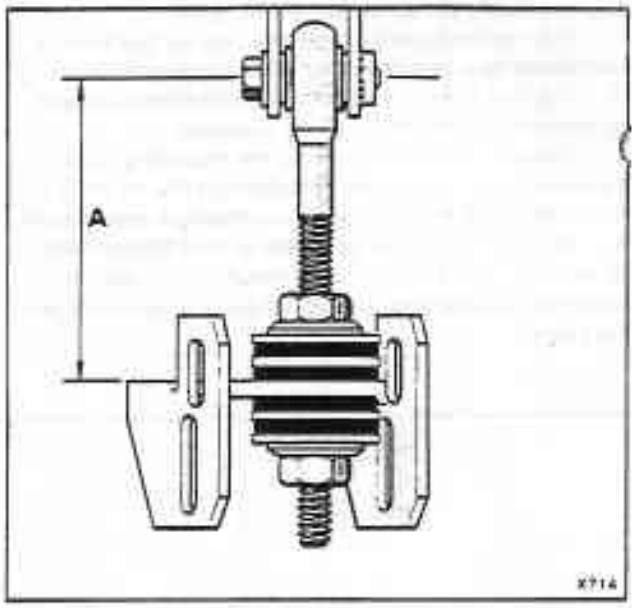


Fig. H2-16 **Sub-frame to longeron tie-bar setting**
A 78,8 mm to 80,0 mm (3.10 in to 3.15 in)

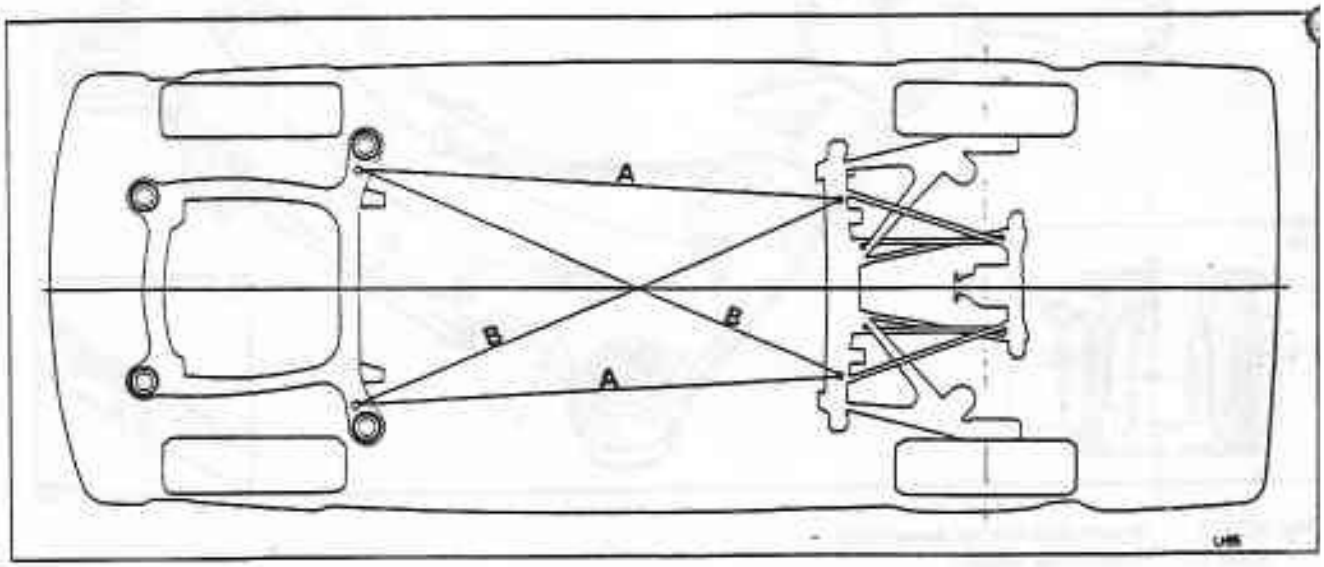


Fig. H2-15 **Sub-frame alignment**
Measurements to be equal within 1,60 mm (0.062 in)

Sub-frame mount - To remove

The sub-frame mounts can be changed with the sub-frame in position.

1. Position the car on a ramp.
2. Apply the parking brake and chock the rear wheels.
3. Raise the car bonnet and fit wing covers RH 2684, and wing cover liners RH 2685.
4. Support the car body with sill blocks.
5. Fit spring retention tool RH 8809 onto the road spring nearest to the mount being renewed. Adjust the tool until sufficient pressure is applied to support the road spring.

Warning

Always examine the spring retention tool components for signs of thread wear or damage prior to its use. Renew any part of the tool that may be liable to fail under spring load.

It is recommended that the use of the tool is restricted to a maximum of 200 applications.

6. Position a jack to support the sub-frame as near as possible to the mount being renewed.
7. Remove the bolts securing the mounting point steady bracket to the body. Disconnect the tie rod (if fitted) from the longeron when renewing a rear mount.
8. Remove the centre setscrew or bolt (dependent on whether it is a front or rear mount) from the mount. Note the position and quantity of spacing washers that are fitted.
9. Carefully lower the jack situated beneath the sub-frame until sufficient clearance is obtained between the mount and the body to gain access to the mount lock-ring.
10. Using spanner RH 8576 to restrain the lock-ring, unscrew the mount using spanner RH 7774 on the lower castellations of the mount.
11. Remove the spacer (if fitted) from the mount.

Sub-frame mount – To fit

If new mounts are being fitted always ensure they are of the correct type. Two types of mount have been used and although they are visually the same, the hardness rating of the rubber used is different. Always identify the mounts by the part number which is moulded into the rubber of the mount. For further information refer to Section H1.

1. Ensure that the bore and upper face of the sub-frame, the threads and faces of the locking ring, and the threads of the mount are clean.
2. Place the spacer (if fitted) over the thread of the mount. Apply Molytone C grease to the threads of the mount. Ensure that the top three or four threads are completely covered. Do not use a mineral based grease as they can have a detrimental effect on the rubber of the mount.
3. Insert the mount through the sub-frame and fit the locking ring into position in the upper well. Screw

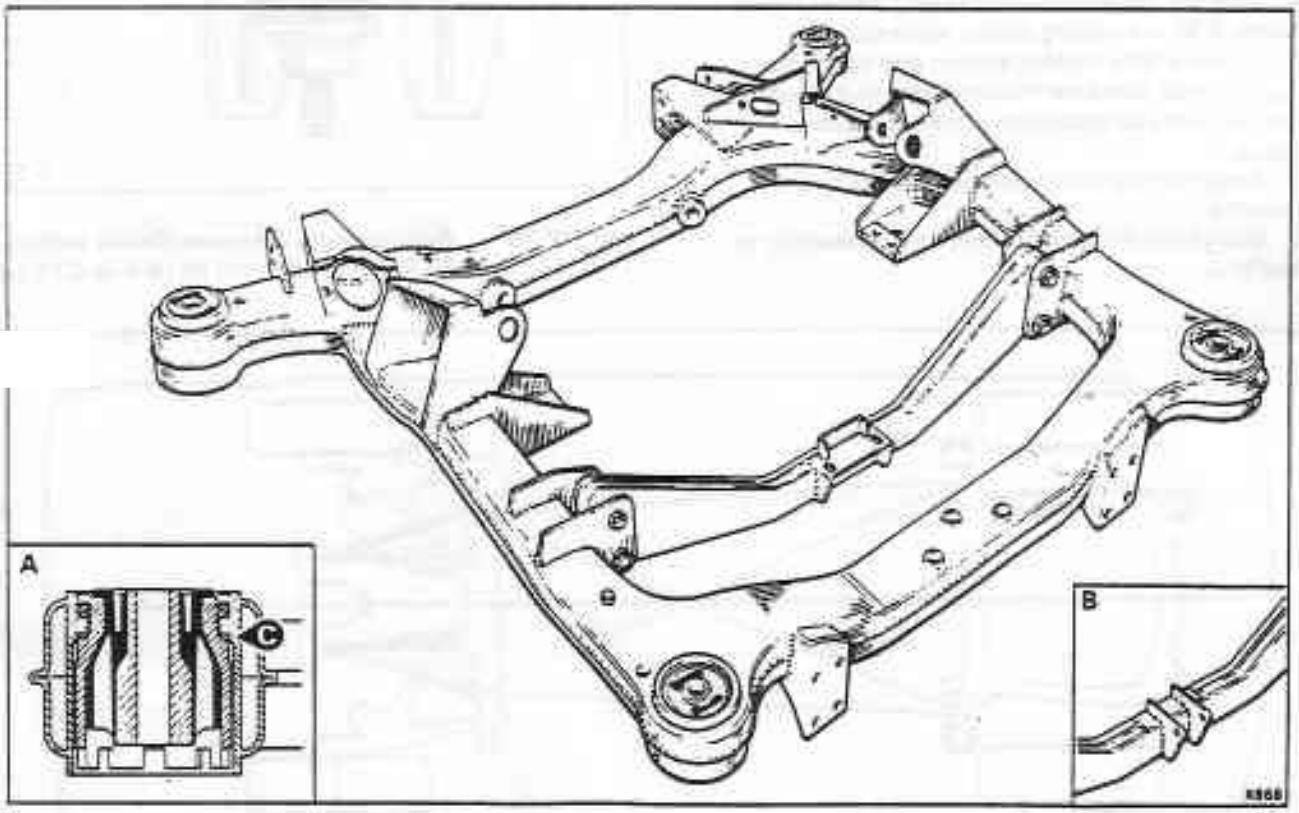


Fig. H2-17 **Front sub-frame assembly**
Inset A Sub-frame mount
Inset B Front engine mount bracket, cylindrial type
C Spacer (if fitted)

the mount into the locking ring. Adjust the locking ring such that, when the rubber mount is torque tightened to the figure quoted in Section H12, the slots in the moulded rubber are at right angles to the centre line of the car (see fig. H2-17).

4. Secure the sub-frame to the body by reversing the removal procedure. Ensure that all the nuts and setscrews are torque tightened to the figures quoted in Section H12 and Chapter P.

Front shock dampers, road springs, and damper ball joints

Introduction
The shock dampers (see fig. H3-1) are of the sealed unit type and no servicing is required. In the event of the damper becoming faulty, it should be discarded and a new damper fitted.

Each damper contains nitrogen gas under pressure and under no circumstances should it be subjected to undue force. Do not clamp the damper in a vice.

If the road spring support collar has seized to a faulty damper, the collar should be discarded with the damper. Do not attempt to hammer the collar from the damper.

Front road spring and damper - To remove
1. Drive the car onto a ramp; apply the parking brake and chock the rear wheels.
2. Fit the support plate halves of the road spring

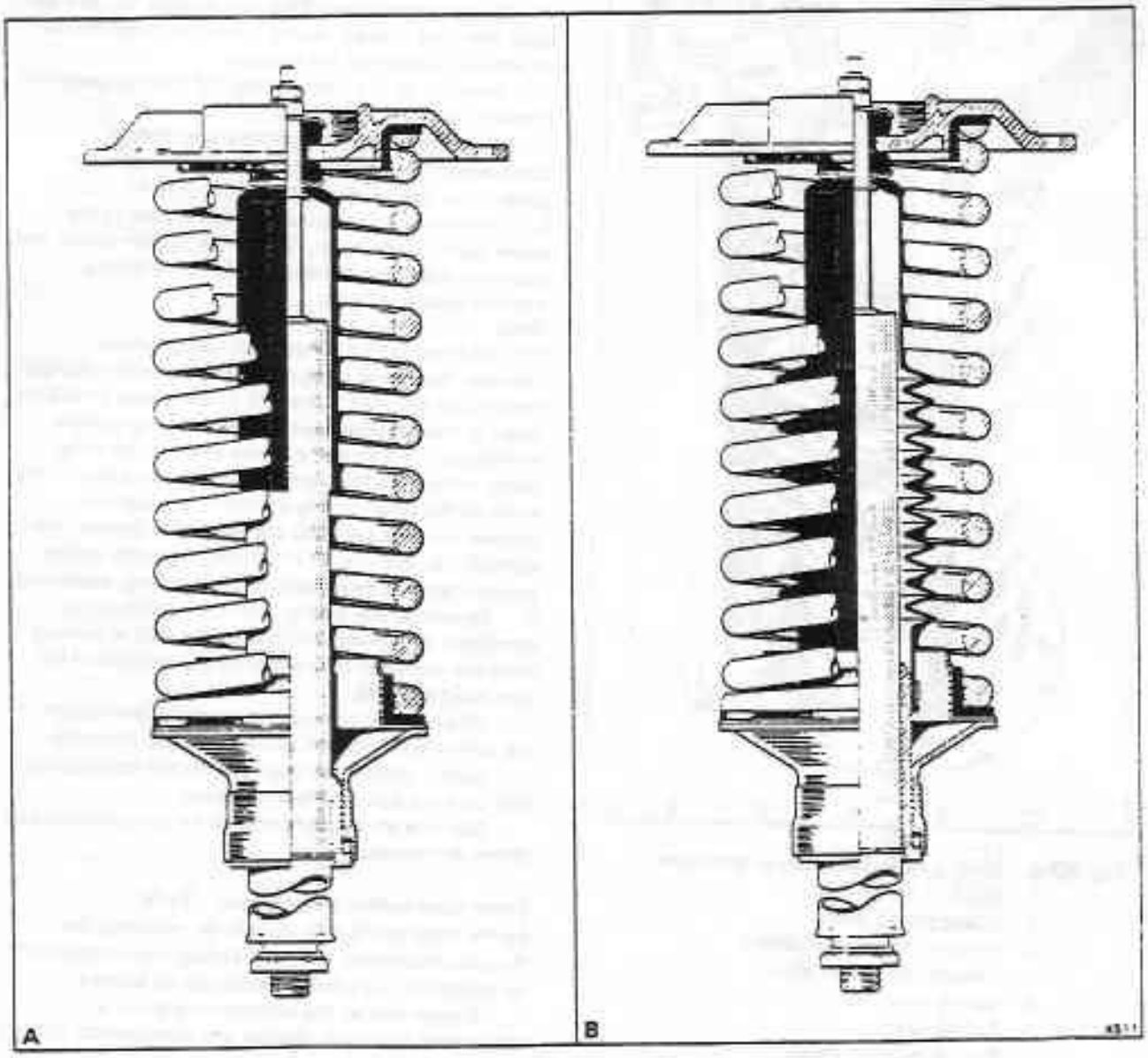


Fig. H3-1 Front shock damper and road spring arrangements
A Early arrangement
B Convoluted seal arrangement

retension tool RH8809, around the lower section of the damper and secure them together.

Insert the four long studs of the tool through the upper spring plate and screw them securely into the tool support plate. Fit the special nuts, thrust races, and washers to the top of each stud.

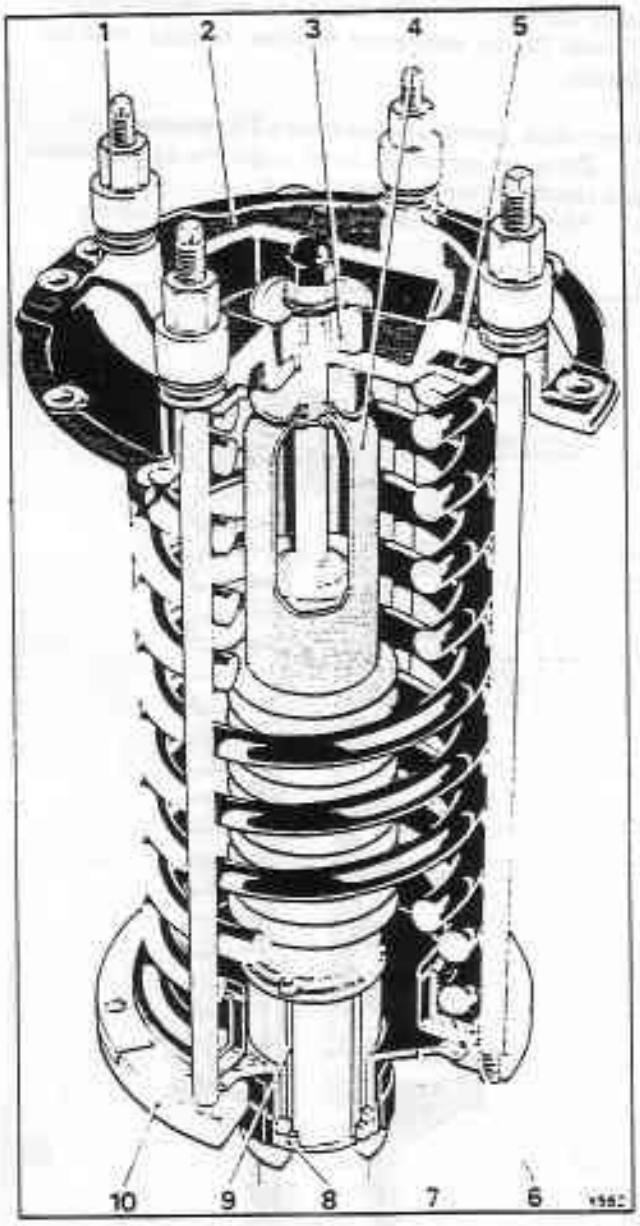


Fig. H3-2 Spring retension tool in position

1 Nut and thrust race
2 Upper spring plate
3 Damper mounting rubbers
4 Convoluted rubber sleeve
5 Spring seat
6 Spring seat
7 Spring support plate
8 Spring support plate collets
9 Spring support collar
10 Tool support plate

Warning
Always examine the spring retention tool components for signs of thread wear or damage prior to its use. Renew any part of the tool that may be liable to fail under spring load.

It is recommended that the use of the tool is restricted to a maximim of 200 applications.

Always take extreme care when handling a road spring in a compressed condition.

3. Evenly tighten the four spring retention tool nuts to retain the road spring in its compressed condition.
4. Support the front of the car body on sill blocks.
5. Remove the bolts securing the upper spring plate to the body spring tower. Use hand pressure on the spring plate to counteract any damper lift and to allow removal of the bolts.
6. Remove the split pin, castellated nut, and washer securing the damper ball pin assembly to the lower triangle levers.

Using extractor tool RH8100, release the ball pin taper from the triangle levers. Leave the taper loosely in position to support the damper.

7. Carefully lift the road spring and damper assembly from the car.

Place the complete assembly into spring compression tool RH7909. Fit and secure the top plate of the tool to retain the spring (see fig. H3-3).

8. Remove the nuts securing the damper to the upper spring plate cover. Collect the rubber mount and washers. Withdraw the damper from the spring support plate and collar.

Note
On cars fitted with a convoluted rubber sleeve between the spring plate collar and the upper damper mount (see figs. H3-1 and H3-2) extra care should be taken to avoid damaging the sleeve during damper withdrawal. This sleeve will also prevent the collar being withdrawn from the spring support plate. In the event of the collar having seized to the damper, remove the nuts securing the top of the damper then carefully release and lift the spring from the spring support plate as described in the following operations.

9. To release the spring from the retention tool compress the spring until the spring load is relieved from the retension tool, allowing the removal of the four retaining nuts.

Measure the distance between the two plates of the spring compression tool to facilitate assembly.

Evenly release the two nuts on the compression tool until the spring is fully released.

Examine all the components for serviceability and renew as necessary.

Front road spring and damper - To fit
Fit the road spring and damper by reversing the removal procedure. The road spring and damper can be assembled as a bench operation as follows.

1. Ensure that all the components are in a serviceable condition. Renew any components that are faulty.
2. On early type dampers, remove the protective cover from the damper stem.

Front spring loading chart

Right-hand drive cars

	Right-hand spring			Left-hand spring		
	N	kgf	lbf	N	kgf	lbf
Silver Spirit and Mulsanne	8117	828	1825	8050	821	1810
Mulsanne Turbo	8763	894	1970	8229	839	1850
Silver Spur (Non division)	8363	853	1880	8251	841	1855
Silver Spur (Division)	8563	873	1925	8452	862	1900
Mulsanne Turbo Long Wheelbase	8874	905	1995	8340	850	1875
Corniche	8407	857	1890	8274	844	1860

Left-hand drive cars *(other than those conforming to a North American specification)*

	Right-hand spring			Left-hand spring		
	N	kgf	lbf	N	kgf	lbf
Silver Spirit and Mulsanne	8050	821	1810	8117	828	1825
Mulsanne Turbo	8696	887	1955	8296	846	1865
Silver Spur (Non division)	8251	841	1855	8363	853	1880
Silver Spur (Division)	8452	862	1900	8563	873	1925
Mulsanne Turbo Long Wheelbase	8807	898	1980	8407	857	1890
Corniche	8452	862	1900	8452	862	1900

Left-hand drive cars *(Conforming to a North American specification)*

	Right-hand spring			Left-hand spring		
	N	kgf	lbf	N	kgf	lbf
Silver Spirit and Mulsanne	8162	832	1835	8228	839	1850
Silver Spur (Non division)	8318	848	1870	8385	855	1885
Corniche	8606	878	1935	8606	878	1935

Equivalent load from packing collets

Packing thickness	mm	1,63	3,25	4,88	6,35	7,98	9,60	11,23	12,70
	in	0.064	0.128	0.192	0.250	0.314	0.378	0.442	0.500
Spring load increase	N	53	107	165	214	267	320	374	427
	kgf	5,44	10,89	16,78	21,77	27,22	32,66	38,10	43,54
	lbf	12	24	37	48	60	72	84	96
Packing thickness	mm	14,33	15,95	17,58	19,05	20,67	22,30	23,93	25,40
	in	0.564	0.628	0.692	0.750	0.814	0.878	0.942	1.00
Spring load increase	N	480	534	587	636	690	747	801	850
	kgf	48,99	54,43	59,87	64,86	70,31	76,20	81,65	86,64
	lbf	108	120	132	143	155	168	180	191

Note
A packing thickness of 6,35 mm (0.250 in) will increase or decrease the height of the car by approximately 9,5 mm (0.375 in)

On dampers fitted with the convoluted type cover, insert the support collar through the spring support plate. Fit the convoluted cover onto the neck of the collar together with a securing band. Ensure that a distance of 19 mm (0.750 in) exists between the shoulder of the collar and the bottom face of the support (see fig. H3-4) then fasten the cover to the collar with the securing clip using tool RH9733. Smear the bore of the collar with an approved grease.

Note
The support collar on this type of assembly is longer than the one previously used.

3. Using a small amount of Loctite Superbonder or equivalent adhesive secure the location washer into the top of the damper cover, also secure the damper mounting rubber and washer to the underside of the upper spring plate. This operation is to assist assembly and ensure correct component location.
4. Place the road spring and its associated components (see fig. H3-3 into spring compression tool RH7909 and compress the spring to the measurement taken on removal.
5. Fit the washer onto the damper stem then insert the damper into the spring assembly. Ensure that all the components are correctly located (see fig. H3-1), then fit the top mount rubber, distance piece, cup washer, and plain washer onto the damper stem. Fit and torque tighten the retaining nut and lock-nut.

6. Smear the spring support plate collets with an approved grease and fit them around the damper collar. Carefully release the spring compression tool, thus allowing the damper collar and collets to be drawn into the spring support plate. Do not completely remove the spring compression tool.

Note

The original thickness of collets should be used if the original spring is fitted.

For spring poundage information refer to the chart on page H3-3.

7. Fit spring retension tool RH8809 to the spring assembly to retain the spring in its compressed condition. Remove compression tool RH7909.
8. Fit the ball joint assembly to the damper.
9. Fit a new gasket (if fitted) to the body spring tower and carefully lower the spring and damper assembly into the body.
10. Locate the damper ball joint taper into the triangle levers. Fit and torque tighten the castellated nut and insert a new split pin.
11. Bolt the upper spring plate to the body.
12. Carefully release and then remove the spring retension tool. Ensure that the collets are correctly entered into the spring support plate during removal.
13. Remove all jacks and support blocks.
14. After fitting the spring and damper assembly, remove the car from the ramp and drive it back and forth to allow the assembly to settle.
15. Check the car standing height as described in Section H6.

Damper ball joint - To remove

1. Carry out Operations 1 to 3 inclusive of Front

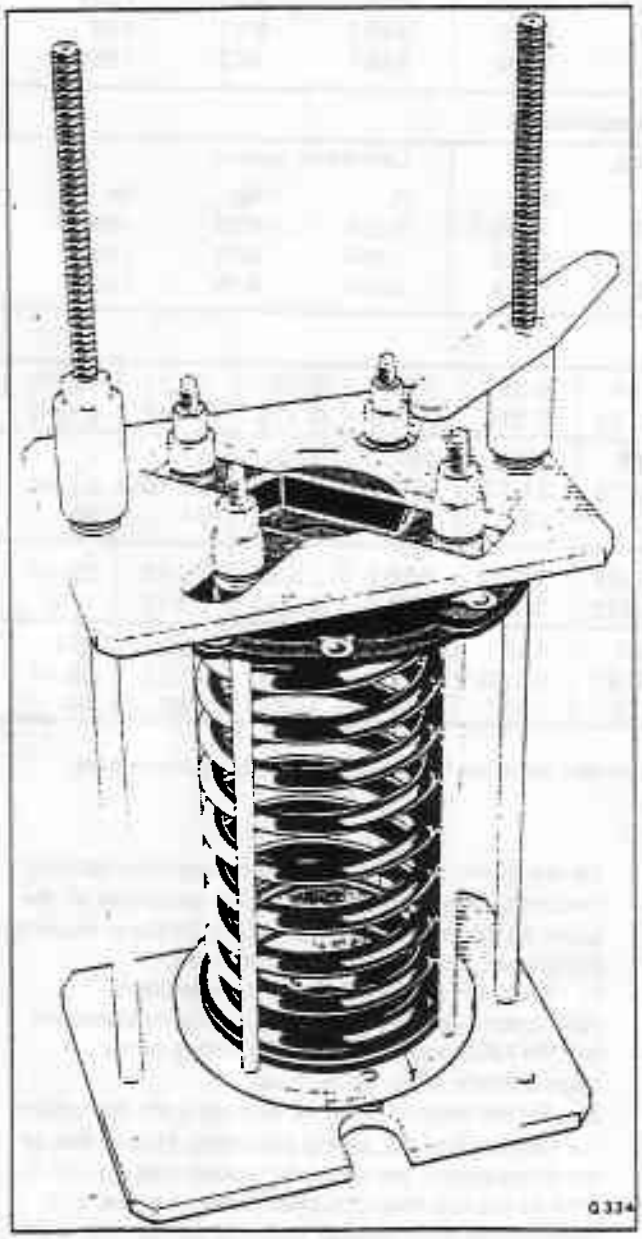


Fig. H3-3 Spring compression tool

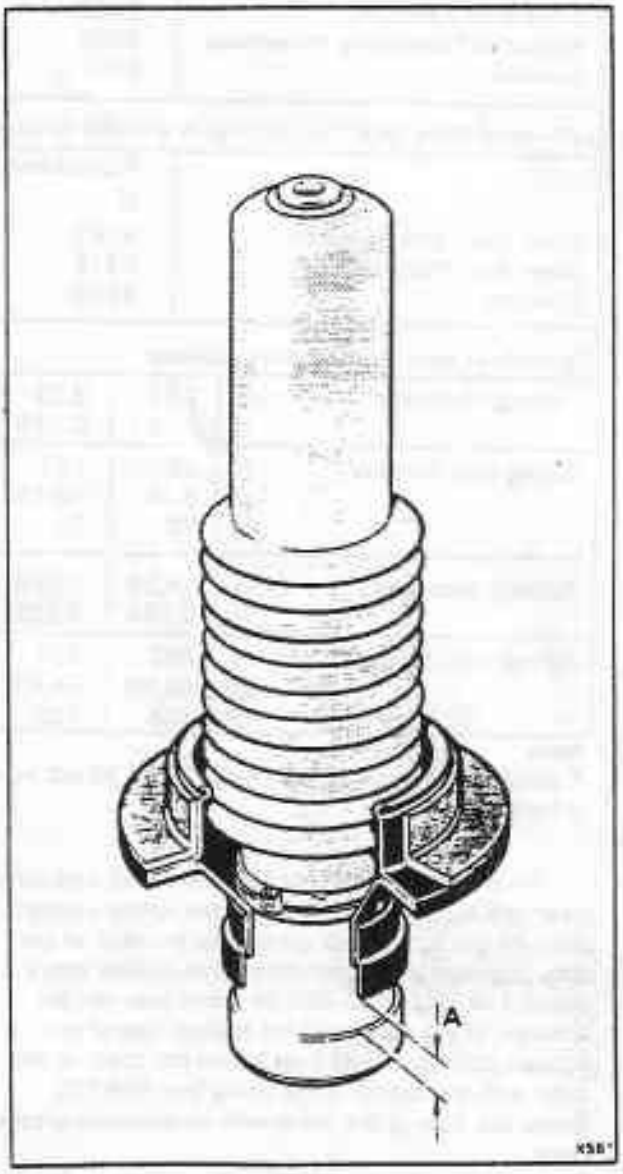


Fig. H3-4 Spring support plate, collar, and sleeve assembly
A 19 mm (0.75 in)

road spring and damper - To remove.

2. Remove the split pin, castellated nut, and washer securing the ball joint.

3. Using extractor tool RH8100 release the ball joint taper from the triangle levers.

4. Raise the front of the car until the ball joint taper clears the ball pin carrier. Remove the ball joint from the damper.

5. Unscrew the ball pin assembly from its housing, taking care not to damage the protective rubber boot. Collect the pre-load adjustment shims (see fig. H3-5).

6. Examine the ball joint for wear. Pre-load shims should not be removed to take up wear. Always fit a new ball pin assembly.

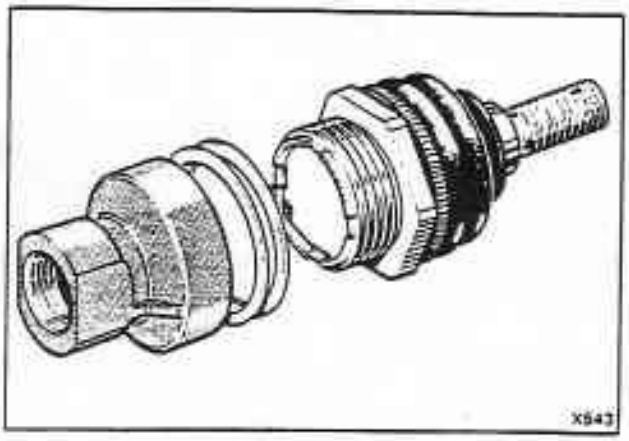


Fig. H3-5 Damper ball pin assembly

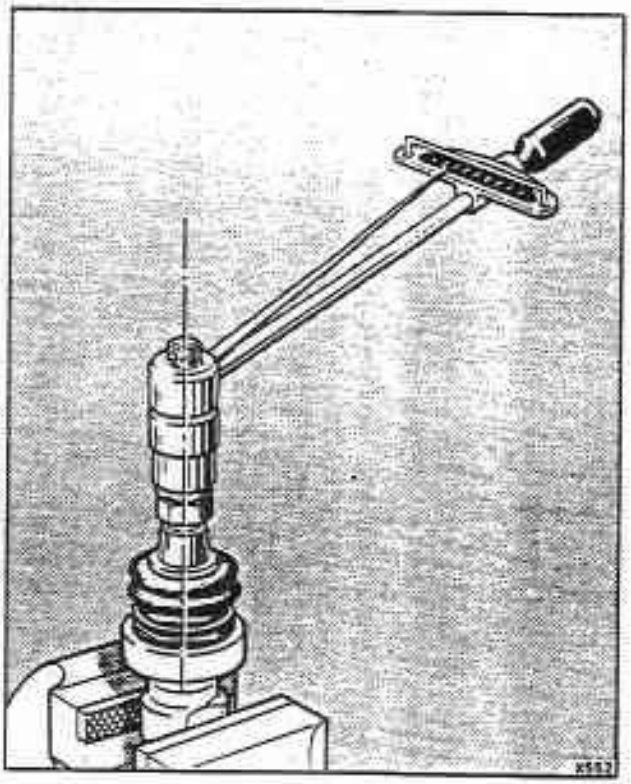


Fig. H3-6 Checking the ball joint pre-load

Damper ball joint - To assemble and fit

1. Ensure that the components are in a serviceable condition.

2. Hold the ball joint housing in a vice. Screw the new ball pin assembly into the housing without fitting the pre-load shims. Fit and lock together two nuts onto the ball pin, (see fig. H3-6).

3. Carefully tighten the ball joint into the housing until a torque of between 3,4 Nm and 6,9 Nm (0.35 kgf m and 0,69 kgf m, 30 lbf in and 60 lbf in) is required to rotate the ball pin. This torque figure should be measured after the ball pin has been rotated through four complete revolutions and with the ball pin in its vertical position.

4. Measure the gap between the ball joint face and the housing face.

5. Remove the ball joint from the housing and fit shims, equivalent to the gap previously measured, onto the ball joint.

6. Fit the ball joint and shims to the housing and torque tighten the assembly to the figure quoted in Section H12.

7. Check that the torque required to rotate the ball pin is within the limits given in Operation 3. If necessary make adjustments by increasing or decreasing the shim thickness to obtain the correct torque reading.

8. Fit and torque tighten the ball joint assembly onto the damper.

9. Secure the ball joint to the triangle levers and complete the operations by reversing the removal procedure.

Section H3m

Rear road springs

Introduction
The rear road spring assembly comprises of a road spring, upper and lower bell shaped support, adjusting rings, and pliable spring seats. The adjusting rings, are each 1.22 mm. (0.048 in.) thick and are used to obtain the correct spring load and car standing height. Each ring is equivalent to a spring load increase of 3.63 kgf. (8 lbf.) and will increase the car height by approximately 1.778 mm. (0.070 in.).

Warning
Always examine the spring retention tool (RH9299) for signs of thread wear or damage prior to its use. Renew the tool if necessary.

Rear road spring - To remove

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. Support the final drive unit with a jack.
4. Insert spring retention tool (RH9299) through the centre of the lower spring support. Screw the tool fully into the upper spring support.
5. Lift the rear of the car until the suspension is in the full rebound position. Position sill blocks beneath the car sills to support the body.
6. Carefully manoeuver the spring from its seat and remove it from between the trailing arm and the body.
7. Remove the spring seats and adjusting rings from the spring.

Note
On certain Corniche cars conforming to a North American specification an additional spacer and seat are fitted beneath the normal spring seat and adjusting rings (see Fig. H11m).

8. Remove the two dowels from the baseplate of the spring compression tool (RH7909) and fit adapter block (RH9504).
9. Position the compressed spring into the compression tool with the upper spring support in the adapter block (see Fig. H12m).
10. Fit the top plate of the tool. Screw down the

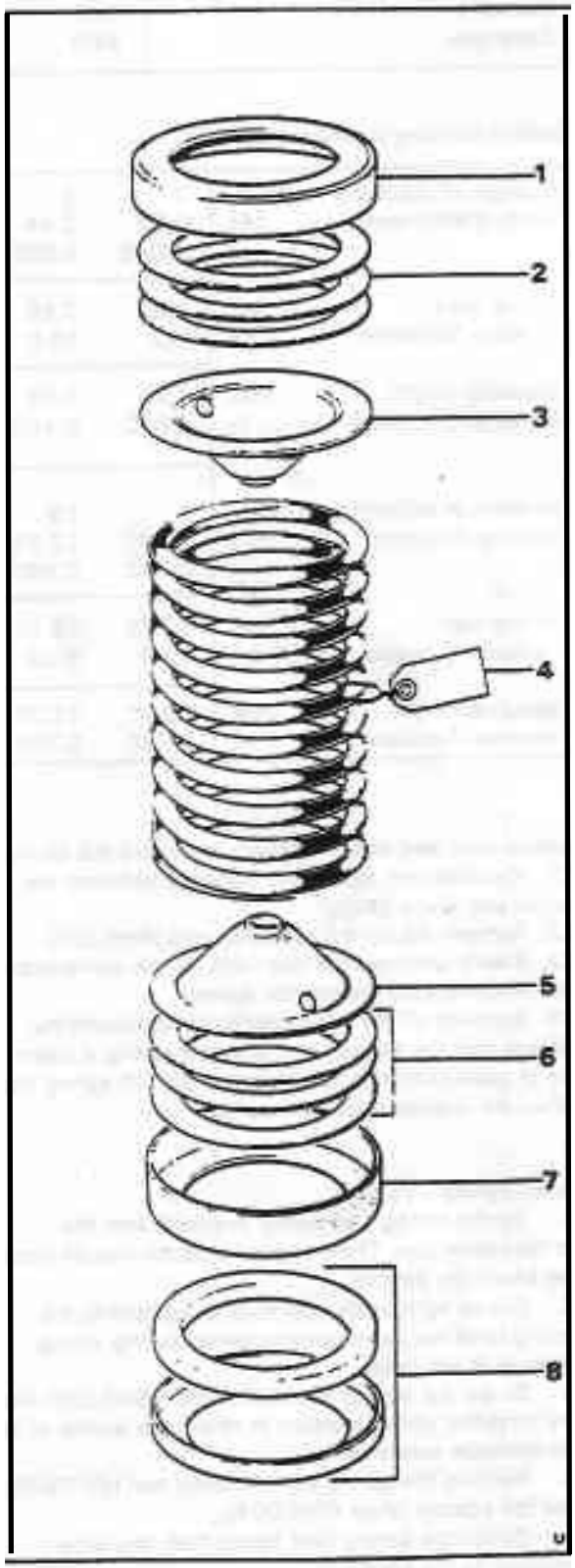


Fig. H11m Rear road spring assembly
1 Pliable spring seat
2 Adjusting rings
3 Screwed bell-shaped support
4 Spring loading label
5 Plain bell-shaped spring support
6 Adjusting rings
7 Pliable spring seat
8 Special 8.89 mm. (0.350 in.) thick spacer and shortened, pliable spring seat

Spring loading chart

	Cars other than those conforming to a North American specification		Cars conforming to a North American specification	
	kgf.	lbf.	kgf.	lbf.
Corniche saloon	606	1336	615	1358
Corniche convertible	646	1424	660	1454
Camargue	660	1454	660	1454

Spring loading washer selection

Number of adjusting washers		1	2	3	4	5	6	7	8
Packing thickness	mm.	1,22	2,44	3,66	4,88	6,09	7,31	8,53	9,75
	in.	0.048	0.096	0.144	0.192	0.240	0.288	0.336	0.384
Spring load	kgf.	3,63	7,26	10,89	14,51	18,14	21,77	25,40	29,03
increase/decrease	lbf.	8.0	16.0	24.0	32.0	40.0	48.0	56.0	64.0
Standing height	mm.	1,78	3,56	5,33	7,11	8,89	10,67	12,45	14,22
increase/decrease	in.	0.070	0.140	0.210	0.280	0.350	0.420	0.490	0.560
Number of adjusting washers		9	10	11	12	13	14	15	16
Packing thickness	mm.	10,97	12,19	13,41	14,63	15,85	17,07	18,28	19,50
	in.	0.432	0.480	0.528	0.576	0.624	0.672	0.720	0.768
Spring load	kgf.	32,66	36,29	39,92	43,54	47,17	50,80	54,43	58,05
increase/decrease	lbf.	72.0	80.0	88.0	96.0	104.0	112.0	120.0	128.0
Standing height	mm.	16,00	17,78	19,56	21,34	23,11	24,89	26,67	28,45
increase/decrease	in.	0.630	0.700	0.770	0.840	0.910	0.980	1.050	1.120

special nuts and thrust washers to secure the spring.

11. Measure and record the distance between the upper and lower plates.
12. Remove the spring retention tool (RH9299).
13. Evenly unscrew the two nuts on the compression tool to completely extend the spring.
14. Examine all the components for serviceability. Ensure that the threads in the upper spring support are in good condition to withstand the full spring load when the retention tool is inserted.

Road spring - To fit

1. Fit the spring and spring supports into the compression tool. The threaded support should rest in the baseplate adapter.
2. Evenly tighten the tool nuts to compress the spring until the measurement taken during spring removal is achieved.
3. Screw the spring retention screw (RH9299) into the threaded spring support to retain the spring in its compressed condition.
4. Remove the spring compression tool (RH7909) and the adapter block (RH9504).
5. Obtain the spring load figure from the label attached to the spring.
6. Refer to the spring adjustment chart above to ascertain the correct number of adjusting rings required.

One adjusting ring is equivalent to 3,63 kgf. (8 lbf.) therefore to achieve the correct nominal load multiples of this figure should be added to the load figure quoted on the spring label. This will give the number of rings required.

7. Ensure the trailing arm is in the full rebound position.
8. Fit the spring by placing a pliable seating and half the required number of adjusting rings estimated in Operation 6, into the trailing arm spring location.

On Corniche cars conforming to a North American specification fitted with the additional 9,0 mm. (0.350 in.) thick packing and special flexible seat, these should be fitted first.

9. Place the remainder of the adjusting rings and a flexible seat over the upper spring support. Position the spring in the body spring cup.
10. Raise the trailing arm until the spring is held in position.

Note

Always ensure that the rings used are clean and that no foreign matter becomes trapped between them during assembly.

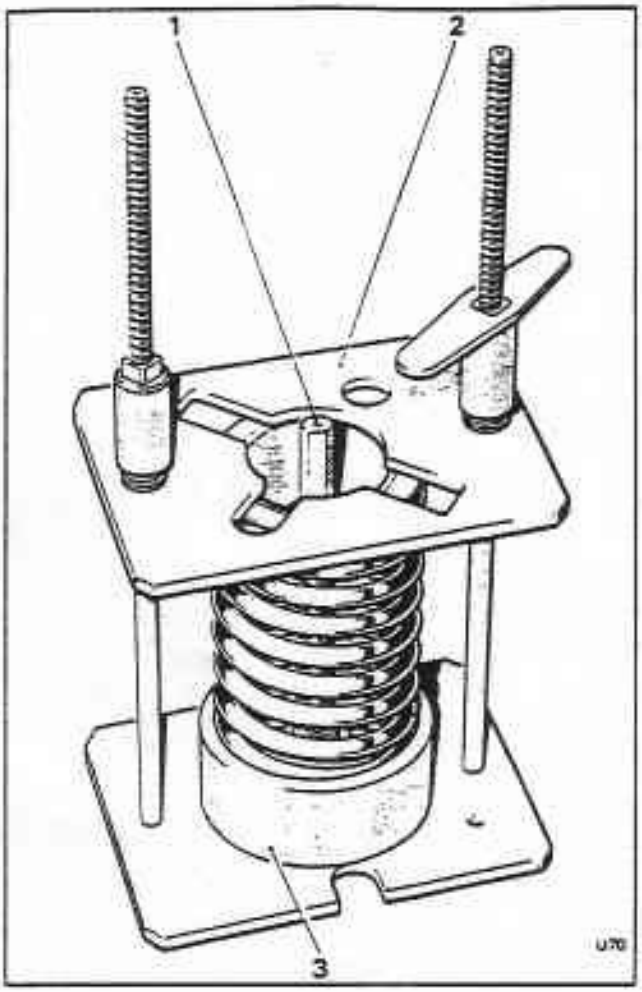


Fig. H12m Spring compressing tools in position
1 Tool RH9299 and thrust washer
2 Tool RH7909
3 Adapter block RH9504

11. Remove the sill blocks and lower the car onto its wheels.
12. Carefully remove the spring retention tool from the centre of the spring.
13. Lower the ramp to the ground.
14. Roll the car backwards and forwards until the wheels attain a stable camber angle.
15. Check the car standing height as described in Section H4m.

Compliance assembly, triangle levers, suspension ball joints, and stabilizer

Introduction

Due to the changes that have been introduced on the front suspension components (see Section H1), care should be taken to ensure that the correct removal and assembly procedures are carried out.

Lower triangle levers – To remove

1. Ensure the gear range selector lever is in the Park position and apply the parking brake.
2. Remove the wheel trim from the respective wheel and slacken the wheel nuts.
3. Jack up the front of the car and place sill blocks beneath the front end of the body sills.
4. Remove the road wheel.
5. Place a jack under the lower triangle levers and jack up the suspension to partially compress the road spring. Ensure that the body is still supported by the sill blocks.
6. Fit the support plate halves of the road spring retention tool RH 8809 around the lower section of the damper and secure them together.

Insert the four long studs of the tool through the upper spring plate and screw them securely into the tool support plate.

Fit the special nuts, thrust races, and washers to the top of each stud (see fig. H3-2).

Warning

Always examine the spring retention tool for signs of thread wear or damage prior to its use. If you have doubts concerning any parts of the tool and their ability to withstand spring load you should renew those parts.

7. Evenly tighten the retaining tool nuts until the road spring is fully supported.
8. Slacken the large nuts or bolts (dependent on the type of pivot) securing the lower triangle levers to the sub-frame pivot bushes (see figs. H4-1, to H4-4 inclusive).
9. Disconnect the stabilizer bar from the front triangle lever as described under Front stabilizer bar – To remove.
10. Remove the split pin and castellated nut securing the front shock damper ball joint. Using extractor tool RH 8100 release the ball joint taper. Lower the triangle levers to allow the taper to be withdrawn from the ball joint carrier.
11. Support the hub assembly with a jack.
12. Remove the split pin and castellated nut securing

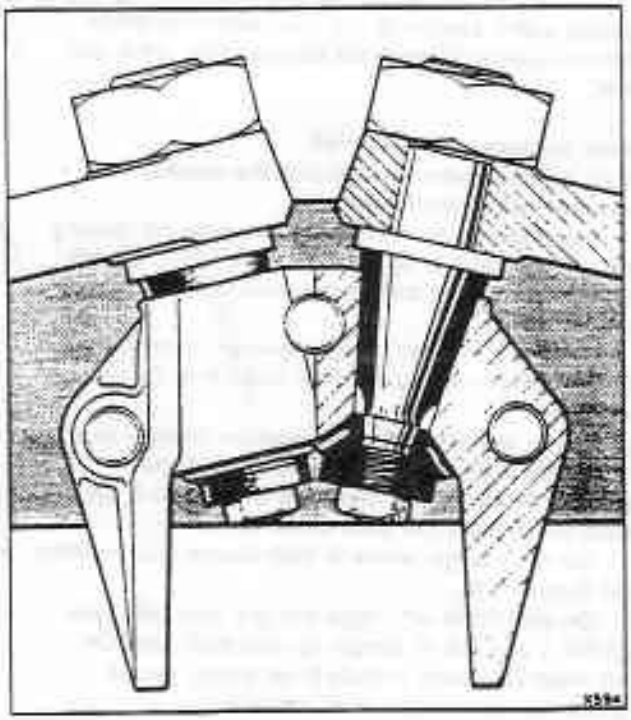


Fig. H4-1 Front triangle lever mount (Tapered bush)

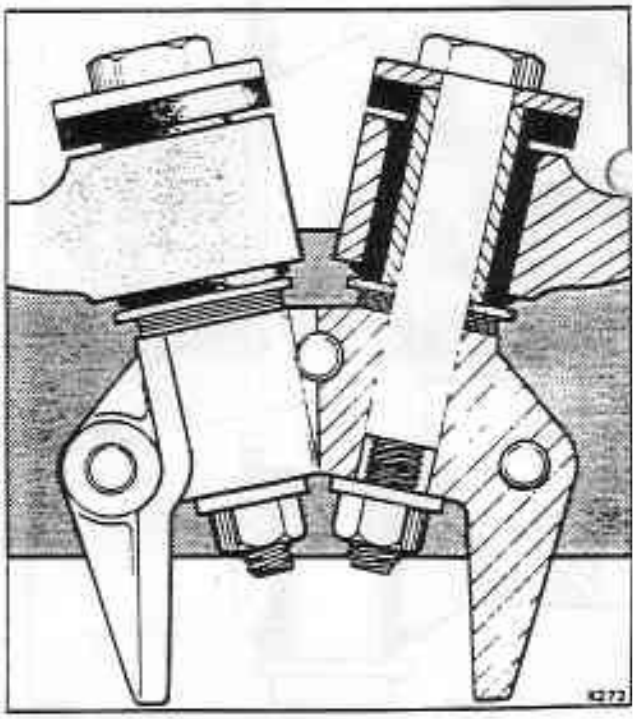


Fig. H4-2 Front triangle lever mount (Parallel bush)

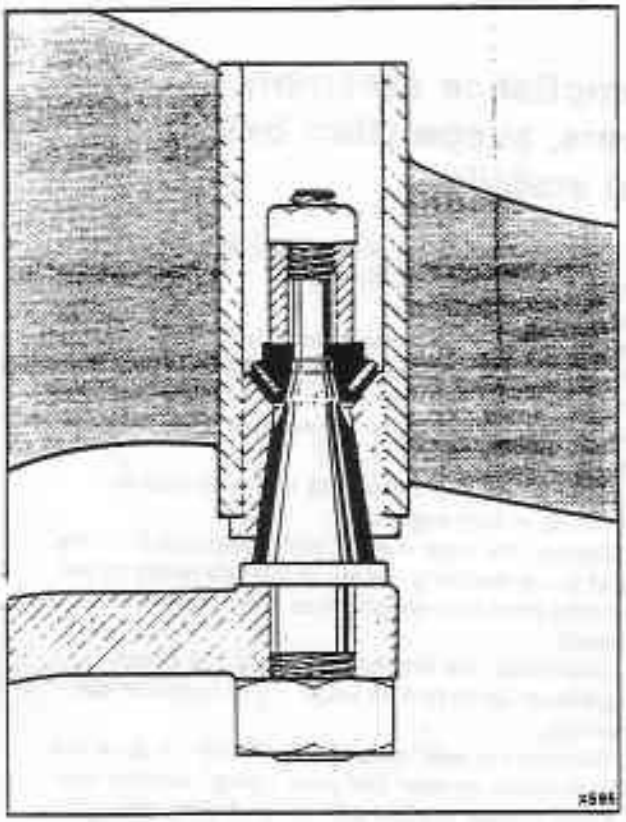


Fig. H4-3 Rear triangle lever mount (Tapered bush)

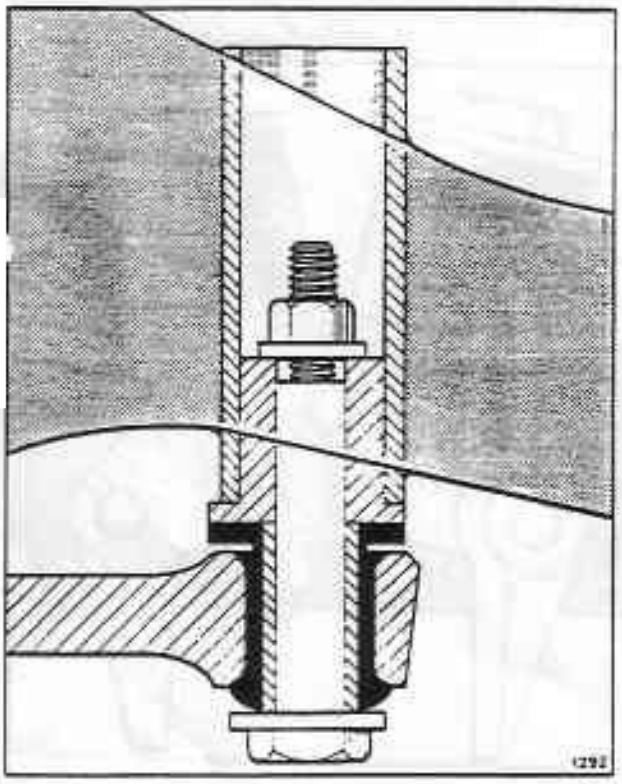


Fig. H4-4 Rear triangle lever mount (Parallel bush)

the lower suspension ball joint to the yoke. Using extractor tool RH 8100 release the ball joint taper.

13. Remove the dowel bolt and the setscrew securing the triangle levers to the ball pin carrier. Collect the carrier.

14. Remove the large nuts or bolts from the triangle lever pivot bushes and remove the triangle levers. Collect the shims if fitted (see fig. H4-2).

Note

On the parallel type of pivot bushes, to ensure the correct clamping load is applied to the pivot bush in the rear triangle lever, it has been necessary on certain cars to fit two washers under the nut on the pivot bolts. In the event of new bushes being fitted always ensure that the same number of washers are fitted in order to obtain the correct clamping load.

15. Examine the pivot bushes for serviceability and renew if necessary.

Lower triangle lever pivot bushes – To renew

1. Remove the lower triangle levers as described under Lower triangle levers – To remove.
2. To remove the bushes either, remove the retaining nut and withdraw the bush from its location or press the bush out of the triangle lever, dependent on the type fitted (see figs. H4-1 to H4-4 inclusive).
3. Fit the new bushes as follows. Insert the tapered type of bush into its housing and fit the bonded rubber washer, distance tube (rear bush only), and nut (see figs. H4-1 and H4-3). Torque tighten the nut to the figure quoted in Section H12.

On the parallel bush type, press the bush into the triangle lever. Esso Flexon 876 or Gulf Par 125P should be used to lubricate the bush for this operation.

The bushes should be pressed in so that the large diameter buffer section of the bush faces rearwards when the lever is fitted to the car (see figs. H4-2 and H4-4).

Lower triangle levers – To fit

Fit the triangle levers by reversing the removal procedure noting the following.

1. Assemble the front triangle lever onto the bearing housing as shown in figures H4-1 and H4-2. Do not tighten the nut or fit the shim washers (if applicable) at this stage.
2. Assemble the rear triangle lever onto the sub-frame as shown in figures H4-3 and H4-4. Do not tighten the nut.
3. Fit the ball pin carrier between the triangle levers then fit and torque tighten the dowel bolt and setscrew to the figures quoted in Section H12. Do not attach the damper ball joint to the carrier.
4. Set the triangle levers in their normal ride position (see Section H6).
5. On cars fitted with large triangle lever nuts (see figs H4-1 and H4-3), torque tighten both nuts. On cars fitted with front triangle lever shims, torque tighten the rear triangle lever nut only.

Note

The following operations are only applicable when shims are fitted to the front triangle lever. The fitting

of these shims ensures that no axial pre-load is applied to the rubber pivot bushes.
6. Remove the nut from the front triangle lever pivot bolt. Apply sufficient pressure to the two washers on the pivot bush to ensure they are in contact with the centre distance tube of the bush.
7. Measure the distance between the bearing housing and the inner washer (see fig. H4-2). Select the number of shims required to fill this distance, rounding up or down to the nearest shim.
8. Fit the shims into position then fit the washer and nut to the pivot bolt. Torque tighten the nut to the figure quoted in Section H12.

Compliance lever – To remove
1. Carry out Operations 1 to 7 inclusive as described under Lower triangle levers – To remove.
2. Remove the split pin and castellated nut retaining the upper ball pin.
3. Support the hub with a jack and using extractor tool RH 8100 release the ball pin taper from the yoke.
4. Remove the bolt securing the compliance rod jaw to the compliance lever.
5. Note the position of the arrow on the compliance lever pivot bolt (see fig. H4-5). Remove the bolt and withdraw the lever from the sub-frame bracket. Collect the special washers.
6. Examine the rubber bushes and ball joint for serviceability and renew as necessary.

Compliance lever – To fit
Fit the compliance lever by reversing the removal procedure noting the following.
1. Ensure that the eccentric adjustment components on the compliance lever pivot are correctly located in the sub-frame bracket (see fig. H4-5). Turn the bolt until the arrow is in the position noted on removal.
2. Check the wheel caster and camber as described in Section H6.

Compliance rod mount – To renew
1. When renewing the compliance mount adjacent to the starter motor the battery must be disconnected.
2. On turbocharged cars, remove the heat shield from behind the compliance mount.
3. Remove the nut and large washer from the rear of the compliance mount. **Do not** disturb the position of the outer nut. If this nut is undisturbed, it should not be necessary to check the caster and camber settings after completion of the mount renewal operations.
4. Remove the two bolts securing the compliance mount to the sub-frame and withdraw the mount.
5. Remove the bolt securing the compliance rod jaw to the lever. Examine the bush for serviceability and renew if necessary.
6. Fit the new compliance mount and components by reversing the removal procedure. Ensure that the large washer is fitted with the concave side towards the mount.
7. Torque tighten the nuts to the figures quoted in Section H12.
8. If the position of the outer compliance rod nut has been moved the castor and camber should be checked as described in Section H6 and adjusted as necessary.

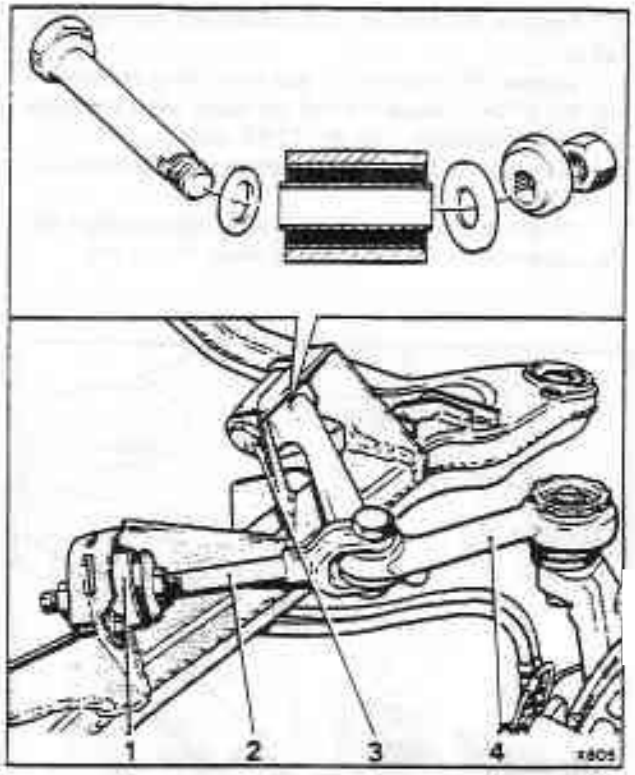


Fig. H4-5 Compliance assembly
1 Compliance mount
2 Compliance rod
3 Pivot bolt
4 Compliance lever

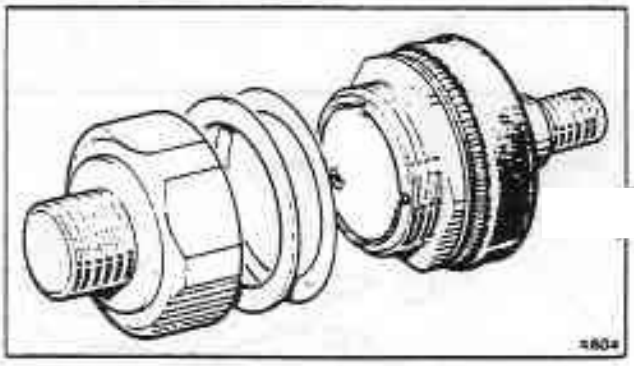


Fig. H4-6 Lower ball joint assembly

Suspension ball joints – To renew
Prior to commencement of the following operations, the spring retention tool RH 8809 should be fitted as described in Operations 1 to 7 inclusive of Lower triangle levers – To remove.

Upper ball joint (see fig. H4-5)
1. Using the tube spanner RH 7775 remove the locking ring from the top of the ball joint.

2. Remove the split pin and castellated nut from the ball pin.
3. Support the hub with a jack and using extractor tool RH 8100 release the ball pin taper from the yoke.
4. Fit the extractor tool RH 7768 onto the compliance lever and carefully press the ball joint out of the lever.
5. Carefully place the new ball joint into position on the underside of the compliance lever. Using the extractor tool RH 7768 as the insertion tool draw the ball joint into the lever.
6. Fit and torque tighten the locking ring to the figure quoted in Section H12.
7. Complete the assembly by reversing the removal procedure.

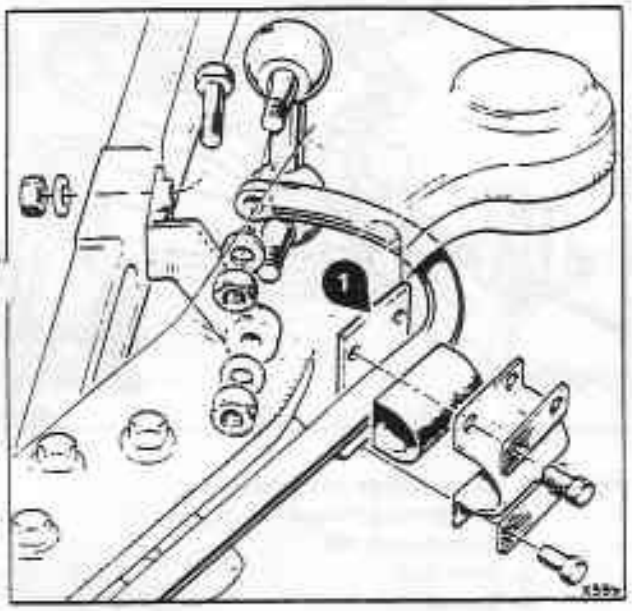


Fig H4-7 **Front stabilizer components**
1 Plate, not fitted to all cars

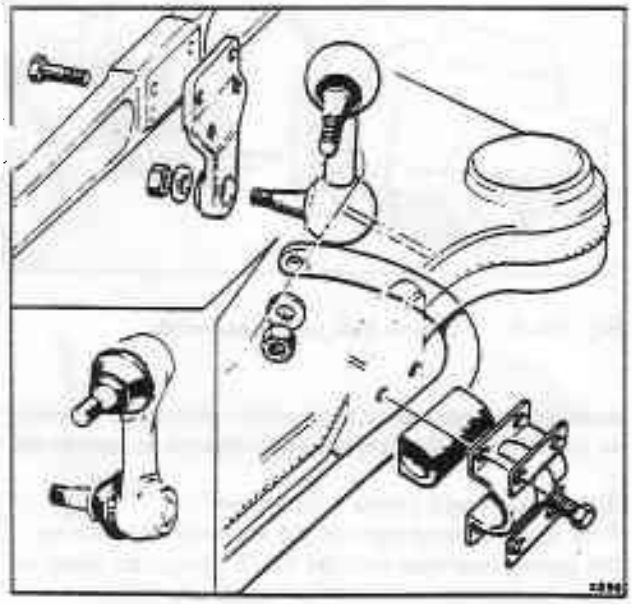


Fig. H4-8 **Front stabilizer components (Modified arrangement)**
Inset – Link fitted to Bentley cars from 1986 model year

Lower ball-pin
1. Depressurize the hydraulic braking system as described in Chapter G.
2. Disconnect the two brake hoses from the rear of the front hub. Fit blanks to the hoses and pipes.
3. Remove the split pin and castellated nut from the track rod end. Using extractor tool RH 8100 or RH 9710 dependent on the type of track rod fitted, (see Chapter N), release the ball pin taper from the side steering lever.
4. Remove the split pin and castellated nut from the upper ball pin.
5. Support the hub with a jack and using extractor tool RH 8100 release the upper ball pin taper from the yoke.
6. Remove the split pin and castellated nut from the lower ball pin.
7. Using extractor tool RH 8100 release the lower ball pin taper from the ball pin carrier. Lift the yoke and hub assembly from the car.
8. Remove the ball joint assembly and housing from the yoke.
9. Remove the ball joint from the housing and collect the shim washers.
10. Thoroughly clean the housing and shim washers.
11. Enter the new ball joint into the housing without fitting the shim washers. Fit and lock together two nuts onto the ball pin.

Note
The ball joint is supplied as a complete assembly and is pre-packed with lubricant.

12. Carefully tighten the ball joint into the housing until a torque of between 3,9 Nm and 8,6 Nm (0,40 kgf m and 0,86 kgf m, 35 lbf in and 75 lbf in) is required to rotate the ball. This torque figure should be measured after the ball pin has been rotated through four complete revolutions, and with the ball pin in its vertical position.
13. Measure the gap between the ball joint face and the housing.
14. Remove the ball joint from the housing and fit shims, equivalent to the gap previously measured, onto the ball joint.
15. Fit the ball joint and shims to the housing and torque tighten the assembly to the figure quoted in Section H12.
16. Check that the torque required to rotate the ball pin is within the limits given in Operation 12. If necessary make adjustments by increasing or decreasing the shim thickness to obtain the correct torque reading.
17. Fit and torque tighten the ball joint assembly into the yoke to the figure quoted in Section H12.
18. Fit the yoke and hub assembly by reversing the removal procedure.

Front stabilizer – To remove

1. Remove the nuts and washers securing the stabilizer links to the triangle lever brackets and stabilizer bar.
2. Using extractor tool RH 8019 separate the tapers of the stabilizer links from their locations. Remove the links.
3. Remove the setscrews and washers securing the stabilizer bar mounts to the sub-frame.
4. Remove the brackets and stabilizer bar. Collect any packing from between the rubber mount and sub-frame (see fig. H4-7).
5. Examine the rubbers of the mounts and links for serviceability and renew as necessary.

Front stabilizer – To fit

Fit the stabilizer by reversing the removal procedure noting the following.

1. Set the suspension triangle levers to the normal ride position.
2. Attach the stabilizer links to the triangle levers and the stabilizer. Do not tighten the securing nuts.
3. Fit the stabilizer to the sub-frame without forcing the clamping brackets into position. Ensure that the packing (if fitted) is located between the sub-frame and the stabilizer mount.
4. Torque tighten the setscrews and link nuts to the figures quoted in Section H12.

Section H4m

Rear suspension settings

Introduction

Following operations in which the suspension has been partially or fully dismantled, the standing and levelled height of the car should be checked.

For details of the procedure required for setting the levelled height refer to Chapter G Part 1 1.

To allow the suspension to settle after assembly, drive the car back and forth before carrying out the standing height checks.

Standing height - To check

1. The height must be checked with a full tank of fuel. If however the tank is partially empty, weight equivalent to the amount of missing fuel should be positioned adjacent to the fuel tank.

For each 4,5 litres (1 Imp. gal., 1.2 US gal. of missing fuel add 3,4 kg. (7.5 lb.) of weight.

2. Ensure that the spare wheel, jack, tools, and accessories are fitted in their relevant positions.
3. Check the tyre pressures and correct if necessary.
4. Drive the car onto a suitable level ramp and chock the front road wheels.
5. Move the gear range selector lever to the P Park position. Remove the gear change isolator from the fuseboard and release the parking brake.
6. Start and run the engine. Allow the hydraulic systems to fully pressurize.
7. Disconnect both height control valve links at the ball joints on the trailing arms.
8. Simultaneously raise both control valve links approximately 40 mm. (1.5 in.) and allow the car to level.

Note

There should be a delay before the car starts to level after raising the control valve links. This delay can vary with different cars and variations in engine speed. Always allow approximately two minutes for the levelling process to be completed.

9. Slowly pull down both control valve links approximately 25 mm. (1.0 in.) to exhaust the hydraulic pressure from the rear suspension struts. Allow three minutes for the car to stabilize.
10. Check that the standing height of the front suspension is correct as described in Section H6.
11. Measure the height from the level surface on which the car stands to the centre of the foremost bottom bolt securing the sub-frame mounting bracket to the sill (see Fig. H13m dimension A).
12. Measure the height from the level surface to the centre of the rear bolt attaching the parking brake linkage to the trailing arm (see Fig. H13m dimension B).
13. Subtract dimension B from dimension A. The resultant figure should be within the following tolerances.

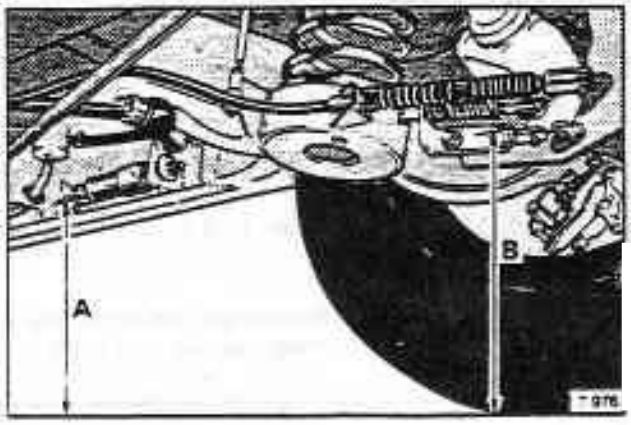


Fig. H13m Rear height setting

- **A** Floor to centre line of body bracket setscrew
- **B** Floor to centre line of parking brake linkage bracket setscrew

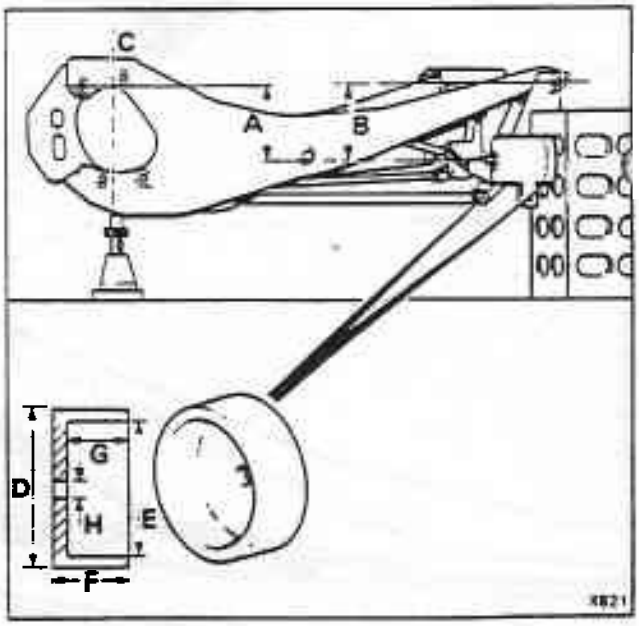


Fig. H14m Camber and toe-in setting

- **A** 134,9 mm. (5.312 in.)
- **B** 141,8 mm. (5.582 in.)
- **C** Wheel centre line
- **D** 76,2 mm. (3.00 in.)
- **E** 66,8 mm. (2.63 in.)
- **F** 25,4 mm. (1.0 in.)
- **G** 15,2 mm. (0.625 in.)
- **H** 9,9 mm. (0.391 in.)

Note
The standing height setting is dependant on the springs and suspension components fitted to the car.

When checking the standing height reference should be made to the Spring loading charts in Section H3m.

Cars listed in Spring loading chart
Applicable to cars other than Corniche built to a North American specification.
+ 12,5 mm. and + 4,5 mm. (+ 0.50 in. and + 0.175 in.)

Applicable to Corniche cars built to a North American specification.
+ 27,5 mm. and + 19,5 mm. (+ 1.10 in. and + 0.770 in.)

14. If the standing height is incorrect, add or remove the required number of packing washers to or from the spring seats. The quantity should be equally divided between the top and bottom seats.
15. When the standing height is correct, the height control valve links should be adjusted as described in Chapter G Part 11.

Trailing arm camber - To set
1. Mount the crossmember on a surface table as shown in figure H14m.
2. Fit the trailing arms to the crossmember (see Fig. H15m) and set them in the 'normal ride' position using small screw jacks situated beneath each arm.
3. Tighten the centre bolt of the inner bush and the bolts of the frame tube mounting bracket on each trailing arm.
4. Tighten the centre bolt of the outer bush sufficiently to remove end play but still allow trailing arm movement.

Ensure that the location plate is suitably positioned.

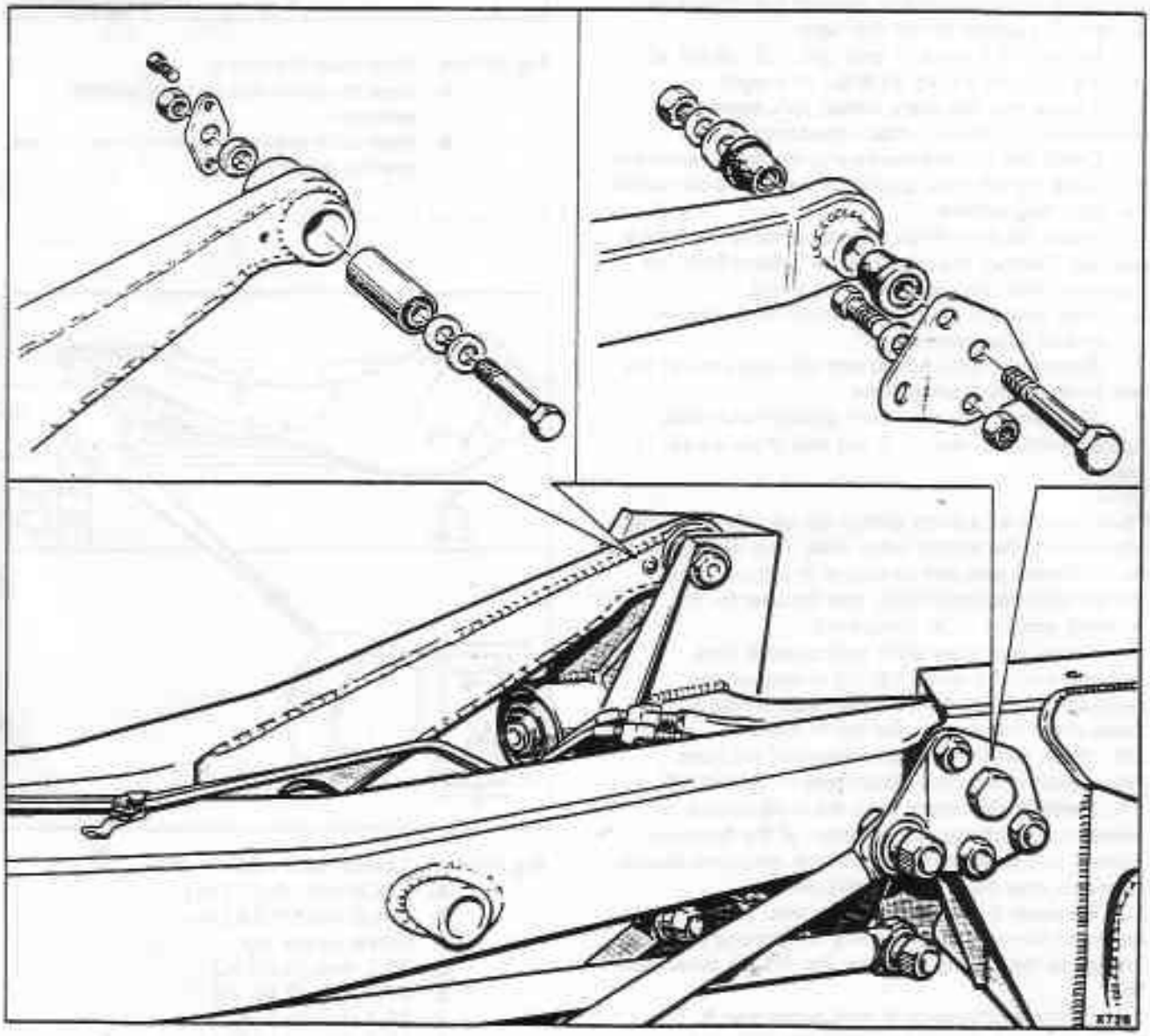


Fig. H15m Trailing arm pivot components

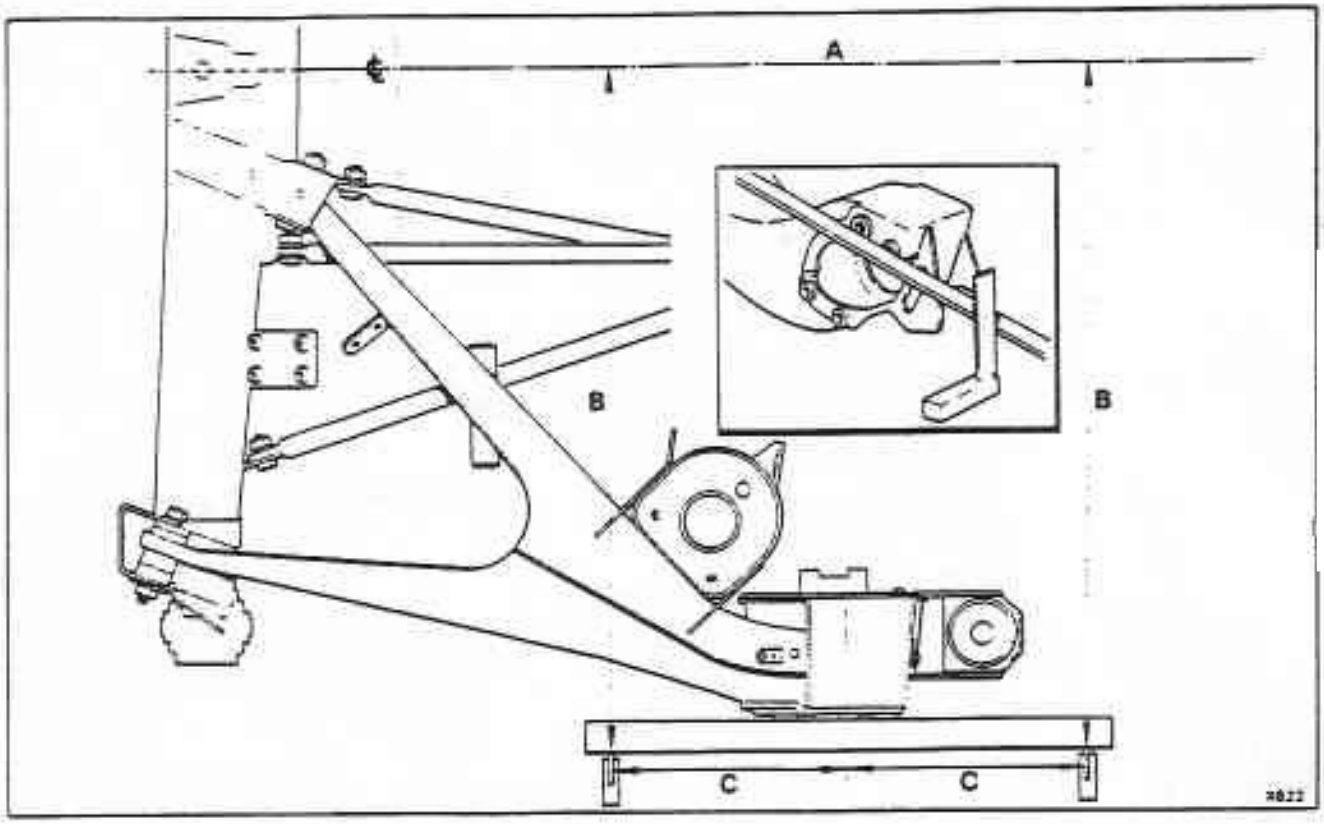


Fig. H16m Checking the toe-in setting

A Centre line marked on surface table

B Measurement from engineers square to centre line across the surface of the table

C 208 mm. (8.20 in.) from road wheel centre

5. Using suitable camber setting equipment or a precision square across the upper and lower faces of the hub location tubes, check the camber of the trailing arm. The setting must be between minus 0° 15' and plus 0° 15'. The trailing arm settings must be within 0° 15' of each other.

6. Tighten the outer bush centre bolt.

7. Check the toe-in of each trailing arm. Adjustment of the camber will also alter the toe-in, therefore it is necessary to adjust both settings until a satisfactory position is obtained.

Toe-in - To check (see Fig. H16m)

1. Mount the crossmember on a surface table as shown in figure H14m.

2. Mark a centre line between the centre of the rear crossmember and the final drive crossmember.

3. Place a straight edge across the hub mounting tubes to give the equivalent of the road wheel rim diameter.

With the aid of a set square positioned 216 mm. (8.20 in.) from the centre line of the hub nut mounting tubes (see Fig. H16m), measure the distance from the base of the square to the centre line on the table.

4. Repeat the measurement from the other side of the hub centre line.

5. Compare the measurements taken on each side of the hub.

The toe-in reading for one wheel to the centre line on the surface table should be between 1,35 mm. and 1,8 mm. (0.053 in. and 0.071 in.).

If the toe-in is incorrect adjust the outer trailing arm mounting point in the crossmember then tighten the centre bolt.

Adjustment to the toe-in will also alter the camber, therefore it is necessary to adjust both camber and toe-in until a satisfactory position is obtained.

6. Repeat the procedure for the other trailing arm until a satisfactory reading of camber and toe-in for both wheels is obtained.

The maximum permissable toe-in differential between each side of the car is 0,38 mm. (0.015 in.).

7. On completion, torque tighten the centre bolts to the figures quoted in Chapter P. Repeat the toe-in and camber checks.

8. Secure the outer location plates in position. It will be necessary to drill two 4 mm. (0.156 in.) diameter holes in each crossmember bracket to accept the self-tapping securing screws.

Front hubs

Front hub - To remove

1. Apply the parking brake and chock the rear wheels.
2. Depressurize the hydraulic systems as described in Chapter G.
3. Remove the wheel trim from the respective wheel and slacken the wheel nuts.
4. Carefully position a jack below the triangle lever and raise the wheel from the floor. Position a sill block beneath the front end of the body sill to support the car.
5. Remove the road wheel.
6. Disconnect the brake caliper pipes at the flexible hose mounting plate connection. Fit blanks to the pipe ends.
7. Remove the brake caliper mounting bolts and withdraw the calipers off the brake disc.
8. Carefully remove the hub dust cap.
9. Break the sealing band and remove the split pin, castellated nut, and keyed washer from the stub axle.

Note

The right-hand stub axle nut has a right-hand thread and the left-hand stub axle nut a left-hand thread.

10. Withdraw the hub assembly from the stub axle.
11. Retain the chamfered distance piece.
12. Inspect the brake disc for wear and scoring.

Front hub - To dismantle

1. Remove the inner race from the outer bearing.
2. Using a screwdriver, prise the seals from the rear of the hub. Remove the seal protector and inner bearing race.
3. If new bearings are to be fitted, drive out the bearing outer races from the hub using a soft metal drift.
4. Thoroughly clean the hub and any serviceable components.
5. If it is necessary to remove the brake disc from the hub, reference should be made to Chapter G.

Front hub - To assemble (see fig. H5-1)

1. Press the new bearing races squarely into the hub with the smaller end of the taper leading. Ensure that the bearing races are fully seated on the rear shoulders of the hub.
2. Lubricate the new roller bearings and inner races with approved grease. Fit the rear bearing into the hub.
3. Fit the seal protector with the protective flange towards the bearing.
4. Carefully press the two seals into position. The seals should be fitted back to back with the spring side of the outer seal facing outwards.
5. Pack 42.5 g (1.5 oz) of approved grease onto the inner walls of the hub.
6. Fit the roller bearing and inner race previously greased, into the outer bearing race.

Note

Always ensure that the bearings are retained with their respective outer races as they are supplied in matched sets.

Front hub - To fit

1. Fit the internally tapered distance piece onto the stub axle with the taper towards the yoke (see fig. H5-1).
2. Taking care not to damage the hub seals, position the hub on the stub axle.
3. Fit the key washer and castelled nut. Gradually tighten the nut until the bearing end float is removed. Using a dial test indicator adjacent to the brake disc check the run-out of the disc at the maximum radius; this must not exceed 0.102 mm (0.004 in) total indicator reading.

Note

The reading obtained is a measure of the tolerances of all the components and if the run-out figure exceeds the limit, the hub should be dismantled and the cause investigated.

4. Slacken the castellated nut sufficiently to give an end-float reading of between 0.051 mm and 0.102 mm (0.002 in and 0.004 in) on a dial test indicator.

Rotation of the hub during this operation is essential to ensure that the taper rollers seat correctly and a true reading is obtained.

5. When the end-float is correct, unscrew the castelled nut the minimum amount to allow the insertion of the split pin.

Again measure the end-float. Subtract the original end-float reading from this new reading and add the remaining amount to the thickness of the key washer being used. The addition of these two figures gives the correct thickness of key washer to be fitted on the stub axle.

Key washers are provided in thicknesses of 3.51 mm and 3.56 mm (0.138 in and 0.140 in).

Incorrect setting of the bearings will result in premature bearing wear.

6. With the correct thickness of key washer fitted, insert a split pin which has been twisted to give a 90° turn to the head. Pass the sealing band through the split pin head, round the nut, and over the split pin legs.

Carefully tap the split pin fully into position then crimp the sealing band ends to secure it around the nut. Finally bend back the split pin legs around the nut.

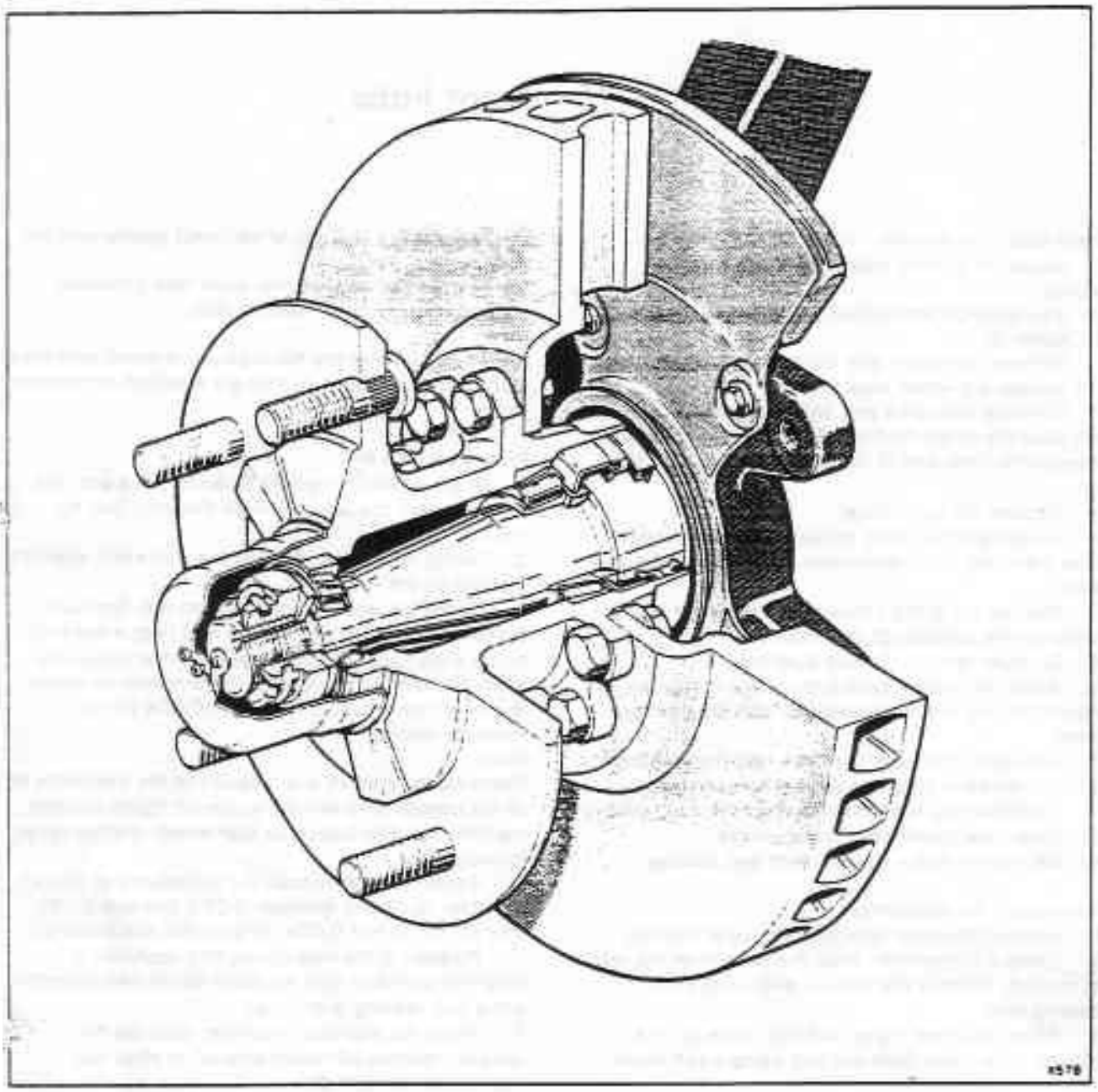


Fig. H5-1 Front hub assembly

7. Smear approximately 14 g (0.5 oz) of approved grease into the base of the dust cap. Ensure the earthing strip in the cap is in the correct position to make contact with the end of the stub axle when the cap is fitted. Fit the cap by tapping it onto the hub with a nylon mallet.
8. Fit the brake calipers, road wheel, etc. by reversing the removal procedure.
9. Bleed the braking system as described in Chapter G.

Note

New brake discs are treated with a protective film. When a new disc has been fitted, the brakes should be gently applied until the protective film has been removed from the working surface of the disc.

If only one front brake disc has been renewed, the car will gently pull to the side opposite the new disc until the protective film has been removed.

Section H5m

General Dimensions

The illustrations in this section are provided to assist in assessing accident damage to the sub-frame and suspension components.

If damage is suspected the suspension should be checked prior to the removal of components for dimensional examination.

If damage to the sub-frames is confirmed, the removal of the complete sub-frame unit will be necessary, for details refer to Section H1m.

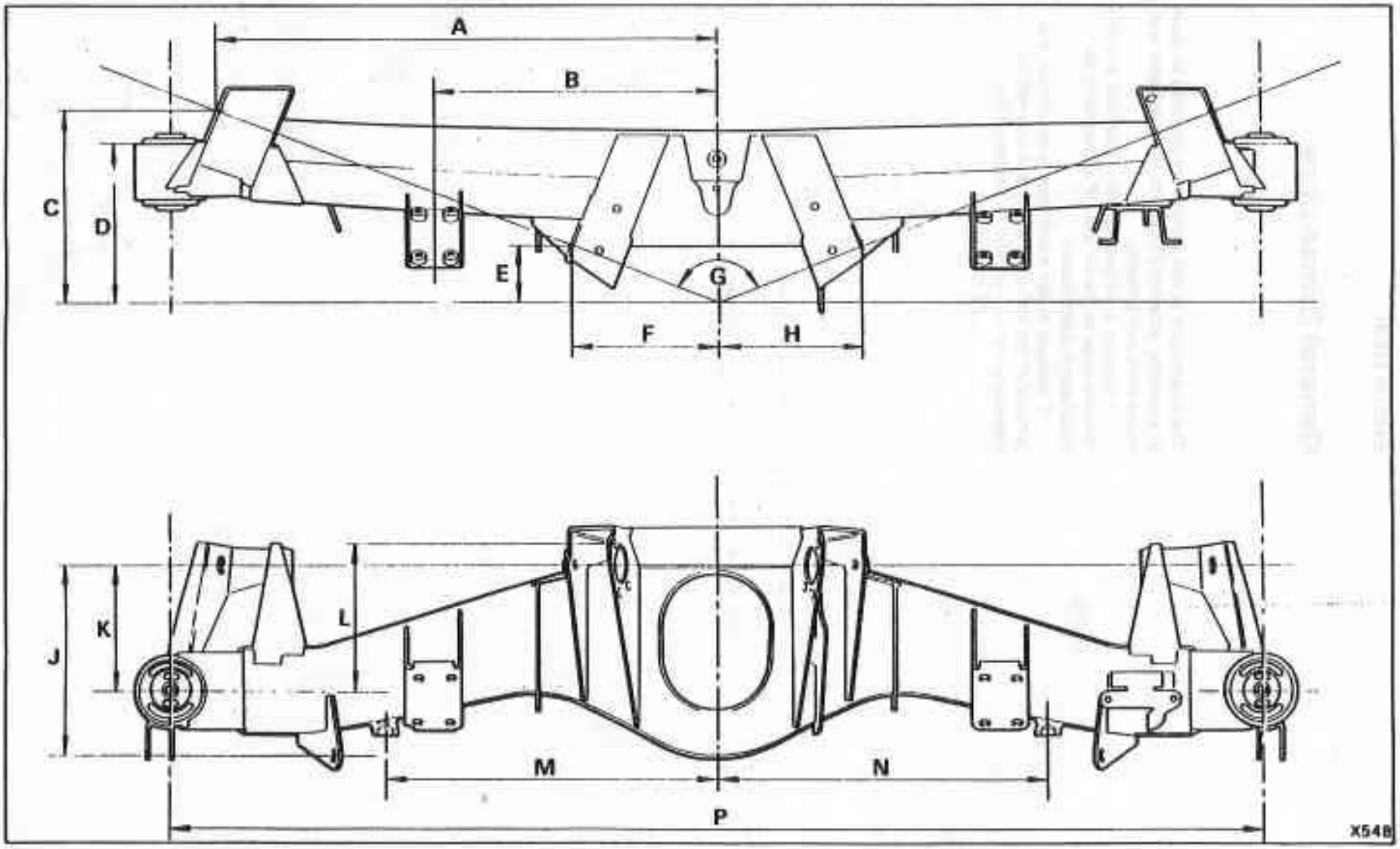


Fig. H17m Rear crossmember

A	535,46 mm. (21.081 in.)	**F**	355,60 mm. (14.000 in.)	**L**	152,40 mm. (6.000 in.)
B	304,80 mm. (12.000 in.)	**G**	136° 43'28"	**M**	355,60 mm. (14.000 in.)
C	212,42 mm. (8.383 in.)	**H**	355,60 mm. (14.000 in.)	**N**	355,60 mm. (14.000 in.)
D	177,87 mm. (7.003 in.)	**J**	203,20 mm. (8.000 in.)	**P**	1172,72mm. (46.170 in.)
E	61,62 mm. (2.426 in.)	**K**	134,92 mm. (5.312 in.)		

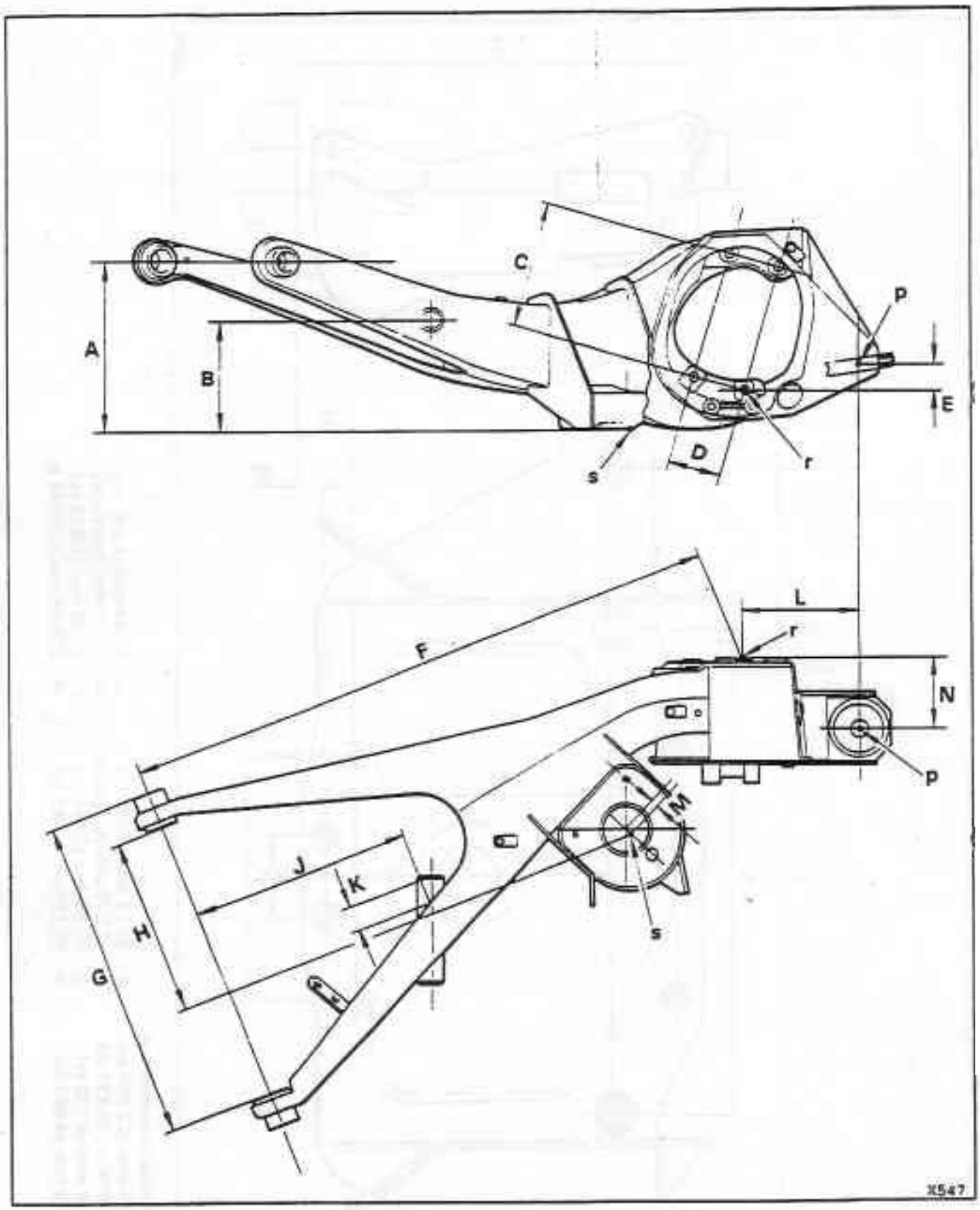


Fig. H18m Trailing arms (right-hand shown)

A	210,50 mm. (8.287 in.)	**H**	224,50 mm. (8.839 in.)
B	135,50 mm. (5.334 in.)	**J**	271,75 mm. (10.699 in.)
C	160,66 mm. (6.325 in.)	**K**	31.00 mm. (1.220 in.)
D	63,50 mm. (2.500 in.)	**L**	143,75 mm. (5.659 in.)
E	36,00 mm. (1.417 in.)	**M**	7,14 mm (0.281 in.)
F	747,20 mm. (29.417 in.)	**N**	86,30 mm. (3.398 in.)
G	407,70 mm. (16.051 in.)		p.r.s. reference points

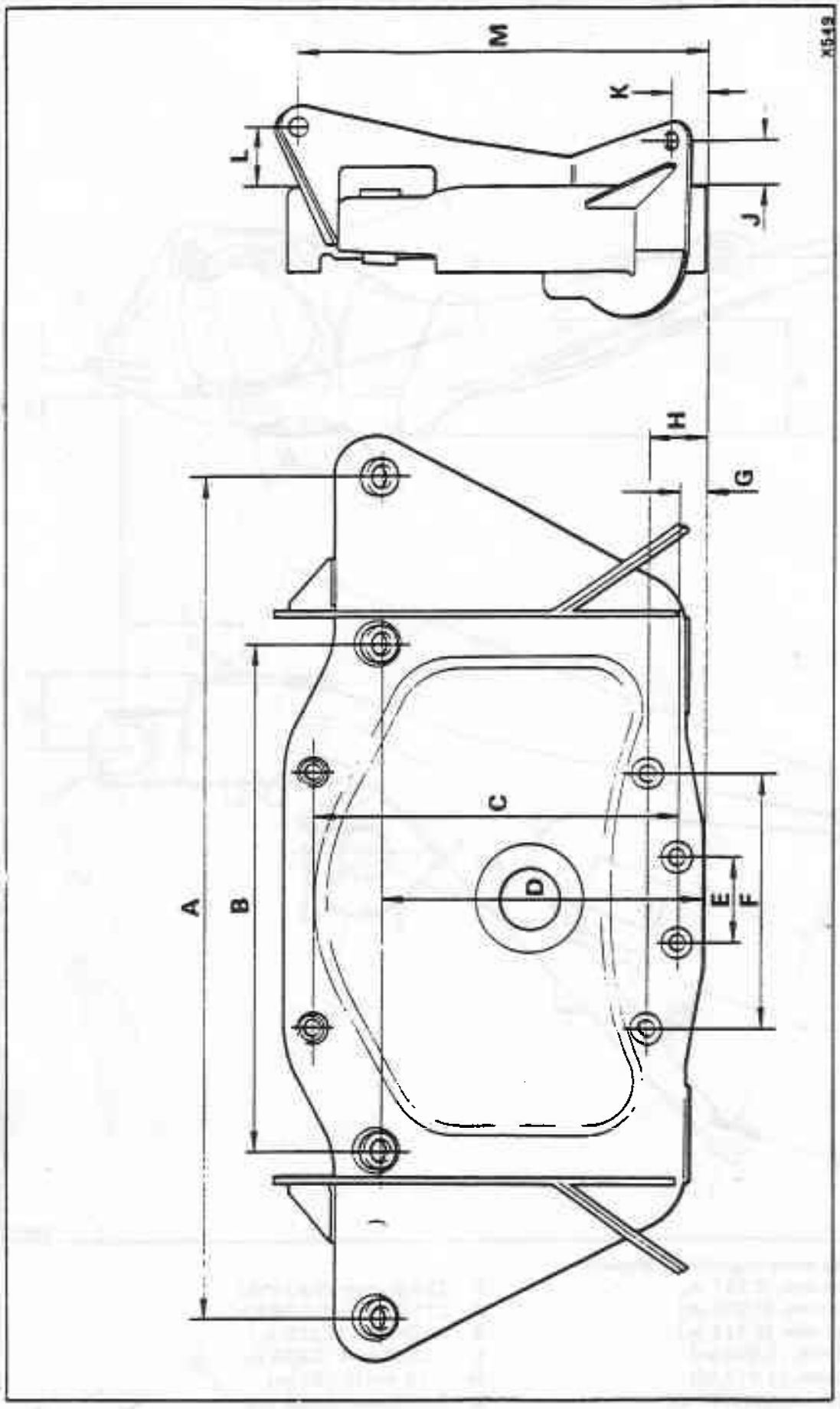


Fig. H19m Final drive crossmember

A	585,15 mm. (22.250 in.)	E	57,15 mm. (2.250 in.)	J	32,54 mm. (1.281 in.)
B	341,30 mm. (13.437 in.)	F	171,45 mm. (6.750 in.)	K	22,22 mm. (0.875 in.)
C	247,02 mm. (9.725 in.)	G	17,45 mm. (0.687 in.)	L	41,28 mm. (1.625 in.)
D	219,89 mm. (8.657 in.)	H	37,77 mm. (1.487 in.)	M	275,44 mm. (10.844 in.)

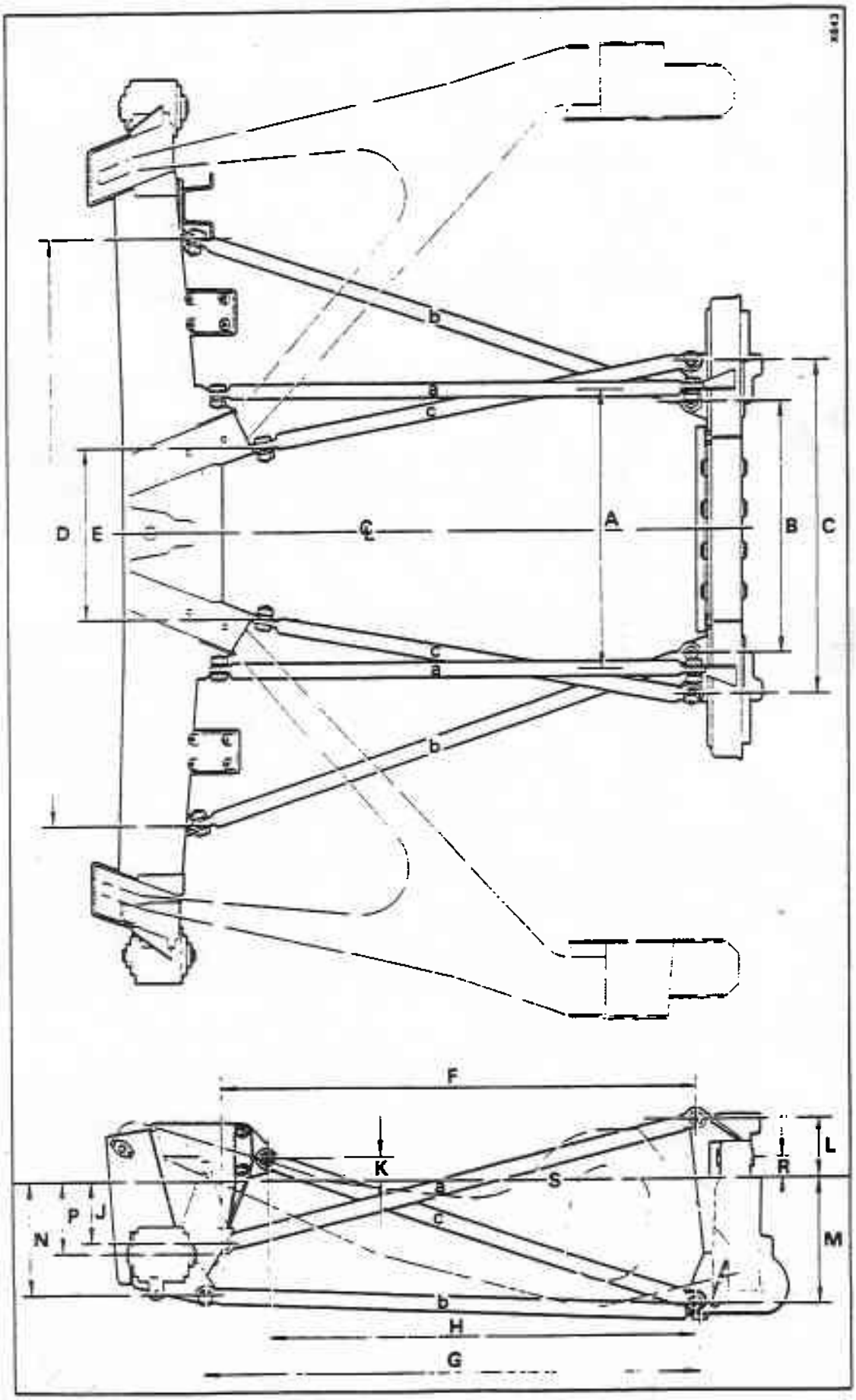


Fig. H20m Rear sub-frame assembly

A	381,00 mm. (15.00 in.)	F	655,65 mm. (25.813 in.)	L	76,20 mm. (3.00 in.)
B	350,52 mm. (13.80 in.)	G	690,58 mm. (27.188 in.)	M	177,80 mm. (7.00 in.)
C	482,60 mm. (19.00 in.)	H	577,04 mm. (22.718 in.)	N	165,10 mm. (6.50 in.)
D	819,15 mm. (32.250 in.)	J	91,44 mm. (3.60 in.)	P	96,82 mm. (3.812 in.)
E	233,68 mm. (9.20 in.)	K	22,23 mm. (0.875 in.)	R	19,63 mm. (0.773 in.)

S Horizontal datum line
a Frame tube
b Frame tube
c Frame tube

Front suspension settings

Introduction

When the suspension has been partially or fully dismantled, the standing height of the car should be checked. This height is the vertical distance measured between the machined locating pads on the underside of the front sub-frame and the centre line of the triangle lever ball pin carrier securing bolt (see fig. H6-1).

To allow the suspension to settle after assembly, drive the car back and forth before carrying out the standing height checks.

Standing height - To check

1. The height must be checked with a full tank of fuel. If however, the tank is partially empty, weight equivalent to the amount of missing fuel should be positioned adjacent to the fuel tank.

For each 4,5 litres (1 Imp gal, 1.2 US gal) of missing fuel add 3,4 kg (7.5 lb) of weight.

2. Ensure that the spare wheel, jack, tools, and accessories are fitted in their relevant positions.
3. Check the tyre pressures and correct if necessary.
4. Drive the car onto a suitable level ramp and chock the rear wheels.
5. Move the gear range selector lever to the P Park position. Remove the gear change isolator from the fuseboard.

Release the parking brake.

6. Start and run the engine. Allow the hydraulic systems to fully pressurize.
7. Disconnect both height control valve links at the ball joints on the trailing arms.
8. Simultaneously raise both control valve links approximately 40 mm (1.5 in) and allow the car to level.

Note

There should be a delay before the car starts to level after raising the control valve links. This delay can vary with different cars and variations in engine speed. Always allow approximately two minutes for the levelling process to be completed.

9. Slowly pull down both control valve links approximately 25 mm (1.0 in) to exhaust the hydraulic pressure from the rear suspension struts. Allow three minutes for the car to stabilize.
10. Measure the standing height from the level surface on which the car stands, to the face of the front sub-frame locating pads. These pads are situated on the underside of the sub-frame adjacent to the front mounts (see fig. H6-1 dimension A).
11. Measure from the level surface to the centre of the bolt fitted through the lower ball pin carrier (see fig. H6-1 dimension B).

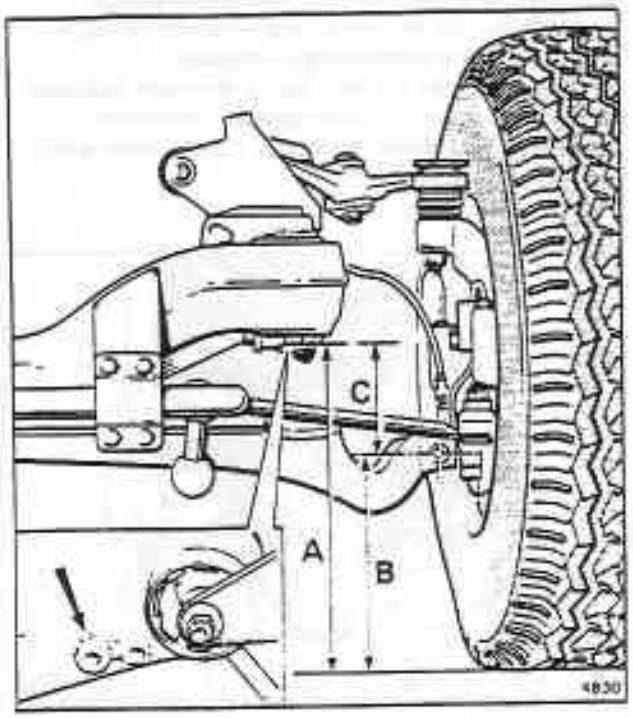


Fig. H6-1 Front height setting

A Floor to sub-frame location pad
B Floor to centre line of triangle lever bolt
C Height setting measurement A minus B
Inset Sub-frame location pad

12. Subtract dimension B from dimension A. The difference between the two dimensions should be between 104 mm and 110 mm (4.1 in and 4.35 in). If the resultant dimension is outside this tolerance adjust the car standing height as described under Standing height - To adjust.

Standing height - To adjust

The car standing height is increased or decreased by altering the thickness of the collets fitted between the spring support collar and spring support plate. Refer to Section H3 for collet thickness information.

1. Fit the support plate halves of the road spring retention tool RH 8809, around the lower section of the damper and secure them together.

Insert the four long studs of the tool through the upper spring plate and screw them securely into the tool support plate. Fit the special nuts, thrust races, and washers to the top of each stud.

Warning
Always examine the spring retention tool components for signs of thread wear or damage prior to its use. If you have doubts concerning any parts of the tool and their ability to withstand spring load you should renew those parts.

It is recommended that the use of the tool is restricted to a maximum of 200 applications.

Always take extreme care when handling a road spring in a compressed condition.

2. Evenly tighten the four spring retention tool nuts to retain the spring in its compressed condition.
3. Place a jack under the centre triangle lever pivot and slowly raise the car.

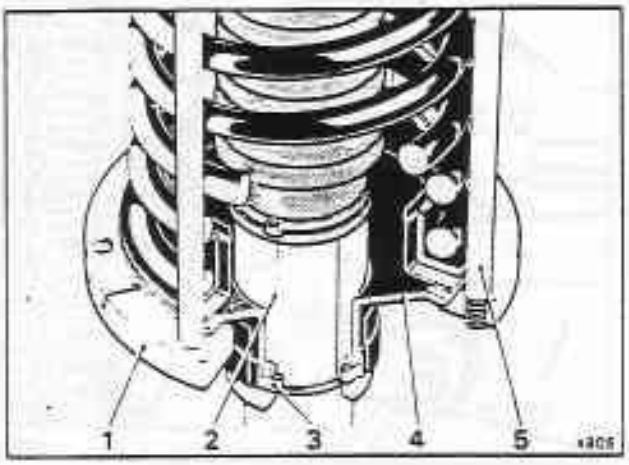


Fig. H6-2 Front height adjustment
1 Spring retention tool support plate
2 Spring support collar
3 Adjustment collets
4 Spring support
5 Retension tool stud (4)

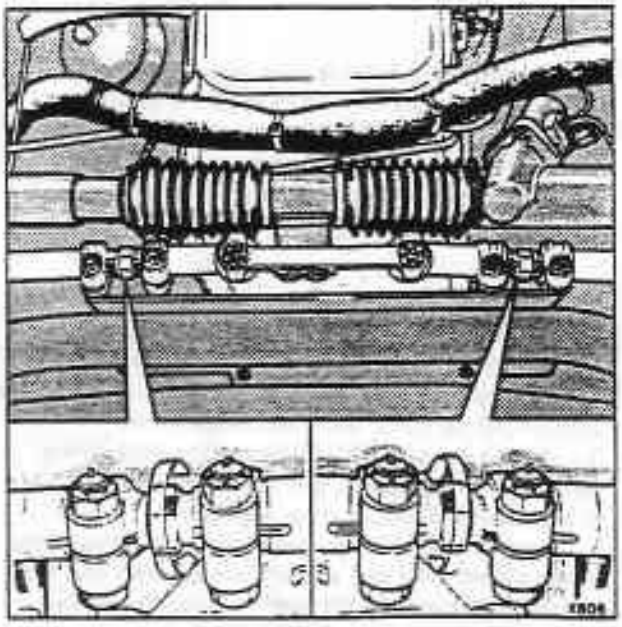


Fig. H6-3 Track rod toe-in adjustment

This operation will allow the spring support collar to be drawn from the spring support plate, exposing the adjustment collets.

When the collets are exposed support the car body on sill blocks then carefully remove the collets.
4. Select the thickness of collets required to obtain the correct car standing height.

Do not fit collets totaling more than 25.4 mm (1.0 in) in thickness.

A packing washer 6.35 mm (0.250 in) thick gives a change in car height of approximately 9.50 mm (0.375 in).
5. Smear the collets with grease to hold them in position on the damper. Always ensure that the thinnest collets are fitted to the top of the selection (see fig. H6-2).
6. Remove the sill blocks and carefully lower the car ensuring that the collets enter the spring support plate correctly.
7. Remove the jack and lower the ramp to the ground.
8. Roll the car back and forth until the wheels attain a stable camber, then check the standing height again as described previously.

Steering and suspension geometry

Front wheel toe-in	0° 12' ± 5'
Camber angle	0° 30' negative ± 15'
Caster angle	3° 0' ± 30'

Maximum caster variation from side to side 0° 30'

Front wheel toe-in - To adjust
1. With the car standing height correctly adjusted, position the car on a level surface. Set the steering in the straight ahead position.
2. Move the car forward a half revolution of the road wheels. Moving the car backward will give a false reading.
3. Set the optical equipment onto the front wheels following the manufacturers instructions and take a reading.
4. Remove the equipment and move the car forward a further half a revolution of the road wheels. Take a second reading.

An average of the two readings will give the toe-in figure.
5. If adjustment is necessary, slacken the pinch bolts securing the track rod adjusters (see fig. H6-3). Rotate the adjusters to bring the wheels into the straight ahead position (zero toe-in).
6. Rotate the adjusters by equal amounts to give an overall toe-in figure of between 0° 7' and 0° 17'.
7. Tighten the pinch bolts then check the tow-in as described in operations 1 to 4 inclusive.
8. When the toe-in is correct torque tighten the pinch bolts to the figure quoted in Section H12 and fit new split pins.

Caster and camber angles - To adjust
The caster and camber angles must be checked at the same time as adjustment of one affects the other.
1. Drive the car onto a ramp setting the front wheels

on turntables. Place blocks beneath the rear wheels to maintain the car on a level plane. Chock the rear wheels.

2. Ensure the car standing height is correct.

3. Fit suitable checking equipment to the wheel and check the caster and camber angles in accordance with the equipment manufacturers instructions.

4. **Caster angle**

To adjust the caster angle, move the compliance rod in or out of the compliance mount using the clamping nuts on the rod (see fig. H4-5). Slacken the compliance rod jaw bolt sufficiently to allow the jaw to pivot on the compliance arm during adjustment.

5. **Camber angle**

To adjust the camber angle, release the eccentric bolt on which the compliance arm pivots. Turn the bolt until the correct camber angle is obtained.

Note

The arrow stamped on the bolt head (see fig. H4-5) should always point below the centre line of the bolt.

6. Check the caster angle again to ensure that the adjustment of the camber angle has not altered the caster angle out of the required limits.

Torque tighten the bolts and nuts to the figures quoted in Section H12 before carrying out the final checks.

7. Carry out the same adjustment procedure on the other front wheel.

The maximum caster variation allowed between each side of the car is 0° 30'.

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.
2. Depressurize the hydraulic systems as described in Chapter G.
3. Move the gear range selector lever to the N Neutral position.
4. Disconnect the battery.

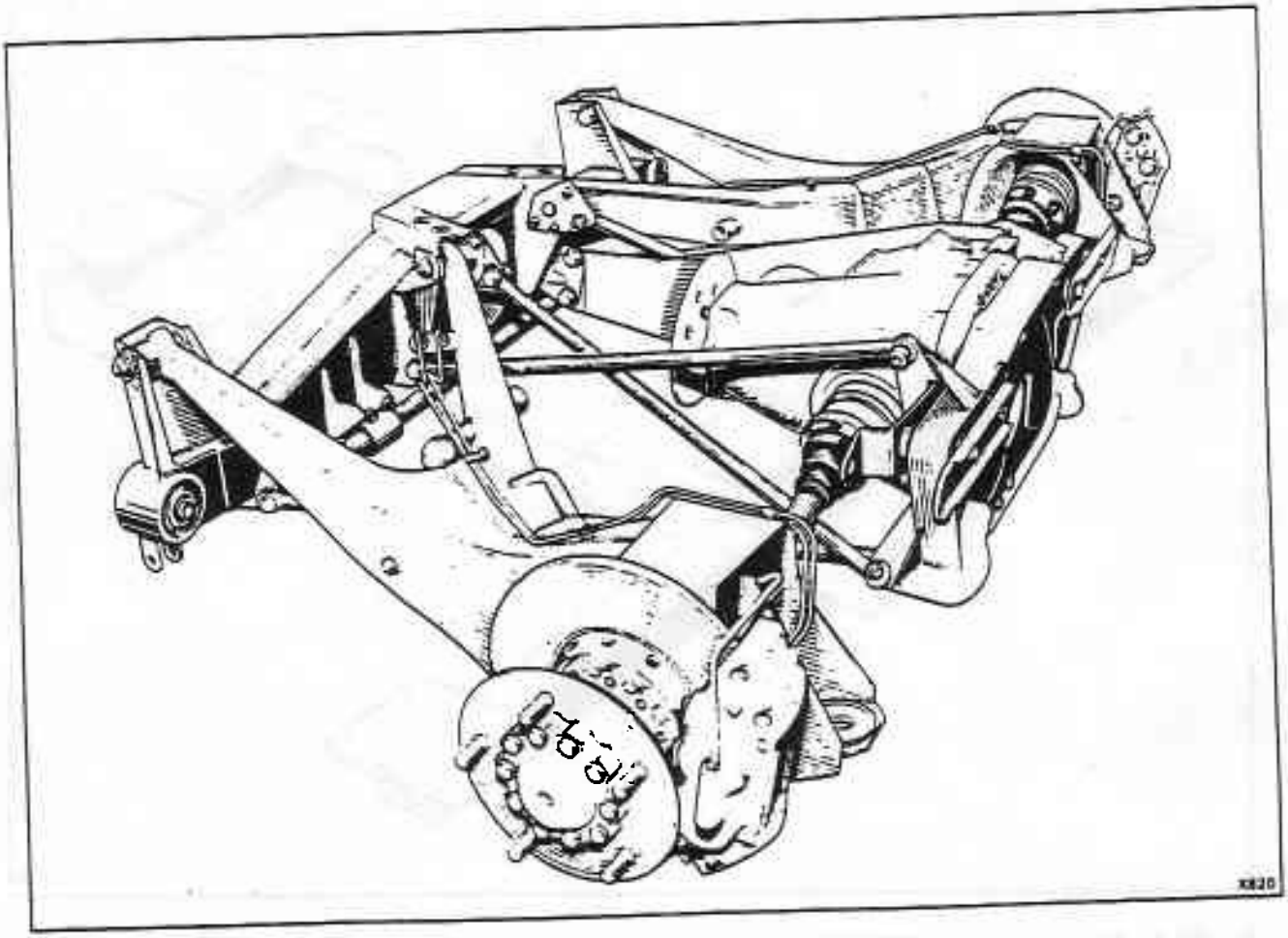


Fig. H7-1 Rear sub-frame and associated components

TSD 4400

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 H9.
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. On cars with the petrol pump mounted on the rear crossmember, disconnect the 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 H7-2 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 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

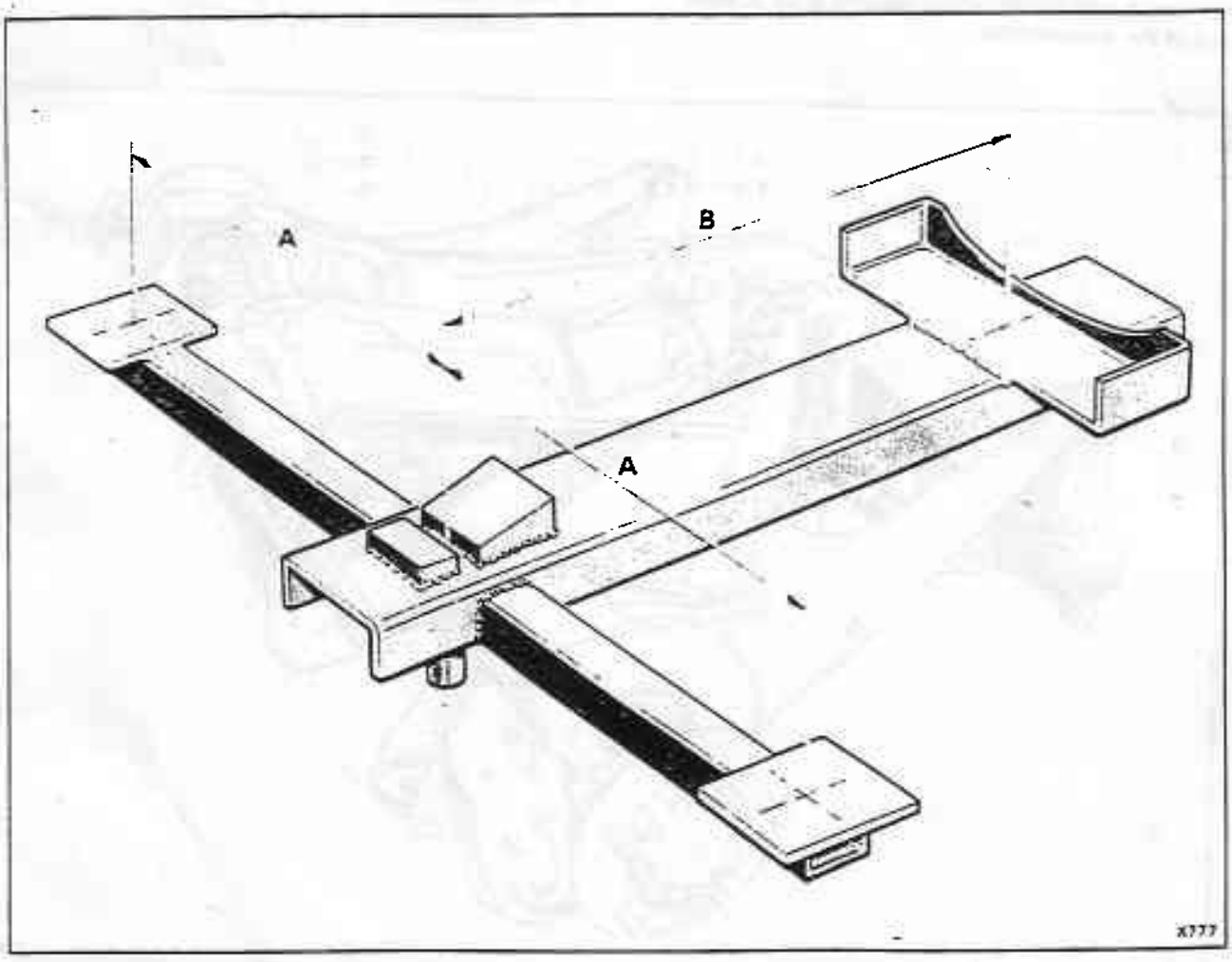


Fig. H7-2 Rear sub-frame removal jig general dimensions
A 650 mm (25.60 in) B 585 mm (23.00 in)

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. H2-15).

   These measurements must be equal to within 1,60 mm (0.062 in).
3. Check the rear crossmember setting (see fig. H8-3) as described in Section H8 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.
7. Check the standing and levelled height as described in Section H10 and Chapter G Section G12.
8. Torque tighten all nuts and setscrews to the figures quoted in Section H12 and 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.
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 (see fig. H7-3). With the jury bolt in position, replace the damper from the other end of the crossmember with a jury bolt.

   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.

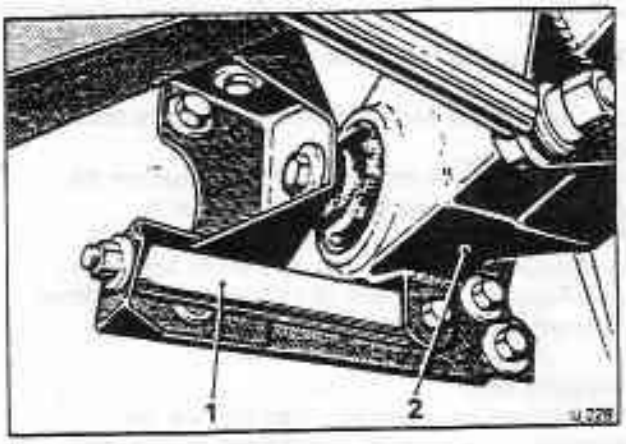


Fig. H7-3 Jury bolt in position

1 Jury bolt
2 Rear crossmember

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.

Rear sub-frame mounts and stabilizer

Introduction

The rubber sub-frame mounts can be renewed with the sub-frame in position. Always ensure when carrying out the renewal operations that all suspension load is removed from the sub-frame and that the frame tubes are not put under stress.

Never use the frame tubes to support or lift the sub-frame.

Warning

Always examine the spring retention tool RH9299 for signs of thread wear or damage prior to its use. Renew the tool if necessary.

Rear crossmember mounts - To renew (sub-frame in position)

1. Drive the car onto a ramp and chock the front wheels.
2. Move the gear range selector to the P Park position.
3. Depressurize the rear suspension struts as described in Chapter G.
4. Screw a compression tool RH9299 into each bell shaped spring support to retain the springs in their compressed condition.
5. Place a jack under the final drive and raise the rear of the car. Support the body on sill blocks.
6. Support the trailing arms with jacks. Raise the trailing arm sufficiently to allow the mount extractor to be fitted into position on the rear crossmember.
7. Remove the small damper fitted below the rear crossmember.
8. Scribe around the edges of the body bracket to assist in correctly positioning the bracket on assembly.
9. Support the rear crossmember with a jack positioned near to the end of the crossmember. Remove the nut and washer from the long bolt fitted through the rubber mount. Adjust the supporting jack to allow the bolt to be easily withdrawn.
10. Remove the setscrews securing the mounting bracket to the body. Carefully slide the bracket down between the body and the rear crossmember.
11. Position the extraction components of tool

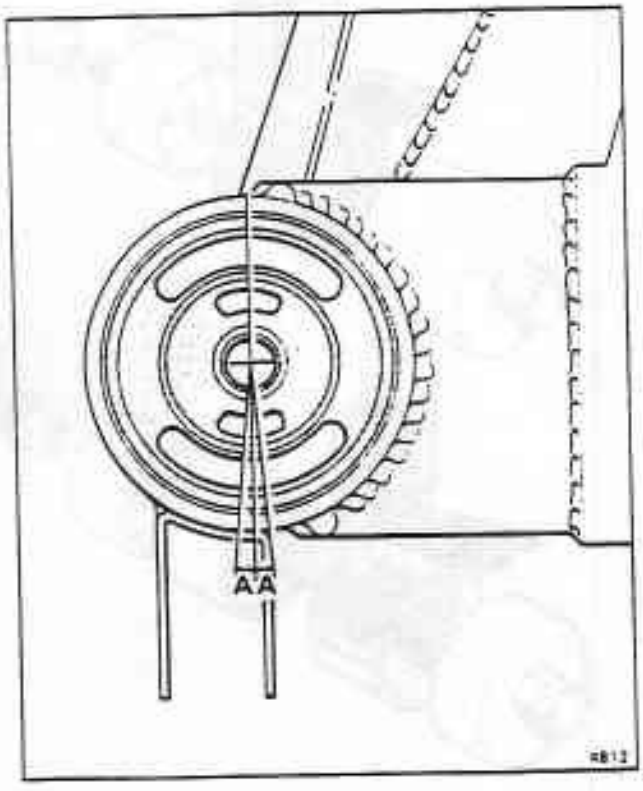


Fig. H8-1 Rear crossmember mount alignment
A Holes to be within 5° of vertical centre line

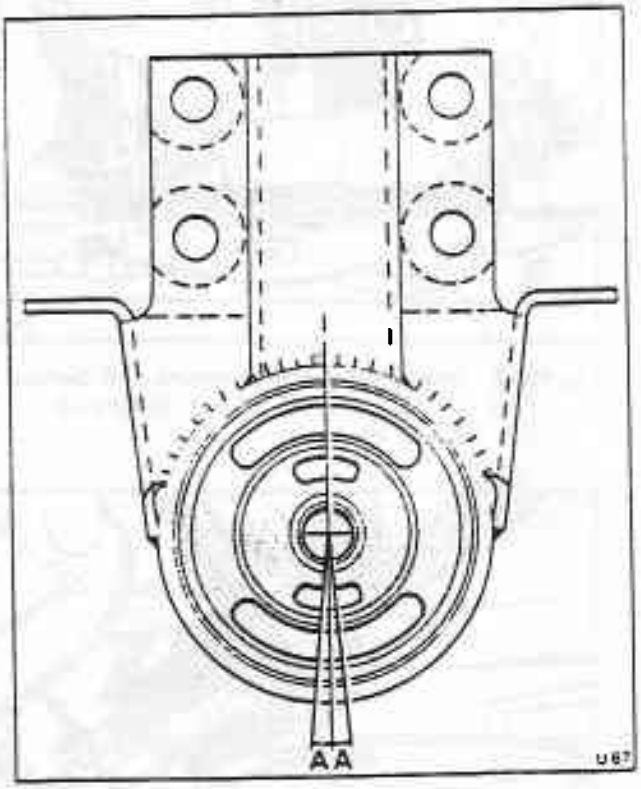


Fig. H8-2 Final drive mount alignment
A Holes to be within 5° of vertical centre line

RH9291 onto the mount (see fig. H8-5). Tighten the draw bar until the mount is withdrawn from the crossmember. Remove the old mount and the extraction cup from the tool.
12. Check that the bore and rim of the housing are free from burrs and damage. Lightly lubricate the bore with Molytone C or equivalent grease.
13. Locate a new mount in position on the crossmember. Fit tool RH9291 using the insertion components. Ensure that the slots in the rubber of the mount are positioned as shown in figure H8-1. Tighten the tool draw bar to draw the new mount into the sleeve of the crossmember until the mount is fully inserted. Remove the tool.
14. Remove any grease that may have been deposited on the rubber of the mount using a soap solution and water.
15. Slide the mounting bracket between the body sill and the crossmember. Position the bracket to the lines scribed in Operation 8 then torque tighten the setscrews.
16. Fit the long mounting bolt with the washers positioned as shown in figure H8-3.
17. Release the compression tool retaining the spring.
18. Remove the jacks and sill blocks.
19. Check the distance between the large buffer washer and the edge of the crossmember sleeve. This dimension should be between 10,16 mm and 12,07 mm (0.40 in and 0.475 in). If this dimension is incorrect adjust the mounting bracket to obtain the correct clearance.
20. Fit the small sub-frame damper.
21. Torque tighten all nuts and setscrews to the figures quoted in Section H12 and Chapter P.

Final drive crossmember mounts - To remove (see fig. H8-4)

1. Drive the car onto a ramp and chock the rear wheels.
2. Move the gear range selector lever to the P Park position.
3. Remove the spare wheel from its carrier, then raise the carrier.
4. Support the final drive unit with a jack.
5. Before removing any of the mount components, scribe lines around the washers on the mounting plates connecting the final drive crossmember to the rubber mounts. These lines will assist in correctly locating the components and centralizing the final drive upon assembly.
6. To remove the right-hand mount, remove the two mounting plates connecting the final drive crossmember to the rubber mount. On cars other than the Mulsanne Turbo access to the bolts is provided

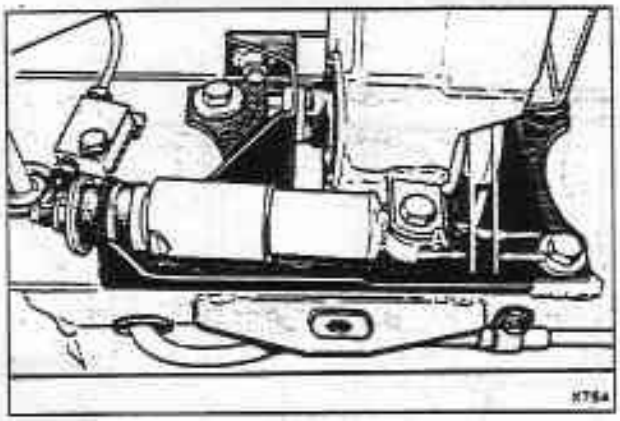


Fig. H8-3 Rear crossmember mount and damper
A 10,60 mm to 12,07 mm (0.40 in to 0.475 in)

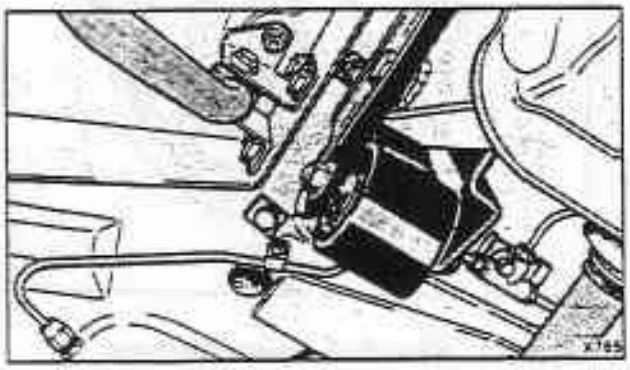


Fig. H8-4 Final drive crossmember mount (left-hand shown)

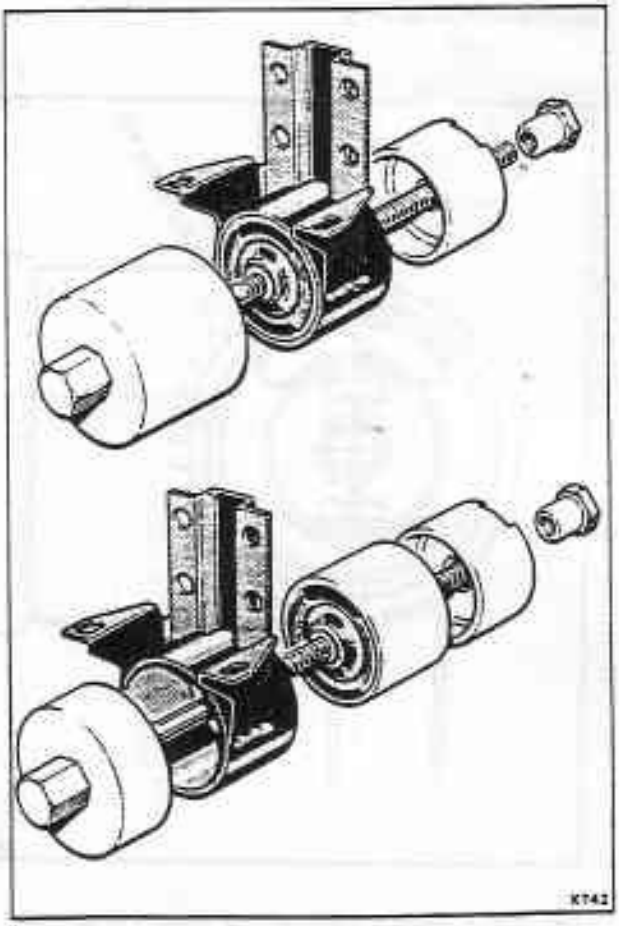


Fig. H8-5 Mount extraction and insertion tool

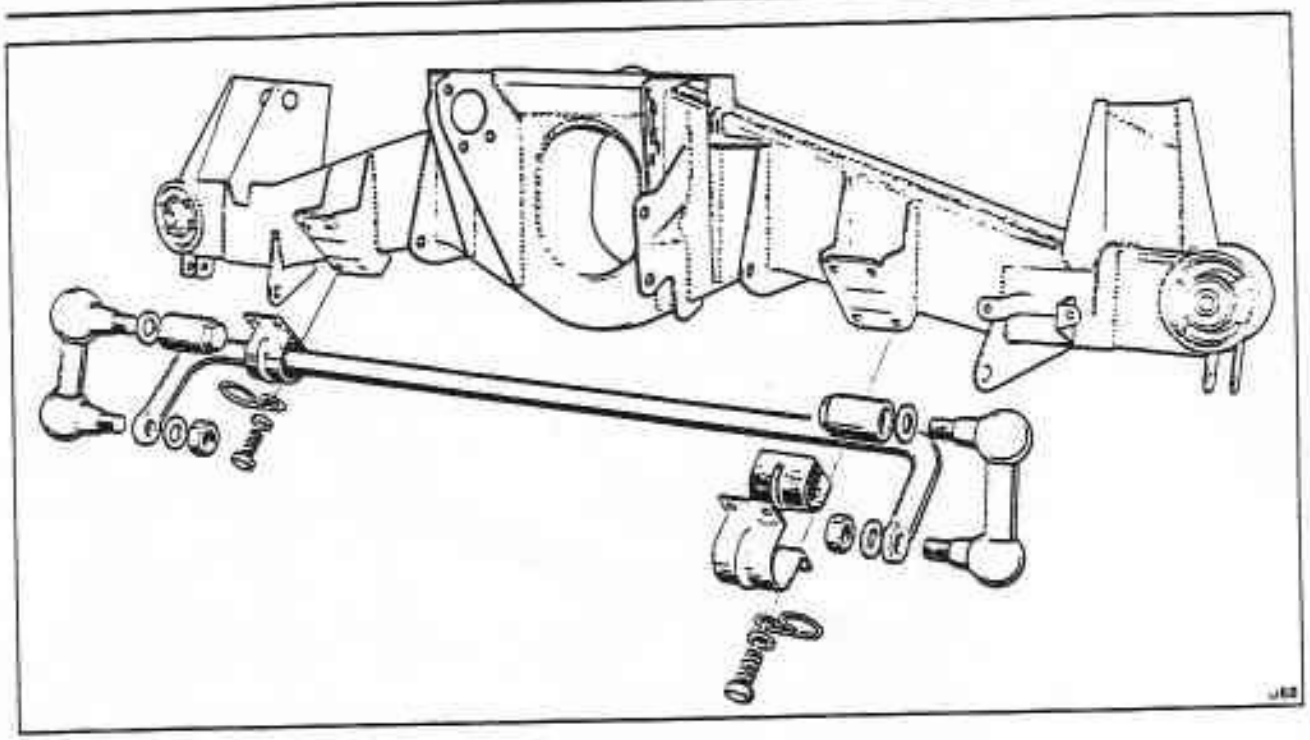


Fig. H8-6 Rear stabilizer components

through holes in the front face of the luggage compartment stowage well, by removing two grommets.

7. Remove the two setscrews and four nuts and bolts to release the mount from the body. On cars other than Mulsanne Turbo, the four bolts are fitted through the front face of the luggage compartment stowage well.

On Mulsanne Turbo cars, two of the bolts also secure the exhaust mounting bracket. On these cars support the exhaust system during bolt removal, then replace the bolts to support the exhaust system when the crossmember mount has been removed.

8. To remove the left-hand mount (see fig. H8-4), remove the two mounting plates connecting the final drive crossmember to the rubber mount.

9. Remove the two setscrews and four nuts and bolts securing the mount. This will also release part of the spare wheel support bracket.

10. Remove the mount, then replace the bolts to support the spare wheel carrier bracket.

11. Remove the mount from its housing using the extraction components of tool RH9291 (see fig. H8-5).

12. Check that the bore and rim of the housing are free from burrs and damage. Lightly lubricate the bore with Molytone C or equivalent grease.

13. Fit a new mount into the housing using the insertion components of tool RH9291 (see fig. H8-5). Ensure that the slots in the mount are positioned as shown in figure H8- 2.

14. Remove any grease that may have been deposited on the rubber of the mount using a soap solution and water.

15. Fit the mounts to the body by reversing the removal procedure.

16. Torque tighten the setscrews and nuts to the figures quoted in Section H12 and Chapter P.

17. Ensure that the rubber grommets are fitted into the front face of the luggage compartment stowage well when applicable.

Rear stabilizer bar - To remove (see fig. H8-6)

1. Slacken, but do not remove the reach nuts which secure the stabilizer links to the trailing arms.

2. Using a hammer and a soft metal drift placed on the reach nut, separate the stabilizer link tapers from the trailing arms. Remove the reach nuts.

3. Remove the brackets attaching the stabilizer mounting bushes to the crossmember.

4. Remove the stabilizer bar and rubber mounting bushes.

5. To remove the stabilizer links from the stabilizer bar repeat Operations 1 and 2.

Rear stabilizer - To fit

Fit the stabilizer by reversing the removal procedure noting the following.

1. Examine the stabilizer mounting bushes and links for serviceability. Renew if necessary.

2. Loosely assemble the links into the trailing arms.

3. Fit the stabilizer onto the links then secure the stabilizer bar onto the crossmember. Fit the brake cable support clips on the lower setscrews.

4. Torque tighten the link nuts to the figures quoted in Section H12.

Rear road springs

Introduction
The rear road spring assembly comprises of a road spring, upper and lower bell shaped support, adjusting rings, and pliable spring seats. The adjusting rings, are each 1.22 mm (0.048 in) thick and are used to obtain the correct spring load and car ride height. Each ring is equivalent to a spring load increase of 3,63 kgf (8 lbf) and will increase the car height by approximately 1,778 mm (0.070 in).

Warning
Always examine the spring retention tool RH9299 for signs of thread wear or damage prior to its use. Renew the tool if necessary.

Rear road spring - To remove
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. Support the final drive unit with a jack.
4. Insert spring retention tool RH9299 through the centre of the lower spring support. Screw the tool fully into the upper spring support.
5. Lift the rear of the car until the suspension is in the full rebound position. Position sill blocks beneath the car sills to support the body.
6. Carefully manoeuver the spring from its seat and remove it from between the trailing arm and the body.
7. Remove the spring seats and adjusting rings from the spring.

Note
On the majority of Corniche and Continental cars conforming to a North American specification an additional spacer and seat are fitted beneath the normal spring seat and adjusting rings (see fig. H9-1).

8. Remove the two dowels from the baseplate of the spring compression tool RH 7909 and fit adapter block RH 9504.

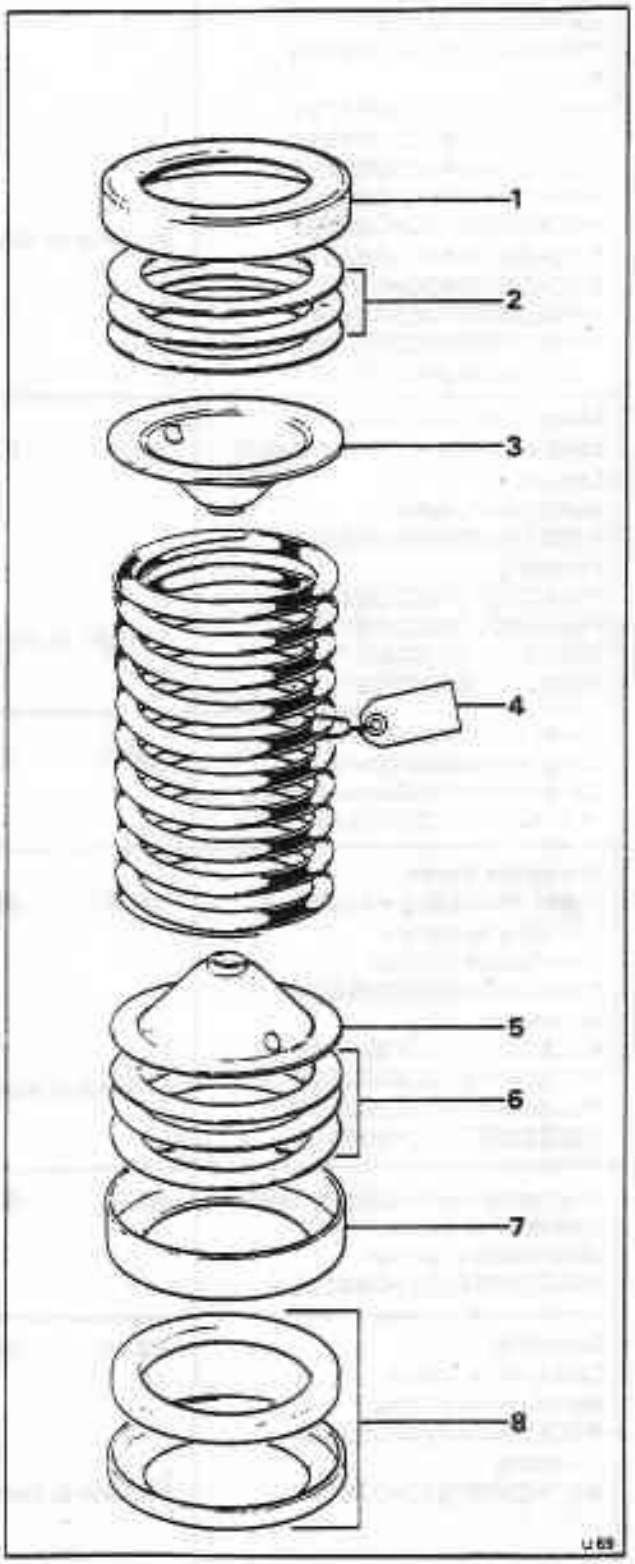


Fig. H9-1 Rear road spring assembly
1. Pliable spring seat
2. Adjusting rings
3. Upper spring support (threaded centre)
4. Spring loading label
5. Lower spring support
6. Adjusting rings
7. Pliable spring seat
8. Special 8,89 mm (0.350 in) thick spacer and shortened, pliable spring seat *(Only fitted to Corniche/Continental cars conforming to a North American specification)*

Spring loading chart 1

	Cars other than those conforming to a North American specification			*Cars conforming to a North American specification*		
	N	kgf	lbf	N	kgf	lbf
Silver Spirit and Mulsanne Cars prior to vehicle identification number *SCAZS0002DCH06970* Excluding *SCAZS42A9DCX06572* *SCAZS0005DCH06882* *SCAZS0004DCX06921* *SCAZS0007DCH06950* *SCAZS0000DCH06952* *SCAZS0004DCH06954* *SCAZS0008DCH06956* *SCAZS0001DCH06958* *SCAZS000XDCH06960* SCAZS0003DCH06962*	5805	592	1305	5872	599	1320
Silver Spur and Mulsanne Long wheelbase (Non-division) Cars prior to vehicle identification number *SCAZN0004DCX06845* Excluding *SCAZN0001DCX06656* *SCAZN000XDCH06786* *SCAZN0003DCH06791* *SCAZN0002DCX06794*	5872	599	1320	5938	606	1335
Silver Spur and Mulsanne Long wheelbase (Division) Car vehicle identification number *SCAZL0007DCH06993*	5883	629	1385	5949	636	1400
Mulsanne Turbo (other than Long wheelbase) Cars prior to vehicle identification number *SCBZS0T00DCX06907* Excluding *SCBZS0T01DCX06639* *SCBZS0T01DCX06642* *SCBZS0T06DCX06803* *SCBZS0T0XDCH06867*	5805	592	1305	-	-	-
Mulsanne Turbo Long wheelbase Cars prior to vehicle identification number *SCBZN0T00DCH06872*	5872	599	1320	-	-	-
Corniche Cars prior to vehicle identification number *SCAZD42A5ECX07942* Excluding *SCAZD0005ECH07815*	6334	646	1424	6468	660	1454

Spring loading chart 2

	Cars other than those conforming to a North American specification			*Cars conforming to a North American specification*		
	N	kgf	lbf	N	kgf	lbf
Silver Spirit, Mulsanne, and Bentley Eight Cars from vehicle identification number *SCAZS0002DCH06970* Excluding *SCAZS0006DCX07004* *SCAZS0008DCX07005* *SCAZS0008DCX07022* *SCAZS000XDCX07023* *SCAZS0003DCX07025*	5316	542	1195	5383	548	1210
Silver Spur and Mulsanne Long wheelbase (Non-division) Cars from vehicle identification number *SCAZN0004DCX06845* Excluding *SCAZN0008DCH06852* *SCAZN0006DCH06994*	5383	548	1210	5449	556	1225
Silver Spur and Mulsanne Long wheelbase (Division) Cars from vehicle identification number *SCAZL0008DCH06856* Excluding *SCAZL0007DCH06993*	5672	578	1275	5738	585	1290
Mulsanne Turbo and Bentley Turbo R (other than Long wheelbase) Cars from vehicle identification number *SCBZS0T00DCX06907* Excluding *SCBZS0T06DCH06977* *SCBZS0T0XDCX07059*	5316	542	1195	-	-	-
Mulsanne Turbo and Bentley Turbo R (Long wheelbase) Cars from vehicle identification number *SCBZN0T00DCH06872*	5383	548	1210	-	-	-
Corniche/Continental Cars from vehicle identification number *SCAZD42A5ECX07942*	5845	596	1314	5996	612	1348

Refer to chart 1

Spring loading washer selection

Number of adjusting washers		1	2	3	4	5	6	7	8
Packing thickness	mm	1,22	2,44	3,66	4,88	6,09	7,31	8,53	9,75
	in	0.048	0.096	0.144	0.192	0.240	0.288	0.336	0.384
	N	36	75	107	142	178	214	249	285
Spring load	kgf	3,63	7,26	10,89	14,51	18,14	21,77	25,40	29,03
increase/decrease	lbf	8.0	16.0	24.0	32.0	40.0	48.0	56.0	64.0
Standing height	mm	1,78	3,56	5,33	7,11	8,89	10,67	12,45	14,22
increase/decrease	in	0.070	0.140	0.210	0.280	0.350	0.420	0.490	0.560
Number of adjusting washers		9	10	11	12	13	14	15	16
Packing thickness	mm	10,97	12,19	13,41	14,63	15,85	17,07	18,28	19,50
	in	0.432	0.480	0.528	0.576	0.624	0.672	0.720	0.768
	N	320	356	391	427	463	498	533	569
Spring load	kgf	32,66	36,29	39,92	43,54	47,17	50,80	54,43	58,05
increase/decrease	lbf	72.0	80.0	88.0	96.0	104.0	112.0	120.0	128.0
Standing height	mm	16,00	17,78	19,56	21,34	23,11	24,89	26,67	28,45
increase/decrease	in	0.630	0.700	0.770	0.840	0.910	0.980	1.050	1.120

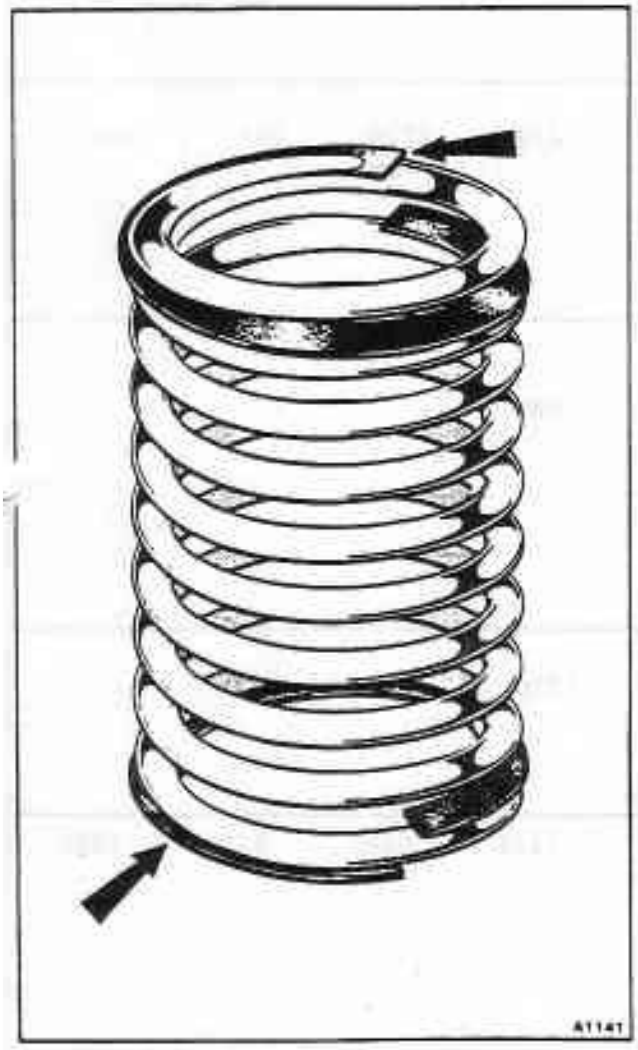


Fig. H9-2 Flexible strip location (if fitted)

9. Position the compressed spring into the compression tool with the upper spring support in the adapter block (see fig. H9-2).
10. Fit the top plate of the tool. Screw down the special nuts and thrust washers to secure the spring.
11. Measure and record the distance between the upper and lower plates.
12. Remove the spring retention tool RH 9299.
13. Evenly unscrew the two nuts on the compression tool to completely extend the spring.
14. Examine all the components for serviceability. On some cars a flexible strip is fitted between the first and second spring coils at both ends of the spring (see fig. H9-2).

Ensure that the threads in the upper spring support are in good condition to withstand the full spring load when the retention tool is inserted.

Road spring – To fit

1. Fit the spring and spring supports into the compression tool. The threaded support should rest in the baseplate adapter. If flexible strips are fitted these should be inserted at both ends of the spring between the first and second coils (see fig. H9-2).
2. Evenly tighten the tool nuts to compress the spring until the measurement taken during spring removal is achieved.
3. Screw the spring retention screw RH 9299 into the threaded spring support to retain the spring in its compressed condition.
4. Remove the spring compression tool RH 7909 and the adapter block RH 9504.
5. When fitting a new spring, obtain the spring load figure from the label attached to the spring.
6. Refer to the spring adjustment chart above to ascertain the correct number of adjusting rings required to obtain the correct spring load.

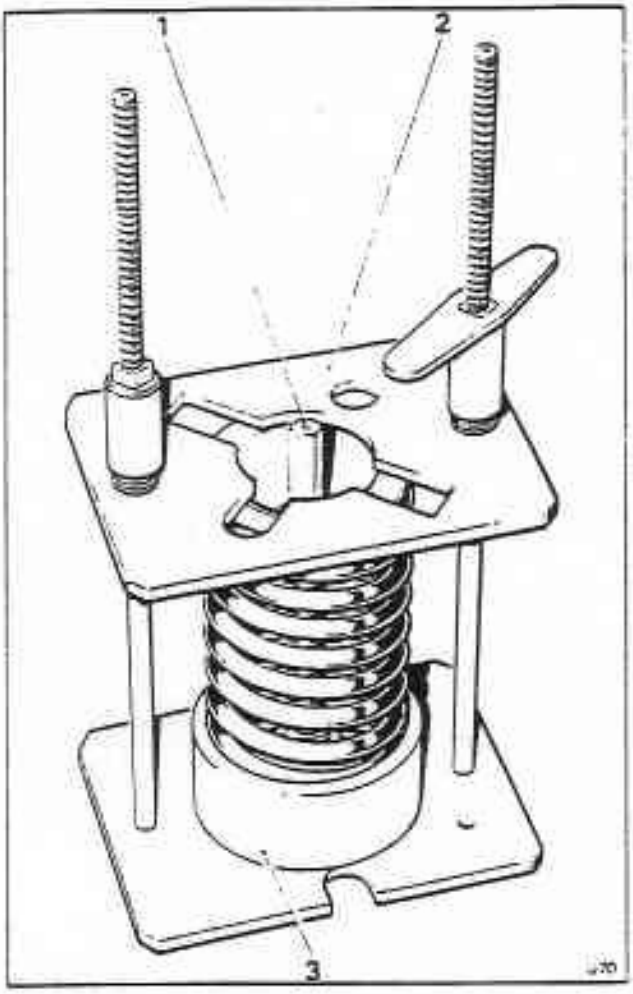


Fig. H9-3 Spring compressing tools in position
1 Tool RH 9299 and thrust washer
2 Tool RH 7909
3 Adapter block RH 9504

One adjusting ring is equivalent to 3,63 kgf (8 lbf) therefore to achieve the correct nominal load multiples of this figure should be added to the load figure quoted on the spring label. This will give the number of rings required.

7. Ensure the trailing arm is in the full rebound position.

8. Fit the spring by placing a pliable seating and half the required number of adjusting rings estimated in Operation 6, into the trailing arm spring location.

On Corniche cars conforming to a North American specification and fitted with the additional 9,0 mm (0.350 in) thick packing and special flexible seat, these should be fitted first.

9. Place the remainder of the adjusting rings and a flexible seat over the upper spring support. Position the spring in the body spring cup.

Note
Always ensure that the rings used are clean and that no foreign matter becomes trapped between them during assembly.

10. Remove the sill blocks and carefully lower the car onto its wheels until the spring is held in position.

11. Carefully remove the spring retention tool from the centre of the spring.

12. Lower the ramp to the ground.

13. Roll the car backwards and forwards until the wheels attain a stable camber angle.

14. Check the car ride height as described in Section H10.

Rear suspension settings

Introduction

Following operations in which the suspension has been partially or fully dismantled, the ride height of the car should be checked and if necessary adjusted.

To allow the suspension to settle after assembly and prior to this check being carried out, the car should be driven back and forth several times.

The ride height of the car is determined by three factors. The poundage of the road springs, the quantity of adjusting rings fitted to the springs, and the hydraulic mineral oil and gas pressure in the rear suspension strut and gas spring assemblies

When checking the ride height it is necessary to determine the closing pressure of the minimum pressure valves, i.e. the amount of hydraulic pressure retained in the rear struts. Various changes have taken place to these valves, both in the type (adjustable and non adjustable), the closing pressure setting, and the number of valves fitted. For full details of the type and system fitted to the car on which work is being undertaken, reference should be made to Chapter G.

Ride height – To check

1. The ride height should be checked with a full tank of fuel. If however the tank is partially empty, weight equivalent to the amount of missing fuel should be positioned adjacent to the fuel tank.

For each 4.5 litres (1 Imp gal, 1.2 US gal) of missing fuel add 3.4 kg (7.5 lb) of weight.

The fuel tank capacity is 108 litres (23.75 Imp gal, 28.5 US gal).

2. Ensure that the spare wheel, jack, tools, and accessories are fitted in their correct positions.
3. Check the tyre pressures and correct if necessary. This operation must be carried out as incorrect tyre pressures will result in incorrect ride height measurements.
4. Drive the car onto a suitable level ramp and securely chock the front road wheels. Do not set the ride height with the car on a surface which is not level as the variation in weight distribution can affect the cars height.
5. Move the gear range selector lever to the N Neutral position. **Remove the gear change isolator from the fuseboard** and release the parking brake.
6. Depressurize the hydraulic system by releasing the accumulator bleed screws as described in Chapter G. Close the bleed screws.
7. Attach a bleed tube and container to the rear strut bleed screws and release the pressure from the struts.
8. Fit pressure gauges RH 9727 GMF into the strut bleed points. On cars fitted with a single minimum pressure valve system, only one bleed point is fitted.

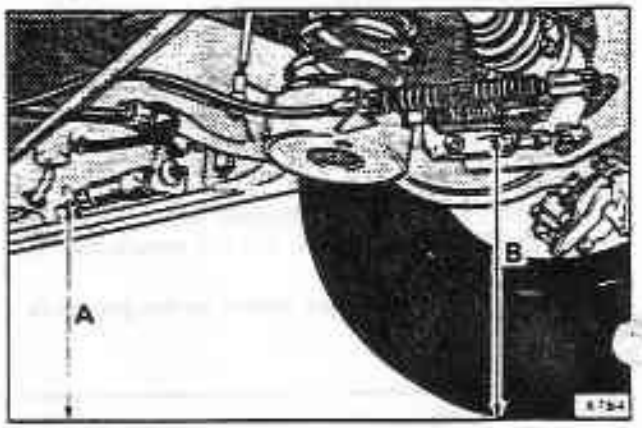


Fig. H10-1 Rear ride height setting

A Floor to centre of body bracket setscrew
B Floor to centre of parking brake linkage bracket setscrew

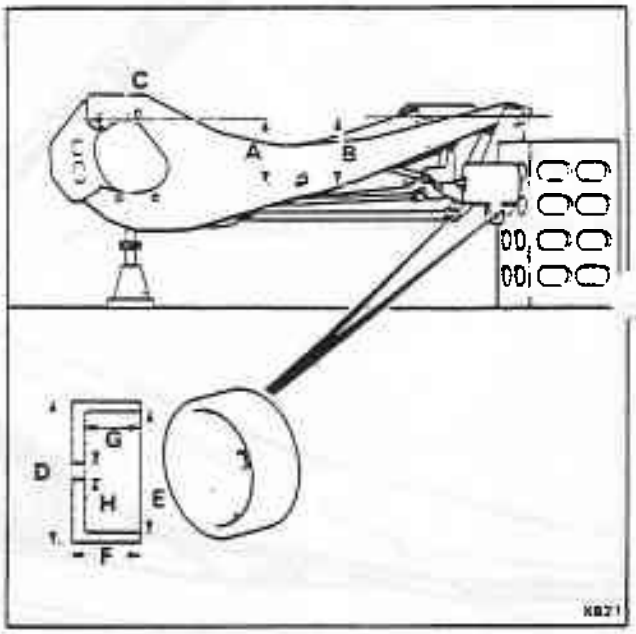


Fig. H10-2 Camber and toe-in setting

A 134.9 mm (5.312 in)
B 141.8 mm (5.582 in)
C Wheel centre line
D 76.2 mm (3.00 in)
E 66.8 mm (2.63 in)
F 25.4 mm (1.0 in)
G 15.2 mm (0.625 in)
H 9.9 mm (0.391 in)

9. Start and run the engine at fast idle speed to fully charge the hydraulic systems. Allow approximately four minutes.
10. Bleed the rear struts and pressure gauges.
11. Disconnect the height control valve links at the ball joints on the trailing arms.
12. Simultaneously raise both height control valve links. Check that there is a delay before the car starts to rise and that the car rises smoothly. This delay period can vary with different cars and variations in engine speed.

Allow the car to rise until approximately 35 bar (500 lbf in²) is registered on the pressure gauges.

13. Slowly pull down both control links. Check that there is a delay before the car begins to lower. Allow the car to fully lower.
14. When the car has fully lowered, pull down on the rear of the car then release it, this will ensure that the car has fully settled.
15. Check that the pressure shown on the gauges is within the required limits of the system fitted to the car. Refer to the charts in Chapter G Section G14 for details.

If the pressures fall outside of the limits shown the minimum pressure valve(s) should be renewed or adjusted dependent on the type fitted (see Section G14) and the checking procedure repeated.

16. With the minimum pressure valves retaining the correct strut pressures, measure the height at points A and B as shown in figure H10-1. Both measurements should be taken from the level surface on which the car stands. Dimension A to the foremost bottom bolt securing the sub-frame mounting bracket to the body sill. Dimension B to the centre of the rear bolt attaching the parking brake linkage to the trailing arm.
17. Subtract dimension B from dimension A. The resultant figure must be within the following tolerances.

Note

These tolerances should be used in conjunction with the Spring loading charts in Section H9.

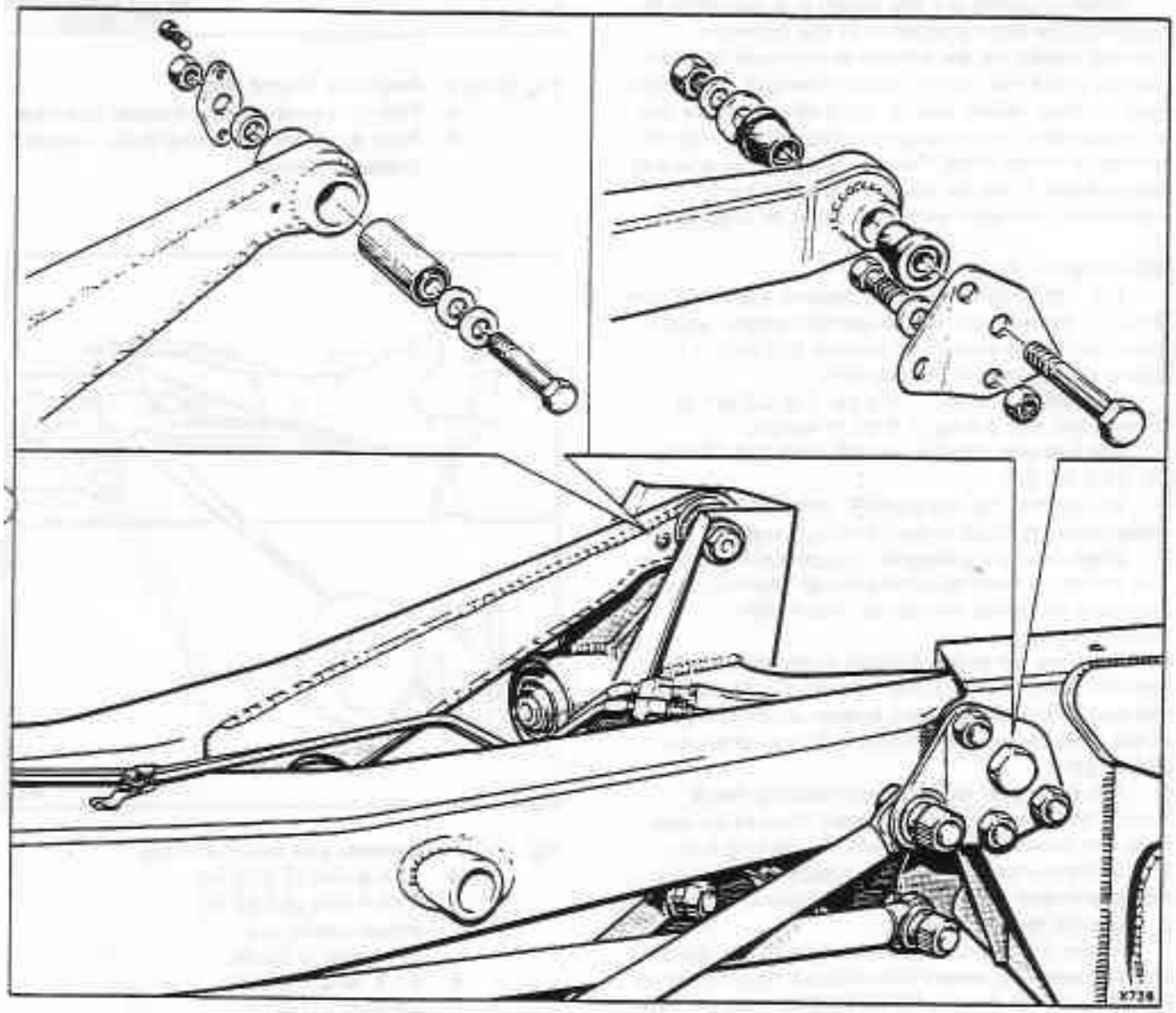


Fig. H10-3 Trailing arm pivot components

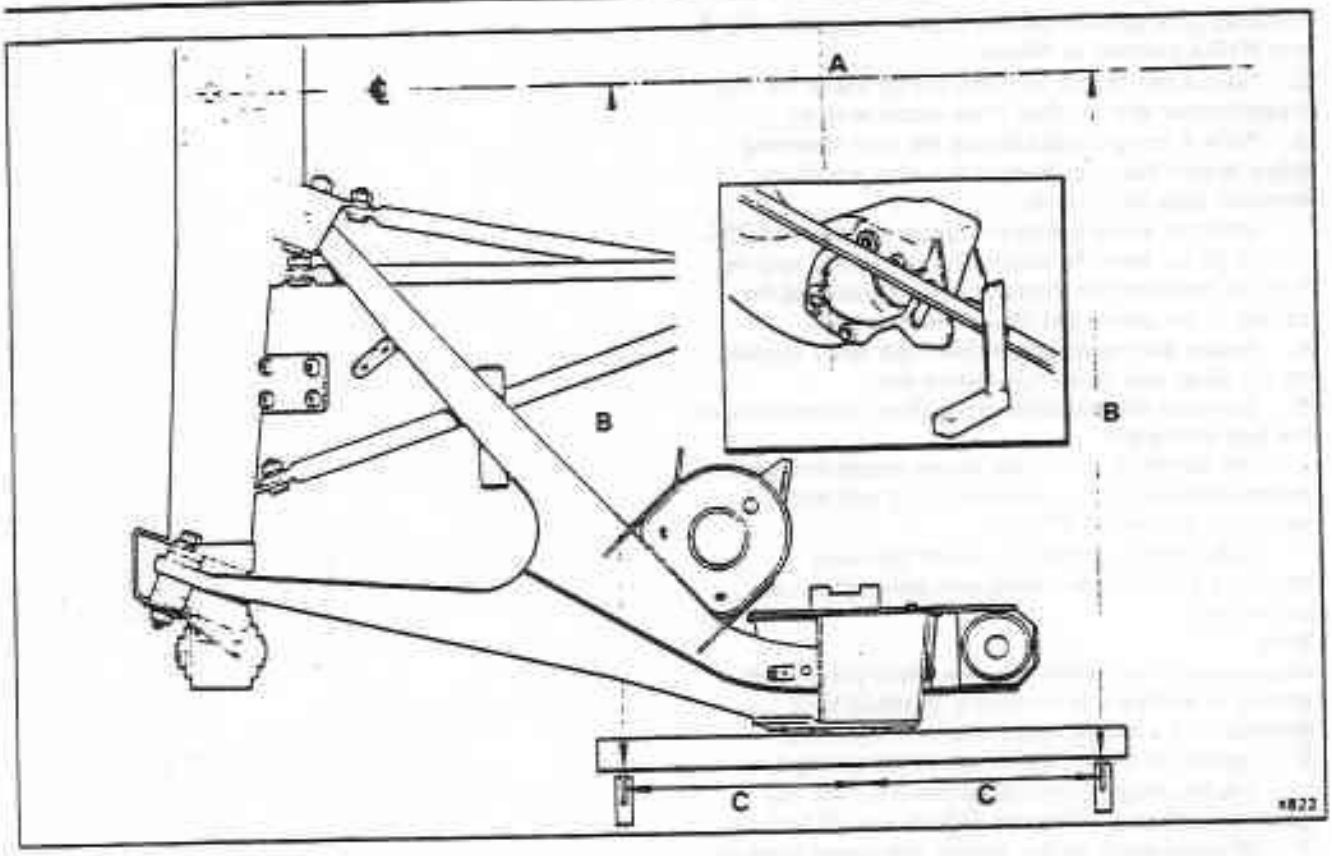


Fig. H10-4 Checking the toe-in setting

A Centre line marked on surface table

B Measurement from engineers square to centre line across the surface of the table

C 208 mm (8.20 in) from road wheel centre

Cars listed in Spring loading chart 1

Applicable to cars other than Corniche built to a North American specification

+ 12,5 mm and + 4,5 mm (+ 0.50 in and + 0.175 in)

Applicable to Corniche cars built to a North American specification

+ 27,5 mm and + 19,5 mm (+ 1.10 in and + 0.770 in)

Cars listed in Spring loading chart 2

Applicable to cars other than Corniche and Continental built to a North American specification

+ 2,5 mm and –5,5 mm (+ 0.10 in and –0.225 in)

Applicable to Corniche and Continental cars built to a North American specification

+ 17,5 mm and + 19,5 mm (+ 0.70 in and + 0.375 in)

18. If the ride height is incorrect, add or remove the required number of adjusting rings to or from the spring seats.

Refer to Section H9 for details of the spring removal procedure.

19. When the ride height is correct the height control valve links should be set as described in Section G12.

Trailing arm camber – To set

1. Mount the rear crossmember and trailing arms on a surface table as shown in figures H10-2 and H10-3.
2. Set the trailing arms in the normal ride position using small screw jacks situated beneath the trailing arms (see fig. H10-2).
3. Tighten the centre bolt of the inner bush and the bolts of the frame tube mounting bracket on each trailing arm.
4. Tighten the centre bolt of each outer bush sufficiently to remove end play, but still allow trailing arm adjustment in the mounting bracket. Ensure that the location plate is suitably positioned to allow the two self-tapping screws to be fitted.
5. Using suitable camber setting equipment, or a precision square across the faces of the upper and lower hub location tubes, check the camber of the trailing arms. The setting for each arm must be between minus 0°15' and plus 0°15'. The setting variation between the trailing arms must not exceed 0°15'. Adjust the trailing arm as necessary to obtain the correct setting.
6. Tighten the outer bush centre bolt.

Note

Adjustment of the camber will also affect the toe-in setting. Therefore, it is necessary to adjust both settings until a satisfactory position is obtained.

7. Check the toe-in setting of each trailing arm.

Toe-in – To check (see fig. H10-4)

1. With the crossmember and trailing arm assembly

mounted on a surface table as shown in figures H10-2 and H10-4 proceed as follows.

2. Mark a centre line between the centre of the rear crossmember and the final drive crossmember.

3. Place a straight edge across the hub mounting tubes to give the equivalent of the road wheel rim diameter (see fig. H10-4).

With the aid of a precision square positioned 208 mm (8.20 in) from the centre line of the hub (see fig. H10-4), measure the distance from the base of the square to the centre line marked on the table.

4. Repeat the measurement from the same distance on the other side of the hub centre line.

5. Compare the measurements taken on each side of the hub centre line.

The toe-in for one wheel to the centre line on the surface table should be between 1.35 mm and 1.8 mm (0.053 in and 0.071 in).

If the toe-in is incorrect, adjust the outer mounting point of the trailing arm then tighten the centre bolt.

Note

Adjustment of the toe-in will also affect the camber setting. Therefore it is necessary to adjust both settings until a satisfactory position is obtained.

6. Repeat the procedure for the other trailing arm.

The maximum permissable toe-in differential between each side of the car is 0.38 mm (0.015 in).

7. On completion, torque tighten the centre bolts to the figure quoted in Section H12. Repeat the camber and toe-in checks to ensure movement has not occured during tightening.

8. Secure the location plates on the outer mounting brackets with self-tapping screws. It will be necessary to drill two 4 mm (0.156 in) diameter holes in each crossmember bracket to accept the screws.

Section H11

General dimensions

The illustrations in this section are provided to assist in assessing accident damage to the sub-frame and suspension components.

If damage is suspected the suspension and steering geometry should be checked prior to the removal of components for dimensional examination.

If damage to the sub-frame is suspected, the removal of the complete sub-frame unit will be necessary, for details refer to Section H1.

Suspected damage to the rear crossmember or trailing arms will mean the removal of the complete rear crossmember unit, refer to Section H7.

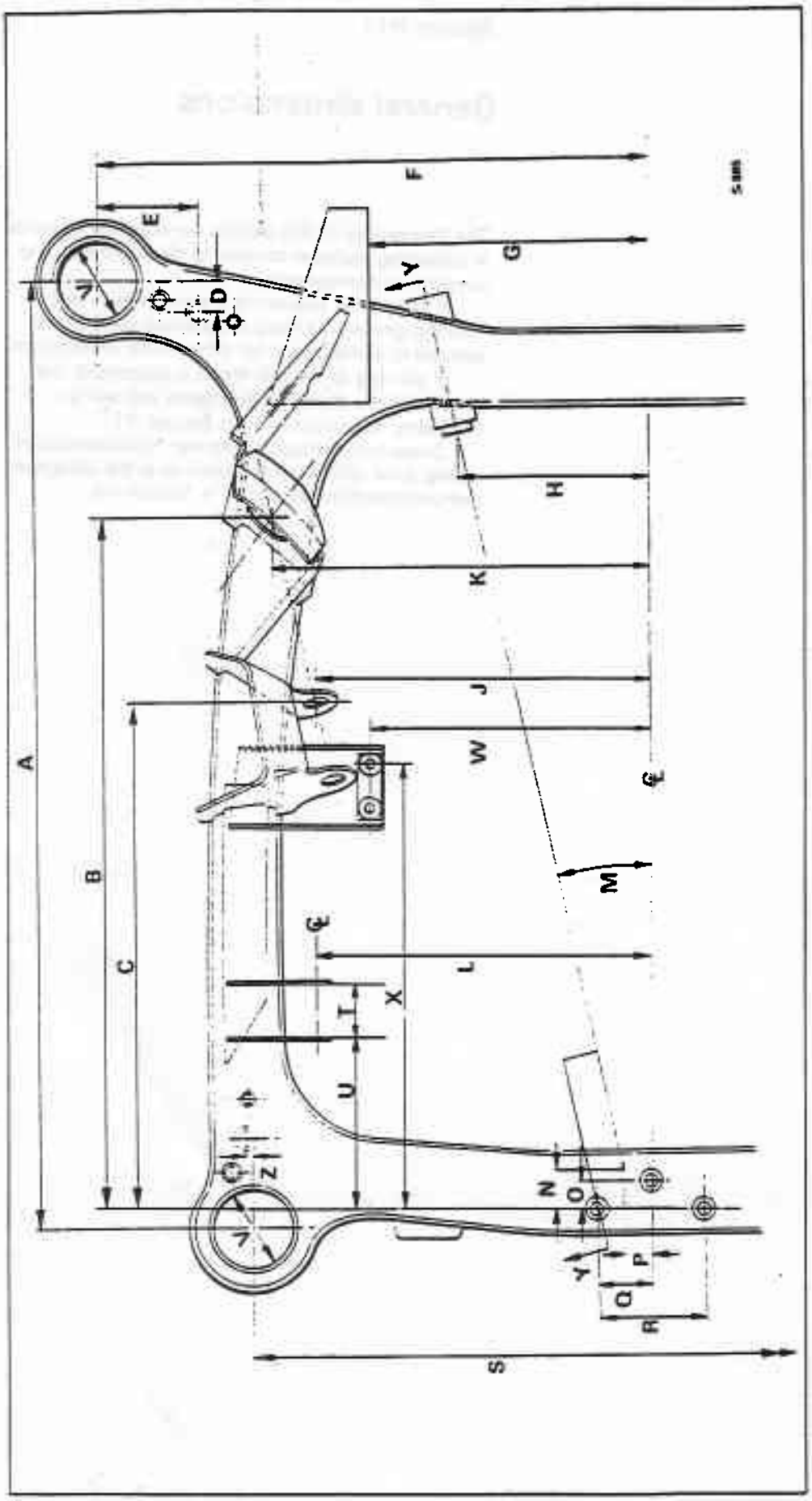


Fig. H41 Front sub-frame (plan view)

A	96,09 cm. (37.832 in.)	J	32,90 cm. (12.952 in.)	R	10,54 cm. (4.150 in.)
B	71,91 cm. (28.312 in.)	K	37,33 cm. (14.698 in.)	S	78,74 cm. (31.000 in.)
C	51,91 cm. (20.437 in.)	L	33,02 cm. (13.000 in.)	T	5,33 cm. (2.098 in.)
D	2,86 cm. (1.125 in.)	M	12° 30'	U	20,96 cm. (8.250 in.)
E	10,48 cm. (4.125 in.)	N	3,81 cm. (1.500 in.)	V	6,03 cm. (2.375 in.)
F	55,13 cm. (21.703 in.)	O	2,86 cm. (1.125 in.)	W	27,00 cm. (10.630 in.)
G	28,58 cm. (11.250 in.)	P	2,70 cm. (1.062 in.)	X	45,39 cm. (17.869 in.)
H	19,63 cm. (7.727 in.)	R	5,27 cm. (2.075 in.)	Z	0,79 cm. (0.312 in.)

Y-Y View on side elevation (see fig H42)

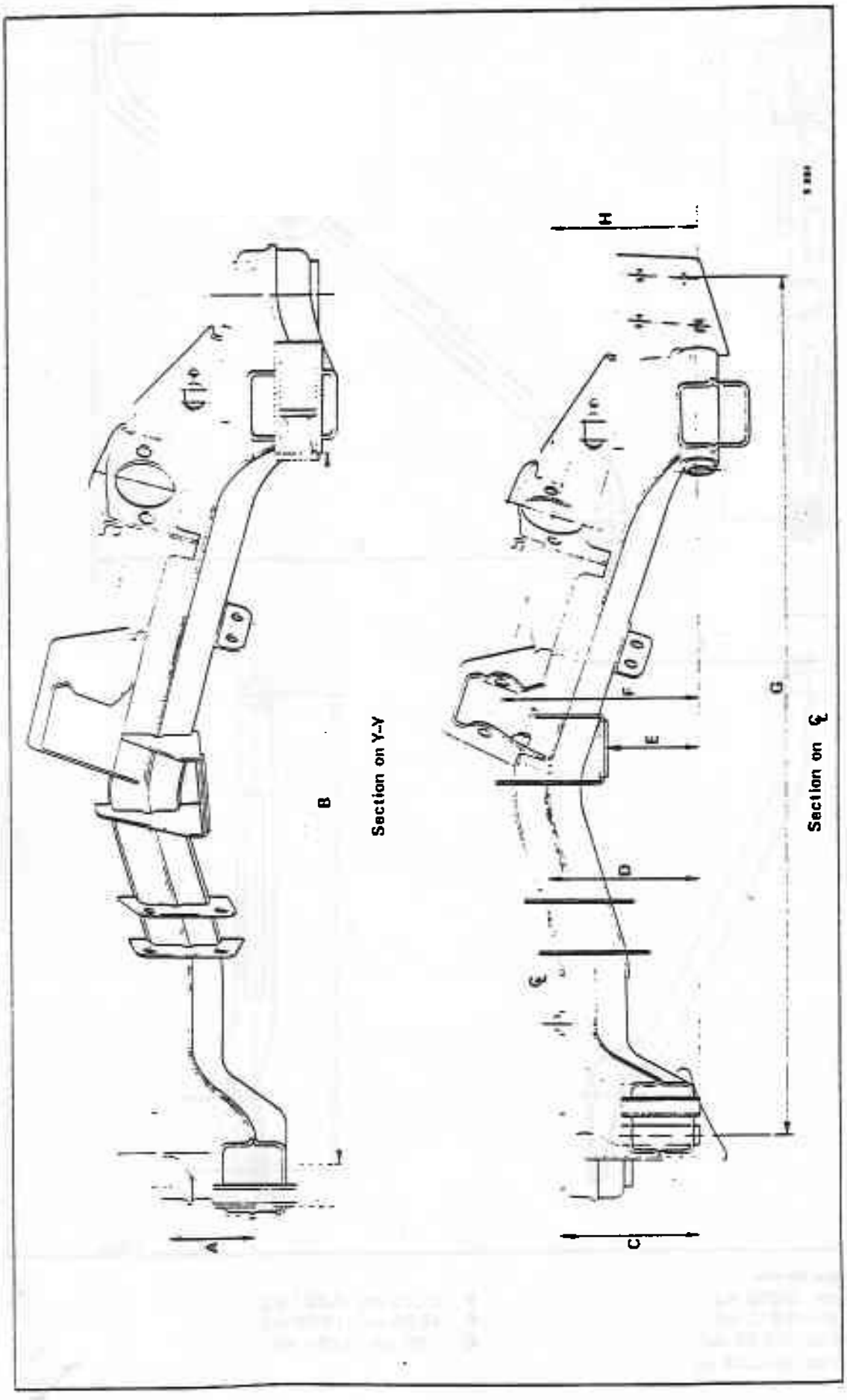


Fig. H42 Front sub-frame (side elevation)

A 8,97 cm. (3.531 in.)
B 78,26 cm. (30.810 in.)
C 15,82 cm. (6.228 in.)
D 16,03 cm. (6.312 in.)
E 10,04 cm. (3.953 in.)
F 22,16 cm. (8.726 in.)
G 100,75 cm. (39.666 in.)
H 17,09 cm. (6.729 in.)

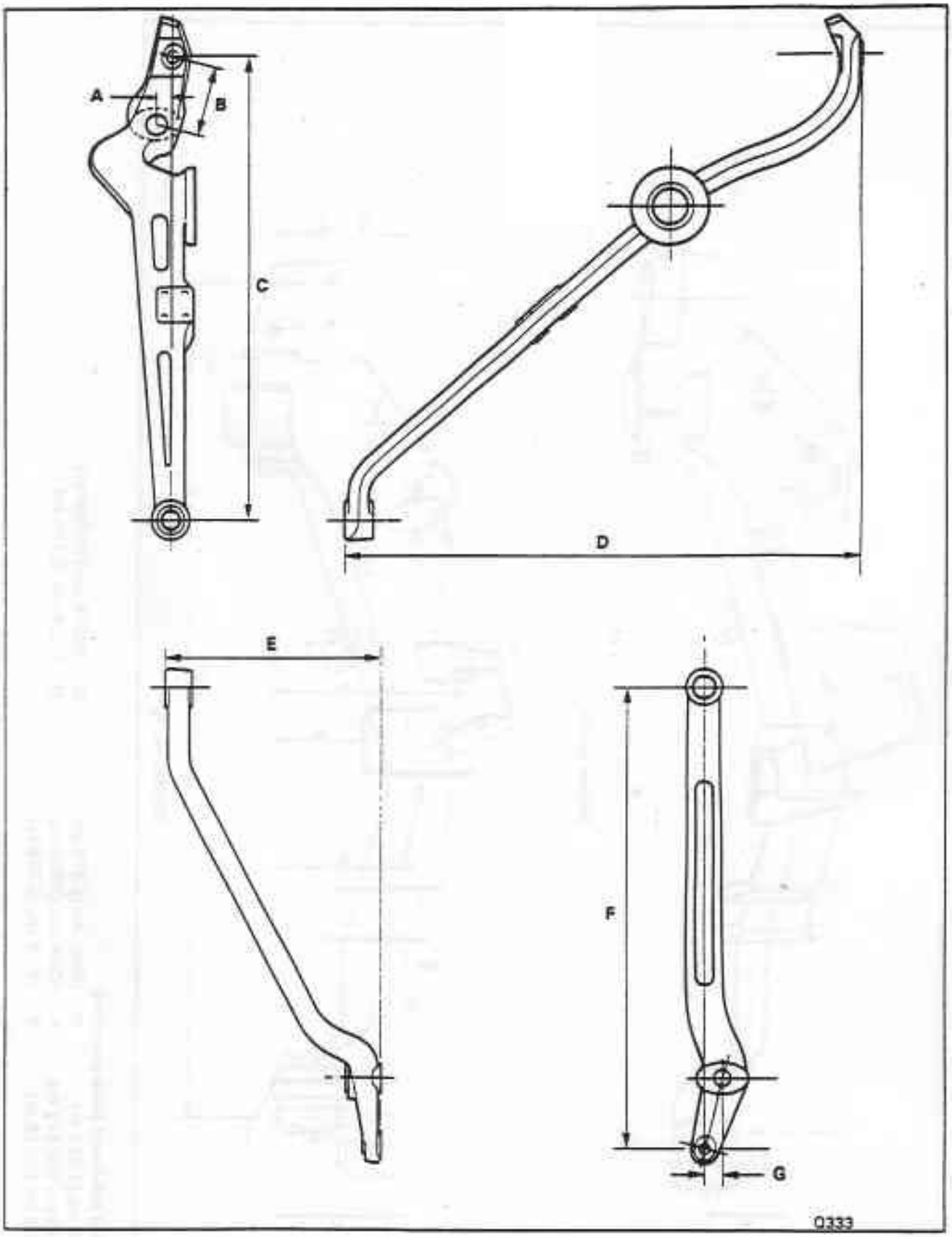


Fig. H43 Triangle levers

A 1,65 cm. (0.650 in.)
B 7,14 cm. (2.812 in.)
C 46,99 cm. (18.50 in.)
D 51,40 cm. (20.238 in.)
E 21,18 cm. (8.337 in.)
F 46,99 cm. (18.50 in.)
G 1,65 cm. (0.650 in.)

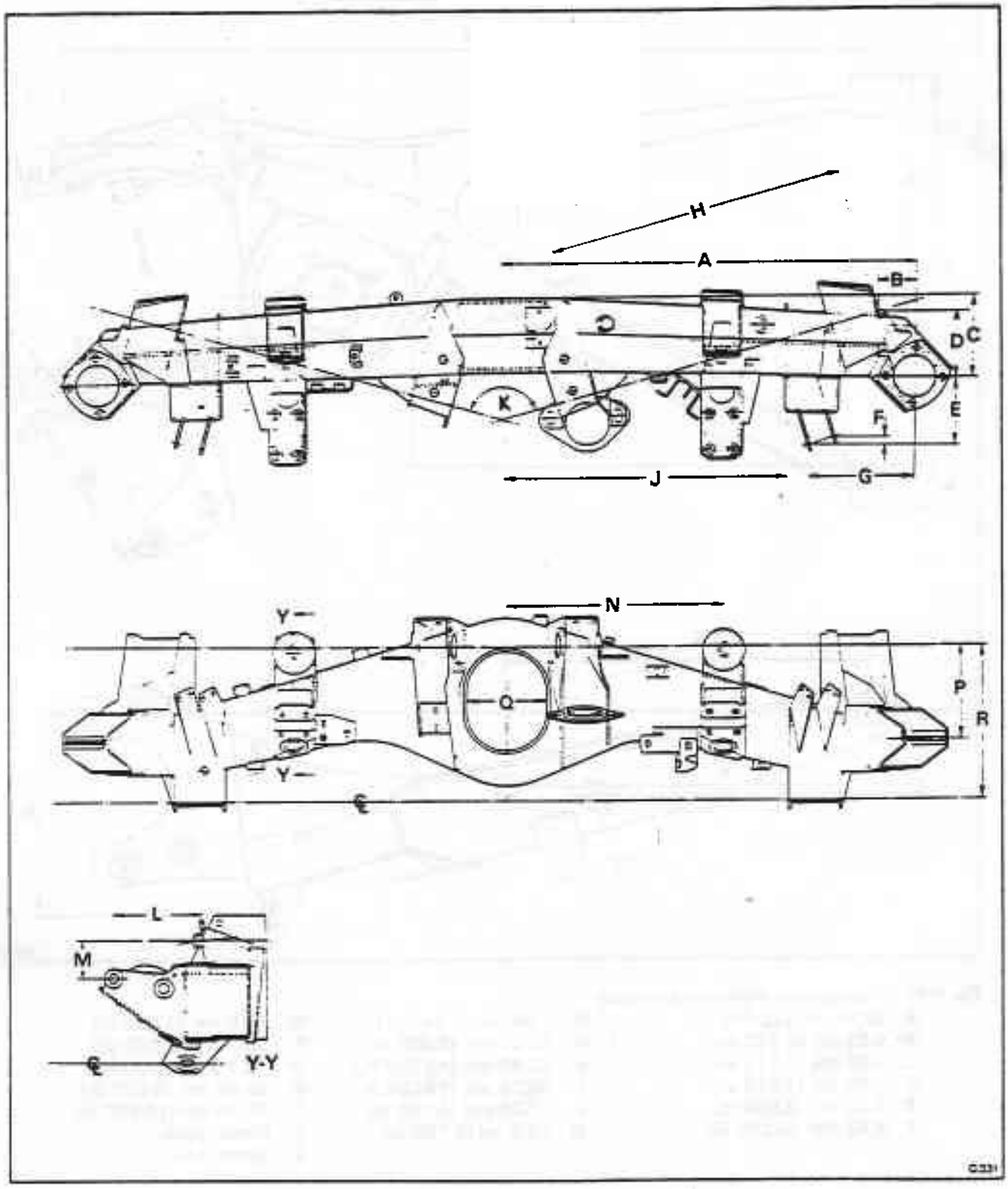


Fig. H44 Rear crossmember

A	57,15 cm. (22.50 in.)	J	39,61 cm. (15.593 in.)
B	5,12 cm. (2.016 in.)	K	147° 36' reference
C	11,51 cm. (4.531 in.)	L	12,59 cm. (4.956 in.)
D	9,65 cm. (3.80 in.)	M	6,19 cm. (2.437 in.)
E	9,21 cm. (3.625 in.)	N	30,32 cm. (11.937 in.)
F	0,975 cm. (0.384 in.)	P	13,49 cm. (5.312 in)
G	14,33 cm. (5.641 in.)	Q	11,61 cm. (4.570 in.)
H	40,96 cm. (16.125 in.)	R	22,22 cm. (8.750 in.)

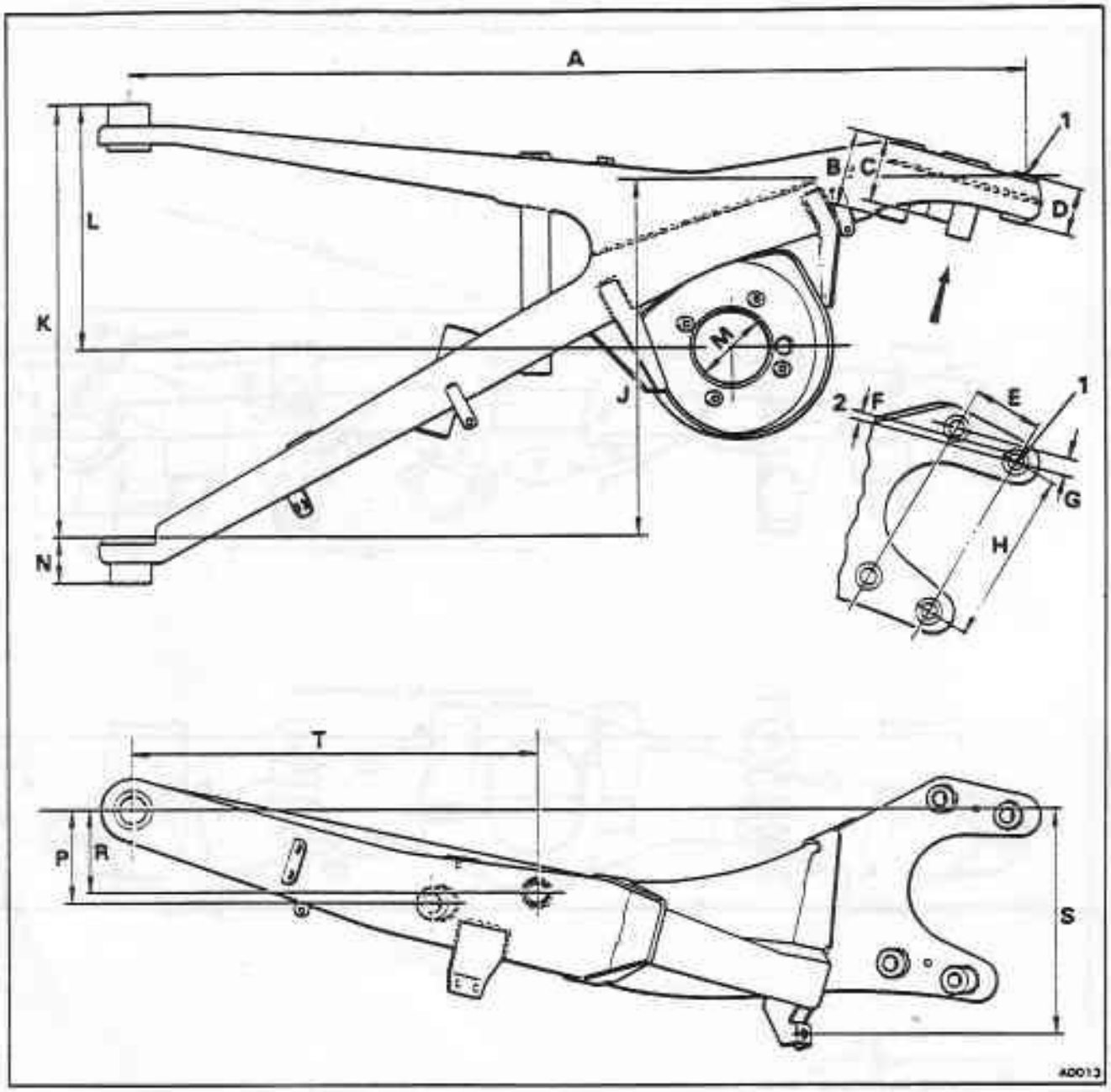


Fig. H45 Trailing arm (right-hand shown)

A	82,41 cm. (32.445 in.)	**G**	1,64 cm. (0.647 in.)	**N**	4,19 cm. (1.650 in.)
B	6.95 cm. (2.737 in.)	**H**	16,07 cm. (6.325 in.)	**P**	8,89 cm. (3.500 in.)
C	5,36 cm. (2.112 in.)	**J**	33,40 cm. (13.150 in.)	**R**	7,87 cm. (3.100 in.)
D	4,09 cm. (1.612 in.)	**K**	40,76 cm. (16.050 in.)	**S**	20,50 cm. (8.073 in.)
E	6.35 cm. (2.500 in.)	**L**	23,28 cm. (9.166 in.)	**T**	37,94 cm (14.937 in.)
F	6,83 mm. (0.269 in.)	**M**	7,09 cm (2.790 in.)	**1**	Datum point
				2	Datum line

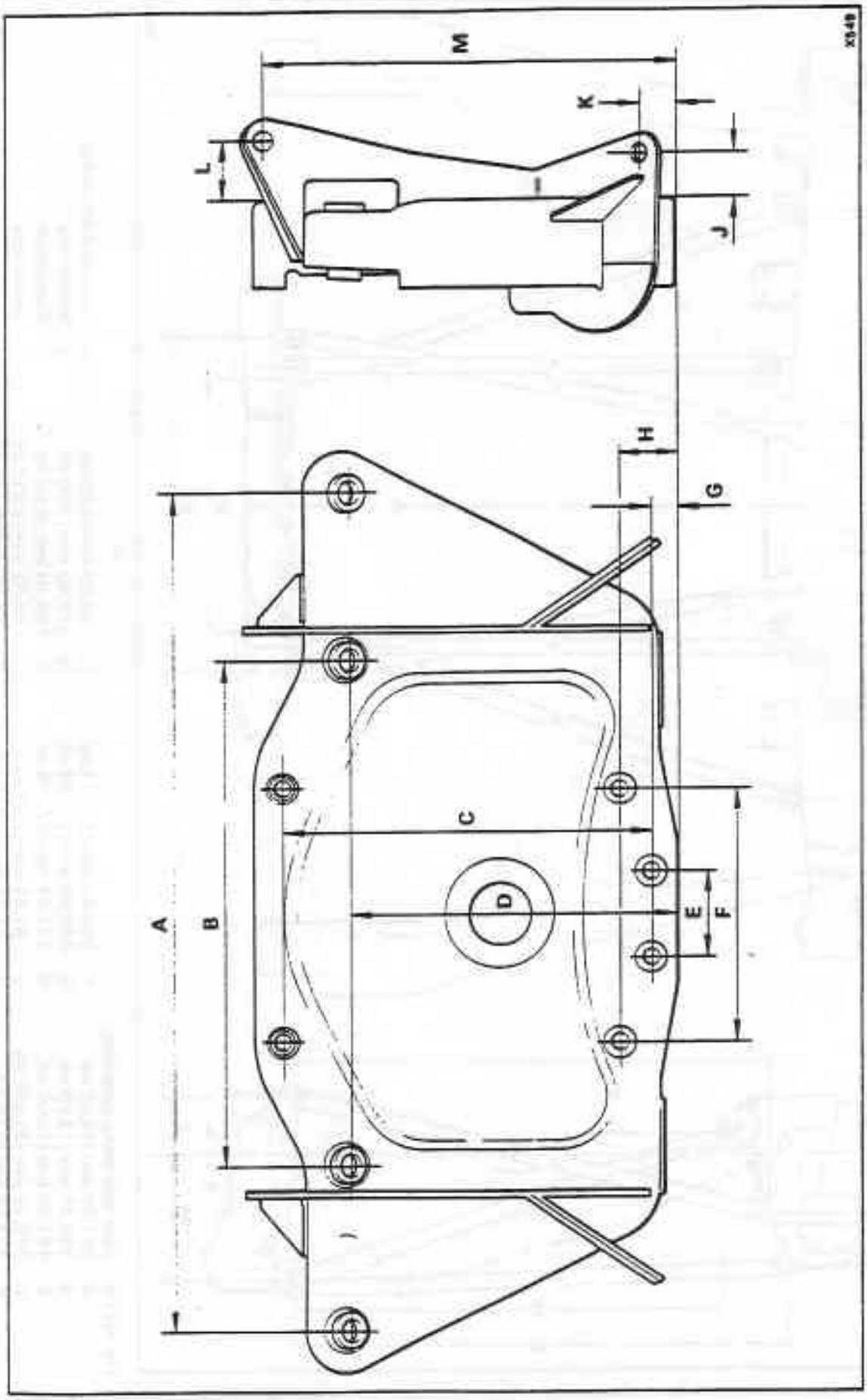


Fig. H11-6 Final drive crossmember

A 565,15 mm (22.250 in)
B 341,30 mm (13.437 in)
C 247,02 mm (9.725 in)
D 219,89 mm (8.657 in)
E 57,15 mm (2.250 in)
F 171,45 mm (6.750 in)
G 17,45 mm (0.687 in)
H 37,77 mm (1.487 in)
J 32,54mm (1.281 in)
K 22,22mm (0.875 in)
L 41,28 mm (1.625 in)
M 275,44 mm (10.844 in)

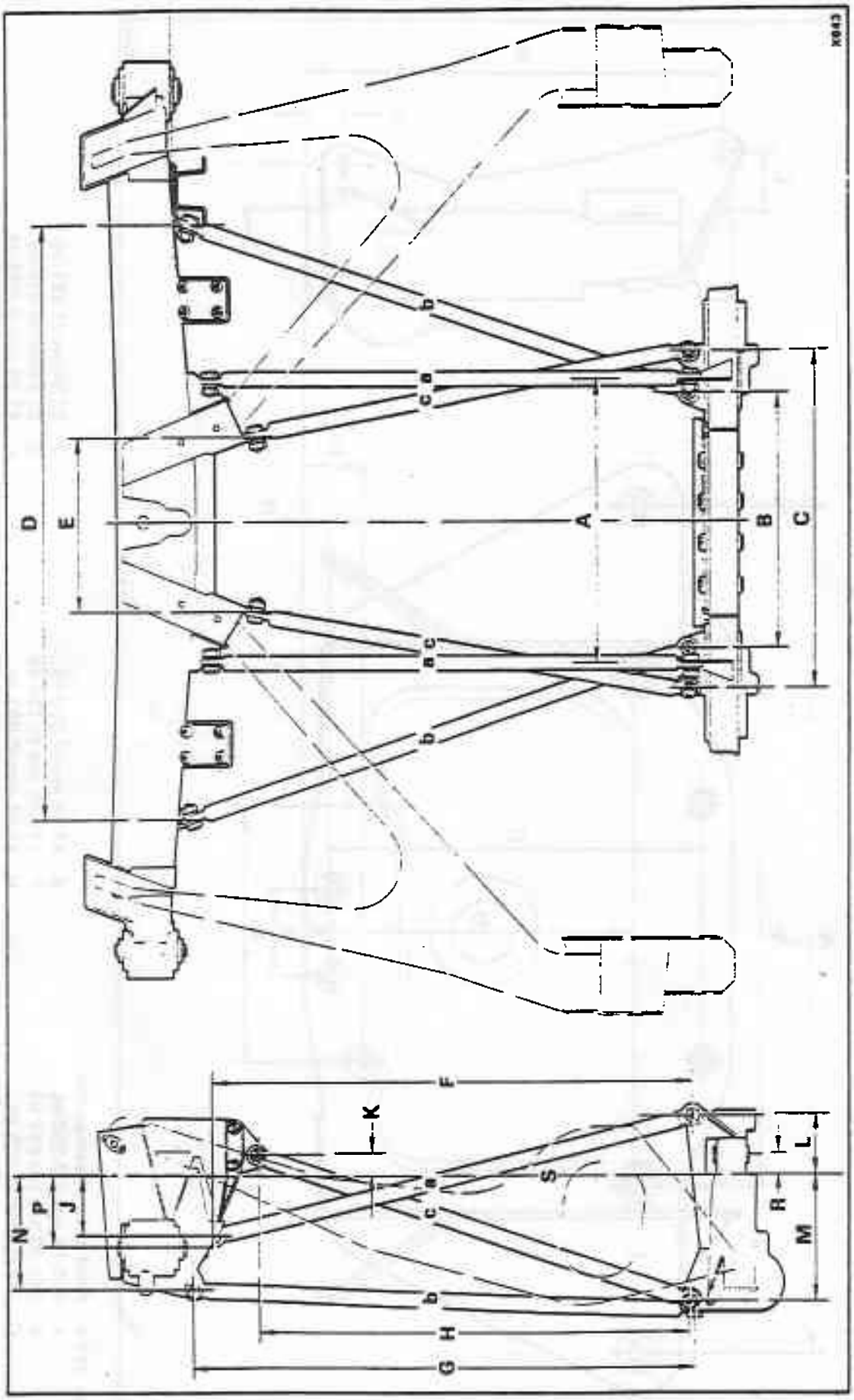


Fig. H11-7 Rear sub-frame assembly

A	381,00 mm (15.00 in)	F	655,65 mm (25.813 in)	L	76,20 mm (3.00 in)	S	Horizontal datum line
B	350,52 mm (13.80 in)	G	690,58 mm (27.188 in)	M	177,80 mm (7.00 in)	a	Frame tube
C	482,60 mm (19.00 in)	H	577,04 mm (22.718 in)	N	165,10 mm (6.50 in)	b	Frame tube
D	819,15 mm (32.250 in)	J	91,44 mm (3.60 in)	P	96,82 mm (3.812 in)	c	Frame tube
E	233,68 mm (9.20 in)	K	22,23 mm (0.875 in)	R	19,63 mm (0.773 in)		

Section H12

Workshop tools

Front sub-frame	
RH 7768	Extraction and insertion tool - ball joint
RH 7774	Castellated tube spanner - sub-frame mounts
RH 7775	Castellated tube spanner - upper ball joint
RH 7813	Spanner - open ended - lower triangle lever ball joint
RH 7849	'C' spanner - bump stops
RH 7850	'C' spanner - rebound stops
RH 7874	Box spanner - damper ball joint
RH 7909	Compressing tool - front road spring
RH 8019	Extractor - stabilizer links
RH 8030	Box spanner and locking bar - shock dampers
RH 8100	Extractor - steering ball pins
RH 8809	Spring retainer - front road springs
Rear sub-frame	
RH 7847	Centralizing tool - crossmember end mounts
RH 7848	Split packing ring - crossmember end mount
RH 7849	'C' spanner - bump stops
RH 7858	Alignment screws (long) 2 off -height control ram
RH 7859	Alignment screw (short) 1 off - height control ram
RH 8048	Pin spanner and extraction bar - height control ram - convertible cars
RH 8051	Hook wrench - height control ram

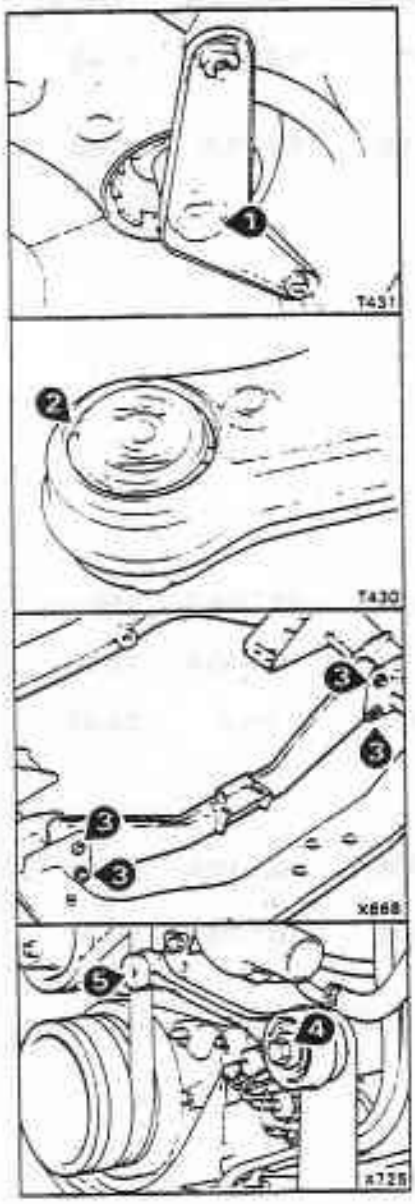
Special torque tightening figures

Introduction
This section contains the special torque tightening figures applicable to Chapter H.

For standard torque tightening figures refer to Chapter P.

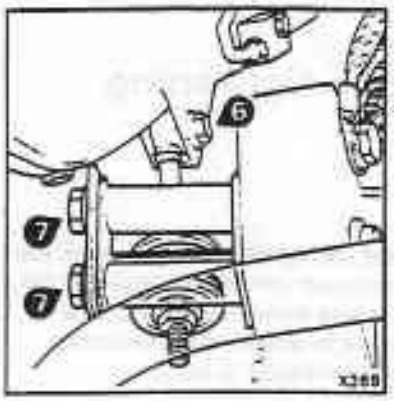
Components used during the manufacture of the vehicle have different thread formations (Metric, UNF, UNC, etc.). Therfore where fitting nuts, bolts, and setscrews it is important to ensure that the correct type and size of thread formation is used.

Section H2



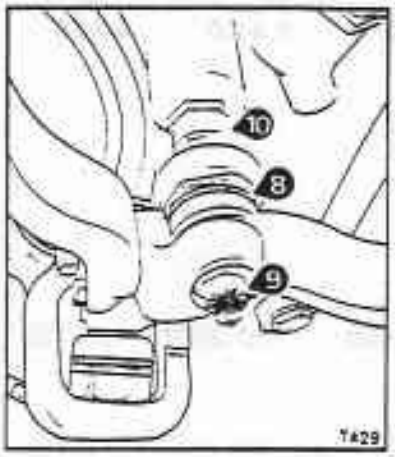
Ref	Component	Nm	kgf m	lbf ft
1	Sub-frame mounting setscrews	82-88	8,3-9,0	60-65
2	Resilient mount locking ring	169-203	17,2-20,7	125-150
3	Front engine mounting crossmember bolts	115-122	11,7-12,4	85-90
4	Engine steady bar retaining bolt	65-70	6,6-7,2	48-52
5	Engine steady bar Allen screw	22-24	2,2-2,5	16-18

Section H2



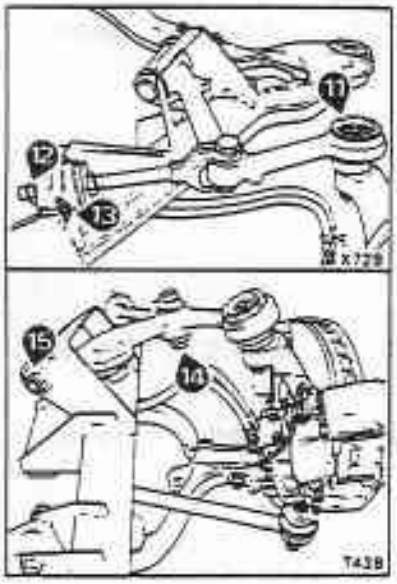
Ref.	Component	Nm	kgf m	lbf ft
6	Tie bar to longeron bolt	22-24	2,2-2,5	16-18
7	Tie bar mounting bracket setscrews	40-43	4,0-4,4	29-32

Section H3



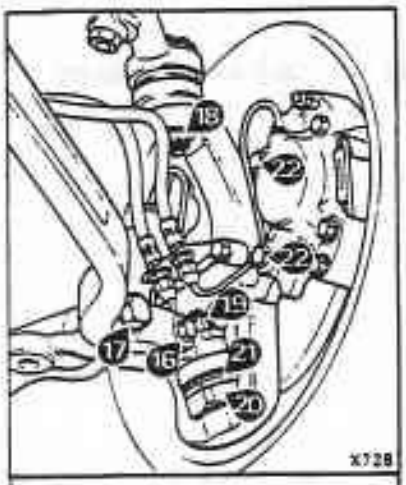
8	Damper ball joint to housing	163-176	16,6-18,0	120-130
9	Damper ball pin castellated nut	57-61	5,8-6,2	42-45
10	Ball joint housing to damper stem	95-108	9,7-11,0	70-80

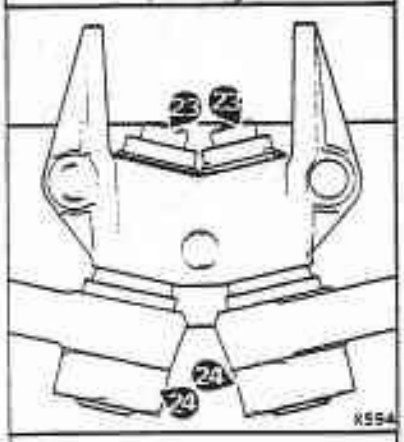
Section H4

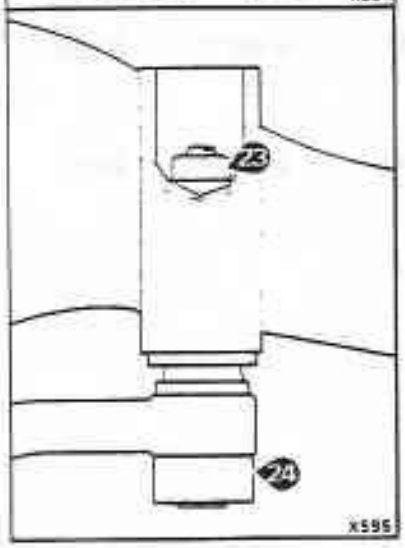


11	Upper ball joint locking ring	203-237	20,7-24,2	150-175
12	Compliance mount nut	99-106	10,1-10,8	73-78
13	Compliance mount setscrews	40-43	4,0-4,4	29-32
14	Compliance rod bolt	99-106	10,1-10,8	73-78
15	Compliance lever eccentric bolt	99-106	10,1-10,8	73-78

Section H4

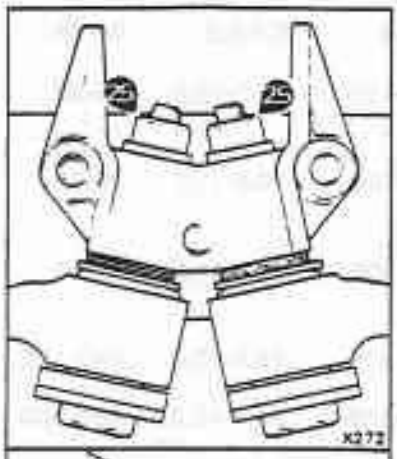


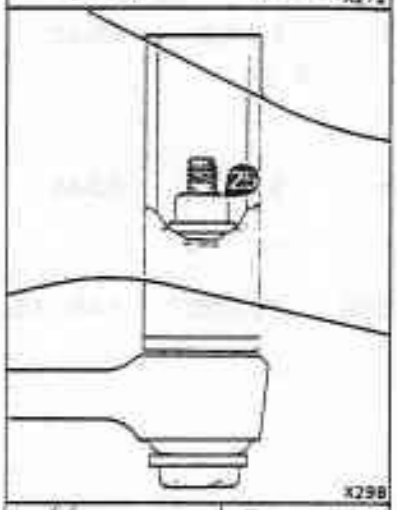


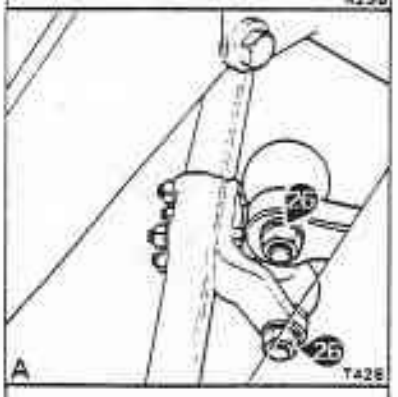


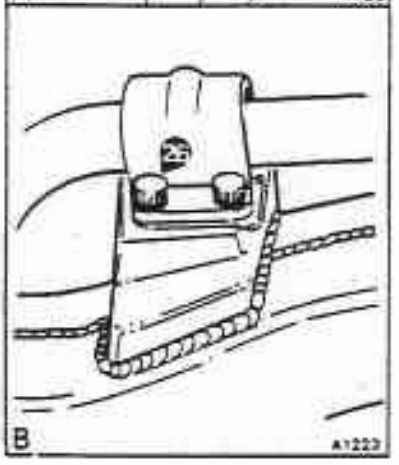
Ref.	Component	Nm	kgf m	lbf ft
16	Lower triangle lever bolt	82-88	8,3-9,0	60-65
17	Lower triangle lever setscrew	116-122	11,7-12,4	85-90
18	Upper ball pin castellated nut	102-108	10,4-11,0	75-80
19	Lower ball pin castellated nut	102-108	10,4-11,0	75-80
20	Lower ball pin to yoke	190-216	19,4-22,0	140-160
21	Lower ball pin to housing	339-406	34,6-41,5	250-300
22	Brake caliper to yoke setscrews	75-81	7,6-8,3	55-60
23	Lower triangle lever pivot bush to sub-frame nut Tapered bush type	57-61	5,8-6,2	42-45
24	Lower triangle lever to pivot bush nut Tapered bush type	197-203	20,1-20,7	147-153

Section H4



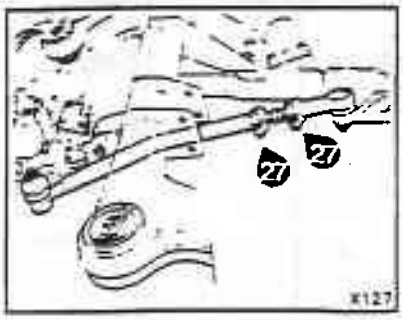






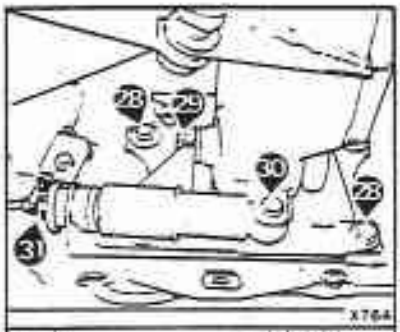
Ref.	Component	Nm	kgf m	lbf ft
25	Lower triangle lever pivot bolt Parellel bush type	82-88	8,3-9,0	60-65
26A	Stabilizer link nuts	45-48	4,6-4,9	33-36
26B	Stabilizer mounting bracket bolts (Turbo R and 1986 model year Bentley models)	31-34	3,2-3,4	23-25

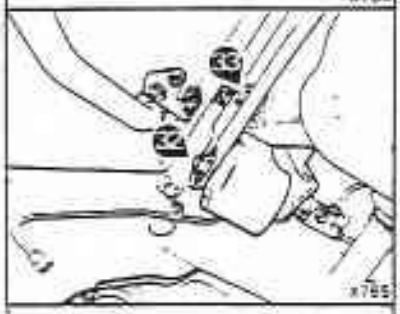
Section H6

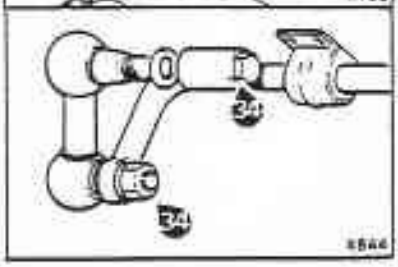


Ref.	Component	Nm	kgf m	lbf ft
27	Steering track rod adjuster clamp bolts			
	Track rods with replaceable ball joints	22-24	2.2-2.5	16-18
	Track rods with sealed ball joints	45-54	4.6-5.5	33-40

Section H7/H8

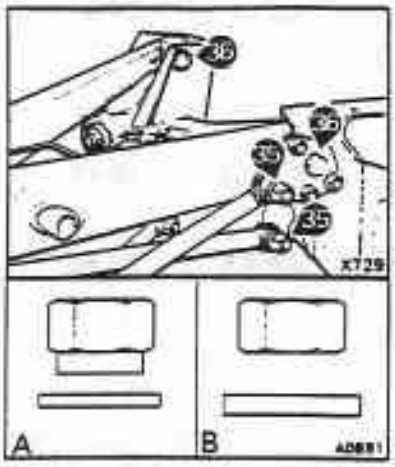






Ref.	Component	Nm	kgf m	lbf ft
28	Crossmember mounting bracket setscrews	40-43	4.0-4.4	29-32
29	Crossmember to mounting bracket bolt	57-61	5.8-6.2	42-45
30	Crossmember damper securing bolt	40-43	4.0-4.4	29-32
31	Crossmember damper self-locking nut	17-20	1.7-2.1	12-15
32	Final drive crossmember to body mount bolt	57-61	5.8-6.2	42-45
33	Final drive crossmember mounting plate bolts	82-88	8.3-9.0	60-65
34	Stabilizer link nuts	45-48	4.6-4.9	33-36

Section H10



Ref.	Component	Nm	kgf m	lbf ft
35A	Frame tube securing bolts with reach nuts	82-88	8.3-9.0	60-65
35B	Frame tube securing bolts with standard nuts	102-108	10.4-11.0	75-80
36	Trailing arm mounting bolts	82-88	8.3-9.0	60-65