R42

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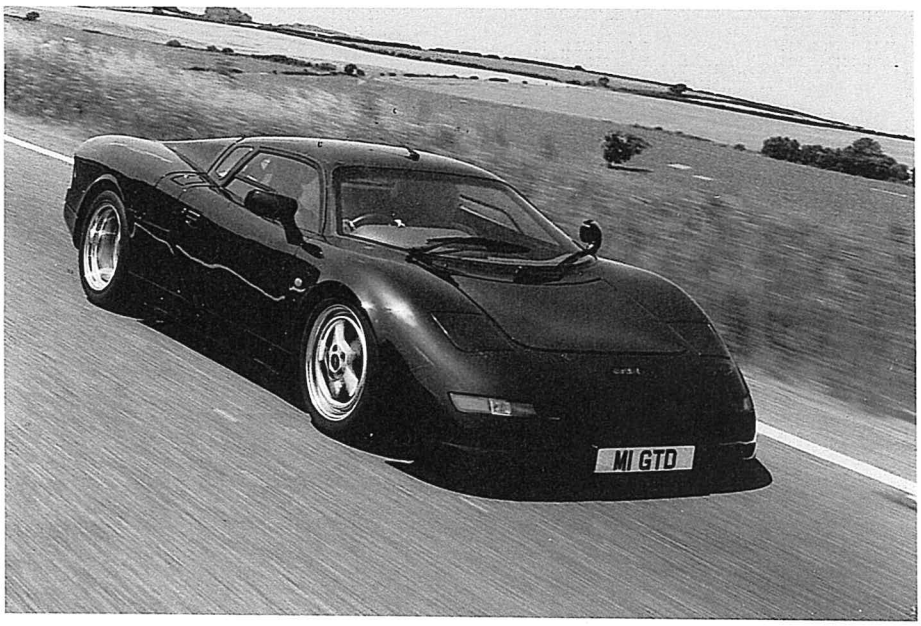

Reference Manual

SPECTRE CARS LTD

R42 Reference Manual

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WARNING

In this book we have attempted to describe the assembling and operation of Spectre model R42 systems using illustrations and instructions which we believe to be accurate. However, the illustrations and instructions are intended solely for reference and should be used in any particular application only by experienced personnel who are trained in the service and repair of the Spectre R42. Implementation of a modification or attachment of an accessory to a Spectre R42 may render the vehicle, attachment or accessory unsafe for use in certain circumstances.

Do not perform work described in this book unless you are familiar with basic automotive repair procedures. This book is not a substitute for full and up-to-date information from Spectre Cars Ltd or for proper training as an automotive technician. Note that it is not possible for us to anticipate all of the ways or conditions under which vehicles may be serviced or to provide warnings and cautions as to all of the possible hazards that may result.

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Preface

1. Reference to Parts/Kits

1.1 Throughout this manual parts are identified on illustrations and in the illustration Keys by name only. These are identified in the text to aid the description by inserting the appropriate Key number in brackets. Bolts and other fixing components are not identified in the illustration keys and they are generally, but not always, mentioned in the text.

2. Parts List

2.1 All names and numbers for each part used in the construction is included in the Parts List appended to this manual. The Parts List is grouped in modules as given in para 3.

2.2 Not all parts of a system or assembly procedure are found in one specific Parts List module because some parts have been included in other modules. The reason for this is that the assembling and installation of parts is based on the logical sequence of build.

3. Modules

3.1 The descriptions in this manual are based on the assembly of each module for ease of understanding. Therefore the manual is divided into Sections and Modules for each system.

3.2 Pages and Figure numbers are consecutive within each Section.

4. Sub-Assembling or Bench Operations

4.1 Assembly operations are listed in this manual as "Bench" or "Car" indicating where the operations took place whilst the car was being assembled. This may be relevant for repair operations but it is up to the engineer where the work takes place, on the bench or on the car, whichever is most convenient for repair work.

4.2 Under each Assembly sub-title, the sequence of assembly operations is numbered consecutively.

Contents

Section 1

CHASSIS BUILD Module 02

Contents

Section 1

CHASSIS BUILD Module 02

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Assembly to Car - Preparation of Chassis (Pre-build Module 01)

1. Shot-blast the completed chassis from the front to the step in front of the engine compartment bulkhead.

2. From this rear bulkhead, to the rear of the chassis, apply powder-coated matt black finish.

3. Re-tap all threads and drill-out clearance holes.

Assembly Stage 2
Assembly to Car - Fit Floorpan to Chassis

1. With the glass-fibre floorpan in the mould insert two pieces of Divinycell cut to size from the template to form the insides of the wheelarches. Glass these in place and when the glass-fibre is cured and the Divinycell secure, remove the floorpan from the mould.

2. Lay the chassis into the floorpan and adjust its position until the fit is satisfactory. Ease the floorpan by grinding the glass-fibre where necessary to achieve a good fit. Mark all around the chassis with a pen so that the outline of the chassis is marked on the floorpan.

3. Use templates to cut out the Divinycell panels that will fit into the floorpan spaces inside the chassis to form the floor. After cutting out the panels to shape, drill 5mm holes in them in a regular grid pattern of approximately 50mm spacing. The holes allow bonding paste to flow up into them to ensure that an even and secure bond is achieved and that the thickness of bonding paste, between the panel and the floorpan, is even over the joining surfaces.

4. Lay the panels in the chassis to check that they fit. If not, ease them by sanding down one edge to achieve a fit. All the Divinycell panels should be a tight push-fit inside the chassis. There should be no gaps or play and any loose panels should be discarded.

5. Lift the chassis from the floorpan. Using the bonding paste supplied, lay the paste along the lines marked when outlining the shape of the chassis. Lift the chassis accurately into place and clamp into the floorpan until the paste has set.

6. After the chassis bonding paste has set, apply more paste into the floorpan areas between the chassis and up the sides of the chassis members - spread evenly to achieve complete coverage. Immediately press the prepared Divinycell panels into place and clamp them evenly and securely with a jig, or with weights. Ensure that sufficient even pressure is applied so that the bonding paste flows up into the drilled holes.

7. After the bonding paste has cured, lay bi-axial weave G.R.P. mat, front to back, over the complete structure. Ensure that the matt is uniform, even throughout what will be the centre tunnel and up and over the sills. Apply bonding paste evenly over the mat.

8. When the mat bonding paste has cured, press-in the Divinycell panels that form the centre tunnel, and use more bonding paste on the edges to ensure an even bond and apply more bi-axial matt. Lay the matt up and over the tunnel both inside and out. Gel wash the complete structure on the inside using black pigment.

9. Offer up the left and right flat panels between the outer floorpan and the chassis longitudinal rails. The panel covers the gap between the outside floorpan and the inside chassis rail. Drill nine 4.9mm clearance holes through the side that overlaps the floorpan then rivet in place using 4.8mm x 12mm aluminium bighead rivets and bond the joint with Sikaflex. At this stage, do not bond or rivet the inboard side that overlaps the chassis.

Dash and Footwell Top

10. Offer up the dash and footwell top supplied and trim to fit. Drill 4.9 mm holes clearance approximately 50mm apart as required along the areas where the panel sits onto the chassis. Bond with Sikaflex and rivet in place.

Footwell Sides

11. Roughen up edges of the footwell sides and glass the panel to the inner wheelarch side.

Assembly Stage 3
Assembly to Car - Fitting/Marking Panels and Parts

Aluminium Chassis Panels

1. Position and fix temporarily the aluminium panels on the chassis. At this

point a few reference holes may be drilled to secure the panels in place using skin pins and also to act as a guide for refitting the panels permanently later. The preferred order for fitting these panels is:

a) Bulkhead panel at the back of tub tunnel
b) Exhaust recess panels
c) Engine-bay sides
d) Top plates

Fuel Tanks Positioning

2. Place the left and right-hand fuel tanks in position and mark the position of the sump under the left-hand tank. Cut out the hole for the sump to allow the tank to rest on the Divinycell floor panel. The hole must be gel washed to seal it. Check height to top of fuel tanks with drawing dimensions, If necessary mark and cut floor pan to drop tanks to correct height.

Fitting Body and Sills

3. Place the body and sills in position on the chassis. Place the side sill onto the inner sill top. The sill is positioned using the door post as the datum line. Place masking tape on the sill around the door post. Draw a line in the same plane as the rearward facing side of the post. From this line measure to the front of the sill. Draw a line in the same plane as the outside facing side of the post. From this line measure to the outside edge of the sill. It is not necessary to secure the two sills as they should hang and butt up to the door post. Measurements should be in accordance with drawing.

4. Position the engine glass-fibre bulkhead panel loosely into the body. Lift the body onto the chassis. This is done by lifting up the rear of the body and pulling apart the 'A' post sections. The front spoiler is hooked over the front edge of the floorpan and the body is then dropped down into place.

5. When in position the body should sit unstressed with the rear of the front wheelarch lining up with the front of the sill. If the body needs to be moved back then the front of the floorpan should be cut to allow this movement.

NOTE. The body should not be stressed under tension when on the chassis.

6. For major retrimming the body may be removed and replaced after the alteration. To allow the right-hand post to sit correctly, it may be necessary to trim a wedge, 10mm down to nothing from the inner dash, from the right-hand door aperture forward in an arc below the right-hand corner of the windscreen.

7. To provide access to secure each of the forward lower radius arm mountings drill a 100mm diameter hole under each mounting. For location measure from the bulkhead and fuel tank side - dimensions to be in accordance with drawing.

Fuel Tanks Fitting

8. Fit the fuel tanks in position, push in the fuel tank side panel, then fit the fuel tank surround.

Slave-fit the Roll Cage

9. Attach the roll cage to the chassis using four M8 x 20mm bolts each side with washers under the heads.

Assembly Stage 4
Assembly to Car - Slaving-up Body and Sills for Alignment

1. Fit a few locating rivets to secure the bottom of the engine bulkhead panel to the chassis step using 3.2 x 10mm rivets.

2. Fix the sills to the chassis using 3.2 x 10mm rivets.

3. If previously removed for trimming, refit the body and fix in position:

   a) Drill rivet holes to fix the rear of the door aperture to the sill using 3.2 x 10mm rivets.

   b) Drill rivet holes to fix the rear of the front wheelarch to the sill and across the top of the dash using 3.2 x 10mm rivets.

4. Mark with a felt tip pen around the lower 'A' post section to define an area to prepare for bonding. At the 'B' post mark the area of the rear of the door aperture, i.e. a straight line across the sill.

5. Offer up the engine bulge panel that fits below the rear window and mark the centre of the bulge with a corresponding central mark on the lower rear window aperture. Scribe each side of the new section to be let-in to make it a clearly visible cut line.

6. Using an air saw, cut out the lower window aperture between the scribed marks and remove, taking care not to cut into the top of the engine bulkhead panel.

NOTE. At this point the rear bodywork may spring apart a few mm. This will be pulled back later.

7. The engine bulkhead top shelf is supplied with a 90 degree downward-facing lip. Remove this lip, using an air saw, until it sits flush with the underside of the body. Offer up the new bulge panel and trim back the rear window retaining flange to match the height of the flange on the body. Trim the engine deck seal flange to match the height of the body.

8. At this point it may be necessary to trim back the engine bulkhead rear shelf further. This should allow the laminate to be applied to have a smooth transition from the shelf up into the new engine bulge.

9. To secure each side of the bulge panel in position, against the cut edges in the body, ready for glassing, make four temporary joining plates from approximately 1mm thick aluminium sheet measuring 20 x 60mm. Drill a clearance hole through the ends of each plate for the self-tapping screws to be inserted into and through the glass-fibre. Place two of the plates on top of the bodywork, one each side of the bulge and the other two each side in the gutter. Pull together the bodywork and the bulge panel, drill through for the self-tapping screws to be used then screw the plates to the bodywork and panel. Check that the new bulge section is aligned and re-adjust if necessary.

10. Drill 12 holes in the bottom outside corner of the window flange through into the rear shelf and, using self-tapping screws, fix together ensuring that the rear shelf pulls snugly up against the rear bodywork. At this point check that the rear shelf is up against the roll bar flanges. If required, drill through the holes in the roll cage flanges and pull the shelf up using penny washers and the M10 bolts.

NOTE. At this stage all the self-tapping screws should be protruding down through the glass fibre. Check all dimensions with the drawing.

11. Around the inside of the car, on the left and right corners of the rear shelf, it may be necessary to bridge any gap between the shelf and the rear of the bodywork. This is done by using masking tape (several layers) stuck on top of the shelf then across the rear wall neatly applied so the underside will assume the correct shape. Support the top of the tape with Free-fix, applied carefully so that none goes onto the structure of the car to ensure it will all be removed later with the tape.

12. Tearing off (do not cut) various sizes of G.R.P. mat, laminate all areas from inside the engine bay, between the engine bulkhead on each of the rear wings and all around the top of, and including, the engine bulge. Do not forget to ensure that the mat covers each join (left and right) completely on the engine bulge. At this point you will be laminating upside-down so apply two layers, one at a time. All the laminate should be pre-wetted on the bench and when in position should be rolled out. Ensure that all air bubbles are removed paying particular attention on the inverted areas around the self-tapping screws.

13. When cured, remove the masking tape complete with Free-fix (if used) from any supported areas. Remove plates and all self-tapping screws. Remove the roll cage to facilitate the next part of the operation. On each cut, left and right of the engine bulge, cut out a 'V' and prepare an area 10mm each side of the cut. Prepare the inside right-angle between the rear

window rubber flange and the shelf. Laminate a single layer between the rear window seal flanges and the engine bulkhead rear shelf and any other areas necessary inside the car.

14. Drill out the 3.2mm rivets with a 4.9mm drill bit, to prepare the holes for bighead rivets. Remove the body structure complete with the engine bulkhead now integral with the body.

15. Remove and invert the body and support it. Prepare the flanges on the underside of the 'A' and 'B' posts. To do this roughen the gel coat which will provide a key. Do the same to the areas previously marked on the sill front and back, ensuring that the line at the rear of the doors is removed in the process.

16. Remove the sills completely. Check that headlight pivots can be fitted after fitting the body; if not, they will have to be cut out prior to fitting the body to the chassis.

Assembly Stage 5
Assembly to Car - Permanent Attachment of Body to Chassis

1. Using Sikaflex apply to the areas of the inner sill where the outer sill touches, from front to rear making an 'S' pattern for good distribution. Fix left and right sills to the chassis. Apply Sikaflex to the sill and all edges of the flat panels using 3.2mm rivets to hold both together while curing takes place.

2. With the body off the chassis, the fuel tanks and engine bay panels can then be secured. Use the pre-drilled holes as a guide. Place the fuel tanks in with Sikaflex on the underside. Push in the lower fuel tank sides. These should have a bead of Sikaflex around the flanges. The fuel tank surround can then be fitted and this too must should be sealed with Sikaflex. The panels can then be secured using 4.9mm bighead rivets.

3. With the fuel tanks in, the engine bay panels can be fitted permanently. The preferred order for fitting these panels is:

    1) Bulkhead panel at back of tub tunnel
    2) Exhaust recess panels
    3) Engine bay sides
    4) Top plates

    Apply a bead of Sikaflex to the joint face of all these panels then rivet in place.

4. Cut 2 oz. of G.R.P. mat to fit on the sill areas that have been keyed up. Wet out with resin and a low catalyst ('slow mix'). Apply a bead of Sikaflex where the rear bulkhead fits to the chassis and along the dash area. Lift the

body onto the chassis and using the pre-drilled holes to align the body rivet in place using an air riveter.

NOTE. Some additional rivets may be required to hold parts in place while the laminate cures.

5. Smooth off or remove any surplus bonding agent or resin using a cloth soaked in acetone. Apply Sikaflex in the engine bay to ensure that there is a neat seal around the bottom of the engine bulkhead to provide a watertight seal.

6. Underneath the body, between the floorpan and the front spoiler apron rear facing lip, drill 10 4.9mm holes, apply a bead of Sikaflex then rivet together using 4.8mm rivets.

7. Mix up a supply of bonding paste then apply it from the inside of the front wheelarches to the flanges. Fill all areas between bodywork and floorpan assembly including, and paying particular attention to, the inner 'A' post.

8. The fuel tank side panels can then be riveted on. There are four panels and they push up against the fuel tank sides. The panels nearest the engine bulkhead face toward the engine whilst the other two face the fuel tanks. These last two panels also have a special foam that is placed in-between the flanges. This foam is heat and fire retardant and must be placed into the respective panels with the silver backed side pushed against the fuel tank. These panels are also Sikaflexed in place.

Assembly Stage 6
Assembly to Car - Roll Cage

1. Attach the roll cage permanently to the chassis using four M8 x 20mm bolts each side of the lower mountings with washers under the heads. Loctite the bolts in place.

2. Insert M10 x 30mm bolts with washers under the heads down through the roll cage flange on the rear shelf near the rear window. Leave bolts hanging through.

3. Fit rear section bars from chassis to underside of panel shelf and fit Nyloc nuts and washers to bolt to the M10 bolts hanging through. Align the bottom brackets with the fixing points and screw the M10 x 40mm bolts down into the chassis nuts with large penny washers under the heads. Loctite threads of all bolts screwed into the chassis nuts.

4. Tighten all bolts and nuts of the roll cage fixing points to torque.

5. After the roll cage has been fitted a plate is welded to each side in the passenger compartment to provide fixing for the door latches.

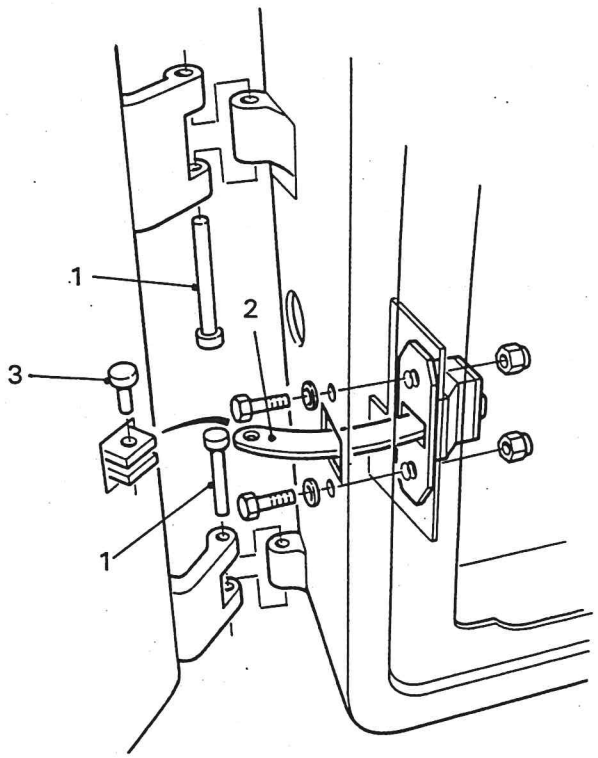
6. The upper and lower mountings for the seat belts are incorporated in the roll cage.

Assembly Stage 7
Assembly To Car - Door Hinges

1. (Refer to Fig.1) The hinges are supplied complete with integral bolts. Insert the bolts through the elongated holes in the door pillar and fit a plain washer and nyloc nut on each bolt and tighten ready for adjustment later.

2. Lubricate the hinges and pins then hang the door inserting the hinge securing pins (1). Adjust position of door in opening then secure the hinge bolts.

3. Insert the door stay (2) into the bracket and fit the fixing pin (3).



KEY
1. Hinge securing pin
2. Door stay
3. Door stay fixing pin

Fig. 1 Fitting Door Hinge

Section 2

ANCILLARY CONTROLS Module 03

Contents

Illustrations

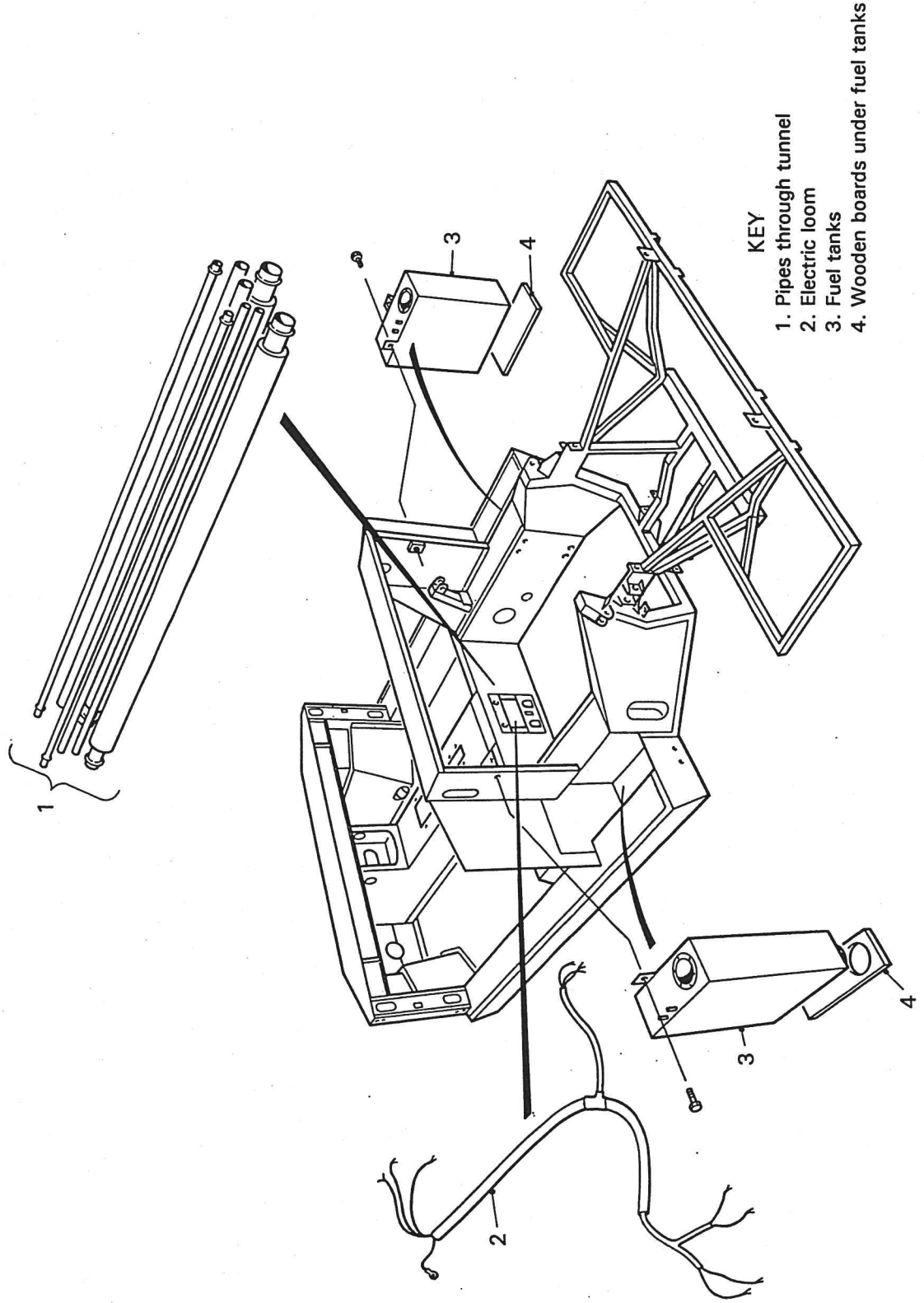


Fig. 1 Fitting Pipes, Electric Loom and Fuel Tanks

Section 2

ANCILLARY CONTROLS Module 03

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Assembly to Car - Fitting Tunnel Pipes And Components
(Refer to Fig.1)
Fitting Tunnel Pipes

NOTE. All pipes (1) are fitted into the tunnel from the engine compartment end.

1. Before fitting the handbrake and gearbox assemblies the following items should be fitted into the tunnel.

   a) Hot water pipes to radiator
   b) Air conditioner pipes, engine to air conditioning unit
   c) Gearchange cables
   d) Handbrake compensator bar
   e) Electrics loom - with warning switch cables to handbrake box
   f) Accelerator cable and fresh air vacuum pipe conduit
   g) Vacuum pipe engine to servos
   h) Heater pipes to heater unit

2. The pipes carrying hot water are to be covered with foam insulation through the tunnel. First cut off the length of insulation required then feed this into the tunnel through the large hole. Align it with the hole through which the pipe will pass then push the pipe through the foam and finally position the pipe correctly.

3. Repeat insulation procedure for the other hot water and heater pipes.

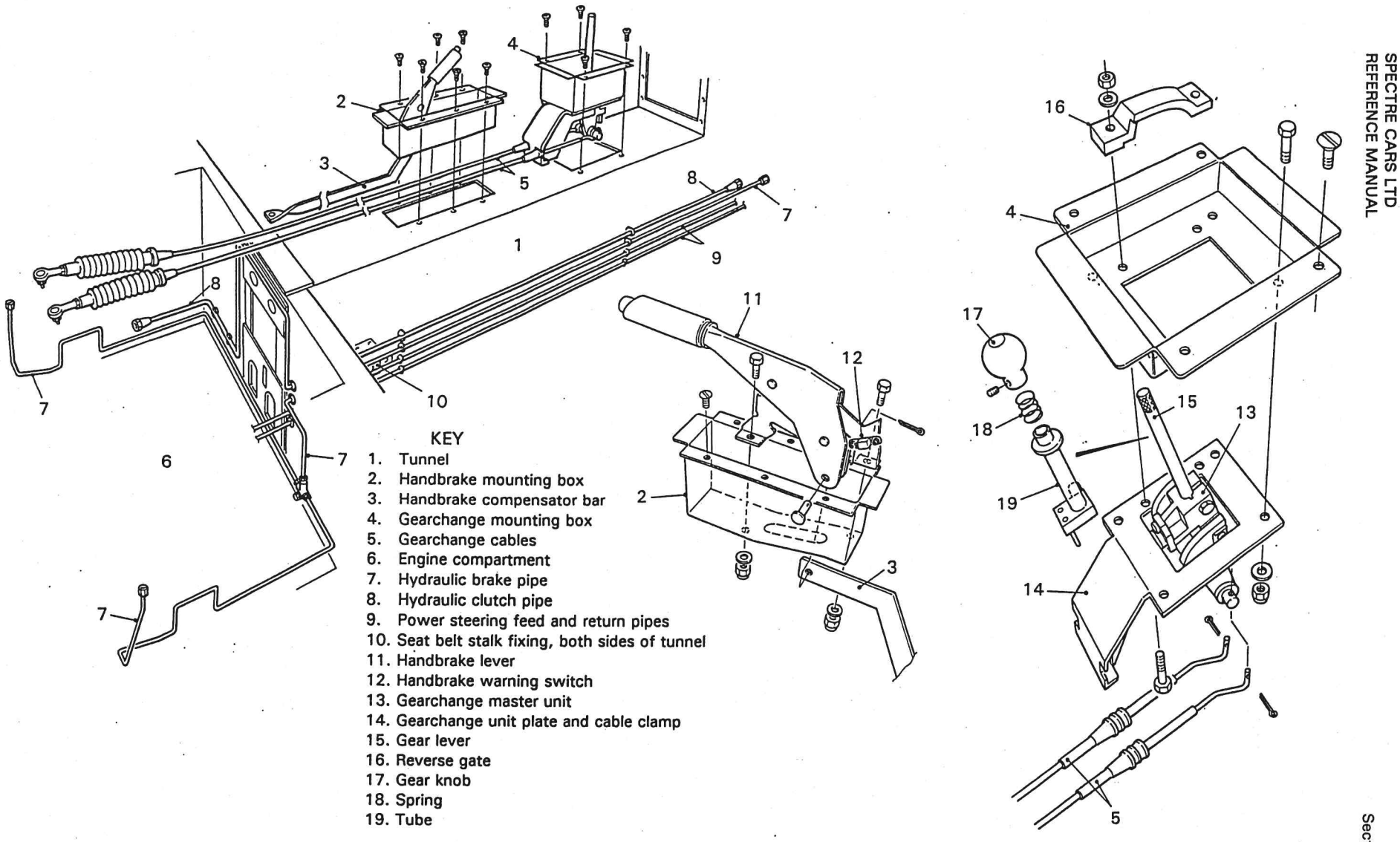


Fig. 2 Fitting Components In and On Tunnel

Assembly Stage 2
Bench Assembly - Modification of Handbrake Assembly

1. Modify the handbrake assembly by drilling out the rivet attaching the link arm which is then discarded. Open out the rivet hole to M10 clearance ready to accept clevis pin.

2. Screw brake warning light microswitch to brake lever.

Assembly Stage 3
Bench Assembly - Modification of Gearchange Assembly

1. Modify the gearchange lever shaft in accordance with drawings. Cut off 50mm from the bottom of the shaft and reassemble into mechanism.

2. Modify the gearchange lever tube in accordance with drawings. Cut out 50mm from tube and weld together the cut ends. This tube is lifted by the top ring against the gear knob when engaging reverse - this lifts the nylon bush onto the reverse gate until the lever is moved back into neutral.

Assembly Stage 4
Assembly to Car - Fitting Handbrake and Mounting Box
(Refer to Fig. 2)

1. Connect the cables from the electric loom to the handbrake warning microswitch (12).

2. Connect the compensator bar (3) to the brake lever (11) by inserting a clevis pin through the M10 hole. Insert the split pin and spread the ends.

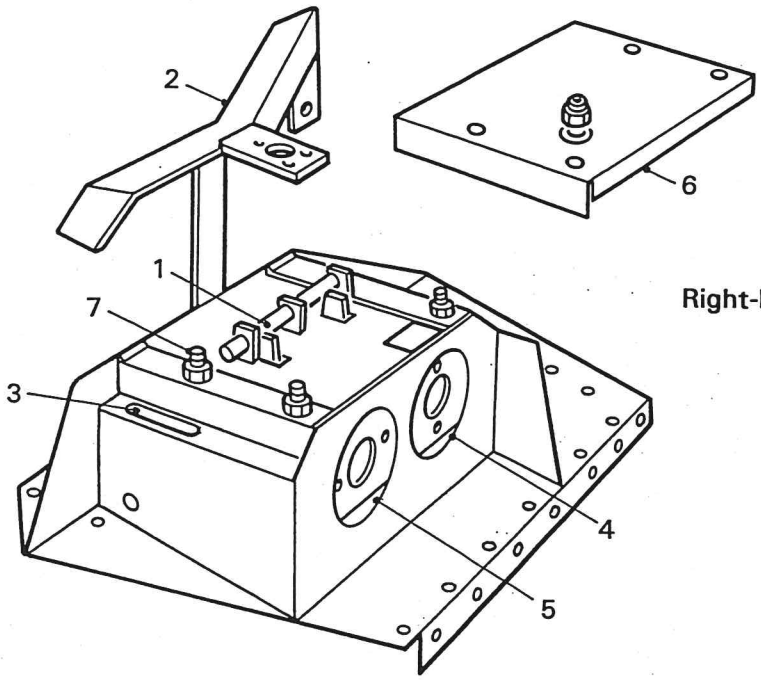
3. Screw down the handbrake mounting box (2) into the top of the console using M8 x 20mm countersunk screws.

Assembly Stage 5
Assembly to Car - Fitting Gearchange Mechanism and Mounting Box
(Refer to Fig. 2)

1. Bolt the gearchange unit plate and cable clamp assembly (14) down into the gearchange mounting box (4) using four bolts. The reverse gate plate (16) is fitted inside the box using two bolts passed up through the box and secured with washers and Nyloc nuts.

2. Connect the gearchange cables (5) onto the gearchange master unit. Each cable terminates in a hook which is linked into the gearchange selector mechanism and secured by a split-pin.

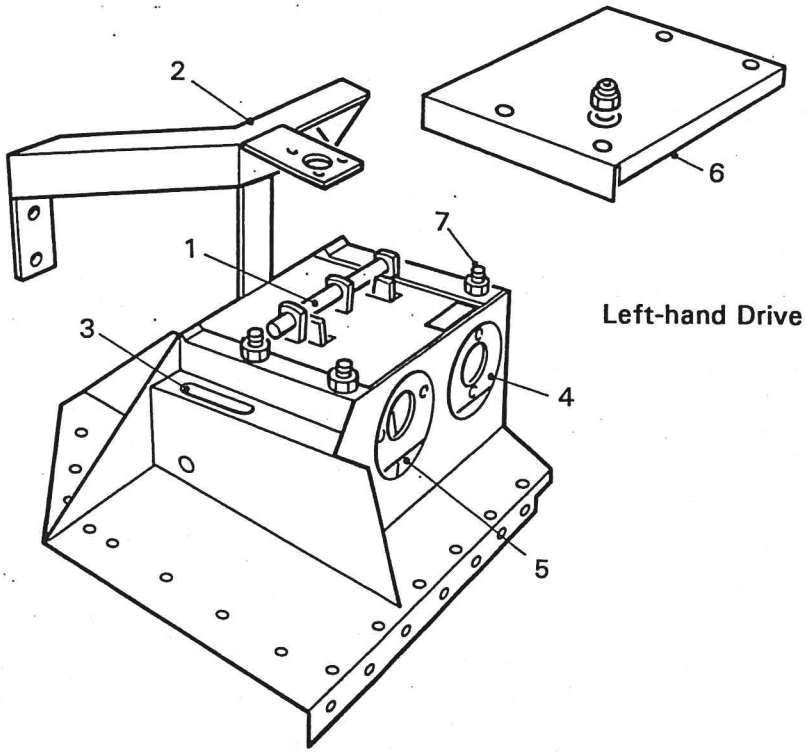
3. Drop the assembled box into the hole in the top of the tunnel. Screw down into the console using four M8 x 20mm countersunk screws.



Right-hand Drive Box

KEY

1. Brake and clutch pedal carrier on plate
2. Wiper motor bracket
3. Accelerator pedal slot
4. Aperture for clutch master cylinder
5. Aperture for brake pedal master cylinder
6. Pedal box cover
7. Cover mounting bolts



Left-hand Drive Box

Fig. 3 Pedal Box and Wiper Motor Bracket

4. Slide the gearchange lever tube (19) down over the lever (15) with the two forks facing towards the rear and fitting over the projection in the casting to prevent the tube rotating. The gearchange lever is completed by sliding a spring (18) down over the top of the lever onto the tube and fitting the gear knob (17) which is secured by tightening the grub screw.

NOTE. The gear knob is usually fitted later with trim installation.

5. In the engine compartment tie the gearchange cables back out of the way until engine and gearbox are fitted.

Assembly Stage 6
Assembly to Car - Pipes Fitted on Passenger's Side of Tunnel

1. Refer to Fig. 2. Hydraulic brake (7) and clutch (8) pipes, and power steering feed and return pipes (9) are clipped to the passenger's side of the outside face of the tunnel using 'P' clips. They must be kept clear of the seat belt stalk fixing (10). They should be sealed where they pass through the forward and rear bulkheads using Sikoflex and grommets. Refer to Brake Parts Module 09, Clutch Parts Module 11 and Steering Module 20 for details on these pipes.

2. After pipes are fitted they are covered by plates. The long plate has a hole that coincides with the seat belt stalk fixing and this should be positioned before fixing the plate in position. Drill for fixing using big-head $^{3}/_{8}$ in. 10 gauge self-tapping screws. Fit edging on rear end. Fit front cover plate butting up against the main plate.

Assembly Stage 7
Assembly to Car - Steering Column Plate

1. Rivet the steering column plate to cut-out on top of footwell.

Assembly Stage 8
Assembly to Car - Pedal Box and Wiper Motor Bracket
(Refer to Fig. 3)
Pedal Box
1. Fit the pedal box into position on top of the footwell with Sikoflex sealant under the edges and secure using 4.9mm monobolt rivets. Refer to Brakes Module 09.

Wiper Motor Bracket
2. Fit the LH drive car bracket into position and secure through the edge of the pedal box using 4.9 monobolt rivets. Apply sealant to the riveted joint.

3, The RH drive car wiper motor bracket is of different design and bolts directly to the pedal box. The top bolt fixing is to the pedal box cover bolt, outside the cover, and the other fixing bolt is through a hole in the back of the pedal box using a M8 x 20mm bolt with washers and Nyloc nut.

NOTE. Refer to Brake Parts Module 09 for full information on pedal box and brakes and to Electrical System Module 21 for wiper motor installation and adjustment.

Section 3

HEATING/AIR CONDITIONING Module 05

Contents

Illustrations

Figure

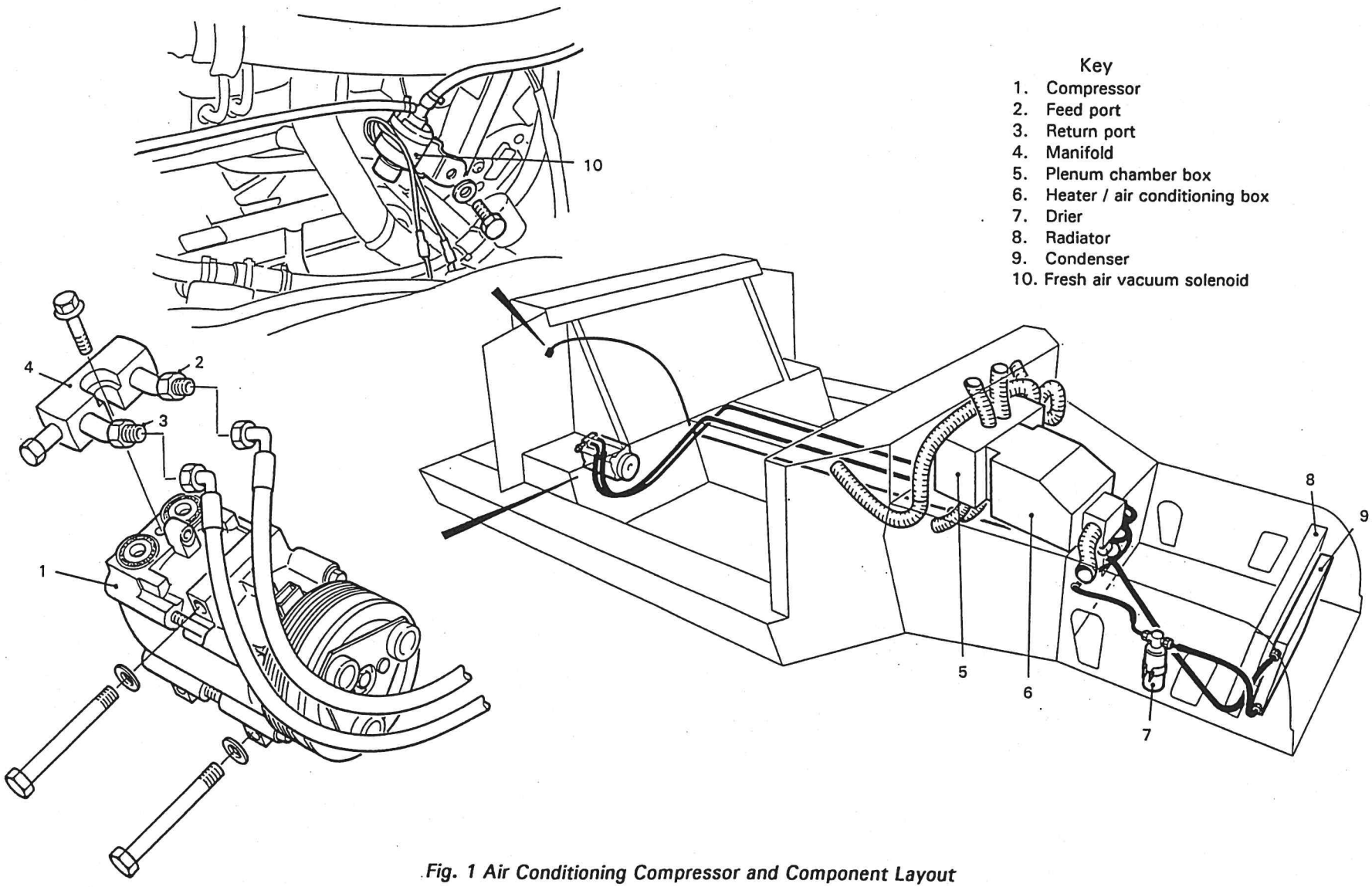


Fig. 1 Air Conditioning Compressor and Component Layout

SYSTEM TAKES
900 grams of GAS

Section 3

HEATING /AIR CONDITIONING Module 05

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Bench Assembly - Preparation of System

CAUTION. - Except when access required, caps and seals must be kept in position on all component connections until final assembly to prevent the ingress of dirt.

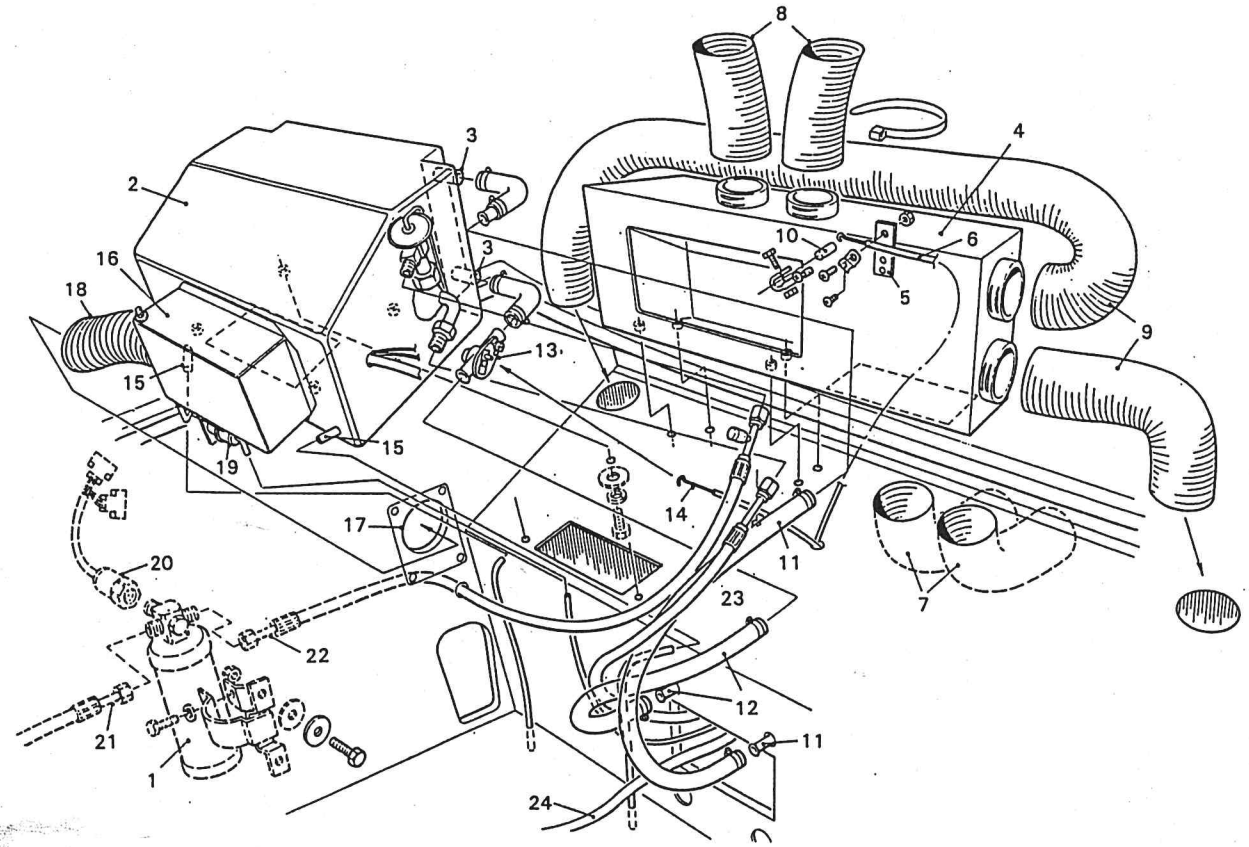
NOTE. The air-conditioning compressor is removed for modification when a new engine is delivered (refer to Engine Main Module 13) and before refitting it should be drained and refilled with compressor oil. However, the oil can be drained through the ports as follows.

NOTE. It is necessary to introduce air conditioning compressor oil when installing the system. A tin of PAG V9222 air conditioning compressor oil, 224ml (8fluid ounces) is used and divided between the components as detailed below.

1. Refer to Fig. 1. Remove the oil from the compressor (1) (if not previously drained) by taking out both port caps (2 and 3) and any filler plugs and turn upside-down to drain. Periodically rotate the compressor hub to pump out any oil that may not have drained. This oil must not be re-used but disposed of safely.

2. With the compressor upright, pour half the contents of the tin of PAG oil into the compressor and keep the remainder. The amount poured into the compressor should be about the amount taken out.

3. (Refer to Water System Module 08). Pour about half the remainder of the PAG oil ($^1/_4$ tin) into the condenser when installing it in the front of the car.



KEY

1. Drier (air conditioning suction accumulator)
2. Heater / air conditioning box
3. Heater ports
4. Plenum chamber box
5. Cable clamp plate and clamp parts
6. Air distribution control cable
7. Air ducting tubes to footwells
8. Air ducting tubes to windscreen
9. Air ducting tubes to footwells near doors
10. Plenum chamber swinging arm
11. Heater water return
12. Heater water feed
13. Heater control valve
14. Heater control cable
15. Heater box condensation drains
16. Fresh air box
17. Air intake
18. Fresh air ducting tube
19. Fresh air vacuum tube
20. Drier cycling switch
21. Connection to condenser
22. Connection to drier from air conditioning port
23. Compressor feed to air conditioning port
24. Return from condenser to compressor

Fig. 2 Heater / Air Conditioning System, Front of Car

4. (Refer to Fig. 2). The remainder of the PAG oil (1/4 tin) should be divided between the drier Fig. 2 (1) and the air conditioning heater box Fig. 1 (6). Pour 1/8 tin of oil into the drier before the unions are assembled. Pour the remaining oil (1/8 tin) into the heater box port not fitted with the expansion valve Fig.2 (23).

5. 'O' rings on the dryer and any other unions should be rubbed with PAG oil.

Assembly Stage 2
Bench Assembly - Plenum Box and Plate

NOTE. The heater box and fresh-air box are supplied riveted together as a complete assembly.

Modification to Plenum Chamber Box

1. Refer to Fig. 2. Modify the plenum box (4) by making a plate (5) to provide a cable clamp mounting point (5) for the air distribution control cable. The small steel plate is 80 x 30mm. Drill three fixing rivet holes for 3.2 x 10mm pop rivets. The fourth hole is drilled for M8 bolt clearance and is in the part of the plate that will project above the top of the plenum box.

2. To establish the fixing position for the small plate to the plenum box measure 110mm from the right-hand side of the box to the centre of the plate position and mark it. Check this position measuring from the swinging arm of the plenum box to the position marked - it should be approximately 75mm. The vertical position for the plate is determined by the fact that the plate should project approximately 30mm above the top surface. Clamp the plate in position then drill the three fixing holes and fit the 3.2 x 10mm pop rivets to secure the plate.

3. Insert an M5 x 16mm bolt through a cable clamp and then through the fixing hole in the plate. Secure using a washer and a nylock nut.

Air Vent Assembly

4. Cut two 3in. circular holes in the plate to accept air ducting tubes (7) and deburr.

5. Fit a length of 3in. air ducting tube, approximately 200mm long (when compressed), through each hole to just project through. Fix them in position using 'Sikoflex' sealant and allow to set. When set, cut off the tube ends flush to top of footwell.

Assembly Stage 3
Assembly to Car - Plenum and Heater Boxes

Plenum Box

1. Refer to Fig. 2. (Note. Refer also to Fig. 3 for information but key numbers not referenced in text). Before fitting the plenum box, place it in the upright

position, and fit the two 2.25in. air duct tubes (8) onto the two vent holes on top of the unit - secure with two cable ties. These are to connect to the air vents for the windscreen.

2. Fit another two 2.25in. air duct tubes (9) onto the vent holes on the side of the unit and again secure with cable ties - these are to connect to the vents in the passenger compartment in the footwells near the doors.

3. Place the plenum box into position over the two air ducting tubes (7). Feed one tube to the footwell through the hole marked from the template and cut. Mark and cut a hole in a similar position for the tube to go into the other footwell.

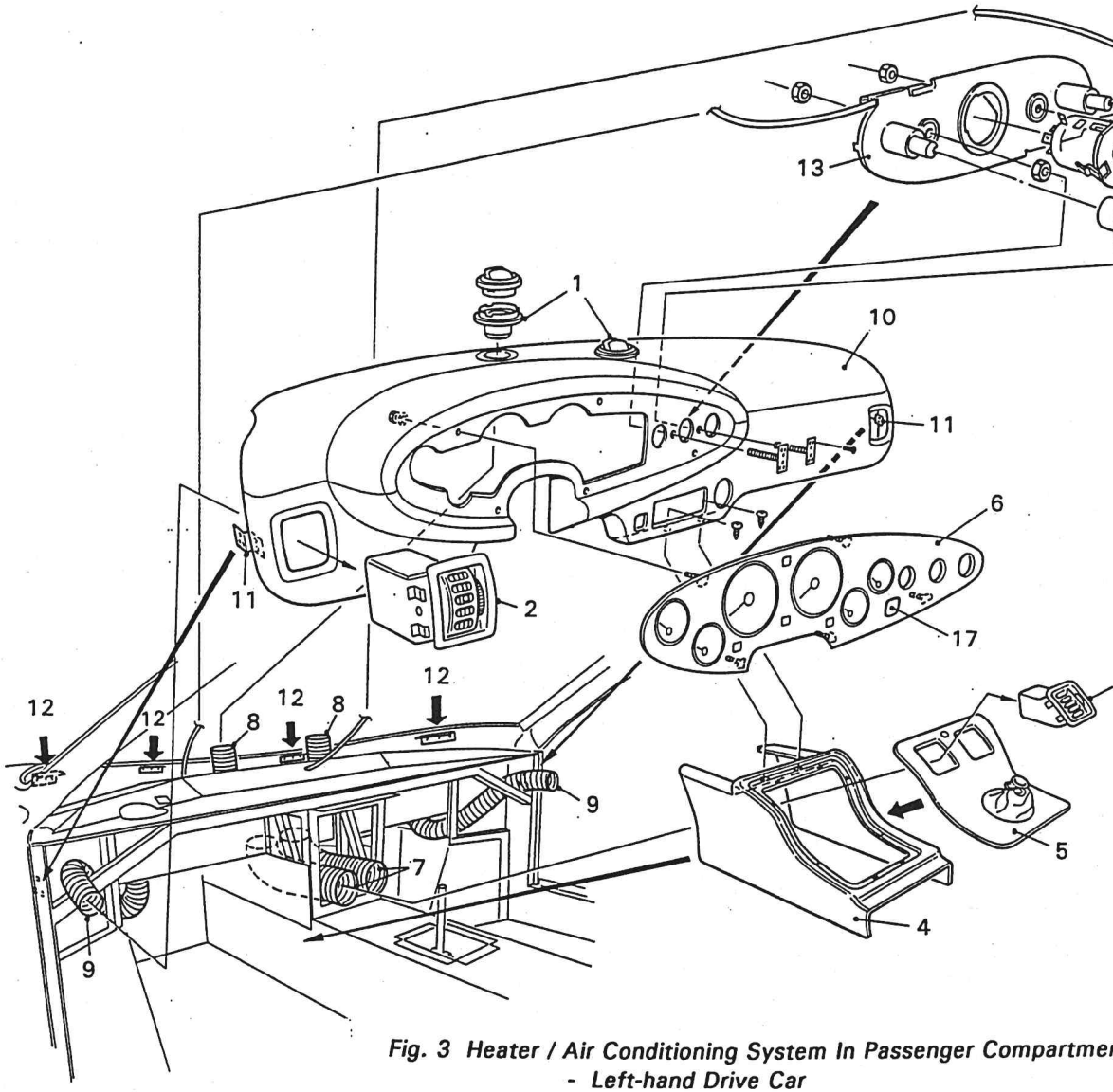
4. Screw the plenum box into position by screwing up from the footwell into the Rivnuts fixed on the unit through the holes drilled from the template. The screws are M5 x 20mm and should have a spring washer under the head and a 'penny' washer.

5. Pass the air distribution directional control cable (6) through from the facia, through the cable clamp on the plenum box and fix onto the swinging arm (10) using an M4 x 15mm screw washer and nut to clamp the end of the cable which is wrapped around the bolt. With the cable fully extended the distance between the cable clamp and the swinging arm should be approximately 90mm.

6. The heater water (engine coolant) connections (11 and 12) from the engine pass through the tunnel via two metal pipes (refer to Water System Module 08). Looking at the tunnel from the front of the car the right-hand pipe (11) connects to the top port (3) of the heater box and is the return pipe. The left-hand pipe (12) from the tunnel is the feed and connects through the heat control valve (13) into the bottom of the heater. The metal pipes from the tunnel are connected to the heater and valve via hoses and these are secured by jubilee clips. Inside the heater box is a heat exchanger radiator and the amount of hot water flowing into it is controlled by the valve which is cable-operated (14) from the controller on the facia.

7. To fit the heater box (2) place it in position pushed up against the plenum box and locate the Rivnuts inside the box over the template holes drilled in the top of the footwell. Fix in position using M5 x 20mm screws with spring and 'penny' washers as described for fixing the plenum box.

8. Connect the two overflow outlets (15) that drain condensation from the heater box via plastic tubing to holes drilled in the floor of the car below the power steering rack. Drill holes approximately 12.5mm diameter and insert the tubing through these applying Sikoflex sealant to hold them in place. At the heater end fix the tubing over the outlet nozzles using cable ties pulled very tight.



KEY

1. Windscreen vents
2. Vents to outside of footwells
3. Vents to knees and footwells
4. Console
5. Centre console panel for vents and gearchange lever
6. Instrument panel
7. Air ducting tubes to footwells
8. Air ducting tubes to windscreen
9. Air ducting tubes to footwells near doors
10. Facia panel (dash)
11. Dash panel fixing brackets on door pillars
12. Dash panel sponson fixing brackets under windscreen
13. Air conditioning / heater control panel
14. Air temperature control
15. Air conditioning / fan control
16. Air distribution control
17. Air recirculation switch

NOTE. For information - Key numbers not referenced in text

Fig. 3 Heater / Air Conditioning System In Passenger Compartment - Left-hand Drive Car

9. Blue and white wires supplied connected on the Ranco switch combine with the fan wiring at a 6-way connector.

Fresh Air Box

10. This fresh air box (16) is already supplied fixed to the heater/air conditioning box and should be connected to an air intake point as follows. The air intake hole (17) should be cut from the front service area behind the luggage compartment through into the nearest wheelarch (depending on whether it is a left- or right-hand drive car) and positioned below the compartment cover hinge and in front of the suspension. Cut a circular hole 3.25in. (83mm) in diameter using a hole saw.

11. Fit 3in. air ducting tube (18) onto the fresh air box intake and secure in position with a cable tie pulled very tight. Route the tubing to the hole in the wheelarch and secure by applying Titan Fast hole edging to the hole before pushing the ducting into the hole.

12. A fresh air vacuum valve (19), fitted on the fresh air box on the heater box, is connected via a 6mm id rubber hose to a vacuum solenoid at the rear of the engine.

13. The air recirculation push-button switch located on the driver's air conditioning control panel is used to switch fresh air on/off. When the switch is pushed an integral indicator lights amber to show fresh air selected. This selection also operates the vacuum solenoid Fig.1 (10) at the rear of the engine to supply a vacuum to the vacuum valve on the heater box to allow fresh air to be drawn in for distribution into the passenger compartment.

14. The fan variable speed control, also located on the air conditioning panel, operates the fan in the heater box. This fan is used to blow hot air, fresh air, or cold air, depending on the selections made by the driver.

Assembly Stage 4
Assembly to Car - Air Conditioning Dryer and Condenser
(Refer to Fig. 2)

NOTE. The condenser mounting procedure is provided in Water System Module 08 because it must be fitted on the front of the radiator.

1. The air conditioning suction accumulator/dryer (1) is fitted inside the wheelarch nearest to the heater box (depending on whether it is a left- or right-hand drive car). The dryer fixing bracket is attached to the inside wall of the wheelarch. Drill fixing holes for two M6 x 40mm bolts and put a standard washer under the head of the bolt before inserting through the wall. Fit nylock nuts and washers to secure the bolts and bracket.

2. Fit the air conditioning cycling switch (20) to the fitting on top of the drier.

3. Fix the dryer into the bracket using an M6 x 30mm bolt with a spring washer under the head of the bolt.

NOTE. Before connecting the condenser and dryer refer to Assembly Stage 1 for information on introducing PAG oil into the system.

4. Connect an 8mm id hose (21) fitted with unions from the dryer inlet union marked 'IN' to the condenser installed in front of the radiator. When connecting the union rub the 'O' ring with PAG compressor lubricating oil then push it all the way down over the male end. Make sure the union has gone fully home before tightening. When securing the union do not lever the spanner against the drier because it is not strong enough. Instead, use two spanners with both sides of the union being tightened one against each other.

5. Connect the 8mm id rubber hose (22) between the heater/air conditioning box port (22) and the other drier union in the same way as described above.

6. Connect the 13mm id rubber hose (23) carrying the refrigerant output from the compressor to the port at the heater/air conditioning box. Connect the return 13mm id rubber hose (24) from the condenser to the compressor input.

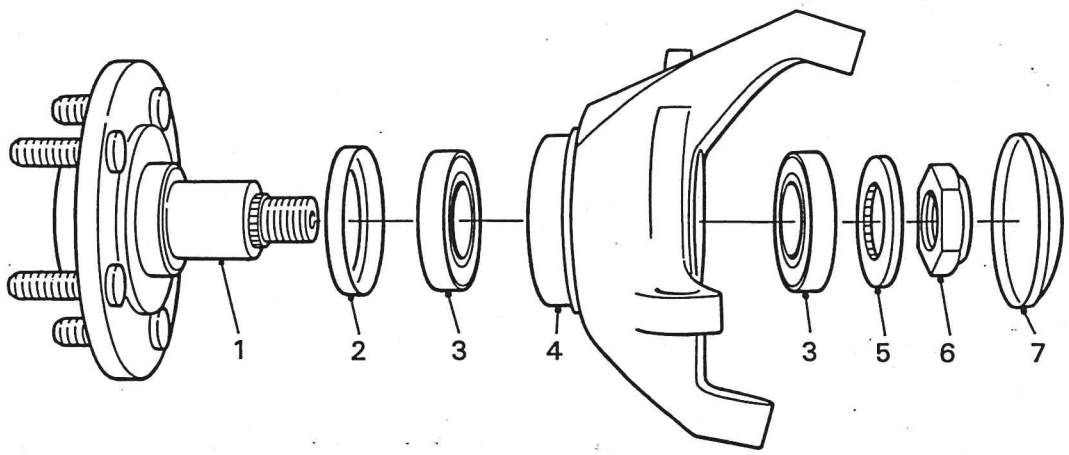
Section 4

SUSPENSION FRONT Module 06

Contents

Illustrations

Figure



KEY

1. Front hub
2. Seal
3. Bearings
4. Hub carrier
5. Splined washer
6. Colour-coded nut
7. Grease cap

Fig. 1 Front Suspension Hub and Carrier Assembly, Right-hand Side

Section 4

SUSPENSION FRONT Module 06

NOTE
The following procedures are for assembly of the left-hand side of the car unless otherwise stated - if an illustration is a view of the right-hand side it is titled accordingly. The same assembly procedure should be used for the right-hand side of the car except where specific differences are stated.

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Suspension Bushes

3. In preparation for suspension assembly, smear rubber bushes and anti-roll bar peanut rubbers, and the shanks of the bolts to be inserted in them, with rubber lubricant. Press into all the components using fly press and tube support.

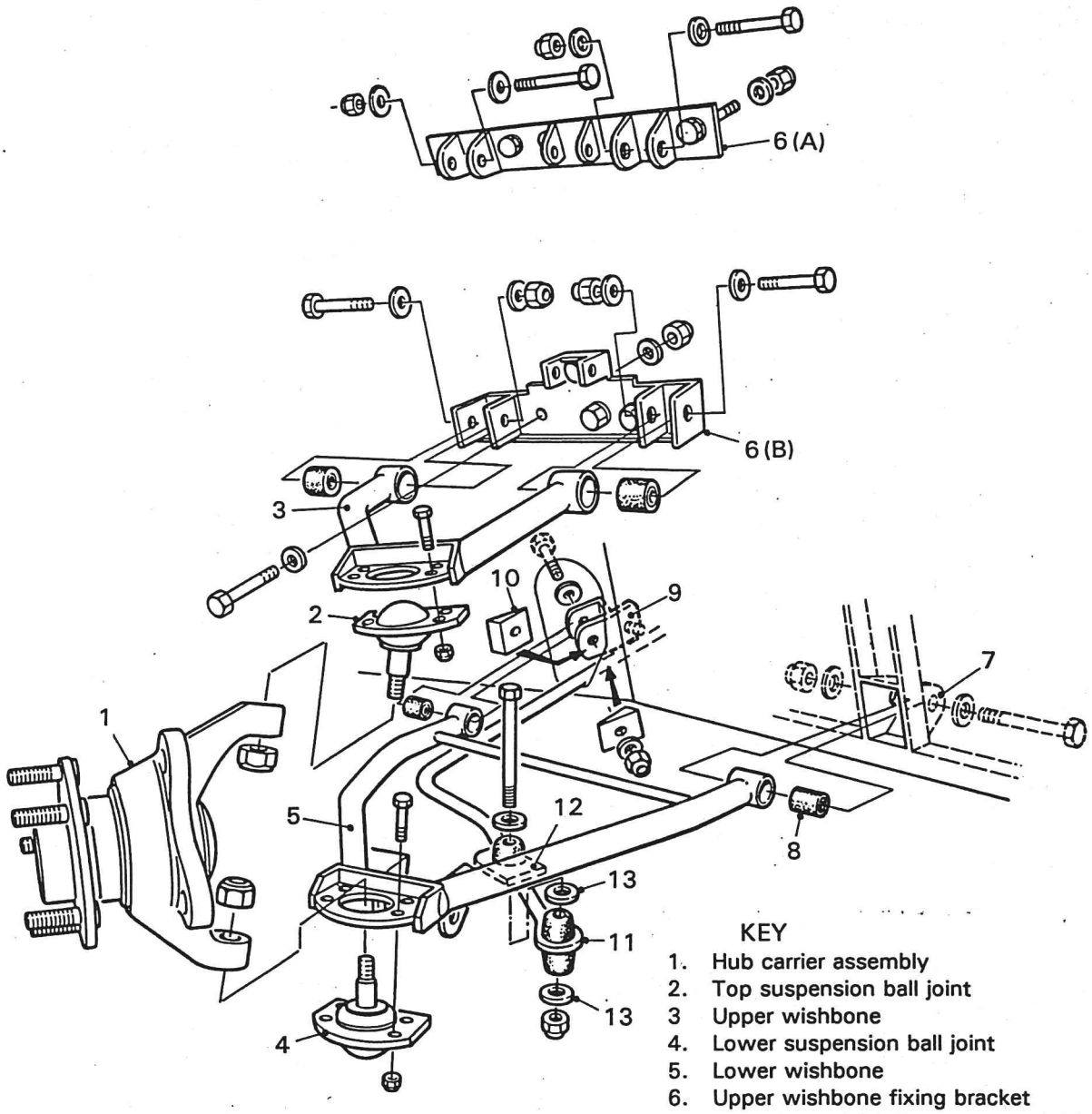
Assembly Stage 1
Bench Assembly - Front Hub Carrier and Hub
(Refer to Fig. 1)

1. Install the front wheel bearing kit into the front hub carrier and pack the bearings with Castrol High Temperature LMX grease. Using the fly press and the double-ended press tool for bearings and seals, press in the inner and outer bearings and the seal between the outer bearing and the hub.

NOTE. Prior to fitting a new front hub, substitute special 50mm studs.

2. Install the front hub (1) through the seal (2), bearings (3) and hub carrier (4) and fit a splined washer (5) onto the hub spline. Secure with the correct colour-coded nut (6) tightened in two stages - tighten to torque. Fit the front hub grease cap (7) to complete the assembly packing it with the same bearing grease as in Op. 1 above.

NOTE. The hub nuts are colour coded; Yellow for left-hand side (left-hand thread). Blue for right-hand side (right-hand thread). Front hub flanges are marked 'L' and 'R'



KEY

1. Hub carrier assembly
2. Top suspension ball joint
3 Upper wishbone
4. Lower suspension ball joint
5. Lower wishbone
6. Upper wishbone fixing bracket (A early models) (B current models)
7. Lower wishbone rear anchor point
8. Wishbone rear suspension bush
9. Lower wishbone forward mounting
10. Mounting wedges
11. Anti-roll bar end
12. Anti-roll bar mounting bracket
13. Thick washers

Fig. 2 Front Suspension Assembly, Left-hand Side

Assembly Stage 2
Bench Assembly - Upper Wishbone
(Refer to Fig. 2)

1. Fit the top suspension ball joint (2) to the upper front wishbone (3) and secure using four M6 x 20mm bolts and nuts.

2. Assemble the suspension ball joint and upper wishbone to the top of the wheel hub carrier (1) and secure by the nut of ball joint.

Assembly Stage 3
Bench Assembly - Lower Wishbone
(Refer to Fig. 2)

1. Fit the lower suspension ball joint (4) to the lower front wishbone (5) and secure using two M6 x 20mm bolts and nuts on the outside holes and two M10 x 20mm bolts and nuts on the inner holes.

2. Assemble suspension ball joint and lower wishbone to bottom of wheel hub carrier (1) and secure by nut of ball joint.

3. Tighten all nuts of completed hub/wishbones assembly to the correct torques.

Assembly Stage 4
Assembly to Car - Front Suspension
(Refer to Fig. 2)

1. Bolt the upper wishbone fixing bracket (6) to the chassis mounting points using three M10 x 35mm bolts and a M10 x 60mm bolt with plain washers under the heads and under the nyloc nuts.

2. Offer up the suspension assembly upper wishbone (3) to the two outer brackets of the upper anchor point. At each bracket insert an M12 x 60mm bolt, with a plain washer under the head, through the bracket and the wishbone suspension bushes. Add a plain washer on each bolt then loosely screw-on a nyloc nut. Do not tighten at this stage.

3. Pivot the assembly to locate the lower wishbone (5) in position on the lower anchor points. The rear anchor point (7) is accessed either via the footwell of the passenger compartment on early cars or via the wheelarch on later cars. Insert an M12 x 70mm bolt with a plain washer under the head. Insert the bolt through the anchor point and the wishbone suspension bushes (8). Add a plain washer on the bolt then screw-on a nyloc nut. Do not tighten at this stage.

4. The lower wishbone forward mounting is a bracket (9) fitted to the front bulkhead and it is accessed through the front service area and the footwell. The bracket is secured by two bolts, one through the single fixing hole and the other through the bracket, the wishbone mounting and the bulkhead. This mounting is angled to the front bulkhead and a pair of wedges (10) is used to fill the angled gap, one between the bracket and the face of the bulkhead and the other inside the footwell under the washer and nut.

   Insert an M10 x 30mm bolt with a washer under the head through the bracket fixing hole and secure with a washer and nyloc nut inside the footwell.

   Insert an M12 x 90mm bolt with a washer under the head, passing through the bracket, wishbone mounting bush, wedge, bulkhead and inside the footwell, the second wedge. When tightening the bolt rotate the wedges so that the thick side coincides with the wide gap between the bracket and the bulkhead and on the footwell side the wedge should be rotated in the opposite direction to allow the nut to be tightened square with the wedge. Secure with a washer and nyloc nut.

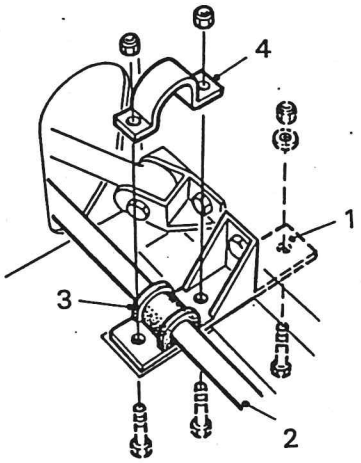
5. Fit the anti-roll bar brackets (Fig. 3) (1) on the front bulkhead using an M10 x 30mm bolt, with a washer under the head, through the bulkhead into the footwell and fit a washer and nyloc nut and tighten. Fit the second fixing bolt by drilling down through the footwell and inserting a bolt with a washer under the head up through the footwell and secure the bracket using a washer and nyloc nut.

   Fit the anti-roll bar (2) into position and fit the 'D' type split rubber anti-roll bar spacers (3). Fit the clamps (4) over the spacers and insert two bolts M10 x 30mm, with washers under the heads, up through the bracket and fit a washer and nylock nut on the bolts but do not tighten until the ends of the anti-roll bar are fixed. Centre the anti-roll bar before the next operation and adjust to fit.

6. (Refer to Fig. 2). Position the anti-roll bar end (11) under the peanut rubber bush of the anti-roll bar mounting bracket (12) on the lower wishbone. Insert an M10 x 100mm bolt with a special thick washer (13) under the head. Insert the bolt through the bracket peanut bush and add another special thick washer (13) before passing it through the anti-roll peanut bush in the bar end. When the bolt is fully through, add a third special thick washer (13) then screw on a nyloc nut to secure the bolt.

Assembly Stage 5
Assembly to Car - Shock Absorber
(Refer to Fig. 4)

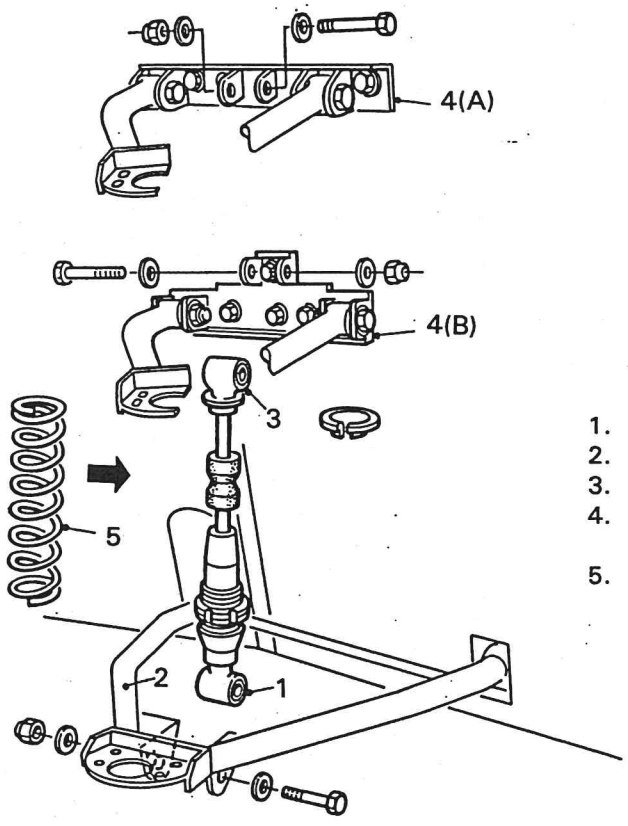
1. Bolt the assembled shock absorber lower end (1) into the bracket (2) of the lower wishbone using an M12 x 60mm bolt with washers under the head and behind the nylock nut.



KEY

1. Bracket
2. Anti-roll bar
3. Split rubber spacer
4. Clamp

Fig. 3 Front Anti-roll Bar



KEY

1. Shock absorber lower end
2. Lower wishbone bracket
3. Shock absorber upper end
4. Upper wishbone mounting bracket (A early models) (B current models)
5. Spring, fitted onto shock absorber before assembly on car. (Refer to Engineering Process Specification 7).

Fig. 4 Front Shock Absorber Assembly

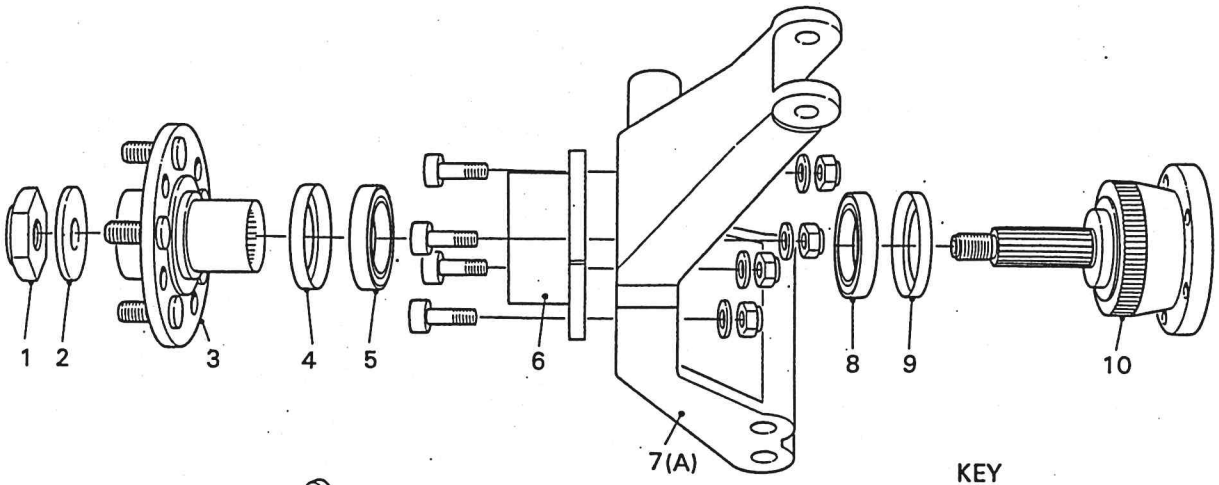
2. Bolt the shock absorber upper end (3) into the centre bracket of the upper wishbone mounting (4) using an M12 bolt with washers under the head and above the nylock nut.

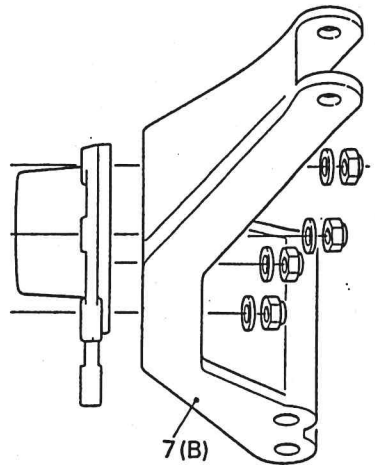
Section 5

SUSPENSION REAR Module 07

Contents

Illustrations





KEY
(Common to Fig .1 and 2)

1. Spindle nut
2. Splined washer
3. Rear hub
4. Seal
5. Bearing
6. Bearing carrier

7(A). Hub carrier (upright) - front-mounted calliper

7(B). Hub carrier - rear-mounted calliper (early cars)

8. Bearing
9. Seal
10. Outer shaft
11. Handbrake assembly
12. Brake disc
13. Calliper brake

Fig. 1 Rear Hub and Carrier Assembly LH Side (Handbrake Not Shown)

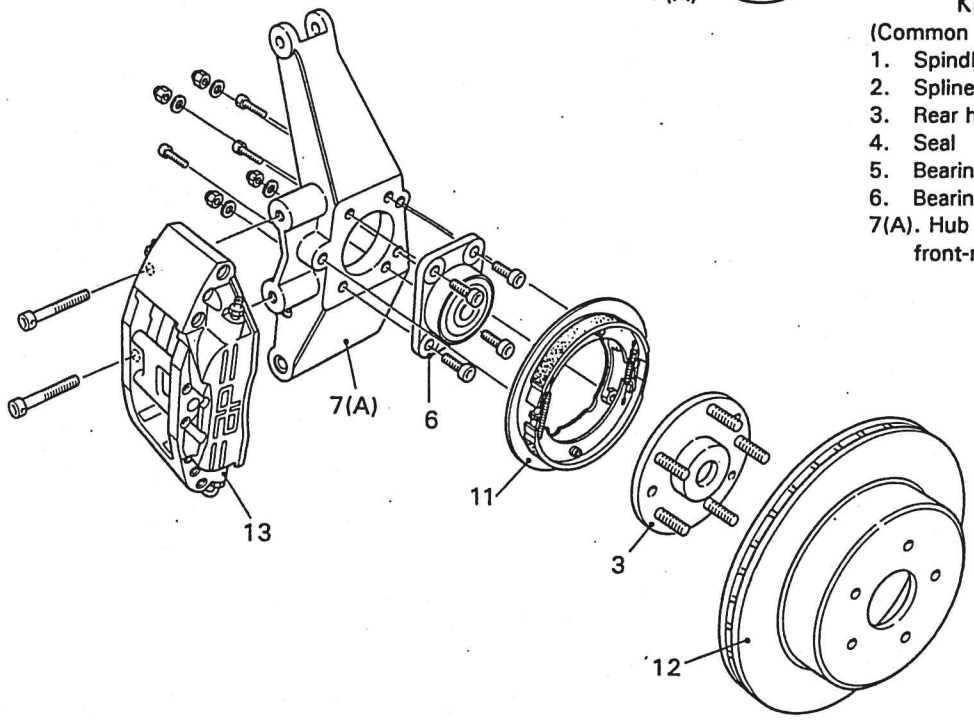


Fig. 2 Rear Hub LH Side Showing Handbrake Assembly (Refer to Brake Parts module)

Section 5

SUSPENSION REAR Module 07

NOTE
The following procedures are for assembly of the left-hand side of the car unless otherwise stated - if an illustration is a view of the right-hand side it is titled accordingly. The same assembly procedure should be used for the right-hand side of the car except where specific differences are stated.

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Suspension Bushes

3. In preparation for suspension assembly, smear rubber bushes and anti-roll bar peanut rubbers, and the shanks of the bolts to be inserted in them, with rubber lubricant. Press into all the components using fly press and tube support.

Assembly Stage 1
Bench Assembly - Uprights and Hubs
(Refer to Fig. 1)

1. Install the rear bearing kit into the bearing carrier (6) and pack the bearings with Castrol High Temperature LMX grease. Using the fly press and the double-ended press tool for bearings and seals, press in the inner and outer bearings (5/8) and the seals (4/9).

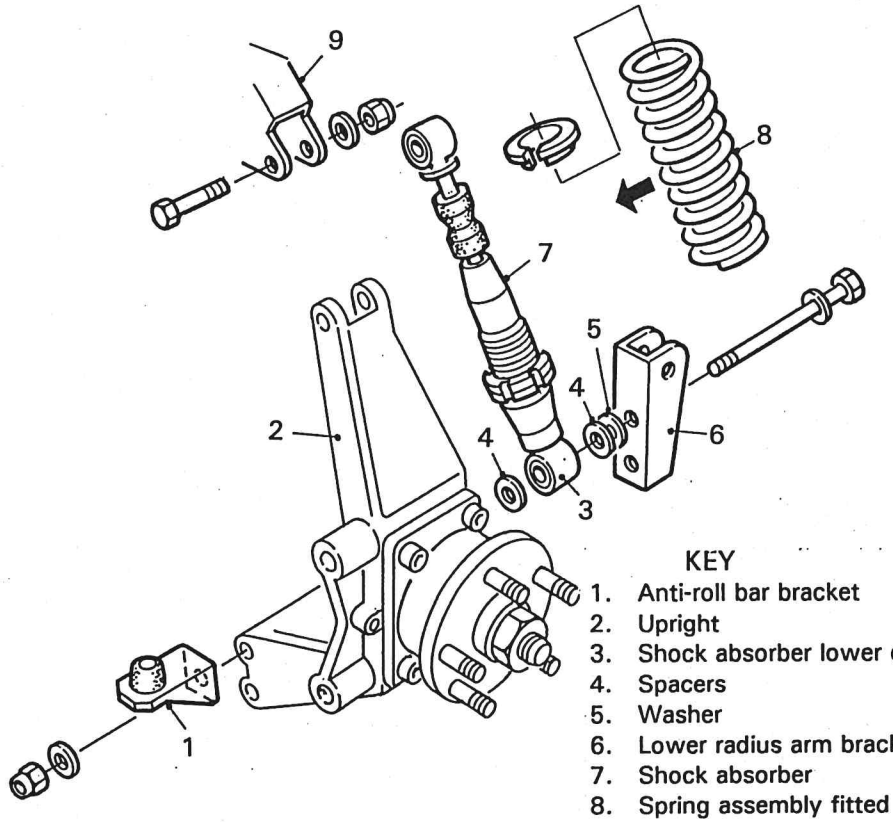
2. Fit the assembled rear bearing carrier (6) by bolting to the rear hub carrier upright (7) using four M10 x 60mm cap-head bolts washers and nuts.

3. Fit the handbrake backplate and brake shoes assembly (Fig. 2). Refer to Brake Parts Module 09 for assembly procedure.

NOTE. Prior to fitting a new rear hub substitute special 50mm studs.

4. Insert the outer shaft (10) through the seals and bearings of the hub now assembled to the upright.

5. Fit a rear hub (3) onto the spline of the shaft and secure with a rear spindle



KEY

1. Anti-roll bar bracket
2. Upright
3. Shock absorber lower end
4. Spacers
5. Washer
6. Lower radius arm bracket
7. Shock absorber
8. Spring assembly fitted onto shock absorber before assembly on car. (Refer to Engineering Process Specification 7)
9. Shock absorber upper mounting (on chassis)

Fig. 3 Rear Shock Absorber Assembly (RH Side)

splined washer (2) and spindle nut (1) tightened in two stages - tighten to torque.

NOTE. The nuts are colour coded; White for left-hand side (left-hand thread). Green for right-hand side (right-hand thread). Rear hub flanges are marked 'L' and 'R'.

Assembly Stage 2
Assembly to Car - Fittings to Uprights
(Refer to Fig. 3)

1. Prepare to fit anti-roll bar bracket (1) to the upper rear bolt hole of the upright (2) using an M12 x 220mm bolt. Pass the bolt through the anti-roll bar bracket and through the upright. With the bolt protruding through the upright fit on the shock absorber lower end mounting (3) with a spacer (4) each side and fit a washer nearest to the shock absorber and radius arm bracket (6).

   Check the shock absorber (7) for clearance at the corner of the upright allowing for movement in operation. Pass the bolt through the bracket (6) and secure with washers and nyloc nut.

2. (Refer to Fig. 4). Fit the 'A' frame (3) fitted with suspension bushes to the bottom bolt hole of the upright using an M12 x 260mm bolt with washers and nuts at each end. Spacers (4) should be fitted between the 'A' frame and radius arm bracket (6) and the upright. Fit washers and nuts on both ends of the bolt to secure.

3. Assembly of link arm (8) (see inset illustration). Screw a pair of rose joints (9) into the ends of the arm with a rose joint half lock-nut (10) on the rose joints and leave loose.

CAUTION. - The correct link arm mounting spacers (11) and washers MUST be selected to fill the gap during assembly, otherwise distortion of the top two lugs will occur causing damage to the upright.

4. To fit the link arm, insert the spacers (11) required from the selection as appropriate, on both sides of the rose joint at the top of the upright. Fit the upper radius arm mounting bracket (7) to the forward side of the upright and secure all with an M12 x 80mm bolt with washer and nut.

Assembly Stage 3
Assembly to Car - Rear Suspension

1. Assembly of radius arms (12) (see inset illustration). Fit a radius arm adjuster (13) with locknut on the rear end of each radius arm and fit suspension bushes (14) at both ends.

2. It is easier to fit the radius arms (12) to the chassis mountings (15/16) before the engine is fitted. Thread the radius arms through the structure and bolt the non-adjustable ends of each arm to the appropriate chassis mounting bracket. Secure both arms using an M12 x 65mm bolt with a washer each side of the bracket and secure with a nyloc nut.

3. Fit the upper radius arm into the top upright mounting bracket (7) and the lower radius arm into the bracket (6) and secure using M12 x 65mm bolts, washers and nyloc nuts.

4. Using an M12 x 70mm bolt secure the top of the shock absorber assembly to the mounting bracket welded to the chassis (5). Fit a washer both sides of the bracket and secure with a nyloc nut.

5. Bolt the 'A' frame (3) to the mounting bracket welded on the chassis (17) using a 3 1/2 in. x 1/2 in. bolt with washers on both sides outside the bracket. Secure with a nyloc nut.

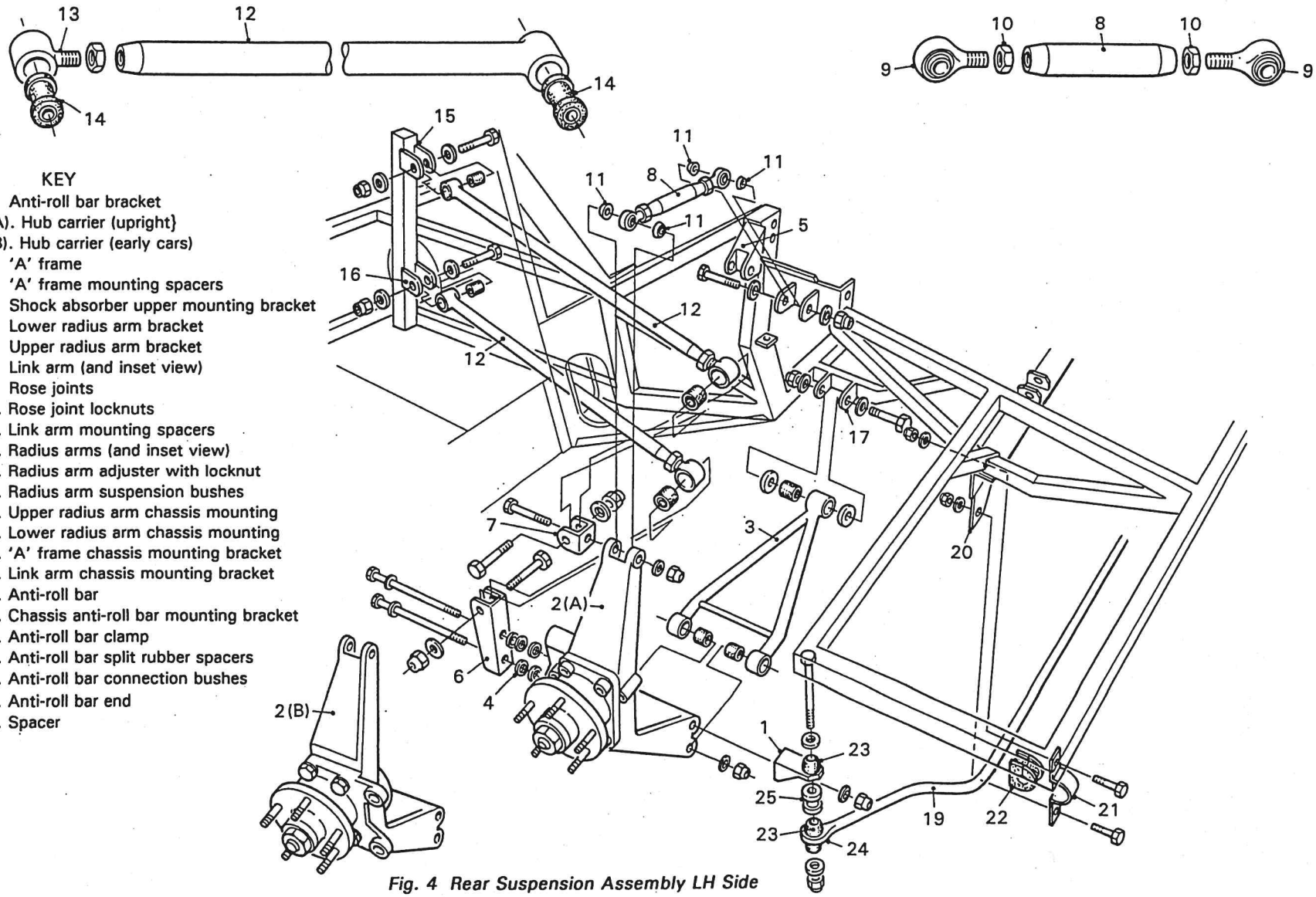
6. Connect the inside end of the link arm to the chassis bracket (18) using a 2 1/2 in. x 1/2 in. bolt with washers both sides of the bracket and fitting spacers (11) from the selection as appropriate, on both sides of the rose joint inside the bracket. Fit a nyloc nut and tighten up. Leave the rose joint locknuts (10) loose.

   The link arm (8) is fitted with a RH thread rose joint on one end and a LH thread joint on the other and adjustments are made to set the camber angle of the rear suspension by rotating the link arm. Because of the effect of the opposing left- and right-hand threads this lengthens or shortens the arm until the correct camber position has been achieved. Then the locknuts (10) are tightened against the link arm ends to prevent further movement. These adjustments are covered under general setting-up procedures for the fully assembled car.

7. Fit the anti-roll bar (19) into position on the chassis and clamp to the chassis mounting brackets (20) using the rear anti-roll bar chassis clamps (21) with chassis spacers and the split rubber roll bar chassis spacers (22). Insert the two M10 x 25mm bolts in each clamp, fitting the chassis spacer at the same time, and fit the washers and nuts but leave slack to centralise bar after the ends have been fixed to the suspension assemblies.

8. The anti-roll bar connection to the suspension comprises peanut bushes fitted in the bracket (23) and in the end of the bar (24). These are separated by a spacer (25). The assembly is secured by an M10 x 120mm bolt passed through with a washer under the head and a washer and nut at the lower end.

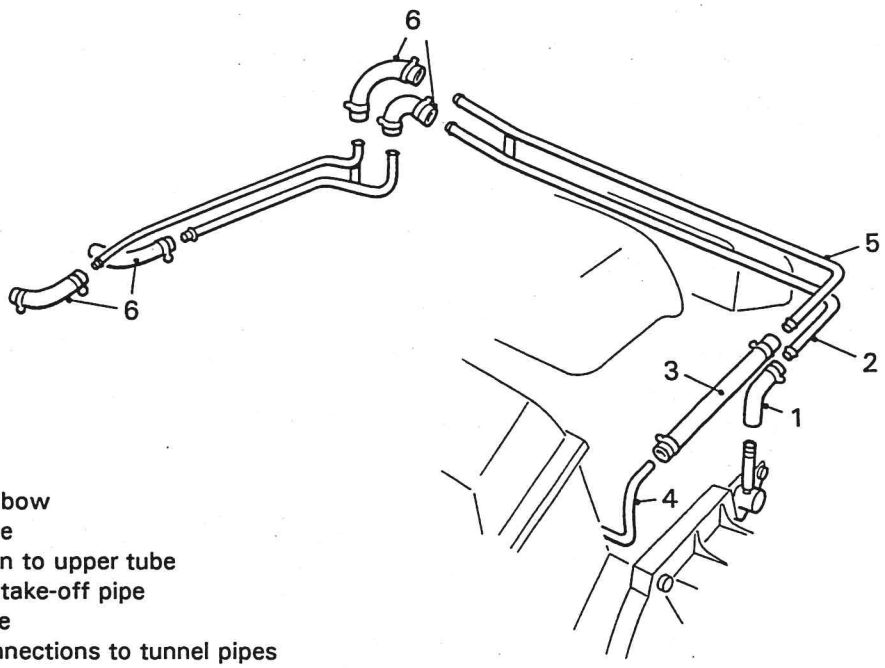
9. Tighten the anti-roll bar fixing clamps (21).



KEY

1. Anti-roll bar bracket
2(A). Hub carrier (upright)
2(B). Hub carrier (early cars)
3. 'A' frame
4. 'A' frame mounting spacers
5. Shock absorber upper mounting bracket
6. Lower radius arm bracket
7. Upper radius arm bracket
8. Link arm (and inset view)
9. Rose joints
10. Rose joint locknuts
11. Link arm mounting spacers
12. Radius arms (and inset view)
13. Radius arm adjuster with locknut
14. Radius arm suspension bushes
15. Upper radius arm chassis mounting
16. Lower radius arm chassis mounting
17. 'A' frame chassis mounting bracket
18. Link arm chassis mounting bracket
19. Anti-roll bar
20. Chassis anti-roll bar mounting bracket
21. Anti-roll bar clamp
22. Anti-roll bar split rubber spacers
23. Anti-roll bar connection bushes
24. Anti-roll bar end
25. Spacer

Fig. 4 Rear Suspension Assembly LH Side (Shock Absorber Not Shown)



KEY

1. 90 deg. elbow
2. Lower tube
3. Connection to upper tube
4. Left-hand take-off pipe
5. Upper tube
6. Elbow connections to tunnel pipes

Fig. 3 Rear of Engine - Heater System Take-off Pipes

5. Fit a brass olive onto the end of the nylon pipe at the radiator. Seal the join with PTFE tape and attach to the radiator expansion connection.

6. Pull back any surplus pipe from the luggage compartment to the engine compartment. Route the pipe to the tee piece in the engine bleed pipe from the bypass tube to the header tank (refer to Assembly Stage 4 Op. 9 (Fig. 4).

7. Clip and tie the nylon tube neatly into place around the engine and luggage compartments to complete the installation.

Assembly Stage 3
Assembly to Car - Coolant to Heater System Piping

1. On the rear of the engine (Fig. 3) locate the two coolant take-off pipes for the heater system, one on the left side the other on the right (facing towards the front of the car). Remove the rubber hose and the pipe from the right side and discard the hose.

2. Shorten the right-hand take-off metal tube by cutting out 70mm from the centre and welding together again the two ends to preserve the lip on the end of the pipe to secure the hose.

3. Fit the twin heater metal tubes assembly along the side of the engine bolting it to the existing rocker cover bolt.

4. The two hot water pipes from the take-off points are attached to the rear end of these tubes as described below; the left-hand take-off is connected to the upper tube and the right-hand take-off to the lower tube.

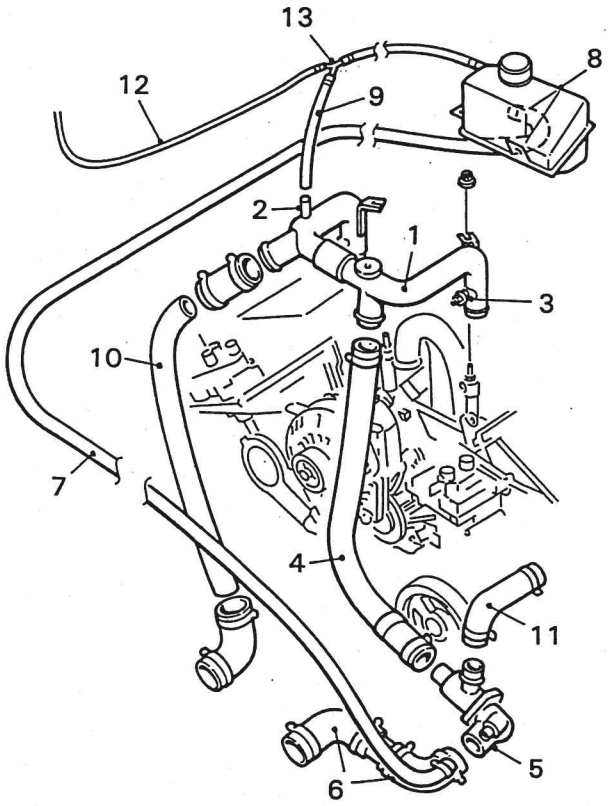
5. Remove and discard the rubber hose from the left-hand side take-off and re-angle the metal tube so that it is horizontal to the engine.

6. Fit a 90 deg. elbow (1) to the pipe from the right-hand take-off pipe and connect to the lower tube (2) on the side of the engine using jubilee clips.

7. Cut 330mm of 16mm inside diameter rubber pipe (3) and connect it to the left-hand take-off pipe (4) at one end and to the upper tube (5) at the other.

8. Pipes are then run down from the forward end of the engine heater tubes to the tunnel and using 90 deg. elbows (6) connected to the pipes already installed through the tunnel using jubilee clips.

   The pipe from the upper tube (left-hand take off) connects to the left-hand tube through the tunnel (when facing towards the front of the car). It conveys hot coolant from the left-hand take-off point to the bottom of the heater matrix via the heater control valve.



KEY

1. Bypass tube
2. Engine bleed tube modification
3. Temperature sender
4. Thermostat to bypass tube connection
5. Thermostat
6. Elbow connection to radiator pipe
7. Header tank to thermostat feed
8. Header tank
9. Engine bleed pipe
10. Bypass tube to radiator
11. Thermostat to water pump connection
12. Radiator coolant expansion pipe
13. Engine bleed pipe/radiator expansion pipe junction 'Y' piece

Fig. 4 Front of Engine - Water System Piping

The right-hand take-off connects to the right-hand tube and conveys coolant back to the engine from the top of the heater matrix. These pipes through the tunnel connect to the heater on the forward bulkhead via the luggage compartment area (Fig. 2) (4).

Assembly Stage 4
Assembly to Car - Modification of Engine Cooling System Piping

NOTE. For the purposes of this description (except where indicated) the left- and right-sides mentioned are when looking at the front of the engine and facing towards the rear of the car. On a new engine the water system will be dry. If the system has been filled it will be necessary to drain down the engine cooling system before starting to disconnect the pipes.

1. Refer to Fig. 4. At the upper front of the engine the water bypass tube (1) connects the water jackets on each side of the engine. It passes across the front of the alternator. Disconnect this tube from the engine in accordance with the instructions provided in the Ford Mustang Engine Manual.

2. Drill a 10mm hole in the left-hand-side pipe of the bypass tube and weld-in a metal tube (2) of 10mm outside diameter and 50mm in length at an angle of approximately 30 deg. to the horizontal.

3. On the right-hand side pipe of the water bypass tube remove and discard the temperature sender. Fit the adaptor and the new temperature sender (3).

4. Refit the modified water bypass tube in accordance with the Ford Engine manual.

5. Locate the large pipe (4) from the thermostat (5) that is to be connected to the right-hand hole in the bypass tube - cut off approximately 150mm of this pipe then connect it in place using a jubilee clip.

6. Fix this hose securely using cable ties to attach it to a bracket fixed to a stud on the bottom right-hand side of the engine to which the old wiring loom was connected before removal. This will keep the hose clear of the crankshaft and the drive belt.

7. Attach the other large diameter pipe from the thermostat to the large pipe running down the left side of the tunnel (facing forwards) to the radiator. To make this connection a 90 deg. elbow (6) will be required and it is attached via a short length of rubber hose. Jubilee clips are used to secure all these connections.

8. Locate the small diameter pipe (7) in the thermostat housing. This should be attached to 19mm od pipe and routed around the engine. This pipe and connects to the coolant expansion header tank (8).

9. Connect a 10mm internal diameter pipe (9) between the additional outlet fitted to the bypass tube (Op.2) via a 'Y' piece to the header tank. This is the main engine bleed pipe. The 'Y' piece is inserted in this pipe above the top RH side of the engine to connect-in the small radiator expansion tube to the header tank (refer to Assembly Stage 2).

10. The remaining opening on the left-hand side of the water bypass tube in front of the alternator is connected to the other large diameter pipe running through the tunnel to the radiator. As the other radiator pipe was connected (Op.7 above) fit a 90 deg. elbow and length of rubber hose up to the water bypass tube. Jubilee clips are used to secure all these connections.

11. The water pump remains untouched by modification. Refer to the Ford Mustang Engine manual if information is required on the water pump. Connect the large bore pipe (11) between the pump and the thermostat.

Section 7

BRAKE PARTS Module 09

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Illustrations

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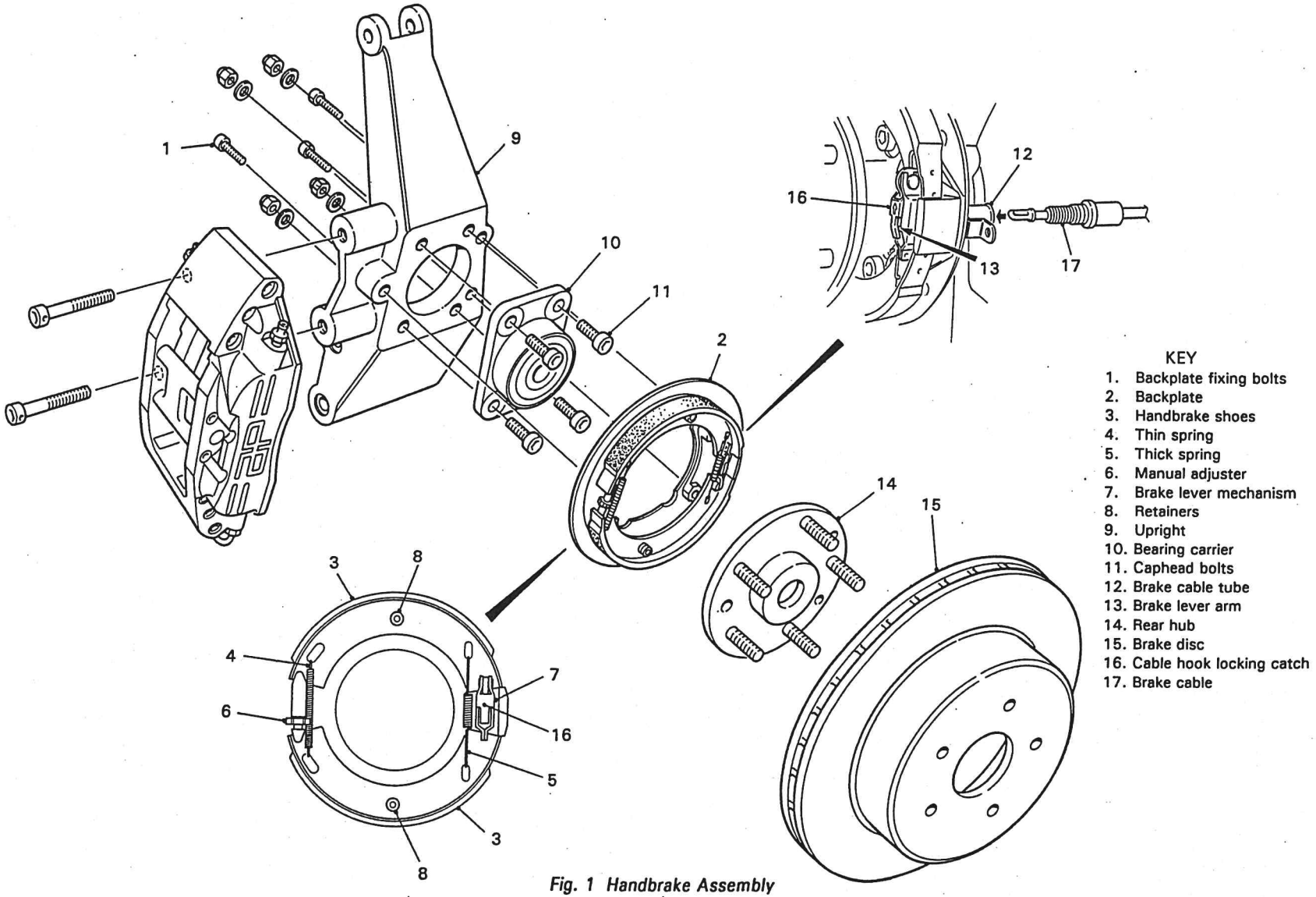


KEY

1. Backplate fixing bolts
2. Backplate
3. Handbrake shoes
4. Thin spring
5. Thick spring
6. Manual adjuster
7. Brake lever mechanism
8. Retainers
9. Upright
10. Bearing carrier
11. Caphead bolts
12. Brake cable tube
13. Brake lever arm
14. Rear hub
15. Brake disc
16. Cable hook locking catch
17. Brake cable

Fig. 1 Handbrake Assembly

Section 7

BRAKE PARTS Module 09

NOTE
The following procedures are for assembly of the left-hand side of the car unless otherwise stated - if an illustration is a view of the right-hand side it is titled accordingly. The same assembly procedure should be used for the right-hand side of the car except where specific differences are stated.

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Assembly to Car - Handbrake

(Refer to Ancillary Controls, Module 03, for information on fitting and connecting handbrake compensator bar and handbrake warning light microswitch).

NOTE. The handbrake kit supplied contains all the parts required for this assembly operation.

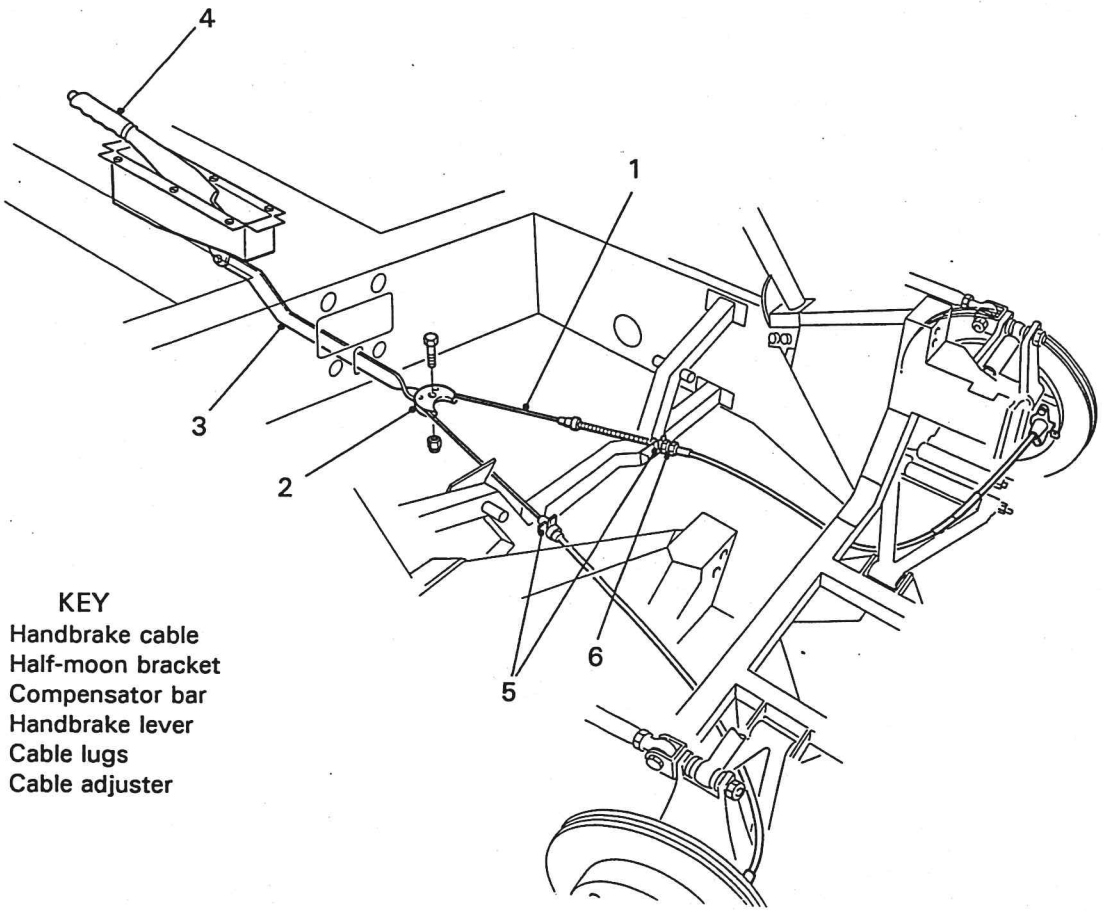
1. (Refer to Fig. 1 Handbrake Assembly). The handbrake backplate (2) should be cut away where necessary so that it can be bolted direct onto the hub carrier (upright) (9). Also remove the outer ring of the backplate. Later versions supplied will already be modified.

2. The handbrake lever mechanism casting (7) is supplied assembled to the backplate.

3. Fit the backplate direct to the assembled upright (9), it fits around (clears) the bearing carrier (10) (refer to Rear Suspension Module 07). Insert three M10 x 55mm bolts (1) through the upright and screw into the captive nuts on the backplate to secure it in place. Tighten to torque.

4. Take the two brake shoes (3) and position them on each side of the handbrake lever (7). Attach the thick coiled spring (5) between the shoes in the pair of holes nearest to the lever, this clamps the shoes in place.

5. Open the shoes and place around the hub next to the backing plate.



KEY

1. Handbrake cable
2. Half-moon bracket
3. Compensator bar
4. Handbrake lever
5. Cable lugs
6. Cable adjuster

Fig. 2 Handbrake Lever, Compensator Bar and Cable Assembly

6. Position the manual adjuster (6) between the shoes on the opposite side to the handbrake lever.

7. Attach the thinner coiled spring (4) between the shoes in the pair of holes nearest to the adjuster (6).

8. The shoes are held in place against the backing plate using quarter-turn shoe retainers (8) and a spring located in the middle of each shoe.

9. (Refer to Fig. 2 Handbrake Lever, Compensator Bar and Cable Assembly). The handbrake cable (1), with a half-moon bracket (2) in the centre, is connected to the compensator bar (3) coming down the tunnel from the handbrake lever (4). The half-moon bracket is bolted to the compensator bar using an M8 x 35mm bolt and nyloc nut with washers under the head of the bolt and under the nut.

10. Feed the wires to each brake through the lugs (5) on the cross member of the chassis. The right-hand lug adjuster (6) is used to vary the overall length of the cable and thereby adjust the handbrakes

11. (Refer to Fig. 1 again). Lift the catch (16) on the handbrake lever. Insert the brake cable (17) into the tube (12) behind the backplate and hook onto the brake lever arm (13). Lower the catch to lock the brake cable hook onto the lever arm.

Assembly Stage 2
Assembly to Car - Calliper Disc Brakes

NOTE. The front calliper brakes are mounted on the rear of the hub assembly and are larger than those used on the rear wheels.

Front Calliper Brakes

1. (Refer to Fig. 3). Bolt the calliper mounting adaptor plate (2) into the hub (3) mountings using two M12 x 1.5mm washers to space it out and secure using two M12 x 40mm caphead bolts applying Loctite to the threads. Do not apply Loctite to any other brake securing bolts.

2. First fit the disc (4) onto the wheel mounting bolts (5).

3. Fit the brake pads into the calliper (1) first applying a thin smear of copper slip on the back of the pad. Take care that no grease is allowed to get onto the braking surface of the pad. Push the pad into position in the calliper between the tension springs.

4. Fit the calliper on the disc and bolt to the mounting adapter plate using two M10 x 80mm fine thread 1.0mm caphead bolts. Tighten to torque and wire lock in accordance with Engineering Process Specification 5.

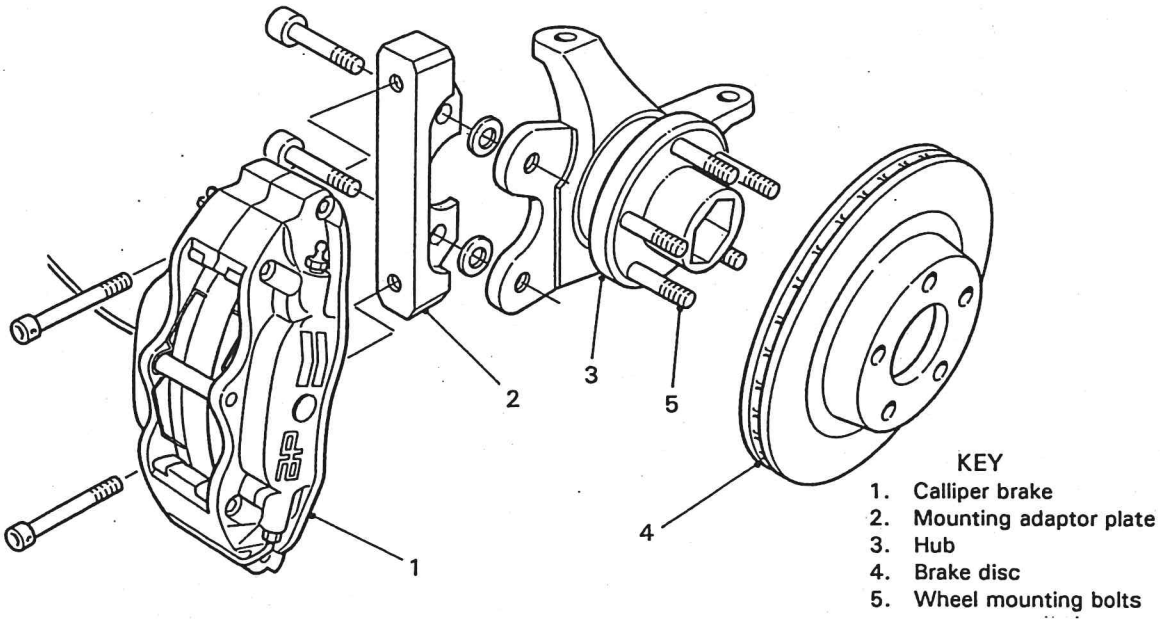


Fig. 3 Front Calliper Brake Assembly, RH Side

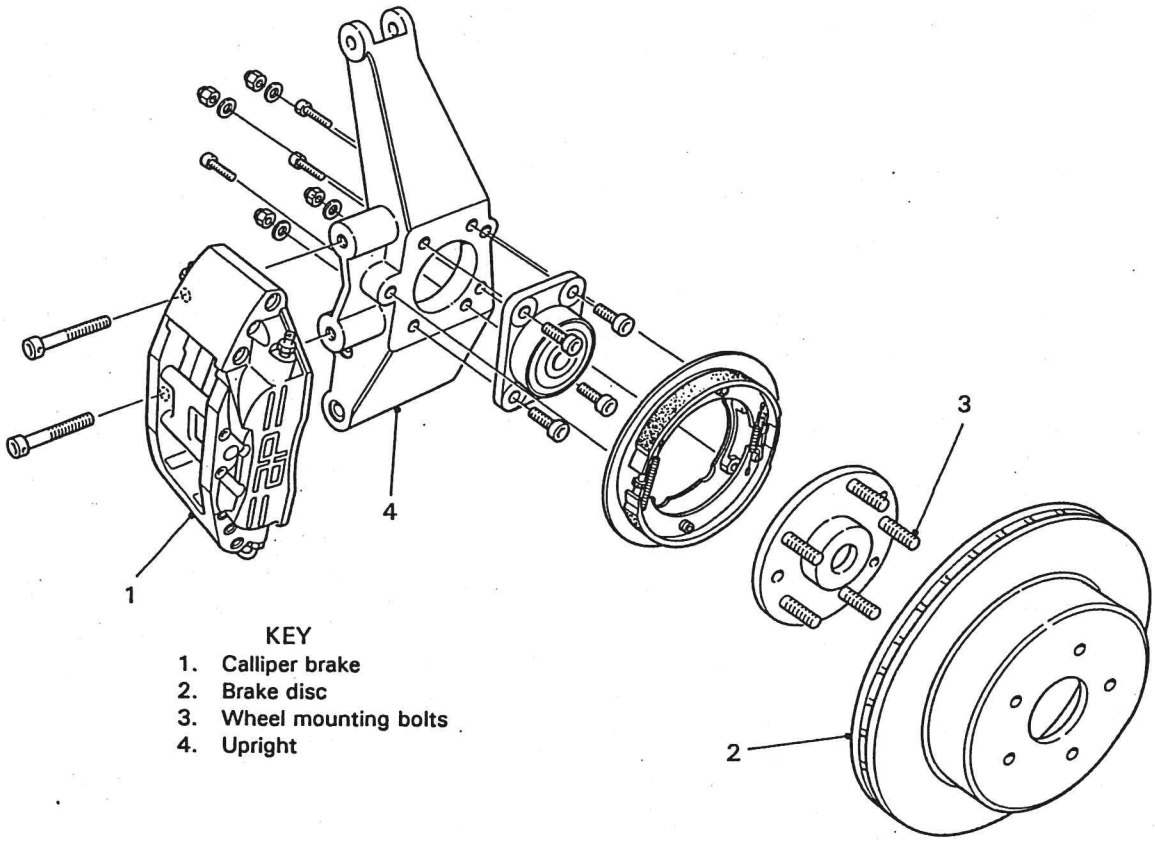


Fig. 4 Rear Calliper Brake Assembly, LH Side

Rear Calliper Brakes

NOTE. The rear callipers are mounted on the front of the upright.

5. (Refer to Fig. 4). Fit the disc (2) onto the wheel mounting bolts (3).

6. Fit the brake pads into the calliper (1) first applying a thin smear of copper slip on the back of the pad. Ensure that grease does not get onto the braking surface of the pad. Push the pad into position in the calliper between the tension springs.

7. Fit the calliper on the disc and bolt into the upright (4) using two M10 x 65mm caphead bolts supplied with the brakes. Tighten to torque and wirelock in accordance with Engineering Process Specification 5.

8. Screw the hydraulic brake flexi-pipe connection into the connection on the inboard side of each calliper below the bleed points.

Assembly Stage 3
Assembly To Car - Pedal Box, Pedals and Master Cylinders

NOTE. Brake, clutch and throttle pedals are all included here. The hydraulic brake piping is $^{3}/_{16}$ in. throughout with male/female connections.

Pedal Box and Wiper Motor Bracket

1. (Refer to Fig. 5). The pedal box (1), located above the driver's footwell, is secured by coating the surfaces laid down onto the top of the footwell with Sikoflex and riveting down using 4.9mm monobolts into the pre-drilled holes.

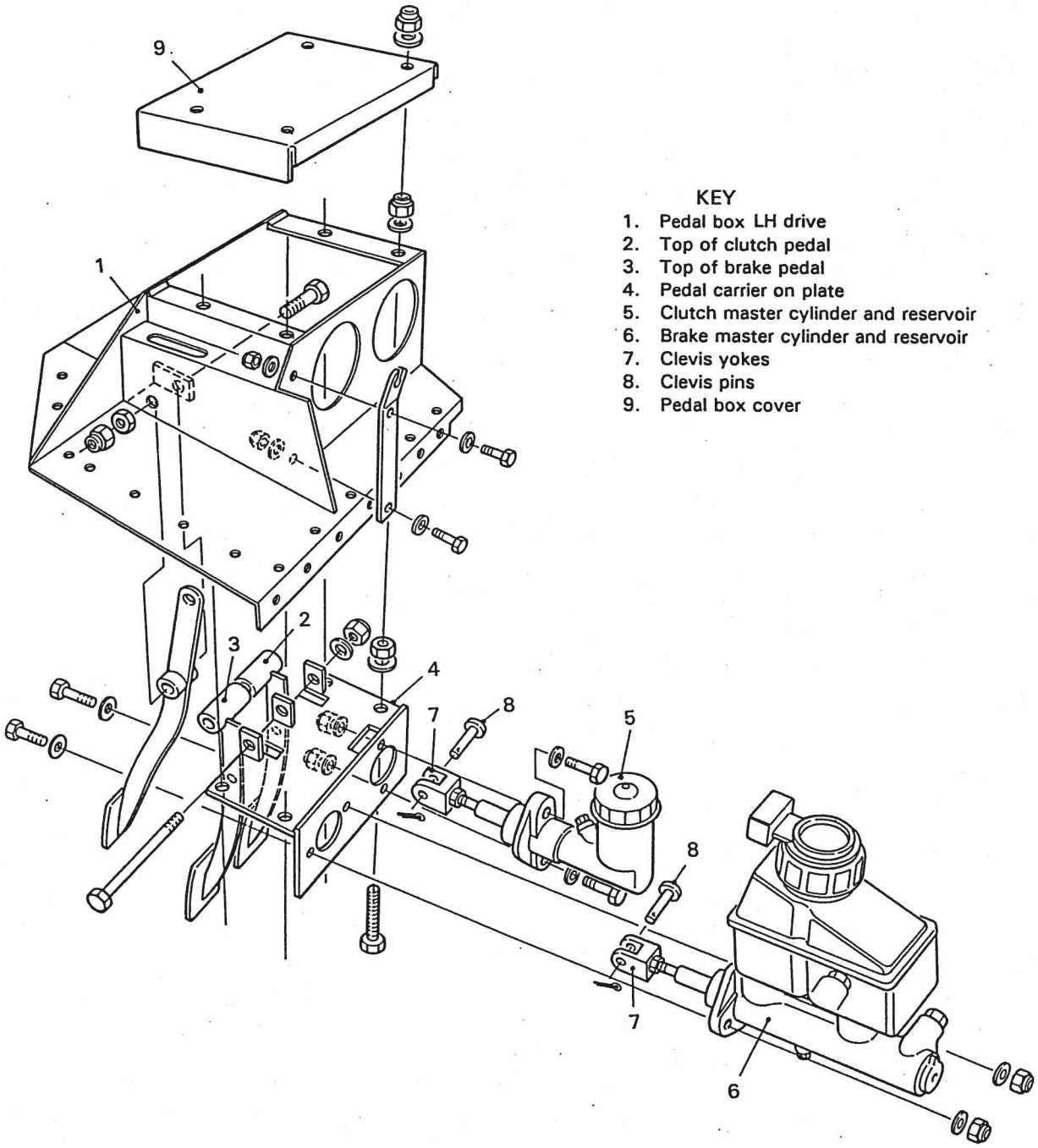
2. At the same time fit the wiper motor bracket in position. The RH drive car bracket is secured by marking the bracket fixing holes on the rear lip of the pedal box then drilling down through. Rivet the bracket in position using six 4.9mm monobolts.

3. The LH drive car wiper motor bracket is of different design and is bolted to the pedal box rear face using two M8 x 20mm bolts with washers each side and nyloc nuts to secure

4. The brake and clutch pedals (2 and 3) are on a separate carrier plate (4) which is fed up through the footwell into the pedal box and bolted under the top lips of the box using four M10 x 75mm bolts up through with spacers and nyloc nuts. The long threads of these fixing bolts protruding through the nuts are for fitting the cover.

Brake and Clutch Pedals and Master Cylinders

5. Check that pedal travel is smooth and if not, it will be necessary to file the ends of the phosphor bronze bearing bushes until smooth operation is achieved.



KEY

1. Pedal box LH drive
2. Top of clutch pedal
3. Top of brake pedal
4. Pedal carrier on plate
5. Clutch master cylinder and reservoir
6. Brake master cylinder and reservoir
7. Clevis yokes
8. Clevis pins
9. Pedal box cover

Fig. 5 Pedal Box Assembly

6. Shorten the rod of each master cylinder (5 and 6) by sawing off 33mm of the thread. The remaining length of thread is sufficient for adjustment.

7. Push each master cylinder into the mounting aperture in the front of the box and secure using two M8 x 35mm bolts with washers and nyloc nuts.

8. Screw onto the master cylinder rod a plain nut and then the clevis yoke (7). The plain nut is to be used as a locknut for the yoke after adjustment.

9. Adjust the position of the yoke relative to the pedal by screwing it along the thread. When adjusted correctly there should be 2mm clearance between the pedal and the box and pedal travel should be satisfactory.

10. When in the correct position the clevis pin (8) can be inserted through the yoke and the hole in the pedal shaft. Insert the split pin through the clevis pin and spread the ends. Check again the pedal clearance from the box then tighten the locknut against the back of the yoke to secure it in position.

11. Fit the pedal box cover (9) on top of the protruding pedal plate fixing bolts and secure using M10 nyloc nuts.

Throttle Pedal and Cable

12. (Refer to Fig. 6). The throttle pedal is fixed on the RH side of the pedal box. The pedal (1) is inserted up between the two metal plates of the pedal box and the pedal bush bearing fills the gap between the plates. Insert a $2^1/_2$ x $^1/_2$ in. bolt (2) with a washer under the head, through from the brake pedal side to the outside of the box. Fit a washer and a plain nut (3) on the bolt. Tighten the plain nut against the wall of the box sufficiently to ensure free movement of the pedal.

13. Check that pedal travel is smooth and if not, it will be necessary to file the ends of the bush until smooth operation is achieved

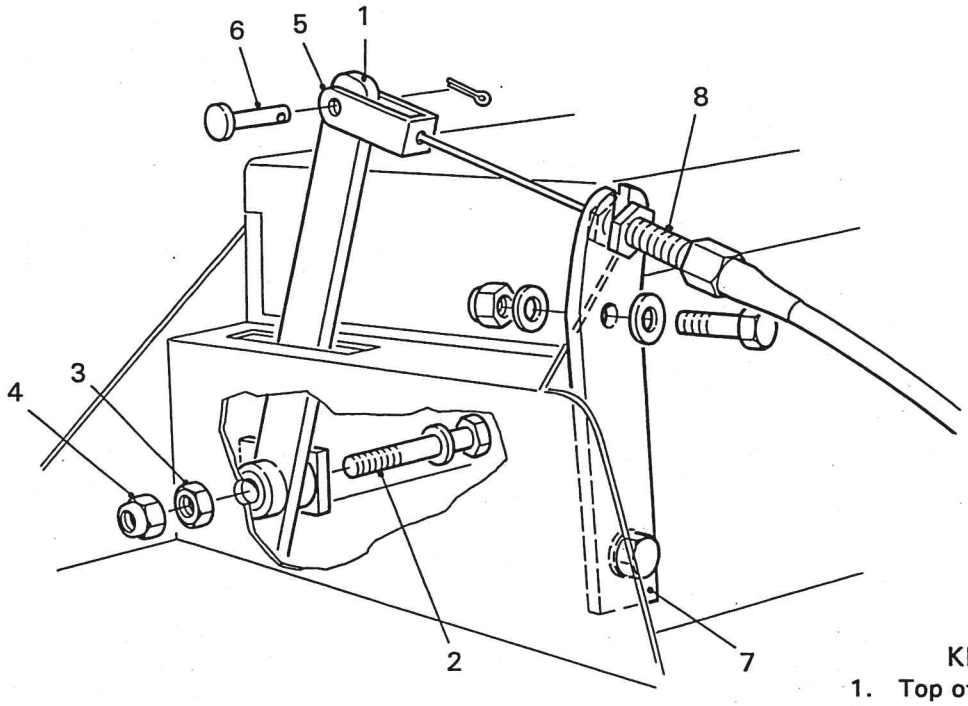
14. Finally, screw the nyloc nut (4) down to the plain nut and tighten both nuts against each other to lock without affecting free pedal movement.

15. At the top of the throttle pedal (1) fit the cable yoke (5) and secure it with a clevis pin (6). Insert the split pin and spread the ends.

16. Fit the throttle adjustment plate (7) to the pedal box using two cap head screws each secured with a washer and nyloc nut on the inside of the box.

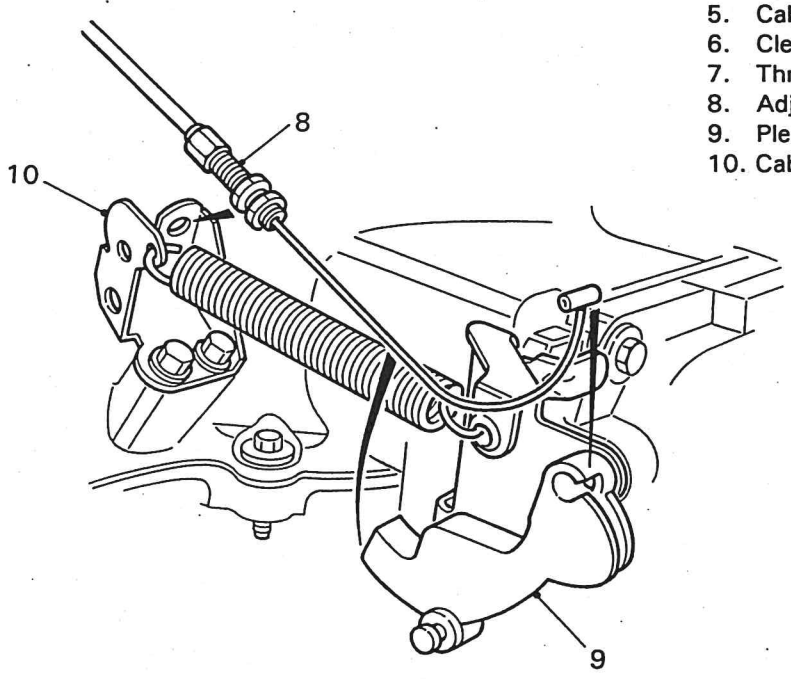
17. Fit the adjuster of the throttle cable (8) in the slot of the plate and for now loosely tighten the adjuster nuts until the cable is fixed at the engine.

18. Feed the throttle cable through the conduit in the tunnel. Route the cable through the engine compartment up to the plenum chamber and secure the end in the throttle lever (9) and the outer sheath in the bracket (10).



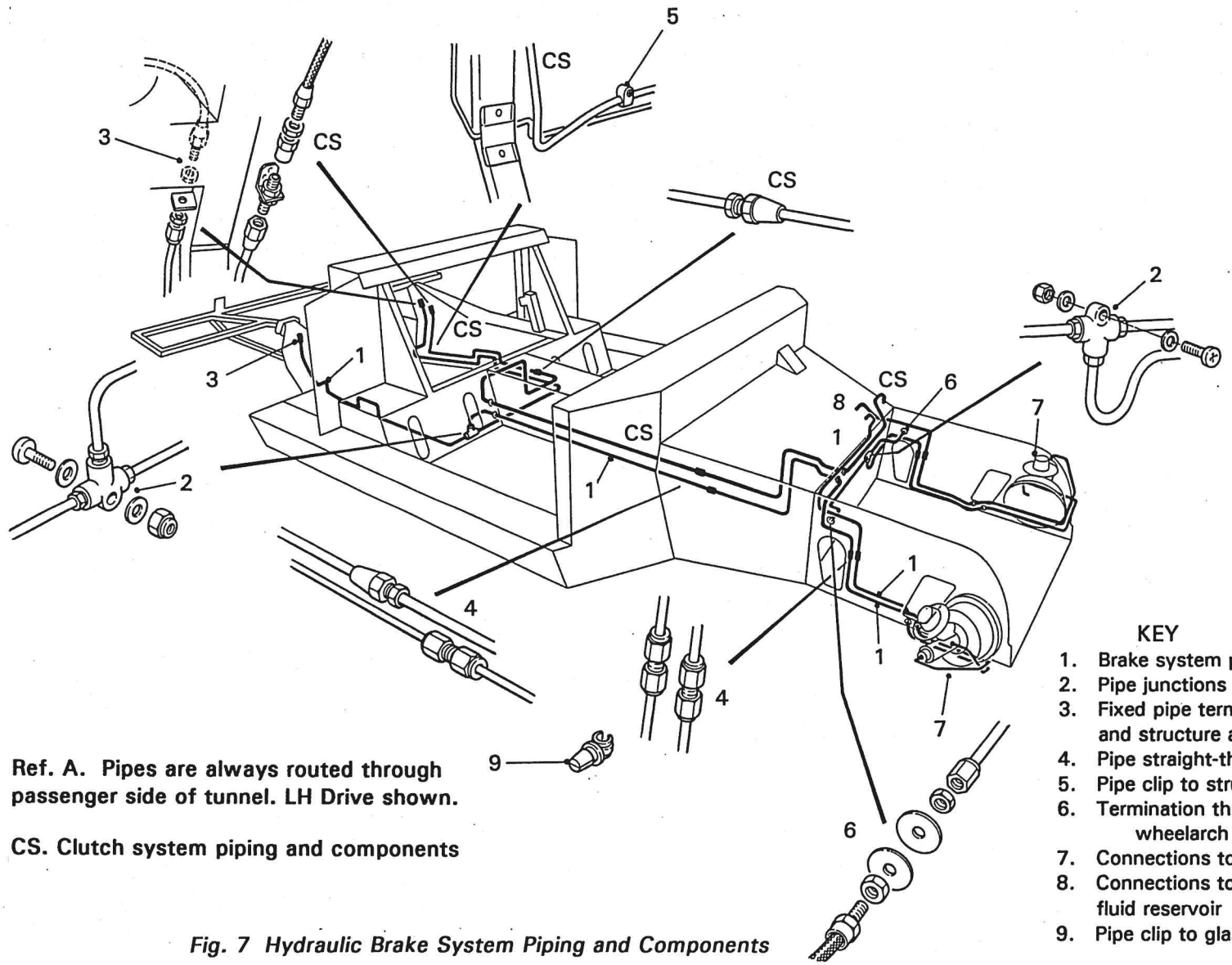
KEY

1. Top of throttle pedal
2. Bearing bolt
3. Plain nut
4. Nyloc nut
5. Cable yoke
6. Clevis pin
7. Throttle adjustment plate
8. Adjuster
9. Plenum throttle lever
10. Cable bracket



Throttle cable termination on engine plenum chamber

Fig. 6 Throttle Pedal and Cable to Engine



Ref. A. Pipes are always routed through passenger side of tunnel. LH Drive shown.

CS. Clutch system piping and components

KEY

1. Brake system pipe
2. Pipe junctions bolted to structure
3. Fixed pipe terminations to flexible pipes and structure anchor points
4. Pipe straight-through connection
5. Pipe clip to structure
6. Termination through glass fibre wheelarch to flexible brake pipe
7. Connections to servo unit
8. Connections to master cylinder and fluid reservoir
9. Pipe clip to glass fibre

Fig. 7 Hydraulic Brake System Piping and Components

19. Adjust the throttle cable for correct operation at the adjuster on the pedal box. Lock the adjuster nuts.

20. Secure the throttle cable in the engine compartment and on the front bulkhead using cable ties.

Assembly Stage 4
Assembly To Car - Brake Piping and Servo Connections

1. Install the brake piping. Fig. 7 indicates the installation routes, connecting unions and terminations to brake system components.

2. Connect the brake piping to all system components ensuring that unions are tight. Clip the pipes into position on the bodywork where necessary.

3. (Refer to Fig. 8). The brake servo units are mounted under the two front wheelarches. The left-hand servo (4) is for the front brakes and the right-hand servo (3) for the rear brakes. Connect the pipes in accordance with drawings.

4. Connect the brake servo $^{3}/_{8}$ in. hose (1) from the tunnel into the centre of a tee-piece (2) and from the outlets route a rubber pipe to each servo unit. Secure the pipes onto the tee-piece using jubilee clips. Clip the hoses into place where necessary using 'P' clips. Secure the connections to the servo units using jubilee clips.

5. The other end of the vacuum hose (9) to the servos emerges from the tunnel in the engine compartment and has to be connected to the rubber vacuum pipe (5) connecting the plenum chamber (7) to the left-hand rocker cover (8). Locate the pipe and cut and shorten as necessary and insert the straight-through connections of a tee piece (6). Connect the $^{3}/_{8}$ in. rubber hose (9) to the servos to the centre leg of the tee piece. Secure the connections using jubilee clips.

6. Secure the servo hose clear of moving parts in the engine compartment using cable ties.

Assembly Stage 5
Assembly to Car - Brake and Clutch Pedal Microswitches

1. Refer to Fig. 9. Two microswitches are fitted in the top of the driver's footwell beneath the pedal box and are operated by the brake and clutch pedals. Their functions are:

   a) Brake switch (1) - operates the brake stop lights when brake applied.

KEY

1. Brake servo vacuum hose in tunnel
2. Tee-piece - hoses to wheelarches
3. Rear brakes servo unit
4. Front brakes servo unit
5. Vacuum pipe
6. Tee piece inserted in vacuum pipe
7. Plenum chamber
8. LH rocker cover
9. Vacuum hose to servo units via tunnel

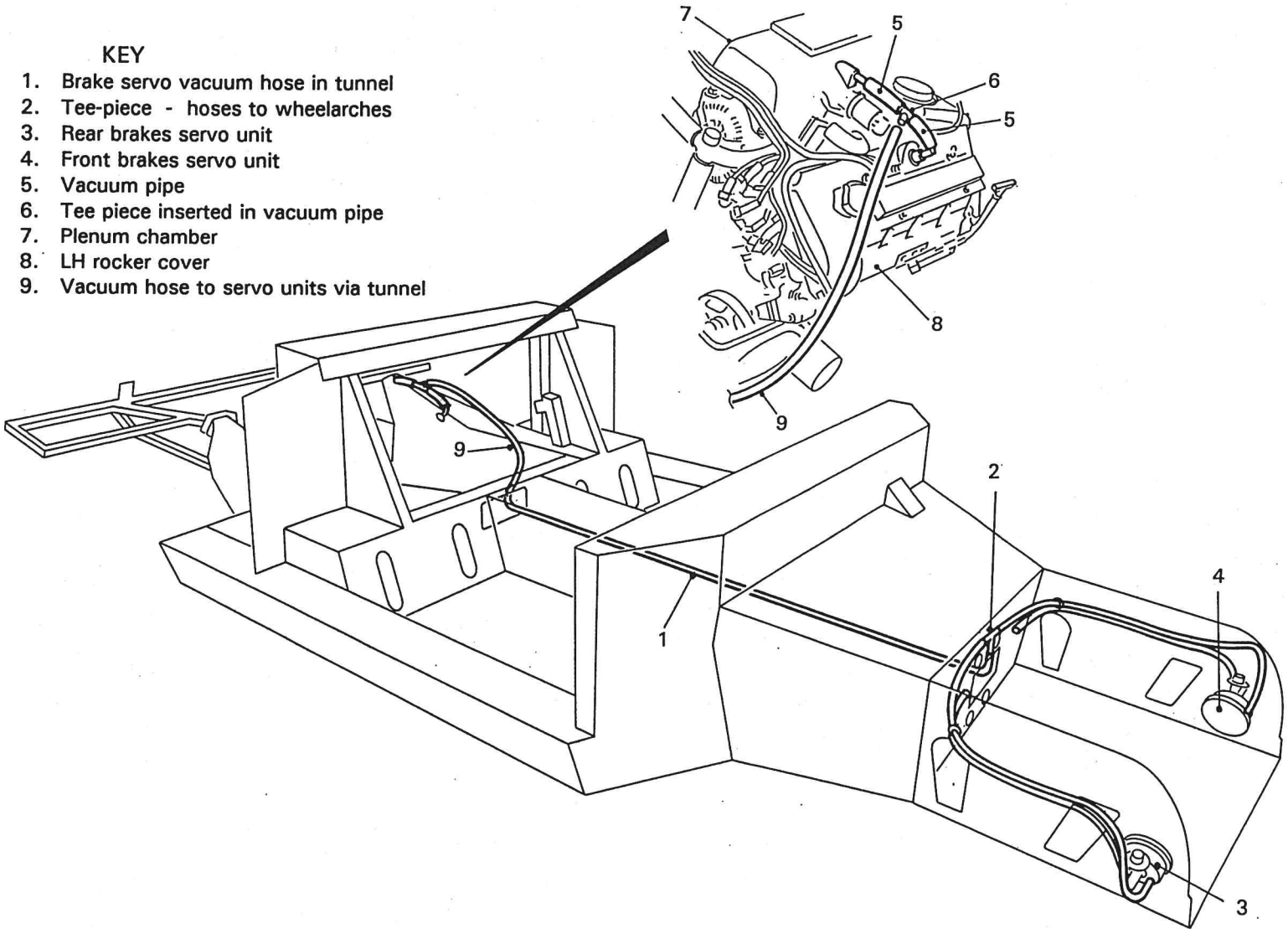
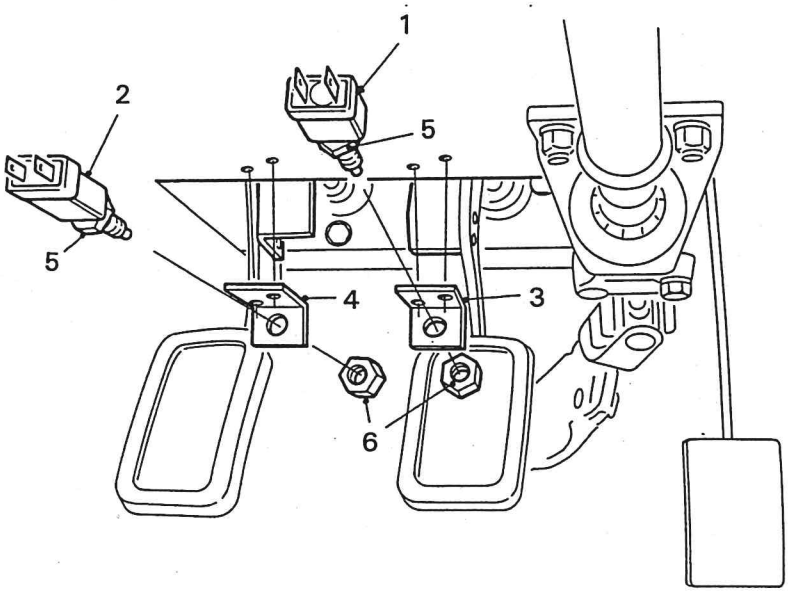


Fig. 8 Brake Servo Vacuum Pipes Routeing



KEY

1. Brake microswitch
2. Clutch microswitch
3. Brake switch bracket
4. Clutch switch bracket
5. Inner adjustment/fixing nut
6. Outer adjustment/fixing nut

Fig. 9 Brake and Clutch Pedal Microswitches

b) Clutch switch (2) - inhibits ignition during the engine starting procedure until the driver de-clutches. The pedal must be held down until the engine is running. The purpose is to prevent the car being started, and perhaps causing damage, should it be in-gear.

2. After the pedal box installation has been completed these microswitches may be fitted.

3. Before each switch bracket (3) and (4) is fitted, screw onto the thread of the switch the first of the two adjustment/fixing nuts (5). Then insert the microswitch into the bracket and screw on the second adjustment nut (6). Finger-tighten the nuts to hold the switch firm in the bracket with the nuts mid-way along the adjusting thread. The switch lies between the bracket plate and the top of the footwell.

4. With the pedal unoperated, move the switch bracket to locate the position for fixing which is when the switch plunger is approximately half-way depressed (switch operated) against the small plate welded onto the pedal. When correctly located, mark the bracket position and the fixing holes onto the top of the footwell.

5. After marking, remove the bracket. Unscrew the outer adjusting nut and remove the switch from the bracket.

6. Drill the top of the footwell where marked then rivet the bracket in place using 3.2 x 10 pop rivets.

7. Fit the microswitch into the bracket and screw on the outer adjusting nut. Adjust the position of the switch in the bracket by screwing the nuts along the switch thread until the switch operates, as the plunger is released, when the pedal is depressed. Lock the switch in position by turning the adjusting nuts, one against the other, to grip the bracket.

8. Connect the electrical loom when installing the electrical system.

9. Repeat this procedure for fitting the other pedal microswitch and bracket.

Assembly Stage 6
Filling and Bleeding the Hydraulic Brake System

CAUTION. - Any spillage of brake/clutch fluid should be wiped off immediately with a water-dampened cloth because the fluid is corrosive. Always wash the hands in water thoroughly after use and clothes if fluid is spilt on them. Safely dispose of the cloths used during the procedure. Do not use them again for any other purpose.

NOTE. This operation will probably not be carried out immediately following the assembly stages but prior to setting up the car ready for road use.

1. Top up the brake fluid reservoir located in the front service area behind the luggage compartment. The fluid used is DOT 4 brake fluid and is stored in a 5 litre sealed container. Pour a quantity into a clean smaller container for convenience. Always replace the cap of the container tightly and the cap of the reservoir, after completion of this procedure, because the fluid is hygroscopic and will be contaminated if left open to atmosphere too long.

NOTE. Throughout this procedure the level of fluid in the reservoir should not be allowed to fall below half full and it will need topping up frequently as the fluid fills the system. The operation requires three people, one to pump the brake pedal, one to observe the fluid reservoir and the other at the calliper being bled.

2. Start with the calliper furthest from the master cylinder located in/near the brake pedal box. Remove the dust cover from the inner bleed nipple and slacken off the bleed screw. Attach a length of plastic tube to the nipple and insert the other end of the tube into a clean glass jar containing approximately an inch of brake fluid.

3. An assistant should start pumping the brake pedal slowly while another observes the reservoir level and keeps it topped up at least half full throughout the entire procedure. Bubbles will appear in the fluid in the jar as air is expelled from the system. When the bubbles stop, the bleed screw should be tightened during the next downstroke of the pedal.

4. Repeat this procedure for the inner bleed nipple on each calliper, then repeat for all outer bleed nipples in the same order.

5. After the procedure has been completed to this stage, check that the brake pedal is firm under pressure and that nipples are not leaking. Check all bleed screws for tightness, wipe the nipples with a water-dampened cloth to clear away any brake fluid, then replace all dust caps.

6. Check all joints in the brake system for signs of leaking while the brake pedal is pressed down hard.

7. Check that the brake fluid reservoir is at the normal level mark, approximately 5mm below the top flat surface of the reservoir. Screw down the top cap firmly.

8. Check again that the brake pedal is firm and no sponginess is evident. Should any sponginess be detected, and this should be checked carefully during road tests, then repeat the bleeding procedure and check again thoroughly for leaks at all joints and nipples in the system.

9. Safely dispose of the fluid used in the jar. Never return this or any old fluid to the supply container for re-use because it will contaminate new fluid.

Section 8

ENGINE ANCILLARIES Module 10

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Illustrations

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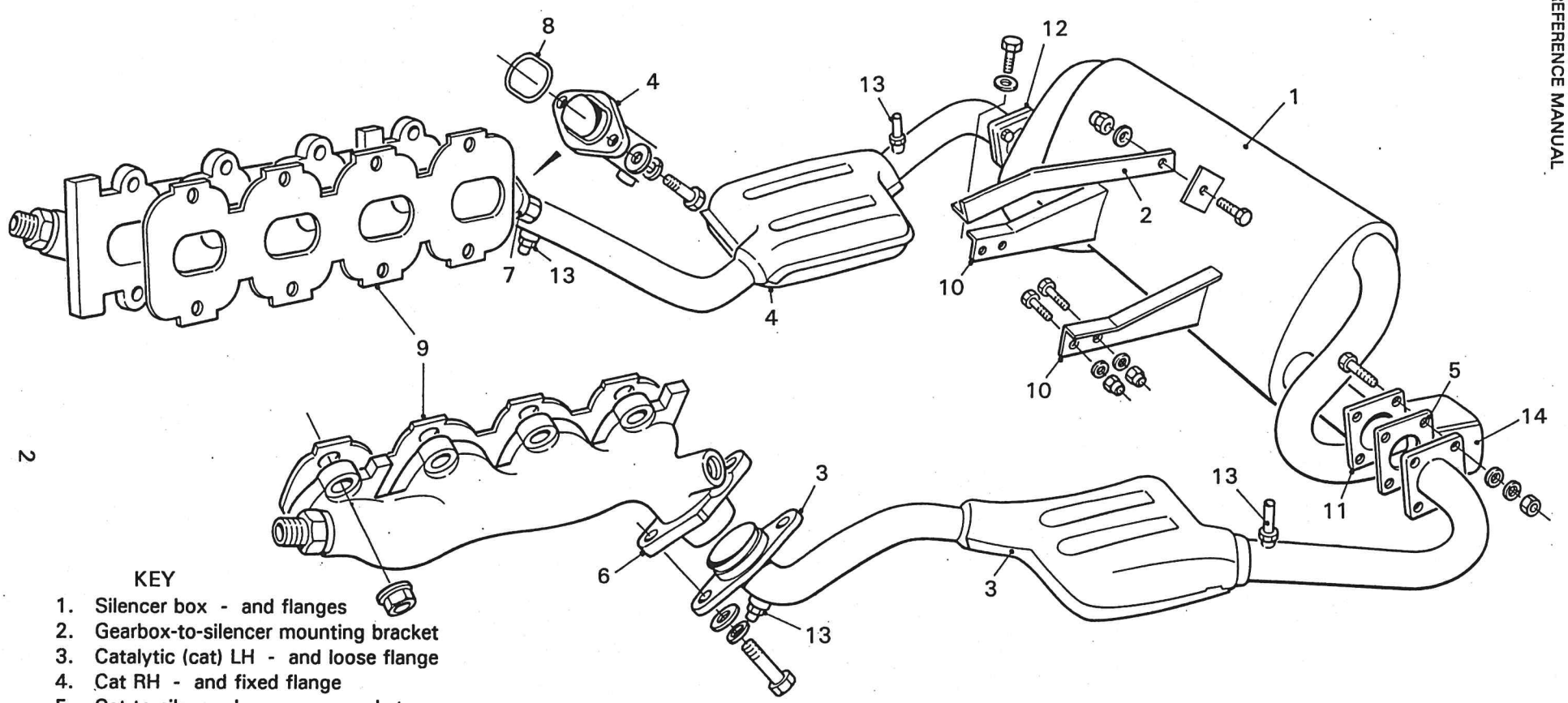


KEY

1. Silencer box - and flanges
2. Gearbox-to-silencer mounting bracket
3. Catalytic (cat) LH - and loose flange
4. Cat RH - and fixed flange
5. Cat-to-silencer box copper gaskets
6. LH manifold with 'olive' flange
7. RH manifold with flat flange
8. RH manifold-to-flange copper ring gasket
9. Manifold-to-engine block gaskets
10. Silencer brackets
11. Silencer box LH flange
12. Silencer box RH flange
13. Sensors
14. Tailpipe

Fig. 1 Engine Manifolds to Silencer Box Installation

Section 8

ENGINE ANCILLARIES Module 10

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Exhaust Installation

Silencer

1. (Refer to Fig. 1). Place the silencer box (1) in position inside the chassis rear member and loosely fit the silencer brackets (10) each side to the gearbox mounting brackets using 2 off M8 x 20mm bolts each side with a spring washer and a plain washer on each bolt.

2. Connect the gearbox-to-silencer mounting bracket (2) to the bracket at the top of the silencer using an M8 x 20mm bolt with a plain washer under the head and a spring washer under a plain nut. Leave loose at this stage. Connect the other end of the bracket to the tapped hole in the top of the gearbox using an M10 x 20mm bolt with a spring washer and a plain washer under the head. Leave loose at this stage.

Catalytic Converter - Left-hand Side
NOTE. Dipstick tube should be in place before fitting manifold.

3. The left-hand engine manifold (6) should be mounted onto the engine block with the manifold-to-engine block gasket in position (9), (refer to Ford Engine Manual).

4. Tighten up the manifold to the engine using the original bolts in the correct tightening sequence.

5. The left-hand catalytic converter (cat) (3) connection to the manifold is an 'olive' flange (6) with a loose flange on the cat pipe to draw it up to the manifold. Offer up the cat pipe to engine manifold flange and secure loosely using the original stud bolts removed on disassembly. The bolts screw into the threaded manifold flange.

6. Before tightening up to the manifold olive flange at the engine manifold, the other end of the cat pipe should be connected loosely to the silencer box LH flange (11) for alignment. Insert the copper gasket (5) and join the cat to the silencer using 4 off M8 x 30mm bolts and nuts with washers both sides and a spring washer under a plain nut but do not tighten up.

7. Tighten fully and evenly the two bolts at the olive connection (3) to the manifold.

8. Then tighten fully the four bolts at the silencer box flange connection.

Catalytic Converter - Right-hand Side

9. The right-hand engine manifold (7) should be mounted onto the engine block with the manifold gasket (9) in position, (refer to Engine Manual).

10. Tighten up the manifold to the engine using the original bolts in the correct tightening sequence.

11. The right-hand cat connection is via a fixed flat flange (4) on the cat pipe connecting to a fixed flange on the manifold (7). A copper ring gasket (8) fits inside a groove in the cat flange to seal the connection. Offer up the cat pipe to the engine manifold flange and secure loosely using the original stud bolts removed on disassembly. The bolts screw into the threaded manifold flange.

12. Before tightening the flange to the engine manifold, the other end of the cat pipe should be connected loosely to the silencer box RH flange (12) for alignment. Insert the copper gasket (5) and join the cat to the silencer using 4 off M8 x 20mm bolts and nuts with washers both sides and a spring washer under a plain nut but do not tighten up.

13. Tighten fully and evenly the two bolts at the manifold flange ensuring the copper gasket (8) is correctly in place.

14. Tighten fully the four bolts at the silencer connection.

Silencer - Completion of Installation

15. Ensure that the silencer box is clear of the rear chassis member then tighten to torque the two bolts of each of the silencer brackets (10) connecting it to the gearbox mounting brackets.

16. Secure the bolts of the gearbox-to-silencer bracket (2) at the silencer end and the bolt connecting it to the top of the gearbox. Tighten the bolts to torque.

17. Check that the silencer is clear of the rear chassis member and adjust brackets to gain clearance if necessary.

18. Slide the tail pipes onto the exhausts and weld in place.

Assembly Stage 2
Ancillary Parts

NOTE. The following parts are supplied with this assembly kit but the fitting of them is described elsewhere:

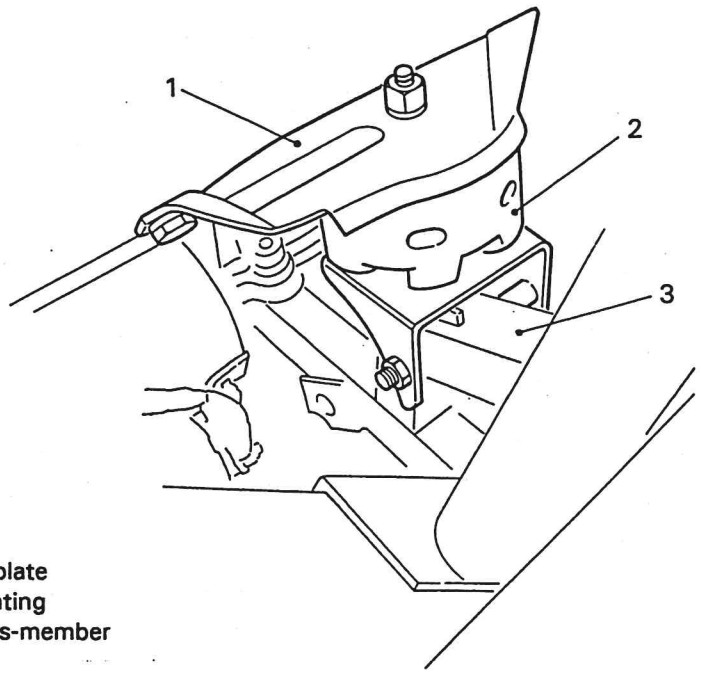
Flywheel, Clutch Parts

1. The assembly procedure for these parts is covered in Engine Main Assembly Module 13.
   - Flywheel Assembly and Bell
   - Spigot Bearing
   - Clutch
   - Gearbox Overhoop

Engine Mountings

2. Refer to Fig. 2. The new 'Lincoln' engine mounting brackets are fitted to the engine block when it is being installed and is suspended above the correct position (refer to Engine Main Assembly Module 13). Fit the new mountings to the engine using the original bolts removed and retained on stripping off the Mustang engine mounts which are discarded. Fitting of these bolts should be carried out in accordance with the Ford Engine Manual. Tighten to torque.

3. After the engine is lowered into position the mountings are secured to the chassis cross member. Tighten to torque. (Refer to Engine Main Assembly Module 13).



KEY
1. Engine side plate
2. Engine mounting
3. Chassis cross-member

Fig. 2 Engine Mountings

Power Steering Reservoir Mounting Bracket

4. Bolt the bracket to the left-hand engine compartment leg of the roll cage using three M8 x 16mm bolts with washers and spring washers under the heads.

5. Push the bottle into the bracket - this is a 'snap' fit. Connect the two rubber hoses to the bottle using jubilee clips. The 13mm id hose connects to the pump and the 8mm hose connects to the steering rack and is for the return fluid.

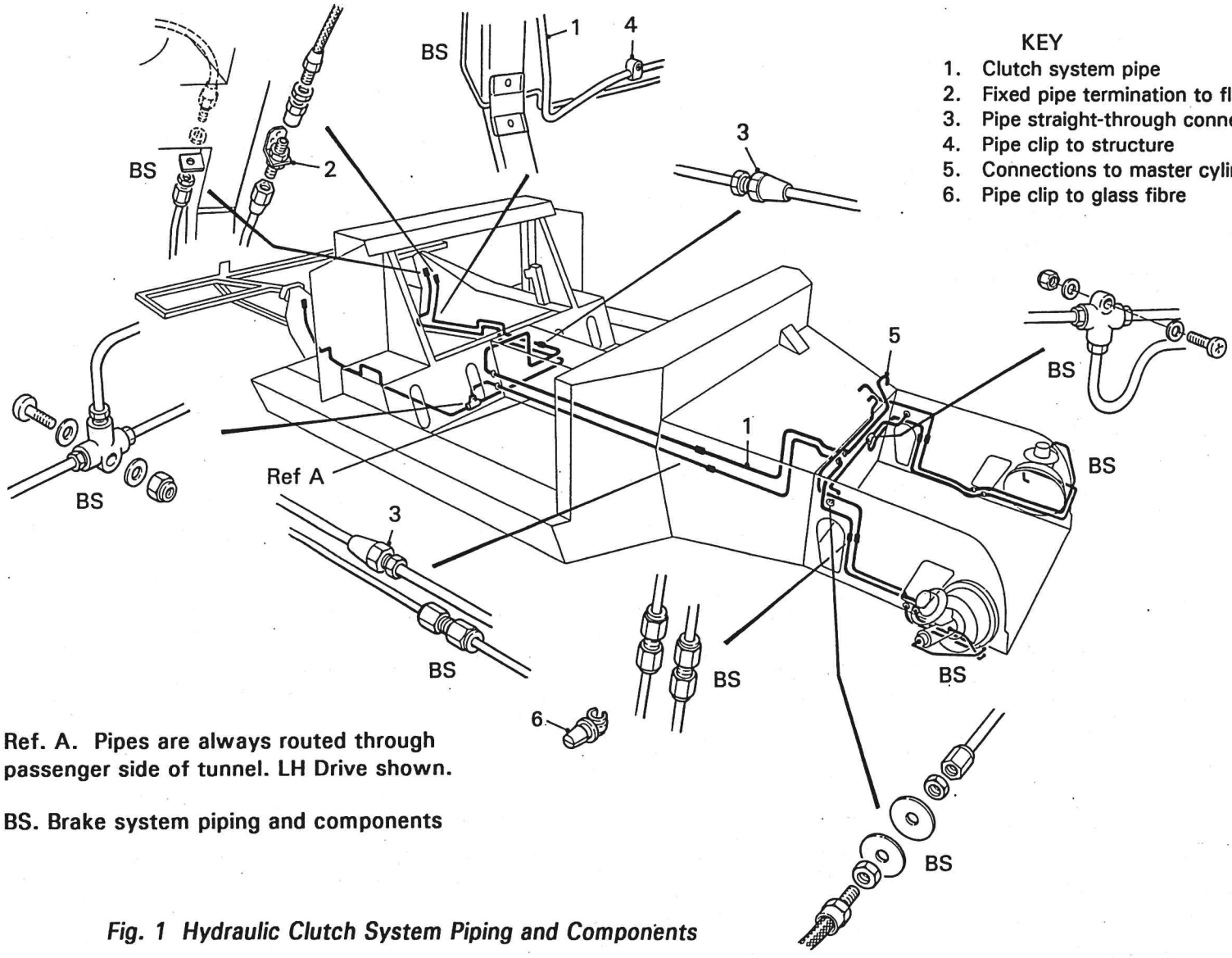
Section 9

CLUTCH PARTS Module 11

Contents

Illustrations

Figure



Ref. A. Pipes are always routed through passenger side of tunnel. LH Drive shown.

BS. Brake system piping and components

Fig. 1 Hydraulic Clutch System Piping and Components

Section 9

Clutch Parts Module 11

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Assembly To Car - Pedal Box, Pedals and Master Cylinder

NOTE. The hydraulic clutch piping is all $^{3}/_{16}$ in. with male/female connections.

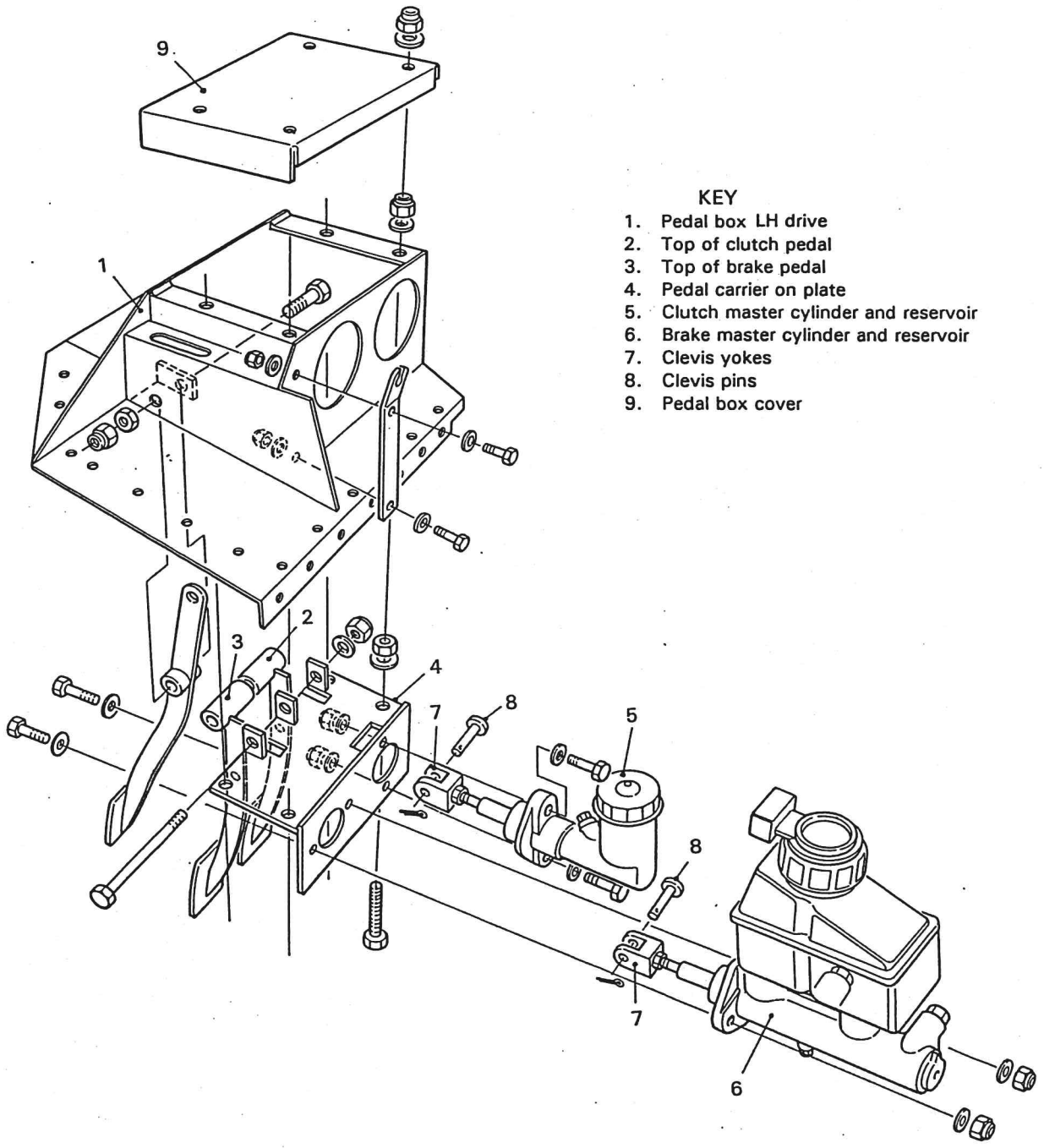
1. The pedal box, located above the driver's footwell, is the mounting for the clutch pedal alongside the brake pedal. The installation of the pedal box and the brake, clutch and throttle pedals is described fully in Brake Parts Module 09.

2. The fitting of the clutch ignition inhibit microswitch is also described in the Brake Parts Module. This switch fitted in the top of the driver's footwell is operated by depressing the clutch pedal. It inhibits ignition during the engine starting procedure until the driver de-clutches. The pedal must be held down until the engine is running. The purpose is to prevent the car being started, and perhaps causing damage, should it be in-gear.

Assembly Stage 2
Assembly To Car - Clutch Piping

1. Refer to Fig. 1. Install the clutch system piping (1) in accordance with drawings. Fig.1 indicates the installation routes to, connecting unions (3) and termination (2) to clutch system flexible connection to the gearbox.

2. Connect the clutch piping to all system components ensuring that unions are tight. Clip the pipes into position on the bodywork where necessary.



KEY

1. Pedal box LH drive
2. Top of clutch pedal
3. Top of brake pedal
4. Pedal carrier on plate
5. Clutch master cylinder and reservoir
6. Brake master cylinder and reservoir
7. Clevis yokes
8. Clevis pins
9. Pedal box cover

Fig. 2 Pedal Box Showing Clutch Master Cylinder and Reservoir

Assembly Stage 3
Filling and Bleeding the System

CAUTION. - Any spillage of brake/clutch fluid should be wiped off immediately with a water-dampened cloth because the fluid is corrosive. Always wash the hands in water thoroughly after use and clothes if fluid is spilt on them. Safely dispose of the cloths used during the procedure. Do not use them again for any other purpose.

NOTE. This operation will probably not be carried out immediately following the assembly stages but prior to setting up the car ready for road use.

1. Top up the clutch fluid reservoir located in the front service area behind the luggage compartment. The fluid used is DOT 4 brake fluid and is stored in a 5 litre sealed container. Pour a quantity into a clean smaller container for convenience. Always replace the cap of the container tightly and the cap of the reservoir, after completion of this procedure, because the fluid is hygroscopic and will be contaminated if left open to atmosphere too long.

NOTE. Throughout this procedure the level of fluid in the reservoir should not be allowed to fall below half full and it will need topping up frequently as the fluid fills the system. The operation requires three people, one to pump the clutch pedal, one to observe the fluid reservoir and the other at the gearbox bleed point.

2. At the clutch slave cylinder, located on the LH side of the gearbox, remove the dust cover from the bleed nipple and slacken off the bleed screw. Attach a length of plastic tube to the nipple and insert the other end of the tube into a clean glass jar containing approximately an inch of brake fluid.

3. An assistant should start pumping the clutch pedal slowly while another observes the reservoir level and keeps it topped up at least half full throughout the entire procedure. Bubbles will appear in the fluid in the jar as air is expelled from the system. When the bubbles stop, the bleed screw should be tightened during the next downstroke of the pedal.

4. After the procedure has been completed to this stage, check that the clutch pedal is firm under pressure and that the bleed nipple is not leaking. Wipe the nipple with a water-dampened cloth to clear away any brake fluid, then replace the dust cap.

5. Check all joints in the clutch system for signs of leaking while the clutch pedal is pressed down hard.

6. Check that the clutch fluid reservoir is at the normal level mark. Screw down the top cap firmly.

7. Check again that the clutch pedal is firm and no sponginess is evident. Should any sponginess be detected, and this should be checked carefully during road tests, then repeat the bleeding procedure and check again thoroughly for leaks at all joints in the system and the bleed nipple.

8. Safely dispose of the fluid used in the jar. Never return this or any old fluid to the supply container for re-use because it will contaminate new fluid.

Section 10

TRANSMISSION Module 12

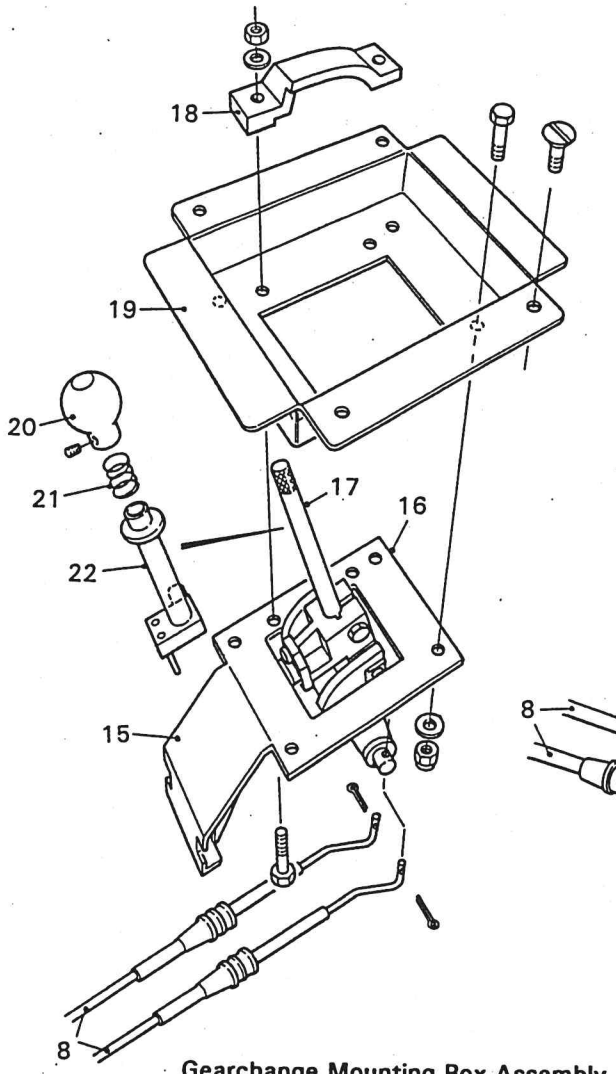
Contents

Illustrations

Figure

KEY

1. Gearchange mounting bracket
2. Gearchange linkage
3. Spindle
4. Gearchange arm extension
5. Caphead bolts
6. Bush carrier
7. Gearchange translator
8. Gearchange cables
9. Lever arm
10. Pinch bolt
11. Gearchange cables clamp bracket
12. Rubber gaiters
13. Cable adjusters
14. Cable fixing bolts
15. Gearchange unit plate and cable clamp
16. Gearchange master unit
17. Gear lever
18. Reverse gate
19. Gearchange mounting box
20. Gear knob
21. Spring
22. Tube



Gearchange Mounting Box Assembly

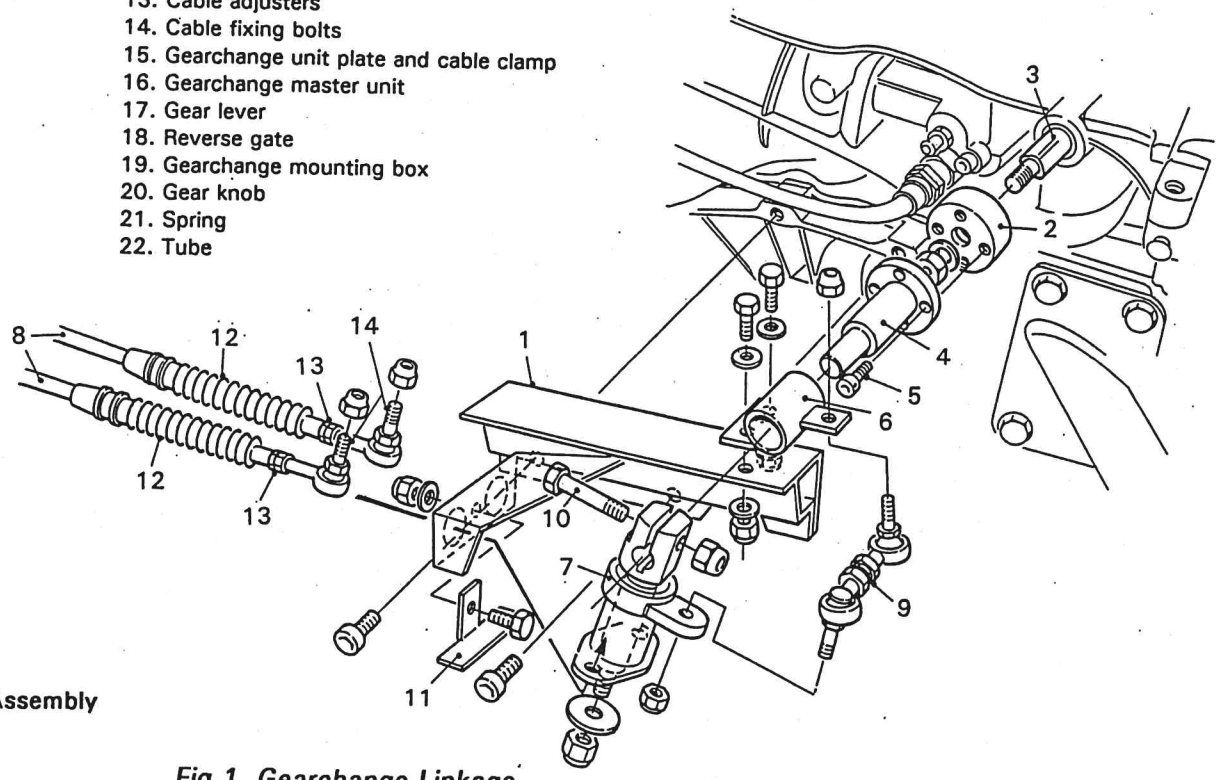


Fig.1 Gearchange Linkage

Section 10

TRANSMISSION Module 12

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Assembly To Car - Gearchange Linkage

NOTE. Some of the operations below require plain nuts to be used during setting up to avoid damaging nyloc nuts . When setting up operations are complete, the plain nuts should be replaced by nyloc nuts to secure.

1. Refer to Fig. 1. Fit the gearchange mounting bracket (1) to the gearbox using the two top existing gearbox torque bolts to secure it.

2. Fit gearchange linkage (2) over the spindle (3) protruding from the gearbox and secure using an M8 plain nut with Loctite on thread.

3. Fit the gearchange arm extension (4) onto the change linkage using four M5 x 20mm cap head bolts (5) with Loctite on threads. The heads of these bolts should be pre-drilled for wirelocking with a 2mm hole.

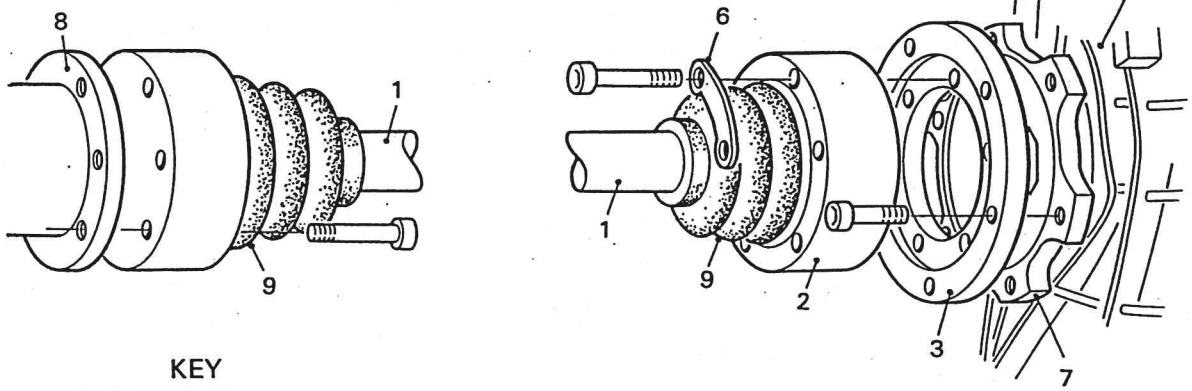
4. Fit the bush carrier (6) over the gearchange arm extension and align holes with bracket as closely as possible. Shim the bush carrier on the bracket until the gearchange arm extension can slide easily through the bush. Tighten the two M8 x 25mm bolts on the carrier using washers and nylock nuts to secure. Check that the arm extension can still slide easily.

5. Fit the gearchange translator (7) which pinch-fits onto the arm extension using an M8 x 55mm bolt and plain nut for setting-up purposes.

6. Attach the gearchange cables (8) to the gearchange translator using an M6 bolt and plain nut for setting up.

7. Fit the lever arm (9) bolts into the translator and the bush carrier using M6 bolts and plain nuts for setting up. Tighten the lever arm adjuster locknuts to fix the length after establishing the gear positions in Op 8.

Right-hand Drive Shaft



KEY

1. Drive shafts
2. CV joint bearing carrier
3. Adaptor plate (right-hand side)
4. Adaptor plate (left-hand side)
5. Gearbox housing
6. Lockplate
7. Gearbox output shaft plate
8. Outer shaft plate, rear hub
9. Gaiters

Left-hand Drive Shaft

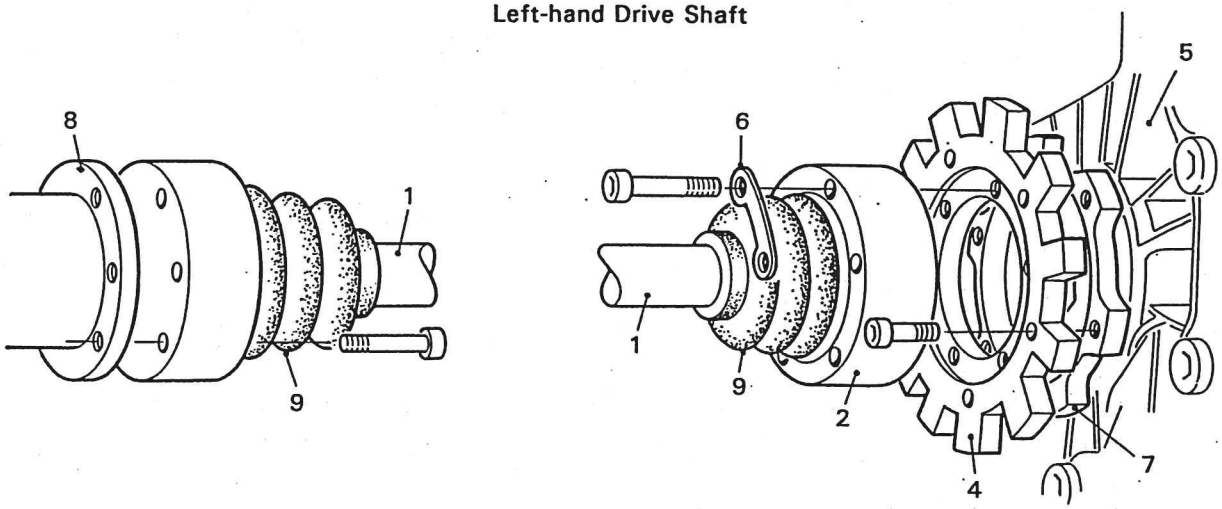


Fig. 2 Drive Shafts Assembly

8. Locate the gear positions by adjusting the translator, relative to the arm extension, until all have been found. Then mark the position on the end of the arm extension using a marker pen. After marking, remove the translator, bush carrier and extension arm and send extension arm to workshops to have the keyway cut.

9. On reassembly fit a standard woodruff key cut to length and insert in the keyway to lock the extension arm to the shaft. Secure by tightening the pinch bolt (10). Nyloc nuts should be used in place of plain nuts used previously for setting up.

10. Fit the gearchange cables clamp bracket (11) to the underside of the gearchange mounting bracket using an M6 x 20mm bolt with nyloc nut and washer to clamp the cable outer sheaths in position. The rubber gaiters (12) are supplied on the cables. The cable ends are supplied fitted with cable adjusters (13) and fixing bolts (14) to attach them to the translator.

11. Wirelock the gearshift arm extension (refer to Op. 3) in accordance with Engineering Process Specification 5.

Assembly Stage 2
Bench Assembly - Drive Shafts Assembly

NOTE. The shafts comprise a solid steel shaft (1) with a bearing carrier (2) at each end to connect to the gearbox adaptor plates (3). The left-hand side adaptor plate (4) has castellations that activate the speedo transducer and this shaft is the shorter of the two. Gaiters (5) are fitted at each end of the drive shafts to prevent ingress of dirt to the bearings and lubrication; they are secured by cable ties.

1. Refer to Fig. 2 and 3. Fit the gaiter small end first onto the shaft and push down out of the way.

2. Fit a circlip (9) (Fig. 3) into the inner recess on the shaft.

3. Take a CV joint bearing carrier (2) with the machined face (2A) pointing away from the shaft and press onto the splines of the shaft lubricating it with light oil. Continue to press on until the carrier touches the inner circlip.

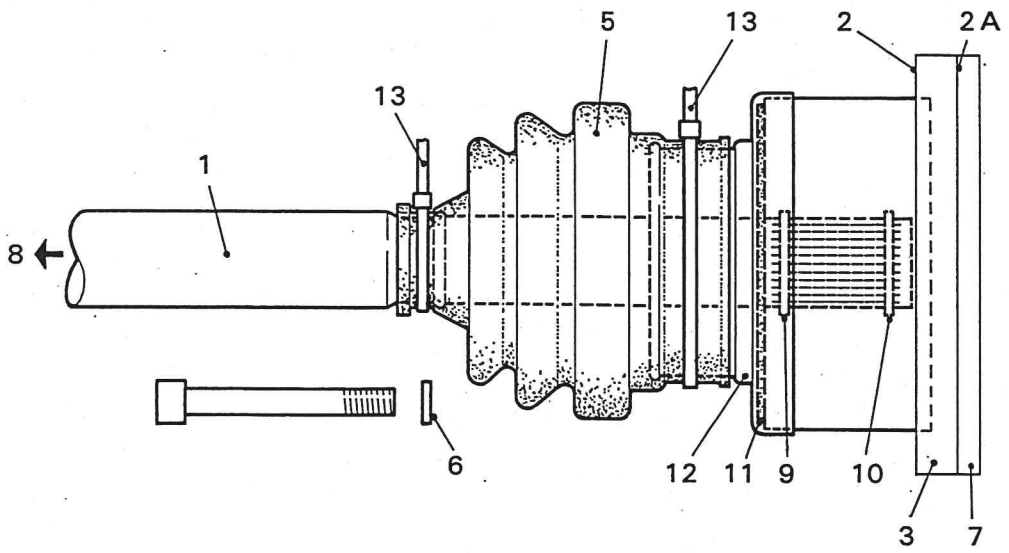
4. Fit the outer circlip (10).

5. Fit the cork gasket (11) which sits in the recess on the bearing carrier.

6. Fit the metal cover (12) which holds the cork gasket in position and make sure the holes in both components are aligned.

7. Pack the bearing with high melting point CV (constant velocity) grease.

8. Slide the gaiter up the shaft and place in position on the bearing carrier. Fix both ends in place with cable ties (13) pulled tightly.



KEY

1. Drive shaft
2. Bearing carrier
2A. Machined face of carrier
3. Gearbox RH adaptor plate
4. Gearbox LH adaptor plate with castellation not shown - see Fig. 2
5. Gaiters
6. Lockplate
7. Gearbox output shaft output plate (position)
8. (At opposite end of shaft) - Outer shaft plate
9. Circlip on inner recess in shaft
10. Outer circlip
11. Cork gasket
12. Metal cover
13. Cable ties securing gaiters

(This key adapted to conform to that for Fig. 2)

Fig. 3 Gearbox End Of RH Drive Shaft Shown - All Other Transmission Shaft Bearing Assemblies Similar

NOTE. Before fitting the outer bearing carrier remember to slide on the gaiter, small end first, and push down the shaft out of the way.

9. Fit the outer CV joint bearing carrier and other parts in the same way as for the inner bearing carrier described in Ops.1 thro' 8 above.

10. The outer bearing must be greased using CV grease before fitting to hub.

11. After assembly, to prevent dirt from the bearings, wrap the ends of the drive shafts until required for installation.

Assembly Stage 3
Assembly to Car - Adaptor Plates and Drive Shafts

1. (Refer to Fig. 2). Bolt each adaptor plate (3 and 4) to the gearbox output plate (7), (that with castellations fits to the left side) using six torque bolts with Loctite on threads.

2. Offer up the assembled drive shaft to the gearbox output adaptor plate and bolt on using six M8 x 45mm torque bolts with each adjacent pair of bolts being fitted with a lockplate (6) beneath the bolt heads. Tighten to torque.

3. The other end of the drive shaft is bolted to the outer shaft plate (8) of the rear hub assembly using six M8 x 50mm torque bolts with each adjacent pair of bolts being fitted with a lockplate (6) beneath the bolt heads. Tighten to torque.

NOTE. It may be necessary to adjust the link arm on the rear suspension when fitting the drive shaft to adjust the position of the hub relative to the drive shaft to facilitate positioning.

4. Tighten all the transmission bolts to torque.

Assembly Stage 4
Ancillary Parts

NOTE. Parts supplied with this assembly kit but belonging to other systems are:

Clutch Slave Cylinder

1. The slave cylinder fits into the recess in the left-hand side of the gearbox. Remove any blanking material fitted to exclude dirt and bolt the cylinder into place. Connect the clutch hydraulic system and bleed the system in accordance with the information provided in Clutch Parts Assembly Procedure Module 11.

Speedometer Sensor

2. Fit the sensor bracket. Secure the sensor to the bracket and adjust to the correct position relative to the drive speed ring on the drive shaft. Tighten the securing bolts. Refer to Electrical System Assembly Procedure Module 21 for information on connection of this sensor.

Gearbox Mountings and Bell Housing Adaptor

3. The assembly procedure for these parts is covered in Engine Main Assembly Procedure Module 13.

Section 11

ENGINE MAIN Module 13

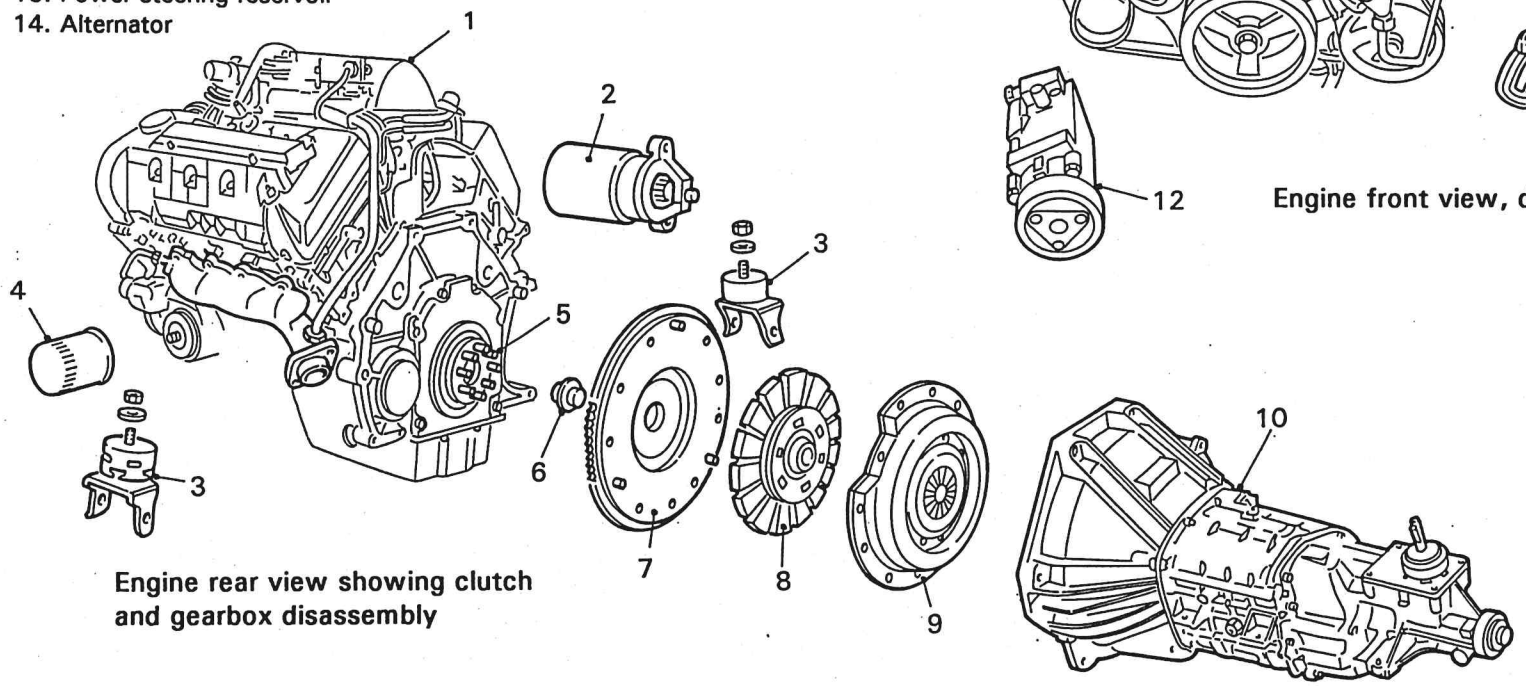
Contents

Illustrations

Figure

KEY

1. Engine
2. Starter motor
3. Engine mountings
4. Oil filter
5. Crankshaft
6. Thrust bearing
7. Flywheel assembly
8. Clutch plate
9. Clutch pressure plate
10. Gearbox and bell housing
11. Coil brackets
12. Air conditioning compressor
13. Power steering reservoir
14. Alternator



Engine front view, disassembly

Engine rear view showing clutch and gearbox disassembly

Fig. 1 Stripping Delivered Engine Ready For Fitting New Parts

Section 11

ENGINE MAIN Module 13

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Bench Assembly - Unpacking And Stripping Engine

1. Refer to Fig. 1. Uncrate the Mustang engine (1) received completely assembled.

2. Remove the exhaust system and catalytic converters (see Module 10) by removing the M12 stud bolts securing the cat pipes to the manifold flanges. Retain these bolts for use on reassembly.

3. Remove the starter motor (2) by removing the three M8 x 40mm securing bolts. Retain motor and bolts for re-fitting on reassembly.

4. Remove the gearbox (10) by removing the 12 securing bolts. The gearbox and bolts are not used on reassembly.

5. Remove the complete clutch (8 and 9) assembly by unbolting the six bolts securing it to the flywheel (7). The clutch and bolts are not used on reassembly.

6. Remove the flywheel and starter ring gear (7) by unscrewing the eight bolts securing it to the crankshaft (5) and also remove the thrust bearing (6) from crankshaft. Retain flywheel and starter ring for use on reassembly.

7. Remove both engine mountings (3) complete with plates. The mountings are not used again. Retain the bolts for use on reassembly

8. Remove the LH and RH coil brackets (11) and remove the brackets from the coils. The coils remain stowed on the engine to prevent damage during installation. Retain the bolts for use on reassembly.

9. Remove the power steering reservoir (13) and bracket from the LH coil bracket. The reservoir is not used after reassembly.

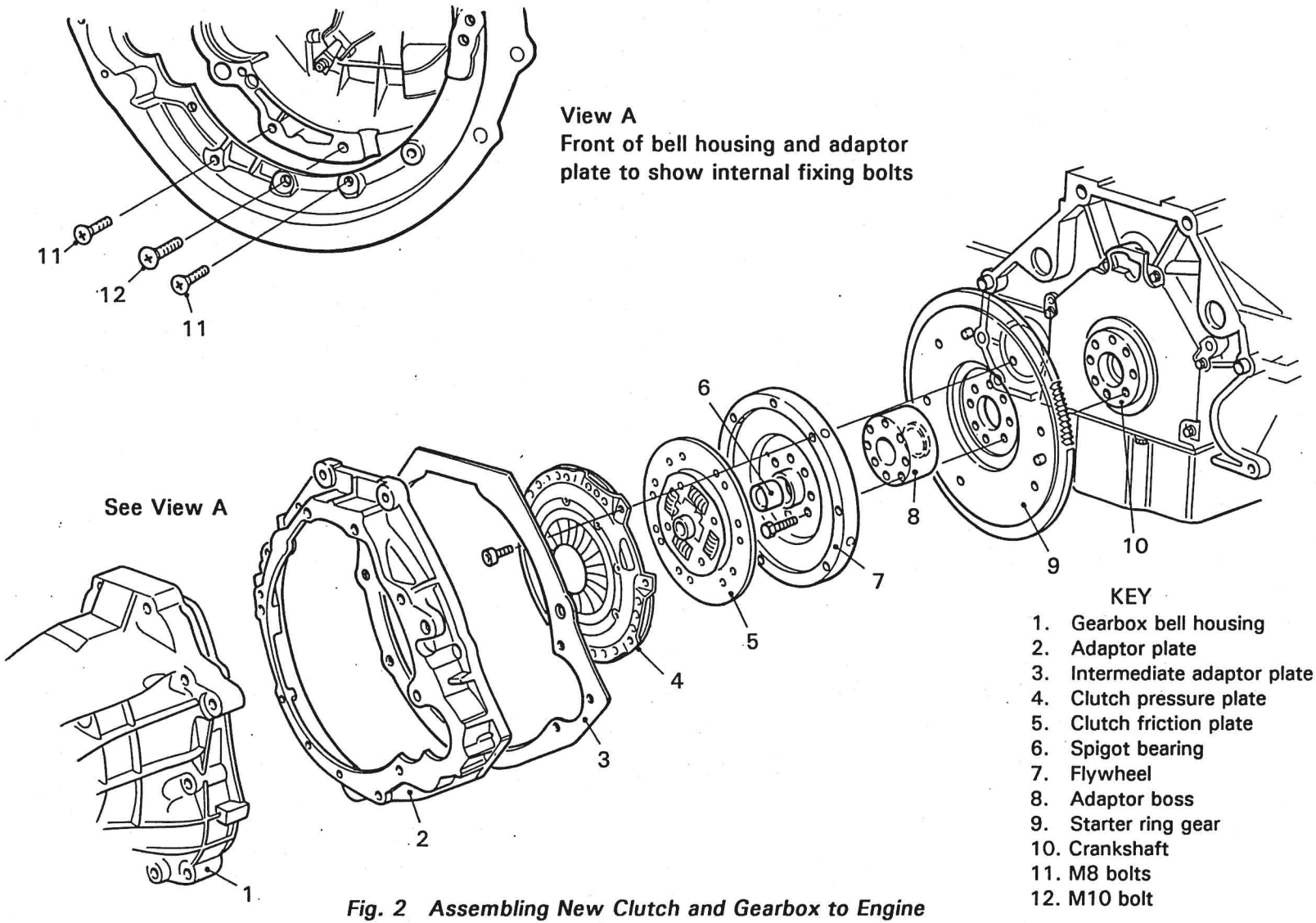


Fig. 2 Assembling New Clutch and Gearbox to Engine

10. Remove the throttle cable bracket from the plenum chamber and retain the bolts for use on reassembly.

11. Remove the air conditioning compressor (12) from the lower RH side of the front of the engine and retain the bolts for use on reassembly.

12. Remove the engine oil bypass filter (4). Position a drain pan beneath the area then unscrew the filter from the oil cooler using an oil filter spanner. Clean off the sealing surface of the cooler using a clean cloth and seal with tape to protect the connection while fitting engine.

13. Remove the battery leads. These are not used on reassembly.

14. At the alternator (14) mounted on the top centre front of the engine remove the power lead from the left-hand terminal to the starter and remove from the wiring loom. This should be discarded.

15. Remove the wiring loom from the front of the engine to the gearbox area. Send to workshops for modification ready for reassembly.

Assembly Stage 2
Bench Assembly - Fitting Engine Parts

Transmission
(Refer to Clutch Parts and Transmission Modules 11, and 12 for parts details)

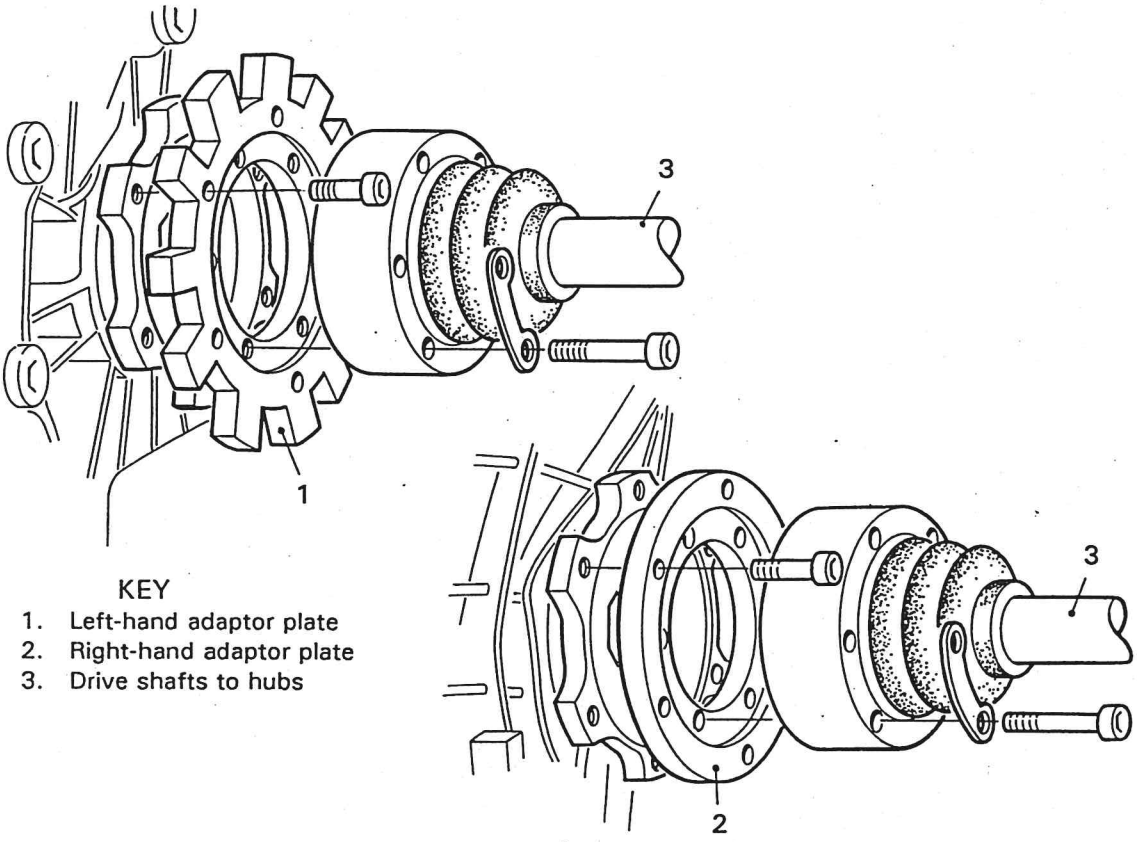
1. Refer to Fig.2. Orientate correctly the spigot bearing (6) so that the open end faces towards the gearbox then press the bearing into the centre of the flywheel (7) until flush.

2. Fit new flywheel (7) and spigot bearing (6) assembly, and starter ring gear (9) with adaptor boss (8) to crankshaft (10) using eight off M10 x 75mm x 1.0mm pitch bolts. Apply Loctite to threads and tighten bolts in alternating sequence. Tighten to torque (refer to Engine Manual).

3. Fit new clutch friction plate (5) and pressure plate (4), locating it on dowels, and bolt to flywheel (7) using six off M8 x 20mm caphead bolts. Loctite threads and tighten to torque.

4. Fit new adaptor plate (2) to gearbox bell housing (1) using correct outer bolts and dowels. Also fit three internal countersunk bolts (11 and 12), smear Loctite on threads and tighten to torque.

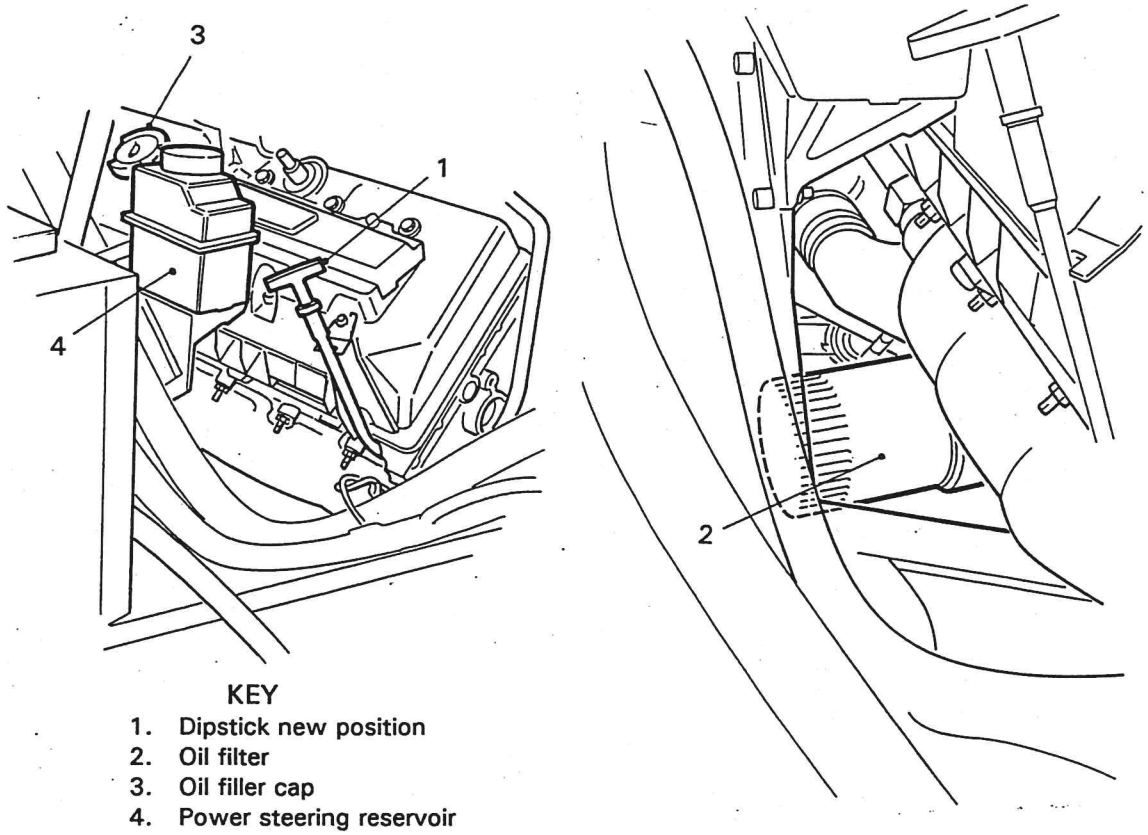
5. Fit gearbox (5-speed standard or 6-speed option) and adaptor plate assembly (2), with the thin intermediate adaptor plate (3) to the engine using correct



KEY

1. Left-hand adaptor plate
2. Right-hand adaptor plate
3. Drive shafts to hubs

Fig. 3 Transmission Adaptor Plates



KEY

1. Dipstick new position
2. Oil filter
3. Oil filler cap
4. Power steering reservoir

Fig. 4 Dipstick, Engine Oil Filter, Oil Filler Cap and New Power Steering Reservoir

caphead bolts with spring washers under the heads. (Refer to Engine Manual). Tighten to torque.

6. Refer to Fig. 3. Fit the left-hand (1) and right-hand (4) transmission adaptor plates to the gearbox using six off special caphead bolts with Loctite on threads. Tighten bolts to torque. Both adaptor plates are fitted in the same way; the LH plate has a castellated outer ring to activate the speedometer transducer.

Engine Fittings

7. While the air conditioning compressor is off the engine remove its manifold and drain the oil. Refer to Module 05 for quantities when refilling the Heating/Air Conditioning system with PAG V9222 oil. Refit manifold. Refit compressor to bracket after the engine is installed.

8. Remove both the left-hand and right-hand exhaust manifolds and gaskets from the engine to improve clearance while fitting engine. The fixing bolts are not fully tightened on delivery and these should be set aside for reassembly (refer to Engine Ancillaries Module 10 for refitting of manifolds).

9. Modify the coolant take-off pipes to the heating system. Refer to the Water System Module 08, Assembly Stage 3 for information.

10. Remove the dipstick and tube from the engine and rebend tube to be fitted in new location (Fig.4). Do not refit until after the engine has been installed in case of damage, but it must be fitted before the manifold is reconnected.

11. Connect new alternator power lead from alternator left-hand terminal down to the starter motor and clip into place on the engine.

12. Fit modified electrical loom from front of engine down to the gearbox area and clip into place.

13. The engine mounting chassis cross-member (Fig. 5) should already be bolted into place. Check/tighten bolts to torque.

Assembly Stage 3
Assembly To Car - Engine And Gearbox

NOTE. The Mustang lifting brackets are not used for hoisting the engine. Instead a lifting chain or strap is used and the engine is suspended from a hoist (Fig. 5). The chain or strap and hoist are left in place taking the weight of the engine until after the mountings have been bolted into place.

1. Hoist engine to correct height and move forward into position, front tilted downwards (Fig. 6). Ensure the engine does not foul the body and chassis and manoeuvre into place above the chassis cross-member already bolted in

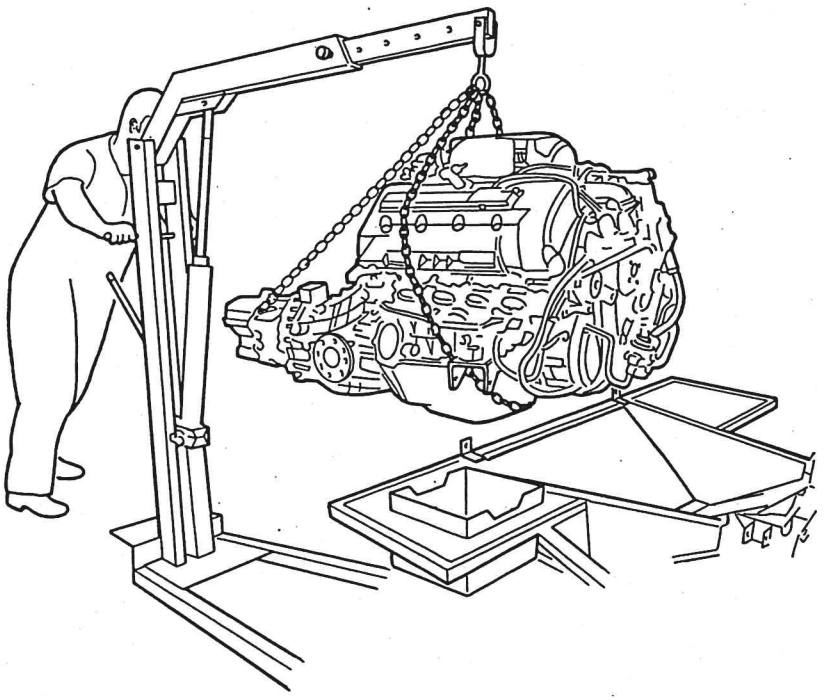


Fig. 5 Hoisting the Engine for Installation

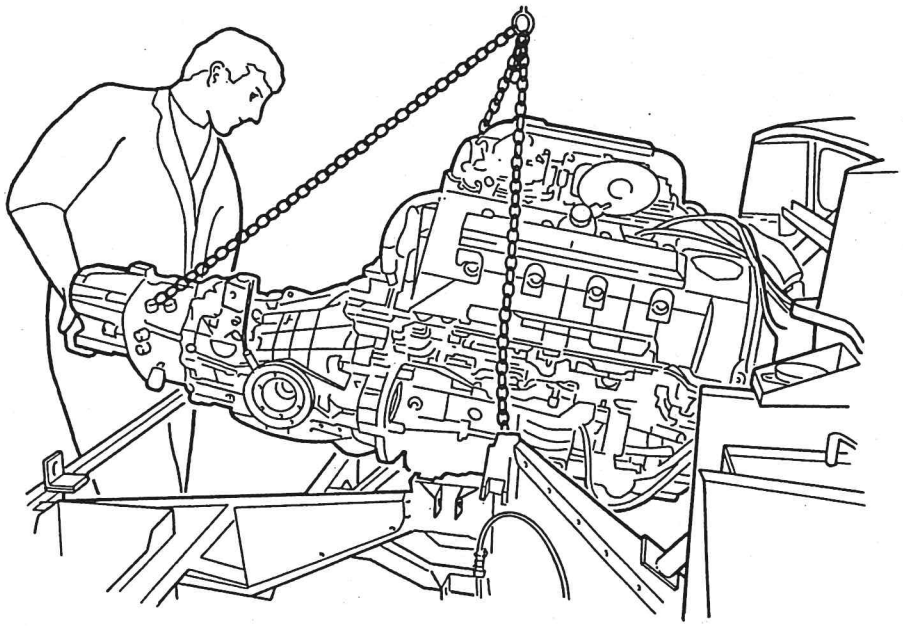


Fig. 6 Maneouvering the Engine Into Place

place ready to fit the engine mounts. Support the gearbox at the rear keeping it clear of the chassis as the engine is tilted further, front-down, until ready to lower. Maneouvre the engine inwards at the correct angle until above the mounting position.

2. Fit the new 'Lincoln' engine mountings (Fig. 8) when engine is in position using the original Mustang mounting bolts to connect them to the engine block (refer to Engine Manual).

3. Lower engine finally into place. Insert the engine mounting-to-chassis bolts (Refer to Fig. 5) into the cross-member mountings. On the right-hand side an M10 x 100mm bolt is used with a spring and plain washer under the head of the bolt and it screws into the captive bolt on the mounting. On the left-hand side mounting an M10 x 120mm bolt is used with a spring and plain washer under the head and it screws into the captive nut on the mounting. Do not tighten fully until after the gearbox mounting bolts are tightened.

4. Fit gearbox mounting brackets (Fig. 7) to chassis at rear using a 1/2 inch bolt with plain washers and a nyloc nut each side on both brackets. Do not tighten fully at this stage.

5. Align the mounting holes on each bracket with the four bolt holes in the gearbox and insert four off M10 x 20mm bolts each side with plain washers under the heads and Loctite on the threads. Tighten the gearbox mounting bolts to torque. The gearbox mounting brackets should then be tightened to torque to secure.

6. Tighten fully the engine mounting bolts to the correct torque. Remove lifting chain or strap from the engine and withdraw the hoist.

7. Fit Water System pipes (Refer to Module 08) on engine.

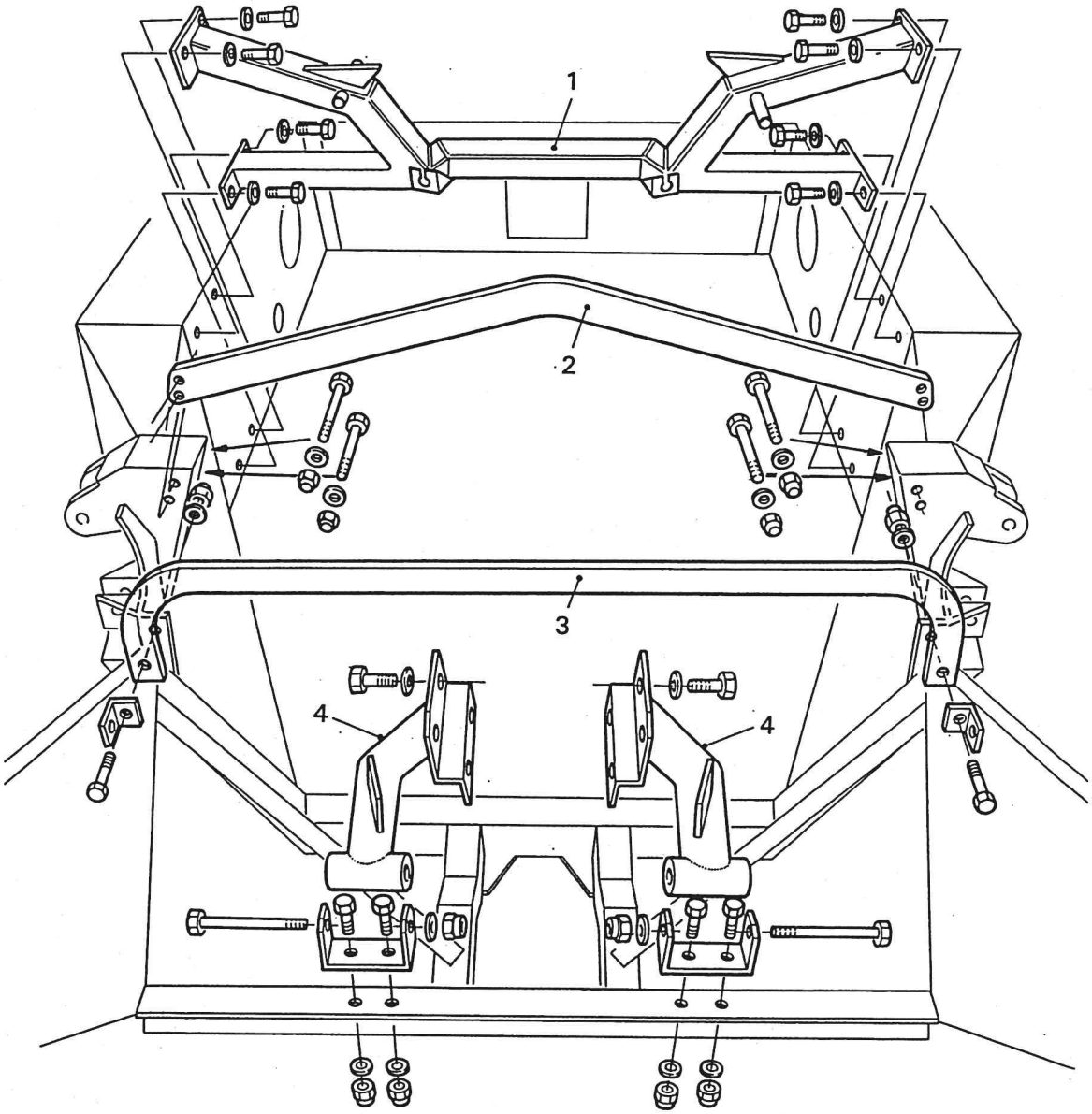
8. Fit the modified coil brackets. Each bracket is secured by the original mounting bolts on the front of the engine. Fit the coils in place using the original bolts.

9. At the top rear of the engine on the plenum chamber fit the modified throttle cable mounting bracket onto its original mounting. The outer casing is secured on the bracket and the throttle wire is connected to the throttle linkage on the side of the air intake.

10. Connect up the engine electrical connectors.

11. Connect up the fuel system pipes.

12. Refit the original starter motor using the original three off M8 x 40mm securing bolts tightened to torque and connect up the electrical cables.



KEY

1. Chassis Cross member
2. Compression Bar
3. Overhoop
4. Gearbox mounting brackets

Fig. 7 Engine and Gearbox Mountings on Chassis

13. Refit the dipstick and tube in the new position (Fig. 4) and tighten the retaining nut to torque. This must be fitted prior to fitting manifold

14. Refit the two exhaust manifolds and gaskets ready for connection of the catalytic converter pipes. Refer to Section 10 Engine Ancillaries Module 10 for fitting the exhaust system.

15. Refit the original engine oil filter (Fig. 4), if serviceable, first removing the tape applied to protect the connection mounting face.

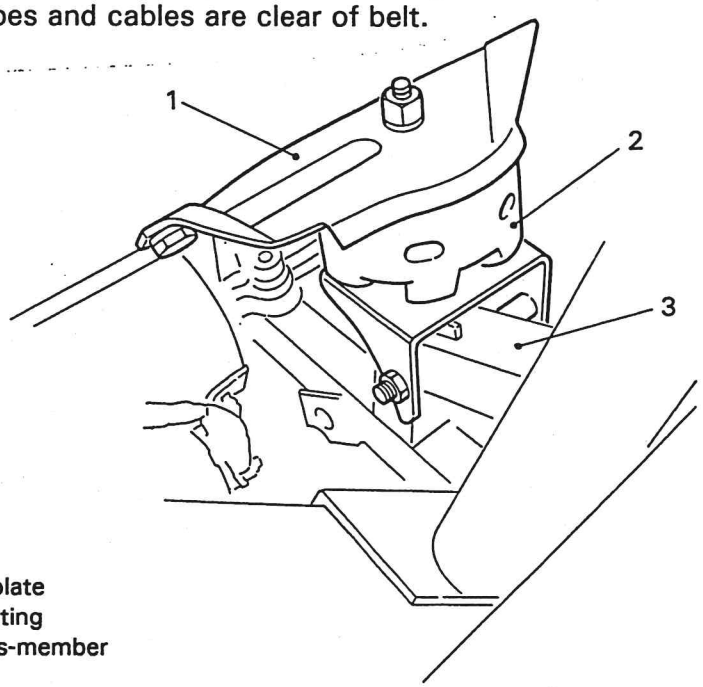
16. Bolt into place the overhoop (Fig. 7) over the top of the gearbox. At the same time and on the same bolts, fit the lower engine compartment cover lower stay brackets. Bolt the overhoop and brackets to the chassis using two M10 x 40mm bolts with plain washers under the nylock nuts. Tighten to torque.

17. Bolt into place the compression bar (Fig. 7) over the bell housing and bolt to the chassis near the shock absorber mountings using two M10 x 70mm bolts each side with plain washers under the nylock nuts. Tighten to torque.

18. Fit the power steering reservoir bracket and reservoir (Fig. 4).

19. Fit air conditioning system compressor using the three original bolts.

20. Fit drive belt around pulleys on front of engine and check to ensure that all fittings, pipes and cables are clear of belt.



KEY
1. Engine side plate
2. Engine mounting
3. Chassis cross-member

Fig. 8 Engine Mountings

KEY

1. Air cleaner
2. Air cleaner fixing bracket to overhoop
3. Air cleaner bracket and fixing bolts
4. Air ducting
5. 'P' clip
6. Mass air flow sensor connector location
7. Air ducting adaptor to plenum chamber
8. Plenum chamber
9. Connecting hose to tappet cover
10. Landers air intake temperature sensor connector location
11. Air intake replaceable filter

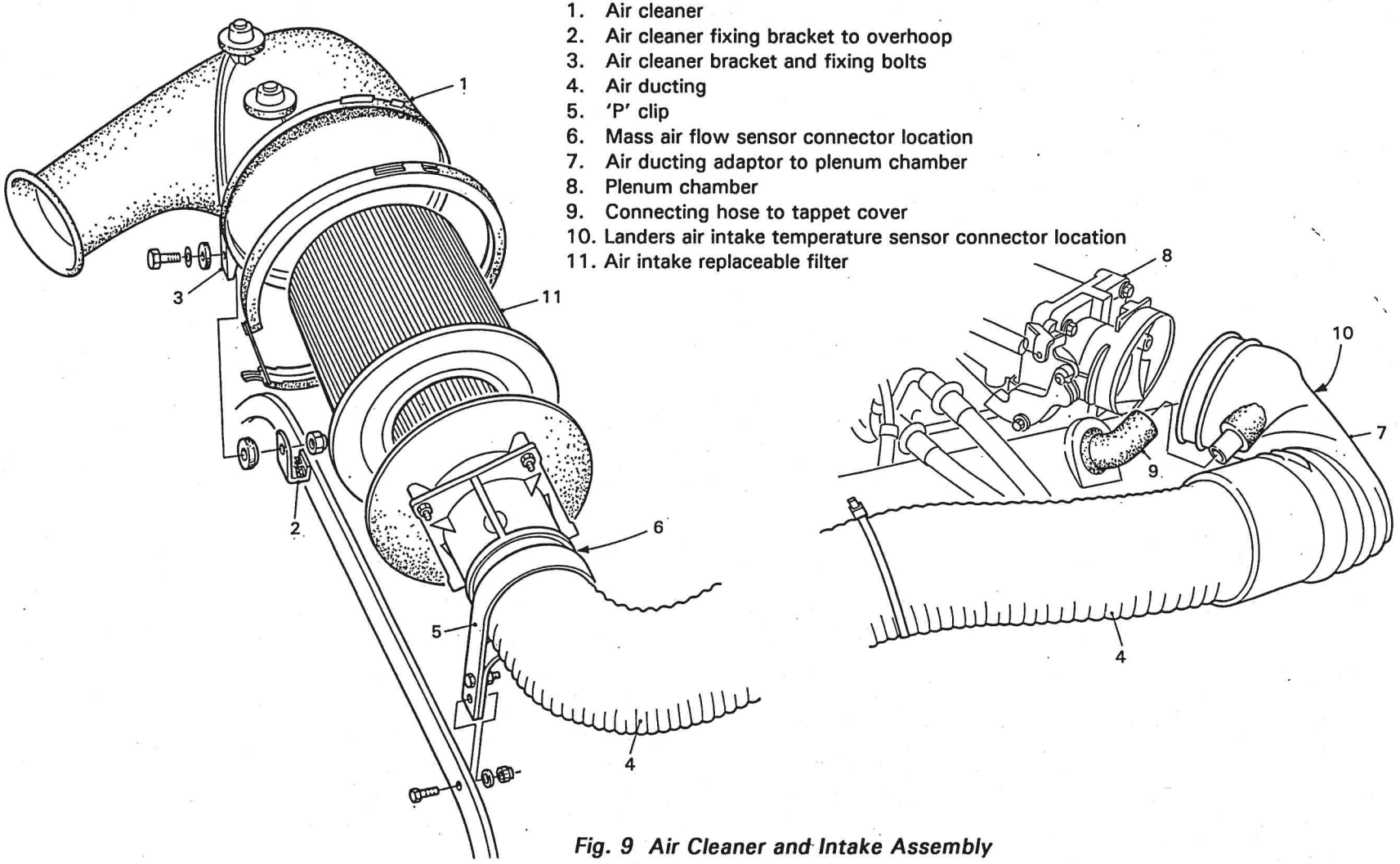


Fig. 9 Air Cleaner and Intake Assembly

Assembly Stage 4
Assembly to Car - Fitting Engine Air Intake and Cleaner

1. Refer to Fig. 9. The air cleaner (1) located at the back of the engine is secured to a bracket (2) bolted to the gearbox overhoop using two M6 x 25mm bolts with washers under the nyloc nuts.

2. The air cleaner is bolted to the bracket using an M8 x 35mm bolt (3) with washers and spacers under the head of the bolt and between the cleaner bracket and the overhoop bracket. It is secured by a nyloc nut.

3. The cleaner is connected to the engine plenum chamber by a length of 100mm air ducting (4). This is secured to the air cleaner and the plenum chaber intake adaptor by jubilee clips. It is also secured by a 'P' clip (5) and bolted to the overhoop.

4. An electrical connector to the mass air flow sensor is located under the outgoing end of the air intake (6).

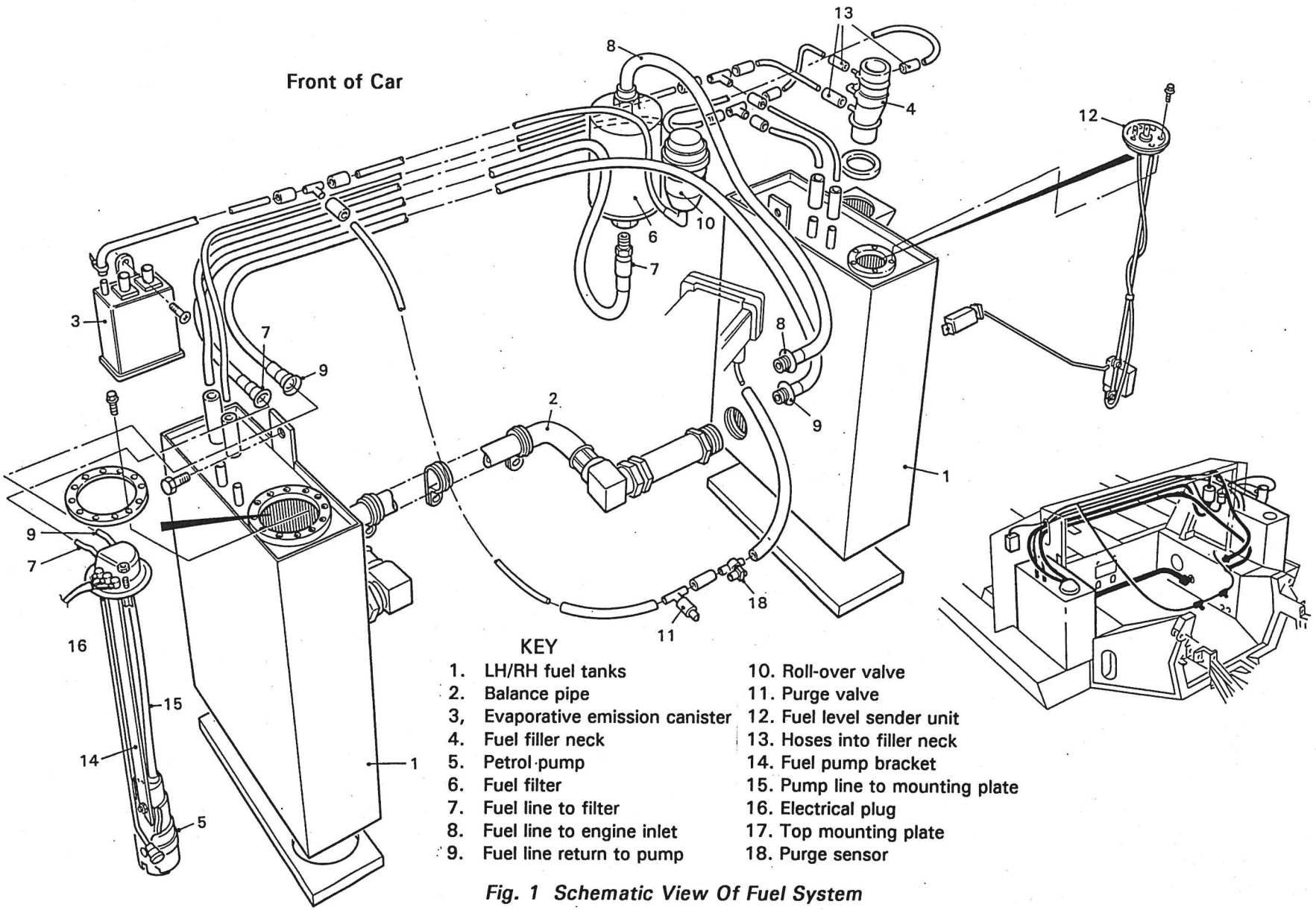
5. At the ducting adaptor (7) connecting into the plenum chamber (8), a short hose (9) connects to the RH tappet cover. The Landers air intake temperature connector (10) is also located under the adaptor.

Section 12

FUEL SYSTEM Module 14

Contents

Illustrations



KEY

1. LH/RH fuel tanks
2. Balance pipe
3, Evaporative emission canister
4. Fuel filler neck
5. Petrol pump
6. Fuel filter
7. Fuel line to filter
8. Fuel line to engine inlet
9. Fuel line return to pump
10. Roll-over valve
11. Purge valve
12. Fuel level sender unit
13. Hoses into filler neck
14. Fuel pump bracket
15. Pump line to mounting plate
16. Electrical plug
17. Top mounting plate
18. Purge sensor

Fig. 1 Schematic View Of Fuel System

Section 12

FUEL SYSTEM Module 14

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

3. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

System Operation
General Description

WARNING
Use only unleaded petrol
DO NOT USE LEADED PETROL
Any use of leaded petrol, even a small amount, will damage irreparably the catalytic converters. Refer to the Technical Data Section of the Owners Handbook for information on grades and types of petrol permitted.

1. *Refer to Fig. 1. The car is fitted with two fuel tanks (1) fitted one on each side and connected by a balance pipe (2) that transfers fuel between the tanks thereby ensuring that they are always at equal levels.*

2. *The system allows a controlled release of fuel tank pressure through a charcoal-filled evaporative emission canister (3) through which the system vents a controlled release of fuel tank pressure. Under normal operating conditions this is sufficient to prevent a build-up of internal tank pressure.*

3. *Some typical conditions that cause temporary build-up of internal tank pressure are:*
   - *After filling the tank on warm days the fuel, cool from underground storage, vaporizes when warmed.*
   - *Agitation of fuel when driving over uneven surfaces increases vaporization especially with newly-filled tanks.*
   - *Parking in hot weather after driving long distances.*
   - *Sustained hard driving.*

4. *The system will relieve any pressure build-up under these conditions when functioning normally. Any build-up in pressure would be heard escaping when the filler cap is removed.*

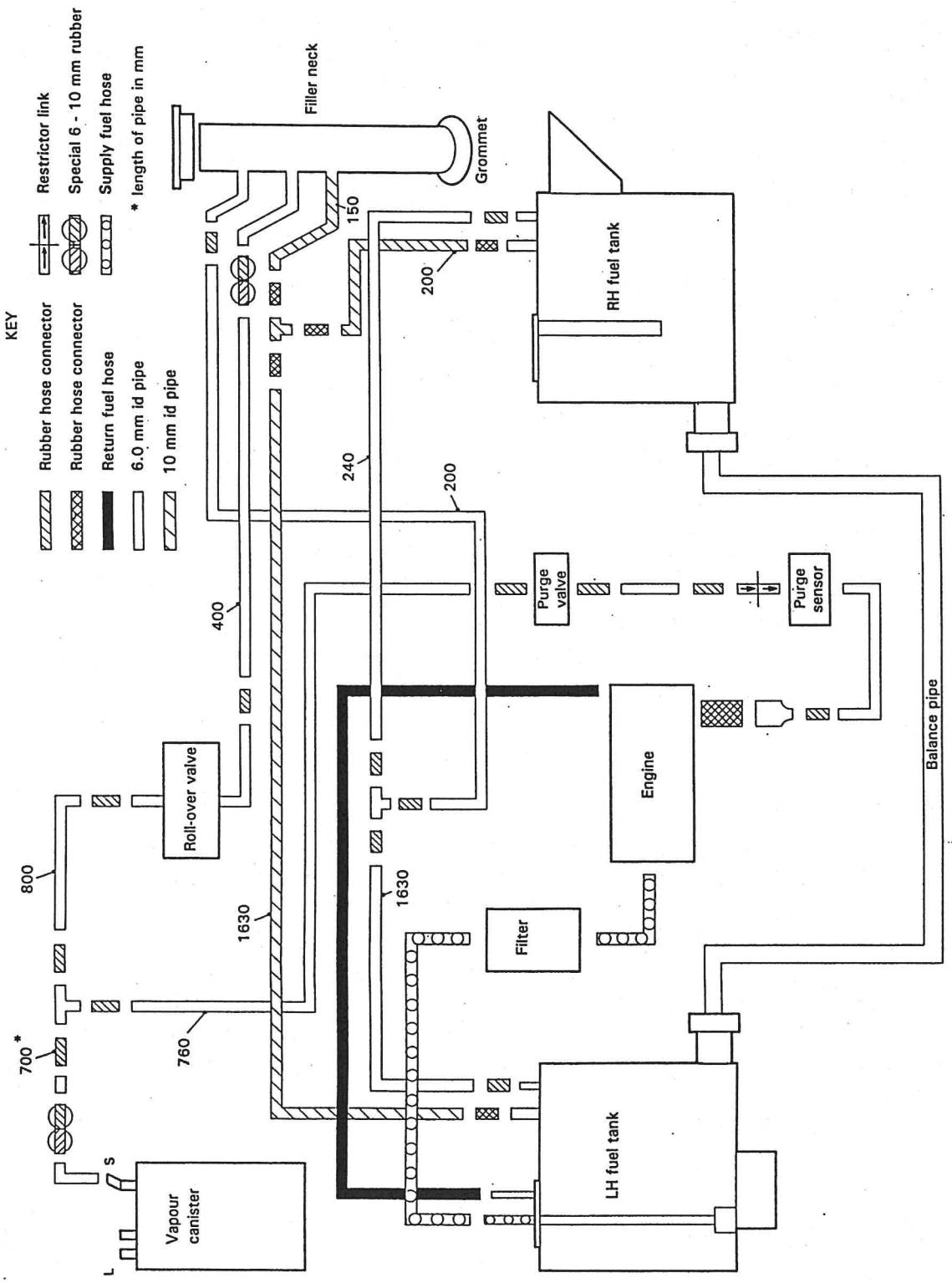


Fig. 2 Schematic Diagram of Fuel System

5. *The most likely cause of a pressure build-up is kinked or blocked pipes in the system and all pipes should be checked if pressure is detected. This should be checked following road testing a car before delivery.*

6. *A single fuel filler is located above the right-hand tank and it will normally accept only an unleaded fuel dispensing nozzle. The filler flap is opened by operating a lever fitted on the left-hand side of the passenger compartment beneath the facia. Filling from petrol cans or any other irregular method could enable the tank to be filled by leaded or non-approved fuel.*

7. *The fuel filler neck (4) connects directly into the right-hand (RH) tank. A connection back to the filler neck from the tanks allows displaced air to escape during filling. As the fuel level rises to cover the fill vent, pressure in the tank rises and causes the fuel to back up and shut off the fuel dispensing nozzle.*

8. *The design of the system allows a 10 per cent volume of the tank to be maintained empty above the fuel level when fully filled. This allows for thermal expansion of the fuel.*

9. *The petrol pump (5) is located in the LH side tank and fuel is drawn from the sump immediately below the pump. Fuel to the engine from the pump passes through a fuel line (7) and a filter (6) before connecting to the engine inlet (8). The return fuel line (9) from the engine connects back to the pump.*

10. *The evaporative emission canister is connected, to the roll-over valve (10), the filler neck and the purge valve (11).*

11. *The fuel level gauge sender unit (12) is fitted in the RH tank and actuates the fuel gauge on the facia panel.*

12. *System hoses (13) connect into the filler neck at different levels to allow for fuel expansion and for vapour venting.*

NOTE. *Refer to Fig. 2 for a schematic drawing of fuel system*

Assembly Stage 1
Bench Assembly - Fuel Pump Bracket Modifications

1. The fuel pump is supplied fitted in a bracket (14) which must be modified to fit into the fuel tank. First remove the pump from bracket.

2. Remove fuel line (15) and detach the electrical plug (16) taking care not to damage the plastic fuel pump.

3. Cut off approximately 110mm of the fuel pump bracket to the point where the hole in the bracket is bisected.

4. Remove the lugs from the top mounting plate (17) using a hacksaw and file until plate is circular.

5. Attach the fuel pump bracket extension onto the top plate using one M4 x 20mm bolt with washer and nyloc nut and one M5 x 16mm bolt with washer and nyloc nut.

6. Re-attach the 110mm bracket that was removed. It bolts to the extension bar using an M4 x 20mm bolt with washer and nyloc nut.

7. Refit the fuel pump.

8. The electrical supply wires should be extended to suit.

9. Cut a 380mm length of 10mm id rubber hose (15) and join the fuel pump to the top plate. Using locking wire, twist it around the ends of the hose to secure onto the metal tubes.

Assembly Stage 2
Assembly to Car - Piping Installation

NOTE. Fuel tank and the filler throat fitting instructions are included in Ancillary Controls Module 03 because they are fitted when carrying out build work in the body shop.

Balance Pipe

1. The balance pipe (2) is a large rubber hose which is installed across the back of the tub and under the tunnel in front of the engine and it connects via unions to the bottom of each tank. Screw on the pipe at each tank and tighten the union connector nuts to torque.

Fuel Supply to Engine

2. Fit the fuel filter unit (6) to the top of the right-hand side foam-backed panel on the engine side. Fit the adaptors, with a copper washer, to the bottom and top connections of the filter. They cannot be crossed over because they have different threads. Pipes are supplied with the adaptors already fitted.

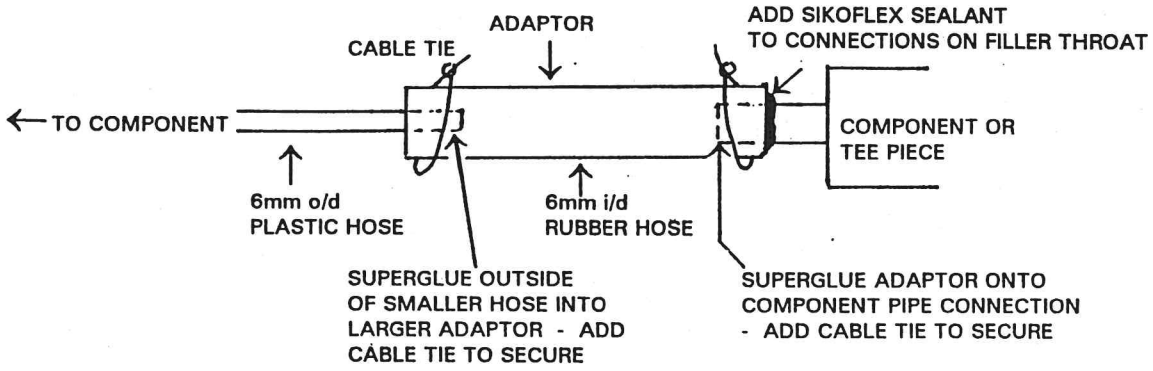
3. Attach the fuel supply hose from the pump in the left-hand tank to the bottom of the filter (7) inserting a copper washer before tightening. The direction of flow through the filter is marked. To the top of the filter, again inserting a copper washer, attach the fuel supply hose (8) to the engine fuel inlet manifold. At the manifold the connection is pushed in to secure.

4. With the filter positioned with the direction of flow arrows pointing upwards fit the 'P' clip on the filter and tighten using the screw and square nut

provided. Secure the filter and 'P' clip to the RH tank securing bolt projecting through the foam backed panel, first removing the nut and washer carefully and then replacing them again over the 'P' clip lug.

Fuel Return to Pump

5. Fit the fuel return hose to the engine manifold return connection (9), it is a push-in connection like that on the fuel supply. The other end of this hose connects to the return connection on the fuel pump (9).



Notes 1 Adaptors can be rubber or plastic as specified on drawing key.
2 Adaptors under 10mm o/d - add cable ties to secure.
3 Adaptors 10mm o/d and over - add jubilee clip to secure.

Fig. 3 Typical Adaptor Assembly

Section 13

STEERING PARTS Module 20

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Illustrations
Figure

Section 13

STEERING PARTS Module 20

NOTE. The following procedures are worded for assembly of a left-hand drive car. The same assembly procedure should be used for the right-hand drive car except where specific differences are stated.

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Bench Assembly - Modification of Steering Column

NOTE. The steering column has to be shortened before assembly to the car. The following procedure applies to power steering equipped cars only.

1. Pull out the steering column from the outer casing and cut off the lower end to make it a total length of 300mm overall for power steering cars.

2. The outer sleeve has to be shortened and this is achieved by cutting out a section 75mm long from the centre lower end of the casing where the ends are compressed or flattened. Between the compressed ends mark the approximate centre and cut out a 75mm section. Then weld together the cut ends to achieve the total length reduction of 75mm. Clean up the weld.

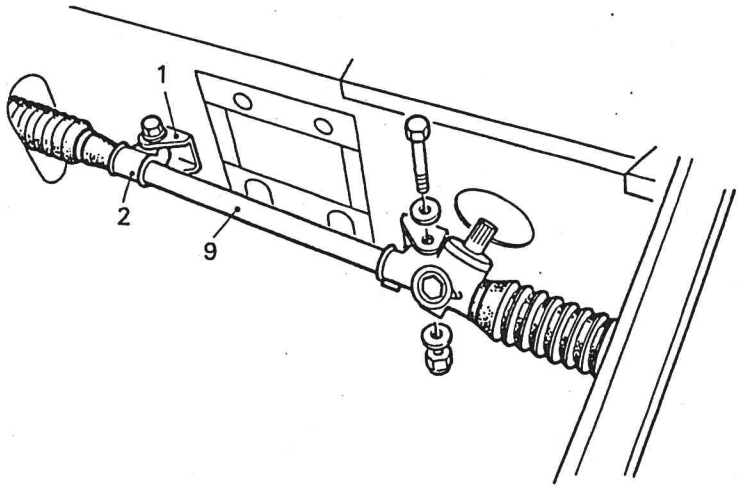
3. Push the steering column back into the casing.

Assembly Stage 2
Bench Work - Modification of Universal Joint Shaft

1. Modify the universal joint for the steering column. Cut off the universal joint triangular section to 80mm long

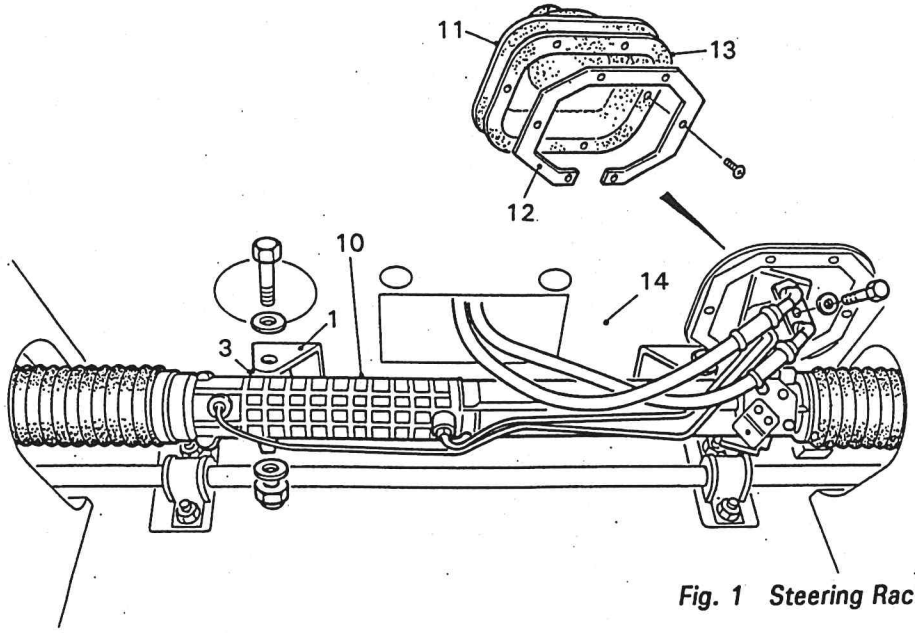
2. Weld on end plate

3. After modifications are complete assemble the universal joint to the flexi joint and tighten clamp bolt to torque.



KEY

1. Mounting brackets
2. Clamp
3. Mounting lugs
4. Track rod end
5. Pointed ears
6. Locknut
7. Hub anchor point
8. Split pin
9. Manual steering rack
10. Power steering rack
11. Gaiter
12. Aluminium retaining plate
13. Gaiter edge
14. Front bulkhead



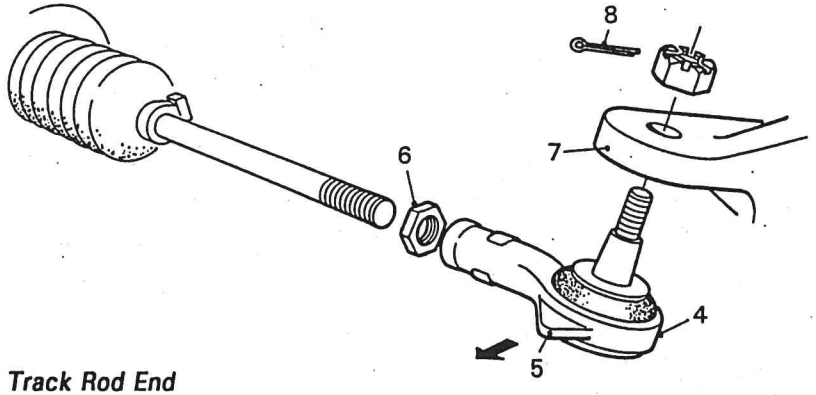


Fig. 1 Steering Racks and Track Rod End

Assembly Stage 3
Assembly to Car - Steering Rack and Power Steering Hydraulics

1. Refer to Fig.1. Fit the steering rack mounting brackets (1) into position on the front bulkhead and locate the welded-on bolts into the clearance holes provided in the front bulkhead. From the passenger compartment footwells add a plain washer and nyloc nut (four off each bracket) and tighten to torque.

2. The manual steering rack (9) is different to the power steering rack (10). Fit the steering rack into the mounting bracket clamps (2) using M12 x 80mm bolts with plain washers under the head and above the nuts. The power steering rack is secured to the brackets through each mounting lug (3) fitted on the rack using a $7^{1}/_{16}$ x 3in. bolt with washers both sides and nyloc nut. Check and align the steering rack position then secure by tightening the clamp bolts to torque.

3. Fit the trackrod ends (4) onto the rod with the pointed ears (5) facing the front of the car leaving the adjusters and locknuts (6) loose.

4. Fit the trackrod ends to the hub anchor points (7). Fit the castellated nuts to secure the trackrod ends into the hub and tighten to torque and then to next slot to insert the split pins (8) to secure. Do not tighten the trackrod adjusters and locknuts at this stage.

NOTE. All threaded connections on the pipework should be sealed by applying PTFE tape on assembly.

5. The power steering automatic transmission fluid from the pump on the front of the engine comes through feed and return pipes running along the outside of the tunnel on the passenger's side via 3mm id Kunifer pipes. Flexible rubber hose connections connect these to the rack. At the rack connect the feed from the pump and the return to the reservoir to the correct points via the special Ford couplings which push-fit onto the couplings over an 'O' ring. Fit an 'M' plate onto the rack to clamp the pipes in position and secure using an M8 x 16mm bolt with a plain and spring washer.

6. At the engine compartment end of the tunnel it is necessary to complete the following work before the engine is fitted. The two power steering pipes emerging from the tunnel should be bent to the left of the tunnel (looking forwards towards the front of the car) and clamped to the bulkhead. Each is fitted with an olive type union.

7. The return pipe that connects to the power steering reservoir from the tunnel pipe changes to a rubber $^{1}/_{4}$ in. id, and then changes again to a copper 6mm id pipe to prevent crushing. This changes again to a 10mm id rubber pipe that connects to the reservoir where it is secured to the smaller connection by a jubilee clip.

KEY

1. Column mounting bracket
2. Upper column support bracket
3. Lower column bearing
4. Upper column bearing
5. Outer column
6. Spring
7. Fixed ring
8. Split thrust washer
9. Inner column
10. Upper thrust washer
11. Direction indicator cam
12. Pinch fixing bracket
13. Assembly of washers, guides, spring wedge, adjusting lever, and clamp plate bolt
14. Grommet
15. Lower bearing support bracket
16. Bearing
17. End stop
18. Plate
19. End of inner column
20. Ring at bottom of outer column
21. Intermediate shaft (manual steering rack)
22. Universal joint
23. Clamp to pinion
24. Intermediate shaft universal joint
25. Clamp plates
26. Universal joint (power steering)
27. Flexi joint (power steering)
28. Clamp plate to power steering rack pinion

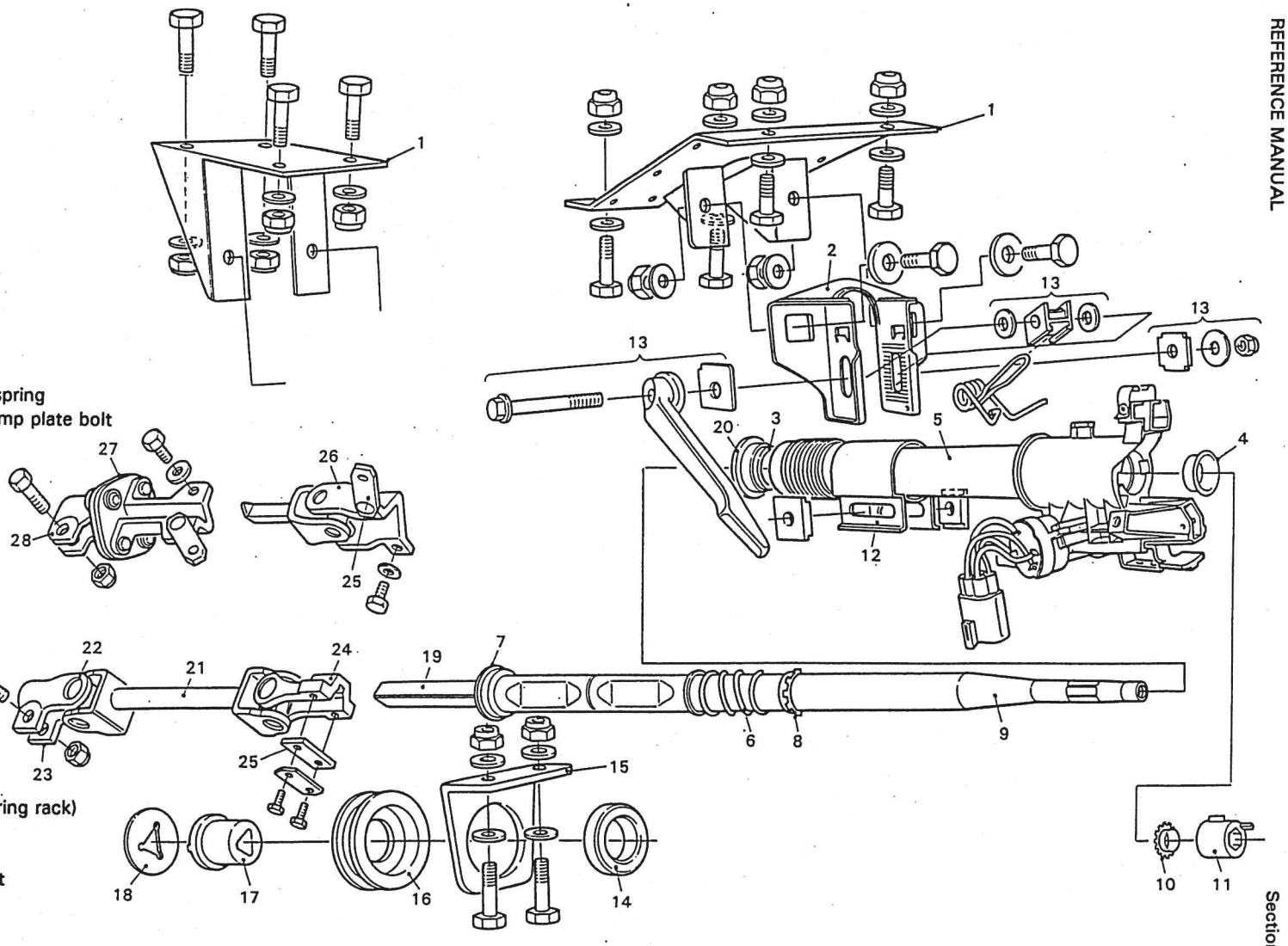


Fig. 2 Steering Column Assembly and Joints to Steering Rack

8. From the union on the feed pipe into the tunnel, fit a 6mm id rubber pipe about 12in. long. This is joined by a short copper pipe with unions at both ends to connect into the adaptor on the pump outlet.

9. The other pump connection, the inlet, is to the reservoir large diameter outlet via a 16mm id flexible rubber hose that is secured at both ends by jubilee clips.

10. The power steering reservoir is a plastic container with a screw cap and the normal level for the fluid is marked on the side. It is held in a bracket near the rear left side of the engine. The bracket is a modified Ford part and it is secured by M5 x 16mm screws fitted with spring washers into the Rivnuts on a plate welded to the roll cage.

Assembly Stage 4
Assembly to Car - Steering Column Installation

Steering Column Fitting
(Refer to Fig. 2)

1. Fit the column mounting bracket (1) to the underside of the facia using four M10 x 50mm bolts, inserted down through the facia chassis members, with washers under the bolt heads and between the nuts and the bracket and secure with nyloc nuts tightened to torque. On early cars the mounting bolts were inserted up through the fixings. This bracket carries the mounting points for the steering column support bracket (2).

2. Fit the column support bracket into place on the facia mounting using two M10 x 25mm bolts and nuts with washers each side of the mountings - leave loose for positional adjustment.

3. Fit the lower (3) and upper (4) bearings into position in the outer column (5).

4. Fit the spring (6) onto the inner column and pass it down to rest against the fixed ring (7) on the column. Then slide the split thrust washer (8) down so that the plain side of the washer inserts into the end of the spring.

5. Insert the assembled inner column (9) up into the outer column (5).

6. Fit the assembled outer column into the upper column support bracket (2) and secure temporarily.

7. Fit the upper bearing thrust washer (10) and direction indicator cam (11) in place, over the top of the inner column with the plain side of the thrust washer facing the cam.

8. Fit the outer column pinch fixing bracket (12) with washers, guides, spring (which engages with holes in the pinch bracket and fits below the wedge that locates below the column inside the pinch bracket) (13). The assembly is completed by fitting the column position adjusting lever into position in

the support bracket. All the assembly is secured using the clamp plate bolt and nut. The outer column is gripped in the desired position when the adjusting lever is lifted into the locked position. With the lever down the assembly is slackened off and the outer column can be raised and lowered and moved in and out.

9. Tighten the fixing bolts in the steering column support bracket to torque.

10. Thread the grommet (14), the lower bearing support bracket (15) with bearing(16), the bearing end stop (17) and plate (18) onto the end (19) of the inner column and up into position against the fixed ring (20) at the end of the outer column.

11. Drill the glass fibre panel in the top of the footwell and the pedal box rear plate to bolt the lower bearing support bracket into place. Secure using M8 x 30mm bolts with washers under the head of the bolt and above the nuts and tighten to torque.

Steering Column to Rack Linkage

12. For this operation refer to Fig.1. Fit the gaiter (11) with the gaiter front edge onto the face of the front bulkhead drilling through the aluminium retaining plate (12), gaiter edge (13) and the bulkhead (14). Secure with self-tapping screws.

Manual Steering Cars Only

13. (Refer to Fig. 2). For manual steering rack cars, with the road wheels centred, fit the intermediate shaft (21) and the universal joint (22) through the gaiter and onto the spline of the steering rack pinion projecting up through into the footwell and tighten the clamp bolt (23) to torque.

14. Rotate the inner steering column fully to the left and then to the right to establish the full extent of travel, then rotate accurately to the centre of travel, only rotating it sufficiently to engage the triangular column (19) into the clamp, then lock into position by tightening the clamp plates (25) to torque with the two bolts provided using Loctite on the threads to secure.

Power steering cars only

15. (Refer to Fig. 2). For power steering racks, with the road wheels centred, fit the assembled universal (26) and flexi (27) joints (refer to Assembly Stage 2). Secure the clamp bolt (23) to the power steering rack pinion and tighten to torque.

16. Rotate the inner steering column fully to the left and then to the right to establish the full extent of travel, then rotate accurately to the centre of travel, only rotating it sufficiently to engage the triangular column (19) into the clamp of universal joint (26). Lock into position by tightening the clamp plates (25) to torque with the two bolts provided using Loctite on the threads to secure.

Assembly Stage 5
Assembly to Car - Fitting Steering Wheel, Switches and Shrouds

1. Refer to Fig. 3. Fit the switch stalks (1) units by first removing the 'M' bracket (2) from the top of the steering column (3). Fit the two sets of switch stalks and refit the 'M' bracket. Fix in position using the screws provided.

2. Secure the bottom of the two stalks using the screws provided.

3. Place the upper and lower column covers, or shrouds (4), around the column. Secure the bottom cover using the three screws provided and the top cover using the single screw. A plate housing the coded program switch (5) for the optional alarm system, if fitted, has to be screwed to the underside of the cover using four 10 x $^{3}/_{8}$ in. self-tapping screws.

4. Fit the indicator cam (6) onto the steering column with cam located at the 9 o'clock position.

5. Remove the leather centre cover (7) of steering wheel (8).

6. Pull out the steering column to the fully-out position.

7. Bolt hub (9) from kit into centre of wheel with hub mark at the top centre position. Use the six hexagon bolts supplied.

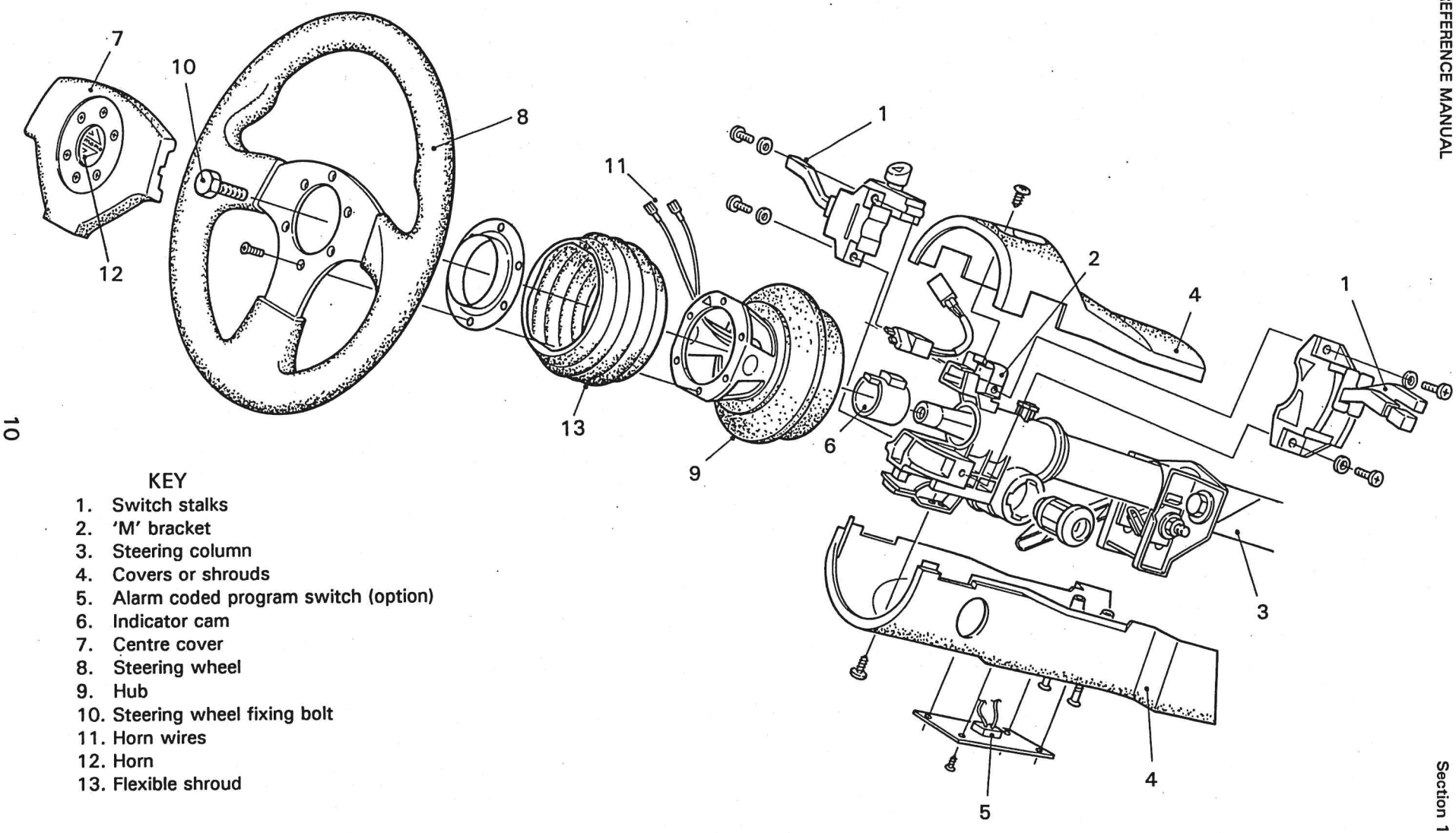
8. Align the road wheels to the centre position.

9. Align the hub mark and steering wheel for straight ahead.

10. Bolt wheel onto steering column using bolt supplied (10) and tighten to torque.

11. Connect horn wires (11) and press horn (12) into steering wheel aperture with the flexible shroud (13) in position.

12. Press on wheel centre cover.



KEY

1. Switch stalks
2. 'M' bracket
3. Steering column
4. Covers or shrouds
5. Alarm coded program switch (option)
6. Indicator cam
7. Centre cover
8. Steering wheel
9. Hub
10. Steering wheel fixing bolt
11. Horn wires
12. Horn
13. Flexible shroud

Fig. 3 Steering Wheel and Switch Stalk Assembly to Steering Column

Section 14

ELECTRICAL SYSTEM Module 21

Contents

Illustrations

Figure

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ELECTRICAL SYSTEM Module 21

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Bench Assembly - Instrument Panel Build

1. Cover the bench to protect the panel from damage. Inspect the finish on the panel for flaws.

2. Assemble the instruments to be fitted and ensure all parts are supplied. Check that the glasses are secure and undamaged.

3. Speedometer. Remove the multi-plug and fit the correct 8-way connector in accordance with the Carebont drawing leaving pin 8 empty.

4. The speedometer and tachometer have securing 'legs' and these are too long for this installation. Using a hacksaw shorten the 'legs' by 5mm.

NOTE. Use of Superglue
Warning lampholders are 'tacked' to the instrument panel using superglue to fix them in position before sealing-in permanently with hot glue.

WARNING

Superglue will join a persons skin to most things almost instantly, especially skin to skin, and is extremely difficult to separate again. Always read the instructions on the packaging before use and in case of accidents follow the advised procedure.

To prevent accidents the operator should wear disposable rubber gloves at all times while using the glue. If glue should be smeared onto the rubber gloves dispose of them safely immediately and use a new pair.

5. Assemble the warning lampholders to be fitted and scrape and clean the areas to which they are to be glued on the panel.

6. CAUTION. - Take care to prevent glue being accidentally smeared onto lenses and lamps by first masking with tape.

7. Ensure that those warning lamps such as Main Beam and Direction Indicators are in the correct place, position each warning lampholder centrally, then apply a spot of superglue in two or three places to tack the component in position. Hold it in position for about 15 seconds when the glue should be set. Then apply hot glue into the recess around the component to fully bond the lamp to the panel. Allow to cool for five minutes.

8. Fit all instruments to the panel ensuring that they are squared up correctly.

9. Fit the air circulation switch to the panel securely.

10. Install the wiring loom across the back of the panel and connect wires to the instruments, warning lamps and recirculation switch.

Assembly Stage 2
Bench Assembly - Rear Electrical Bay

NOTE. This procedure entails fitting and installing mountings and brackets, setting up the electrical equipment and carrying out tests for correct operation.

1. Assemble the PATS (Passive Anti Theft System) link lead and connect to PATS fly lead in electrical bay.

2. Remove the build and support screws from the inner mounting tray and substitute four 4.8 x 10mm rivets.

3. Fit four M5 Rivnuts to the CCRM (Constant Control Relay Module) and the PATS mounting tray.

4. Secure PATS mounting bracket to tray using two 4.8 x 10mm rivets.

5, Drill two 4.9mm holes and rivet two 'L' brackets to the base of the electrical bay for fixing the PCM (Powertrain Control Module).

6. Fit three M5 Rivnuts to PCM retaining bracket.

7. Release cable ties to free the four CPS plugs and the PCM connector.

8. Fit the PCM to its retaining bracket and secure with one M5 x 16mm panhead screw.

9. Fit the CCRM and PATS module to the mounting tray and fit the assembly to the electrical bay using two M5 x 16mm socket screws.

10. Connect the PCM, CCRM and PATS module by plugging in the connectors.

11. Secure the cables as required using cable ties.

12. Fit PATS warning light to lid of electrical bay in hole provided by pushing it in - it snaps into place. Connect the leads provided.

13. Fit the four CPS connectors to the electrical bay lid using 16 M4 x 20mm countersunk screws.

14. Fit the electrical bay side panel loosely (do not rivet) and loose fit the lid. Colour code the CPS connectors.

15. Store the electrical bay until car is ready for initial power-up.

Assembly Stage 3
Bench Assembly - Headlamp

NOTE. The headlamp mountings are left- and right-handed.

1. Refer to Fig.1. Fit headlamp backplate (1) to pod unit (2) and secure using four M5 x 16mm panhead screws.

2. Fit a lamp (bulb) of the correct type into the headlamp (3) as follows:
   - Do not touch the glass of the lamp with fingers but hold in a clean cloth - the data supplied with the lamp should warn of this.
   - Insert the lamp into the lamp holder and rotate until the lugs are correctly aligned with the slots.
   - Squeeze the wire clips together onto the back of the lamp then release them to lock it in position.
   - The electrical connecting plug in the car fits direct into the back of the lamp when the headlamp is installed.

3. Attach headlamp to mounting bracket (4) using four 10 x $^{3}/_{8}$ mm self-tapping screws.

4. Attach headlamp mounting bracket to backplate using nylon plugs and the adjusting screw (5). Ensure that the headlamp body spring is in position. The adjusting screw will be used to set the correct beam position when setting up the lights.

5. Insert the headlamp into position and secure the lamp bezel (6) to the mounting bracket using the four screws supplied.

6. Fit the front bezel (7) over the headlamp bezel and secure it to the light pod side brackets using four M5 x 16 self-tapping screws.

Assembly Stage 4
Assembly To Car - Pod Unit and Lift Motor Assembly

NOTE. The pod lift motors are left- and right-handed.

1. Refer to Fig.1. Fit the pod unit (2) into the aperture in the wing and secure the hinge points (8) on each side of the pod to the hinge plates fitted by the body shop into the lips of the aperture using M6 x 30mm bolts. Use washers in these hinge bolts to adjust the position of the pod in the aperture to achieve an even gap all round. Fit nyloc nuts and tighten to secure.

2. Plug-in the electrical connector on the lamp.

3. The mounting plate (9), complete with fitted bracket drilled for the motor bracket fixing bolts, is already glassed into the bodywork when delivered. The motor mounting bracket (10) is to be fitted between the sides of the mounting plate bracket (11). Fit the motor into its correct handed mounting bracket using four M6 x 16mm bolts with spring and plain washers under the heads, through the forward drilled holes in the sides of the fitted bracket and the sides of the motor mounting bracket into the tapped mounting holes in the motor housing and tighten. The rear fixing hole in the motor mounting bracket has to be marked from the pre-drilled holes in the fitted bracket and drilled. Use two M6 x 16mm bolts with washers and nyloc nut through both sides of the brackets to secure.

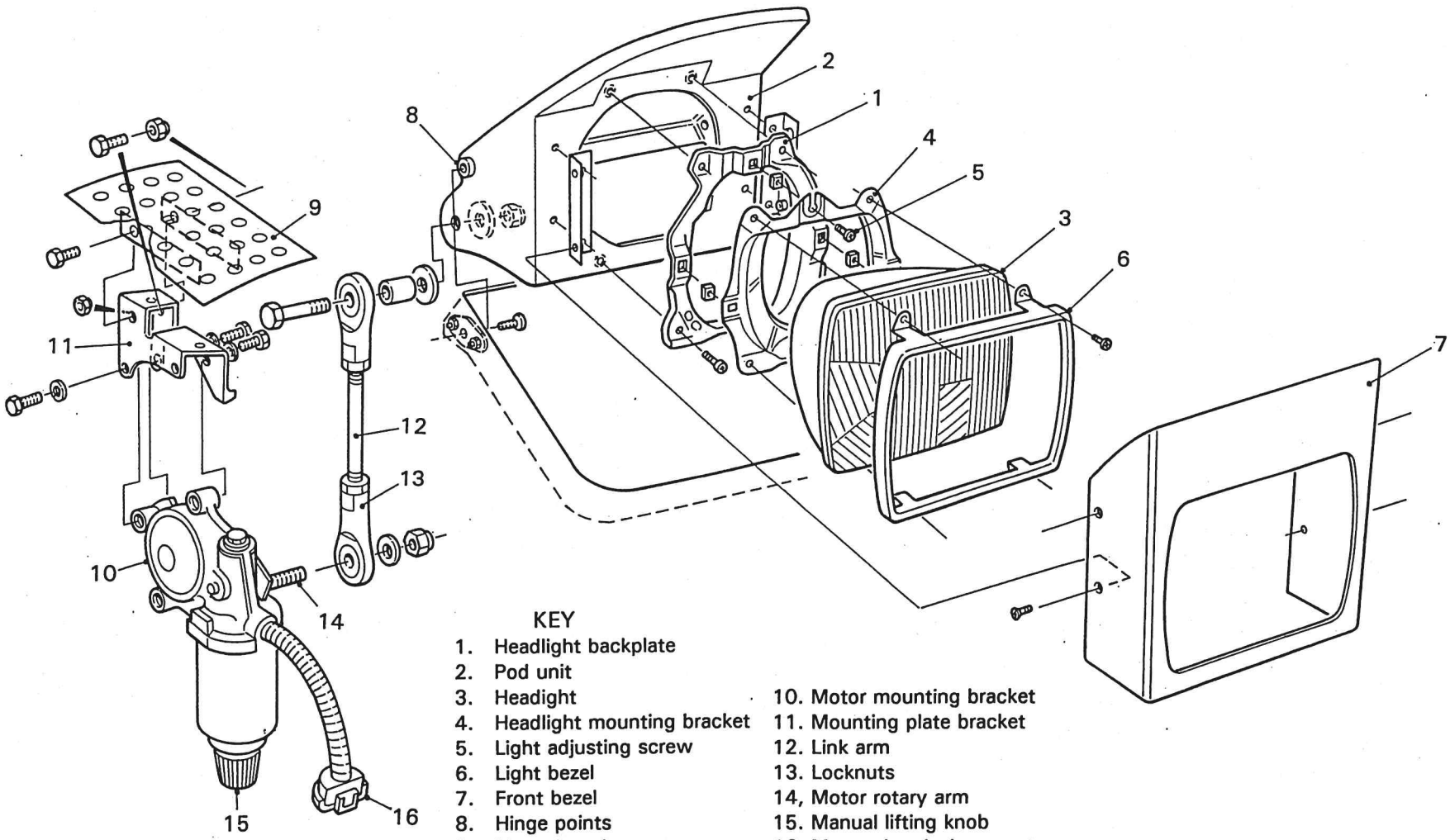
NOTE. The link arm (12) is fitted with a RH thread rose joint on one end and a LH thread joint on the other end and adjustments are made to vary its length by rotating the central actuator shaft. Because of the effect of the opposing left- and right-hand threads the effect is to lengthen or shorten the arm until the correct length of travel of the actuator is achieved to cause the pod to lift and return to the lowered position accurately. Once adjusted correctly the locknuts on the shaft (13) are tightened to secure the required length.

4. Attach the link arm lower rose joint to the rotary arm of the motor (14) using an M6 washer and a nyloc nut. The nut should be just tight enough to hold the rose joint firmly in position without preventing it rotating.

5. Rotate the link arm to the centre position between the two rose joints. Do not tighten the locknuts.

6. Manually wind up the motor using the lifting knob (15) which projects into the wheelarch. Lift the pod manually and insert a scriber through the centre of the upper rose joint. Move the link arm through an arc to mark the side of the pod. Continue to hold the pod in the same position.

7. Wind the motor down to its lowest position and still holding the pod in the same position scribe another arc through the upper rose joint again.



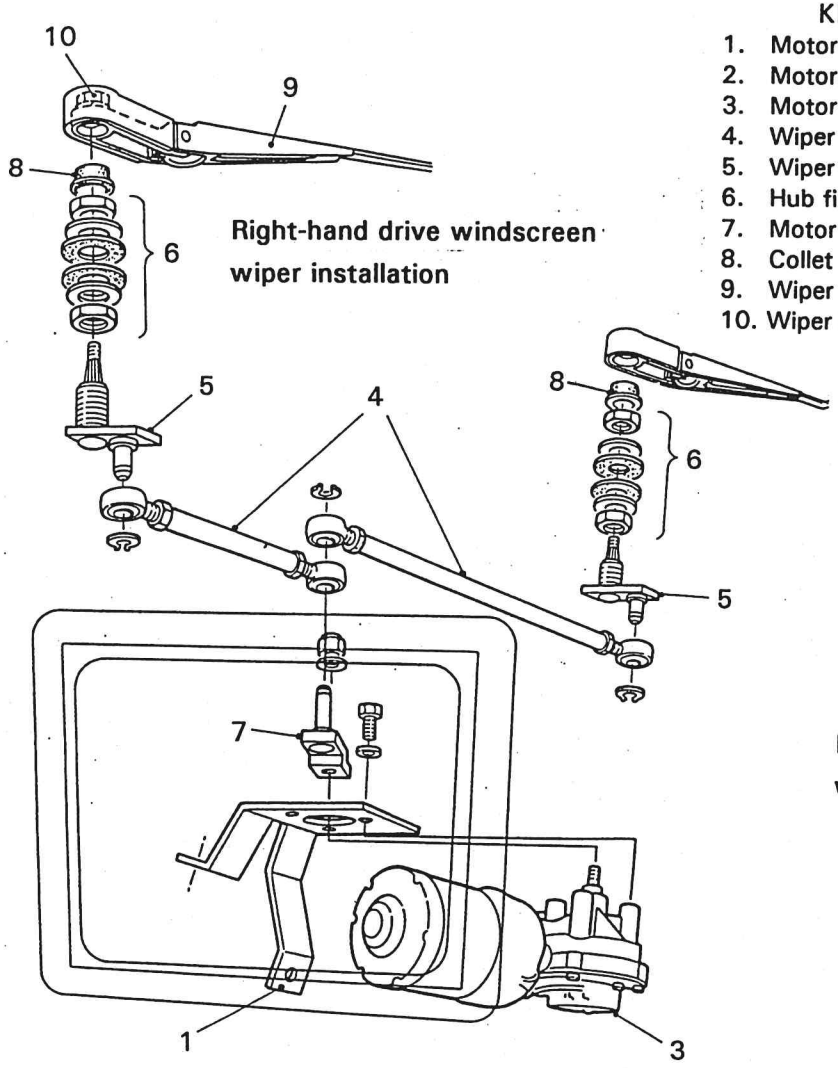
KEY

1. Headlight backplate
2. Pod unit
3. Headight
4. Headlight mounting bracket
5. Light adjusting screw
6. Light bezel
7. Front bezel
8. Hinge points
9. Mounting plate
10. Motor mounting bracket
11. Mounting plate bracket
12. Link arm
13. Locknuts
14, Motor rotary arm
15. Manual lifting knob
16. Motor electrical connector

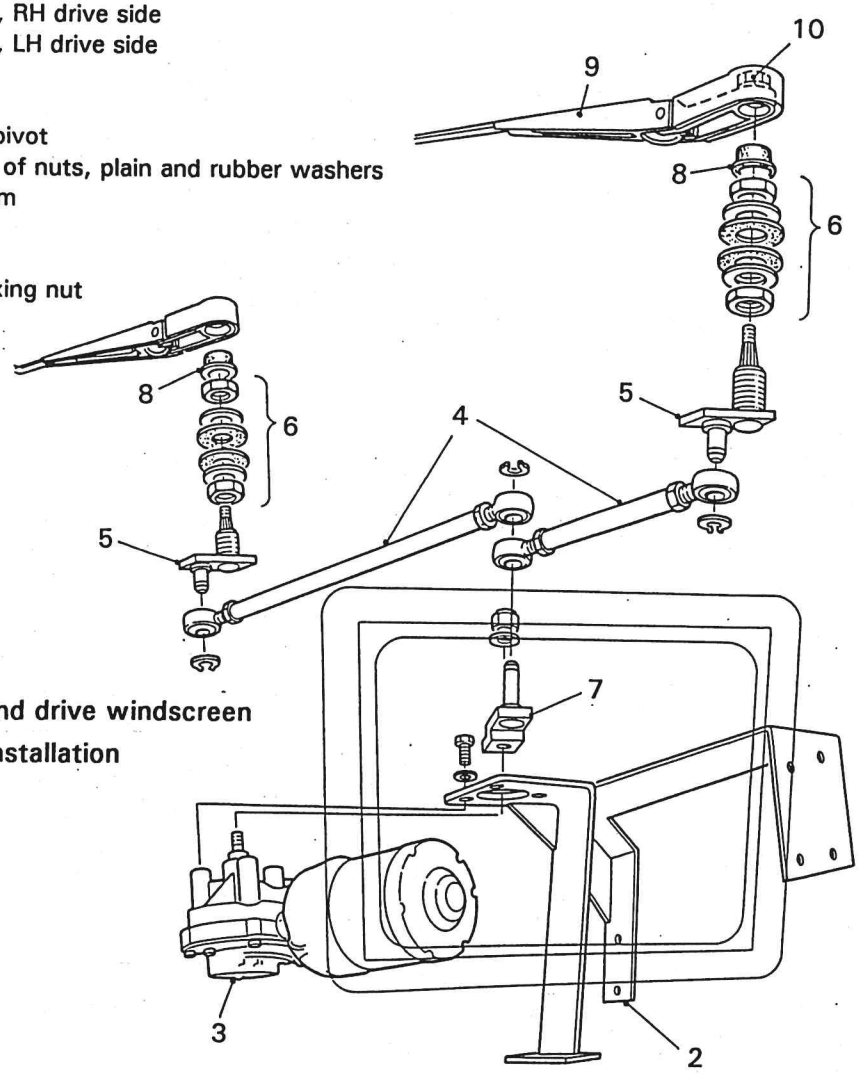
Fig. 1 Headlight Assembly and Lift Mechanism

KEY

1. Motor bracket, RH drive side
2. Motor bracket, LH drive side
3. Motor
4. Wiper arms
5. Wiper hub or pivot
6. Hub fixing set of nuts, plain and rubber washers
7. Motor rotor arm
8. Collet
9. Wiper blade
10. Wiper blade fixing nut



Right-hand drive windscreen wiper installation



Left-hand drive windscreen wiper installation

Fig. 2 Wiper Motor and Actuating Arms

8. The two scribed arcs should intersect and at that point drill a 6mm hole in the side of the pod. Secure the rose joint to the pod using an M6 x 30mm bolt with a washer under the head and with a spacer between the rose joint and a penny washer. Then passing the bolt through the pod add another penny washer and a nyloc nut to secure it.

9. Plug the motor electrical connector (16) into the loom connection.

10. Test the pod lift operation and adjust the centre of the actuator arm (12) until the operation and positioning of the pod is correct. Then secure the arm adjustment by tightening the locknuts (13).

Assembly Stage 5
Assembly to Car - Windscreen Wiper Motor and Actuating Arms

1. Refer to Fig. 2. For RH drive cars bolt the wiper motor bracket (1) to the pedal box using a cover fixing bolt and another into the box which is secured by a M8 x 20mm bolt with washers and a nyloc nut. The LH drive bracket (2) bolts to the bulkhead and the bottom plate of the pedal box.

2. Secure the wiper motor (3) to the bracket using three M4 bolts through the bracket into the housing with washers under the heads.

3. The wiper arms (4) are supplied already assembled. Fit the wiper hubs or pivots (5) up through the pre-drilled holes in front of the windscreen with a nut, a washer and a rubber washer (6) under the glass fibre and a similar set in the reverse order on top. Adjust the position of the bolt/washer set and tighten the nuts in opposite directions to secure to the body.

4. Fit the rotor arm (7) onto the threaded motor shaft using the nut and washer supplied.

5. Push the wiper arms (4) onto the rotor arm and wiper hubs supplied securing with 'C' clips. It will be necessary to slacken off the arm locknuts and adjust the length of the arms to fit. Do not tighten the locknuts at this stage.

6. To carry out adjustment of the wiper travel on the windscreen fit straight plastic cable ties as dummy wipers on each side to imitate the wiper action. Operate the wiper and adjust the length of the wiper arms until the correct stroke and position is achieved. Note the position indicated by the dummy wipers. Secure the wiper arms locknuts.

7. Fit the collets supplied (8) on the end of the wiper hub. Then fit the wipers (9), in the correct position, over the collets and press down the wiper blade onto the hub. This forces the collets onto the tapered splines and then the blade nuts (10) may be tightened to pull them down fully to secure.

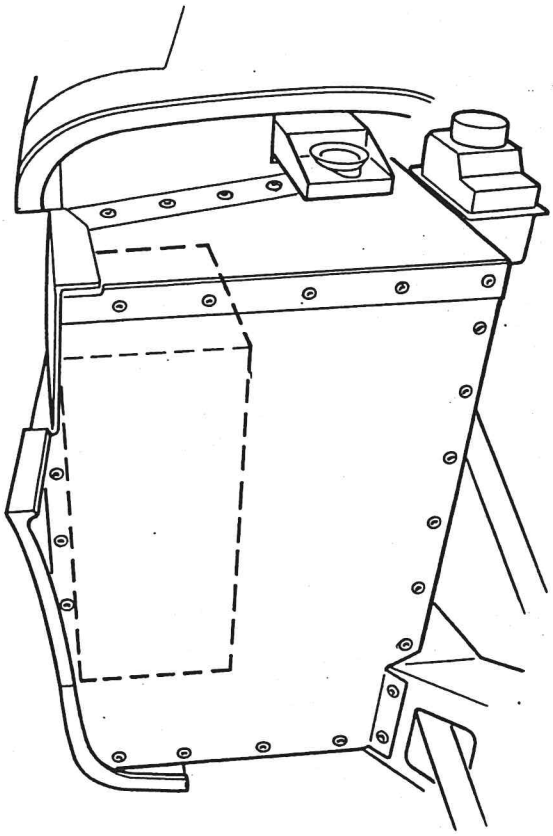


Fig. 3 Installation of Electrical Bay

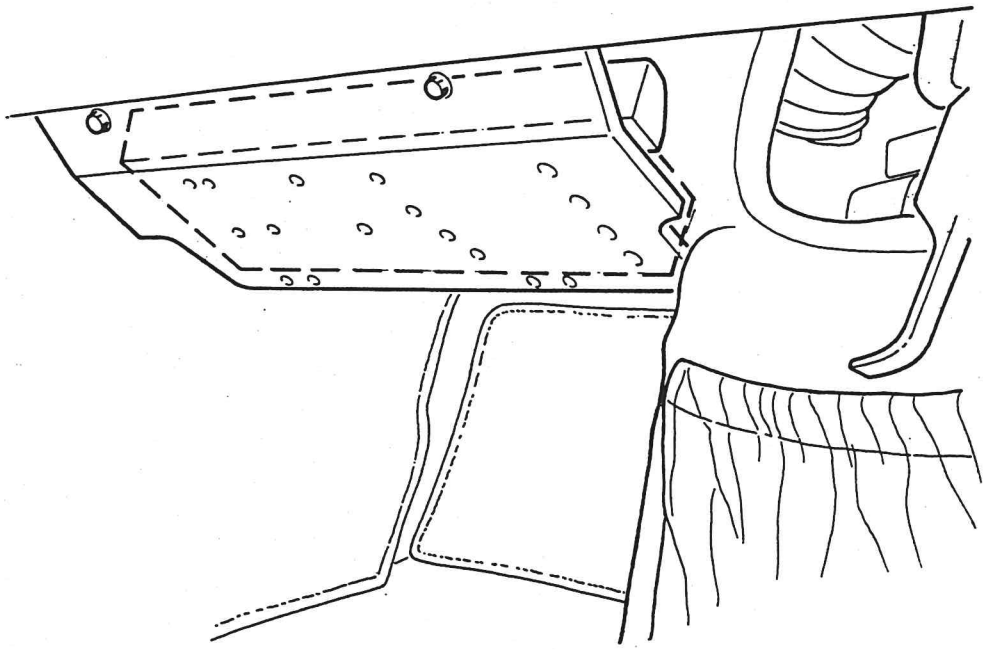


Fig. 4 Installation of Fuse and Relay Panel

Assembly Stage 6
Assembly To Car - Installation of Electrical Bay

1. Refer to Fig. 3. Remove the loosely fitted side panel.

2. Fit the PATS key to the antenna.

3. Fit the bay into the car loosely and connect the test leads in accordance with colour code.

4. Fit the four CPS free connectors in accordance with the colour code. Ensure that the Red, White, Green and Blue code is correct before power is applied.

5. Position the test connector for easy access.

6. Carry out the basic electrical safety checks then apply power and start engine.

7. Connect the star tester and carry out the PATS set-up procedure.

8. With the engine running at tick-over speed carry out the star tester diagnostic procedures KOEO.

9. Run engine up to normal temperature then carry out KOER.

10. With no codes except 1000, remove power by stopping engine and disconnect the star tester. Disconnect and remove the electrical bay.

11. Secure the antenna and key, refit the side panel and rivet in place using 48 off, 10mm rivets.

12. Secure the lid of the electrical bay using No. 6 x $^1/_2$in. self-tapping screws, two at the front and one at the rear.

13. Refit the electrical bay to the car and secure in place using two large self-tapping screws.

13. Secure the test connector in position in the hole in the rear bulkhead using four No. 6 x $^1/_2$in. self-tapping screws.

14. Connect the CPS connectors observing the colour code.

Assembly Stage 7
Assembly to Car - Installation of Fuse and Relay Panel

1. Refer to Fig. 4. Fit fusebox mounting panel under the instrument facia using 4.8 x 10mm rivets with Sikoflex on joint.

2. Install the main front fuse loom.

3. Fit fusebox to mounting panel using four M8 nyloc nuts onto the panel bolts.

4. Connect the pod lift control unit onto the locating lugs using M5 x 16 bolts into the Rivnuts.

5. Clip up and secure the main loom on the front bulkhead.

6. Pass the loom through front bulkhead.

Assembly Stage 8
Bench Assembly - Remove/Modify Engine Loom and Cables

NOTE. The first of these operations refers to the removal of the standard electrical equipment supplied with the engine.

Before Engine Installation

1. Refer to Fig. 5. Remove the loom assembly from the engine.

2. Using a hacksaw, carefully remove the retaining clamps from the loom.

3. Remove the Copex tube from the loom.

4. Remove the battery leads and the starter solenoid lead from the sensor loom. Discard the starter solenoid lead but retain the battery leads.

5. Inspect all the remaining cables for damage and repair/renew as necessary.

6. Remove the terminal from the oil pressure warning cable (White/ Red). Fit new standard Lucas terminal and fit insulating cover.

7. Using a 1110mm length of 0.5mm Black cable fit a standard Lucas terminal on one end. Install cable up to the sensor terminal block and secure using lacing cord.

8. Using a 1210mm length of 0.5mm White (or alternatively White/Black) cable fit a standard Lucas terminal and fit insulating cover on one end. Install cable alongside the oil pressure transmitter cables (White/Red and Black) to extend 100mm beyond the end of their termination point. Route cable to the sensor terminal block and secure using lacing cord.

9. Shorten the sensor loom between the oil transmitter and the terminal block to a length of 600mm but do not cut the cable, instead fold it at the mid point.

10. Cover all exposed cables using 15mm and 20mm Copex as required.

11. Cover the Copex with harness tape.

12. Remove the lacing cord securing the two additional cables at the sensor terminal block. Cut the cable to terminate parallel with the terminal block to form a 150mm fly lead.

13. Terminate cables using AMP pins and connect to air bypass valve fly lead terminal block as follows:
    - Black to pin 6.
    - White (White/Black) to pin 5.

14. Using harness tape, tape the fly lead for the air bypass to the sensor loom for 100mm.

After Engine Installation

15. Fit loom after engine installed. Connect sensor block to front of engine on original fixings.

16. Alternator connector block. Remove Ford terminal block (front right-hand side of engine) from alternator cable by breaking off and discarding.

17. Fit new AMP pin terminals and connect to AMP terminal block as follows:
    - Light-green/Red to pin 2.
    - Yellow/White to pin 1.

18. Route the air bypass valve cables over the top of the engine and connect to the valve on the left-hand side of engine. Ensure that the cable is fixed clear of the belt and pulleys.

19. Route the remaining cables to the LH and RH Landers heated oxygen sensors, and secure using the support plates stripped off earlier.

20. Connect the oil pressure transmitter Black and White/Red leads.

21. Connect the oil temperature transmitter White (White/Black) cable.

22. Reconnect the low oil level switch on the RH side of the sump.

23. Battery leads. Carefully remove the battery connection covers and retain for re-use. At the battery connections on both leads carefully remove all secondary cables and tidy-up the ends.

24. Remove the tag from the end of the negative lead and slide 50mm of 20mm heatshrink tubing over the cable-to-battery connection.

25. At a point on the negative lead, 970mm from the battery terminal, remove 50mm of insulation - take care to ensure that the conductor is not damaged when cutting. Bend the bared conductor in half and fit a heavy - duty connector 30-50-8. With the two sides of the bared and folded conductor parallel solder the terminal in place for chassis earth.

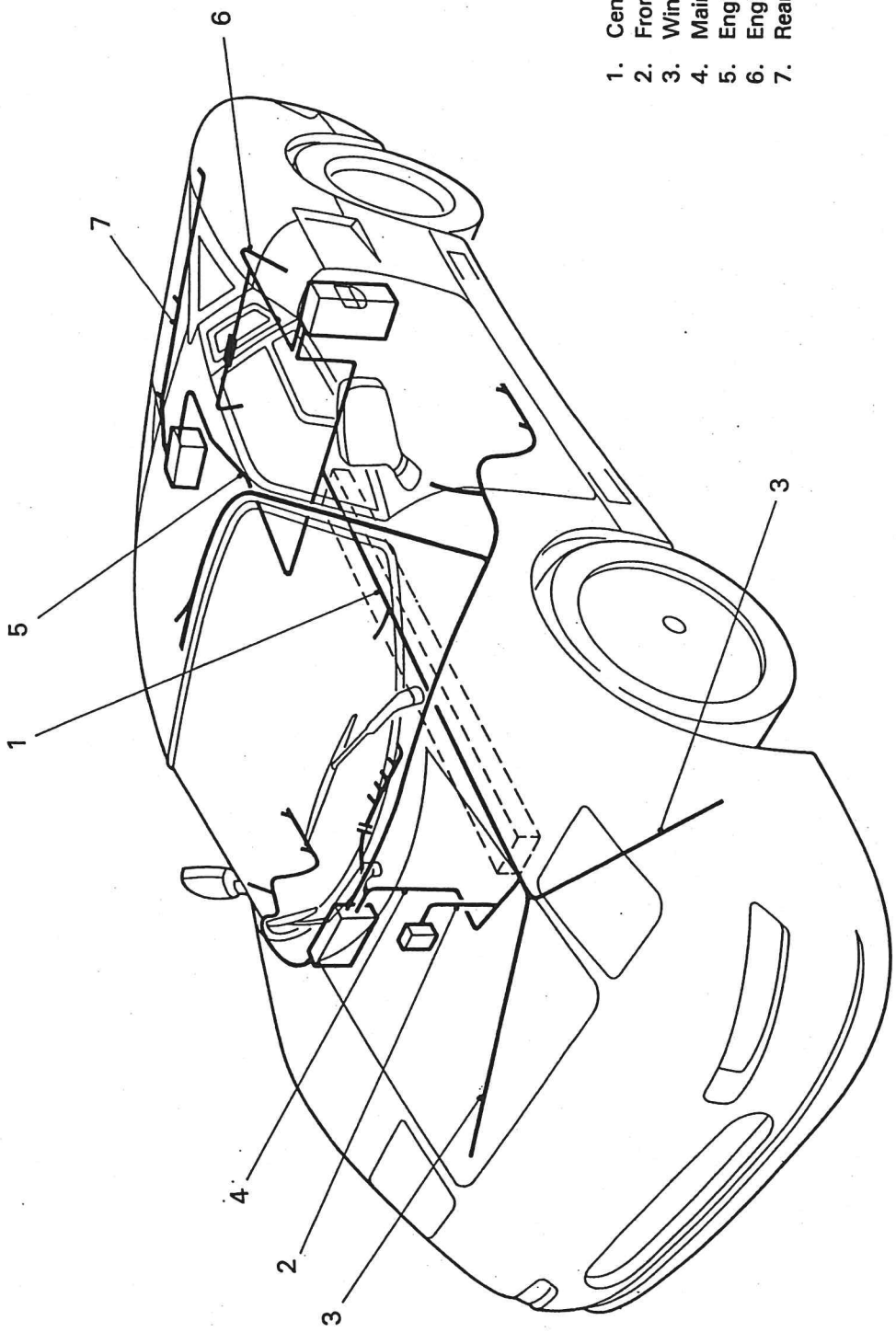


Fig. 5 Location of Electrical Looms

26. At a point 250mm from the terminal fitted, cut the cable to final length and terminate with an M8 solder connection for engine earth.

27. Slide 50mm of 30mm heatshrink tubing over the positive cable at the battery terminal end.

28. Refit the battery terminal covers set aside earlier.

Assembly Stage 9
Assembly to Car - Installation of Electrical Looms

NOTE. All looms (refer to Fig. 5) are enclosed in Copex tubing and are fixed in position using ties, clips and sometimes Sikoflex. Except for the engine loom all other looms are supplied complete from stores ready to install and connect.

Loom Through Central Tunnel (1)

1. This loom is installed when pipes are installed through the tunnel so that the handbrake warning microswitch can be connected at that time. It divides at the rear of the tunnel in the engine compartment.

2. The thin branch continues to the RH side of the engine compartment with connections to the starter and speedometer sensor.

3. The thick branch goes to the LH side and up above the LH fuel tank to connect the rear electrical bay/oil system pressure warning light and the CPS plug to the electrical bay.

4. At the front bulkhead the loom terminates in two multi connectors and connects the speedometer cable to the instrument panel.

Front Bulkhead Loom (2)

5, This loom connects the wiper motors, air conditioning, heater, low brake fluid warning, washer bottle, and instrument lights.

6. A sub loom connects to bulkhead loom for air conditioning.

7. Another sub loom connects to indicator lights and includes aerial power supply - a single cable connects to the aerial power amplifier.

Wing Looms (3)

8. Two wing looms connect headlights, headlight lift motors, front indicators and side indicator repeaters.

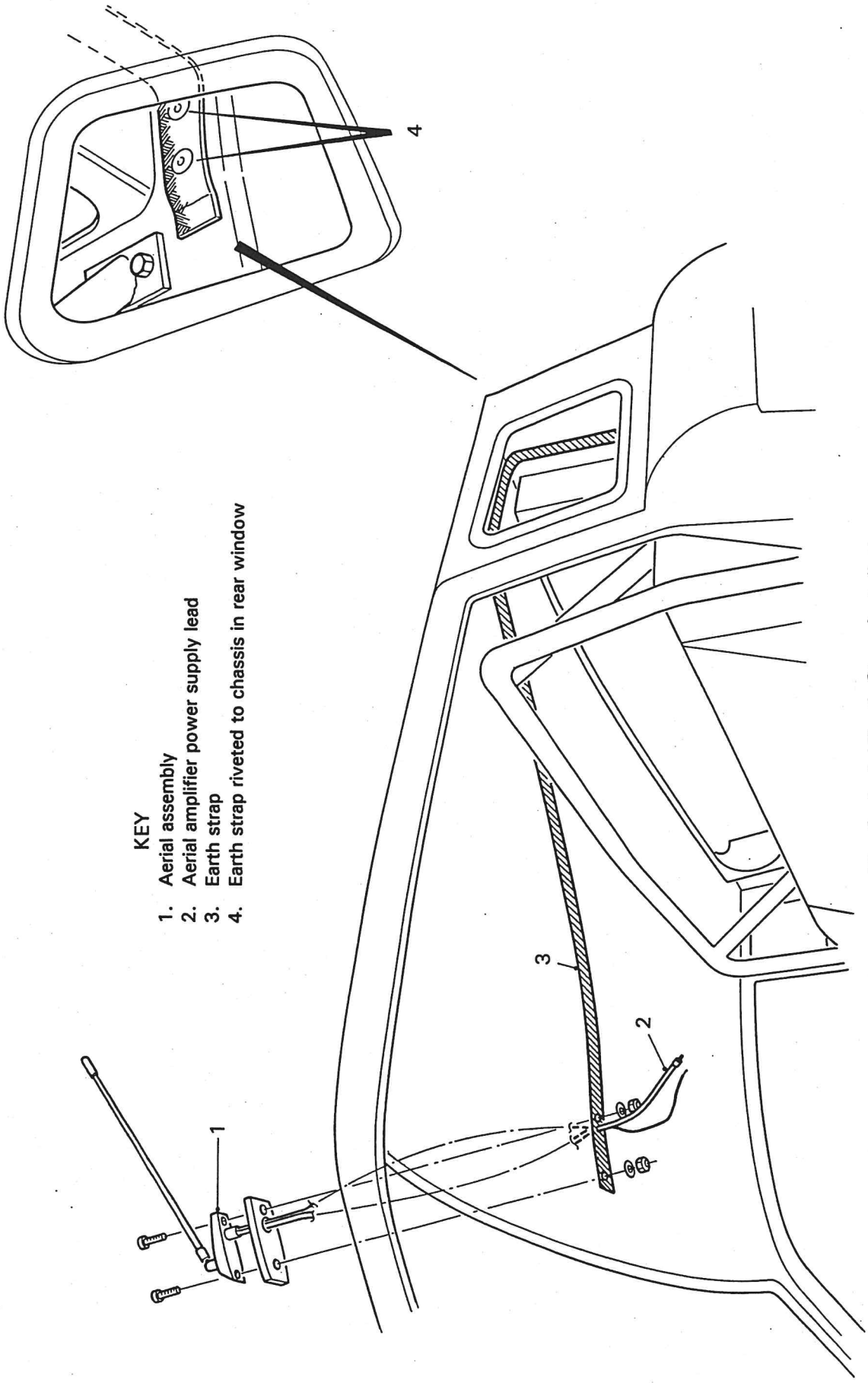


Fig. 6 Aerial/Earth Strap Installation

Main Wiring Harness (4)

9. This loom connects to the front fuses/relay panel and connects the instrument panel, fog lamps and radio. Part of the loom branches off and connects to the front bulkhead loom, the two wing looms, fans, clutch pedal switch, brake light control and the door looms.

Engine Ancillary Loom (5)

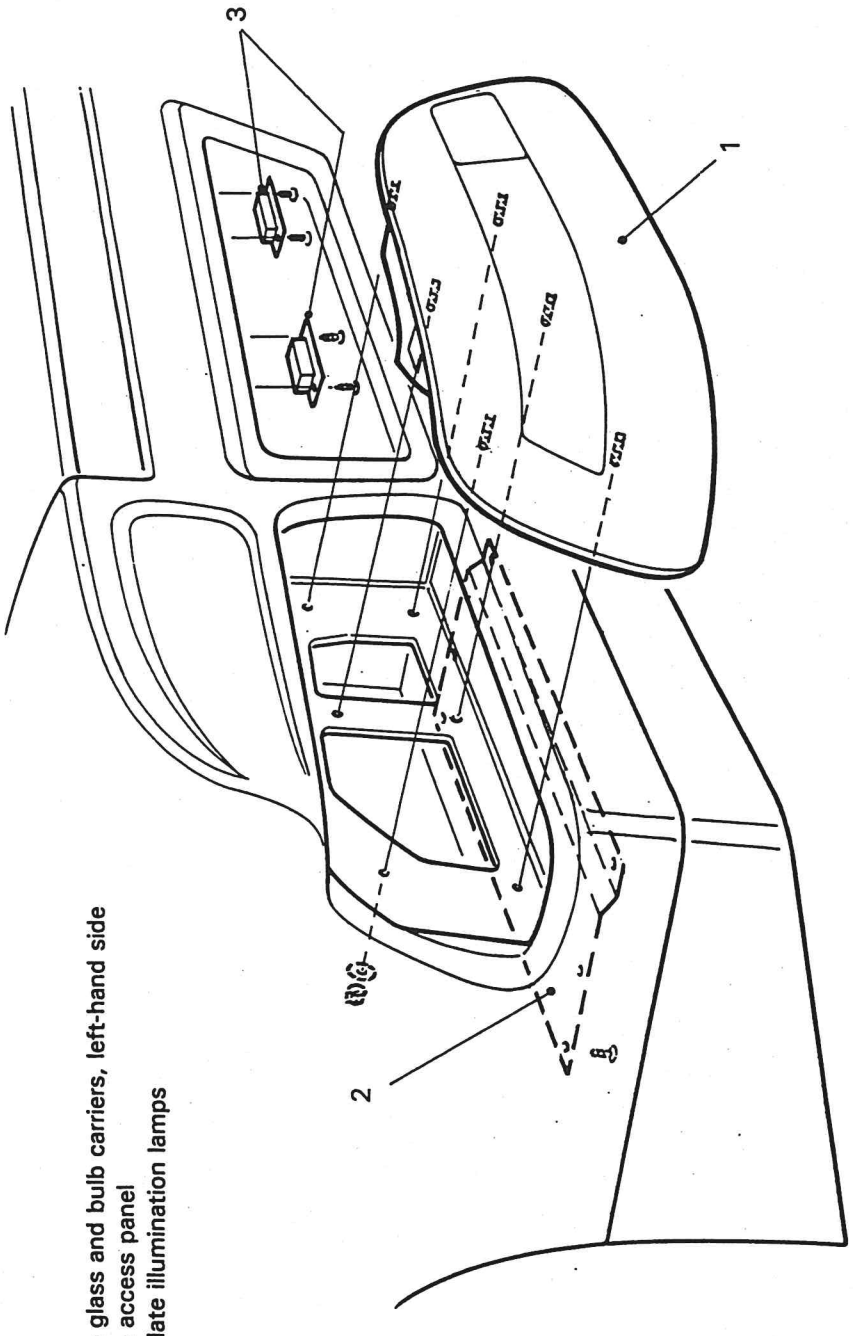
10. This loom connects from the electrical bay, across the top of the engine to the rear lamps loom. It also carries the small cable power supply lead from the battery to the electrical bay. It connects to the RH fuel tank sender, to the mass air flow sensor on the air intake, the air intake temperature sender, the rear Lander sensors and the fresh air valve. It also carries the main earth lead from the engine to the electrical bay.

Engine Link Loom (6)

11. This loom connects the electrical bay to the Ford engine connector on the engine loom which is not disturbed and remains on the engine as supplied.

Rear Lamps Loom (7)

12. This loom connects from the engine ancillary loom to the engine compartment cover rear lamps and number plate lamps. Fig. 8 shows the installation features for the rear lamp glass and bulb carriers. The access panel for the rear lamp bulbs is shown dotted. It is accessible to change bulbs from inside the engine compartment when the cover is raised.



KEY

1. Rear lamp glass and bulb carriers, left-hand side
2. Rear lamp access panel
3. Number plate illumination lamps

Fig. 7 Installation of Rear and Number Plate Lamps

Section 15

BODY HARDWARE Module 22

Contents

Illustrations

Figure

Section 15

BODY HARDWARE Module 22

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Assembly to Car - Door Mirrors, Handles and Seals

Wing Mirrors
The LH and RH wing mirrors are supplied as complete units ready for fitting. Both doors are fitted in the same way. The electrical connections and wiring for adjustment of focusing and the heater elements are covered in Build Stage 1, Module Number 14, Electrical System. Thread the electrical wiring through the mounting components described below and take care that the wiring is not chafed while fixing.

1. Refer to Fig. 1. Select correct handed mirror. To attach mirror to the inner mounting pedestal fit the 6mm grommet in the groove then press-fit the mirror over the grommet onto the aluminium pedestal.

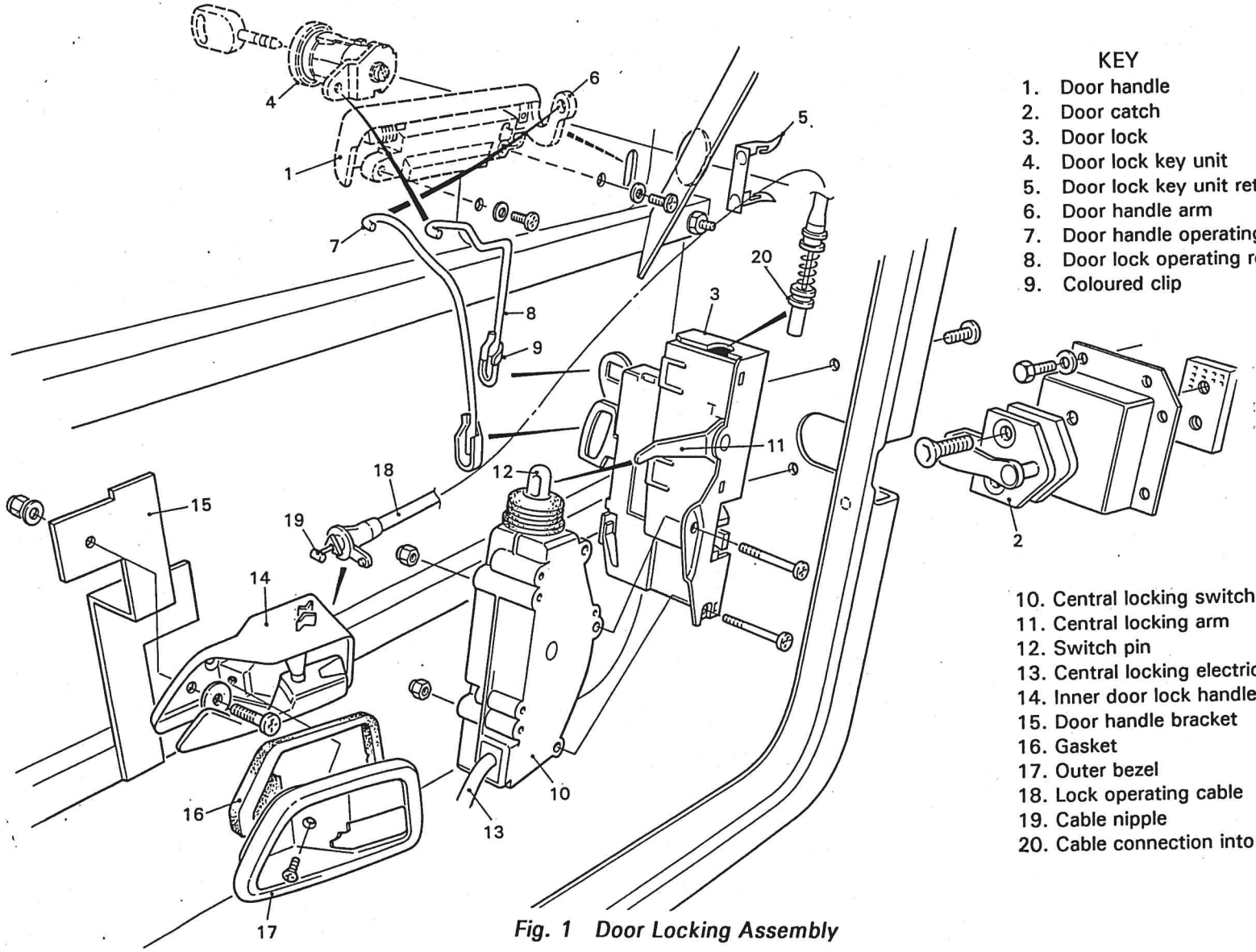
2. Insert the pedestal through the colour coded nylon outer pedestal and use appropriate sealant to form a waterproof seal to the door skin when in position.

3. Push the end of the inner pedestal through the pre-drilled door skin. Align the outer pedestal with the contour of the door and screw the fixing nut provided onto the threaded end of the inner pedestal. Tighten firmly to secure. No washer is necessary behind the nut.

Door Handles and Locks

4. Refer to Fig. 1. The door handle (1) is fitted into the moulded recess and cut-out provided in the door. Mark the position for the fixing holes and the arm of the handle and double check before drilling.

5. Secure the handle using 6 x $^{1}/_{2}$in. flange screws from the inside of the door skin through the drilled holes. Should the screw threads strip it is permissible to fit a 10 x $^{3}/_{8}$in. self-tapping screw.



KEY

1. Door handle
2. Door catch
3. Door lock
4. Door lock key unit
5. Door lock key unit retaining plate
6. Door handle arm
7. Door handle operating rod
8. Door lock operating rod
9. Coloured clip
10. Central locking switch
11. Central locking arm
12. Switch pin
13. Central locking electrical cable
14. Inner door lock handle
15. Door handle bracket
16. Gasket
17. Outer bezel
18. Lock operating cable
19. Cable nipple
20. Cable connection into door lock

Fig. 1 Door Locking Assembly

6. Fit the door catch (2) aligned with the cut-out provided in the edge of the door using M6 x 16mm screws from the edge of the door into the pre-drilled holes.

7. The door lock (3) is attached via pre-drilled holes to a special mounting plate on the door catch. Drill clearance holes for the lock fixing screws M6 x 16mm.

8. Insert the door lock unit (4) through the cut-out provided in the door and fit the retaining plate (5).

9. The arm (6) of the door handle is connected to the locking mechanism by a thin metal rod (7). Bend the rod, if necessary, to ensure that it does not foul other equipment inside the door.

10. The door lock is connected to the locking mechanism by a metal rod (8) and attached by a coloured clip (9). Bend the rod, if necessary, to ensure that it does not foul other equipment inside the door.

11. The central locking switch (10) is bolted to the back of the door lock (3) using the two bolts and nuts provided. The lock operating arm (11) should be engaged in the pin slot (12) on top of the switch. The switch is connected to the central locking electrical circuits via a cable (13).

12. The inner door handle unit (14) is bolted to a bracket (15) by a single bolt and nylock nut with washers under the bolt head and nut. A gasket (16) fits into the handle unit and an outer bezel (17) fits from the outside of the door trim to finish the fitting - this is secured by a self-tapping screw provided with the kit, screwing into the unit through the angled face.

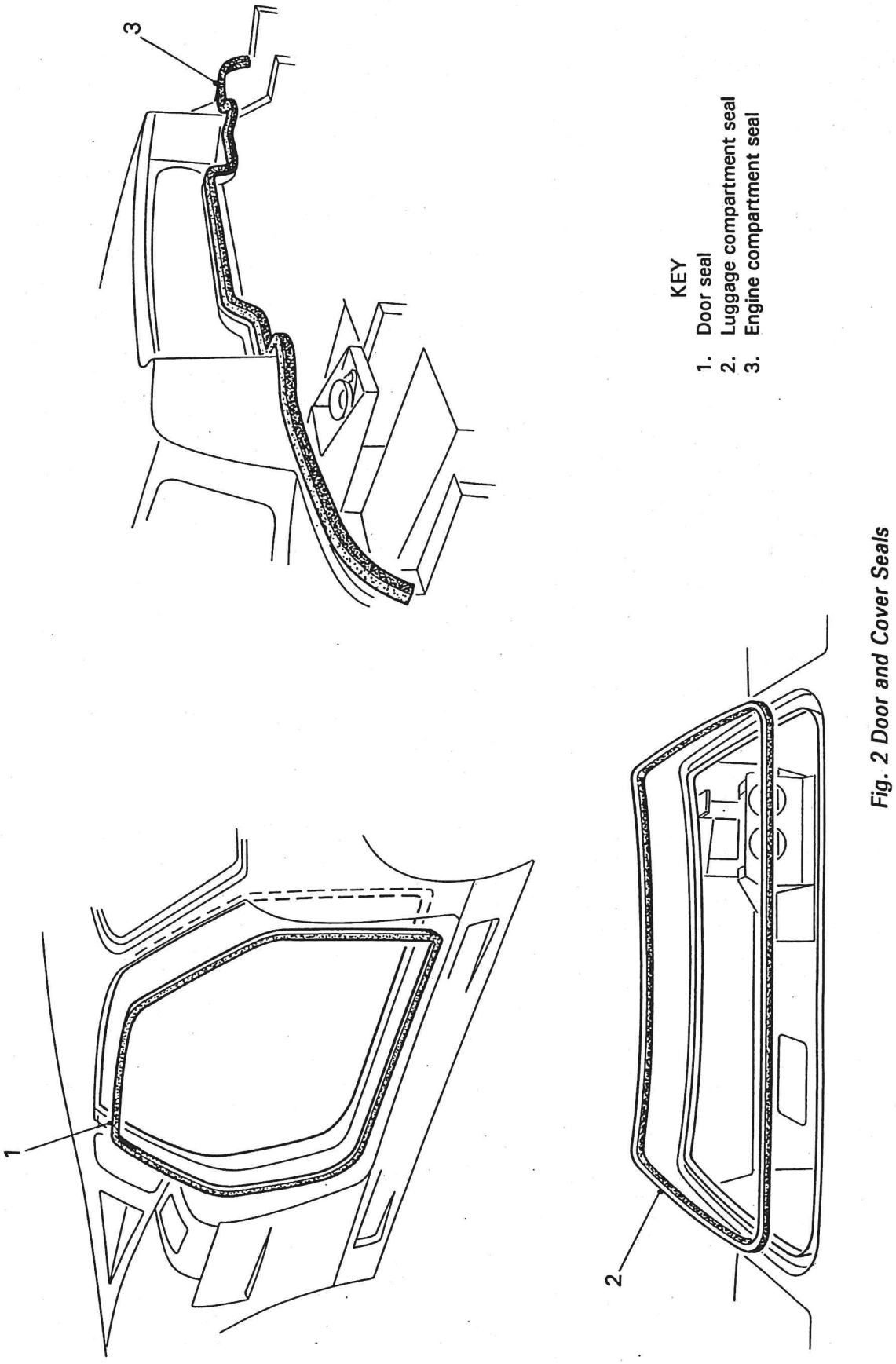
13. When fitting the inner door handle unit the outer sheath of the cable (18), provided with the kit, is secured to the unit. The cable nipple (19) should be engaged into the mechanism. The other end of the cable (20) is engaged with top of the door lock (3).

14. After installation, operate the handles and lock to check for correct operation. When the electrical circuits are connected, check central locking for correct operation.

Door Seals

15. Push one end of the door seal rubber onto the lip on the sill at a point approximately below the centre of the sloping door pillar.

16. Using a rubber mallet tap the seal onto the lip and progress around the door opening. To ensure that allowance is made for natural shrinkage the seal should be pre-shrunk using the following method. Every six inches make a small hump in the seal as it is pushed onto the lip, then holding the seal tight on the lip beyond the hump tap the hump down into place to compress the rubber.



KEY

1. Door seal
2. Luggage compartment seal
3. Engine compartment seal

Fig. 2 Door and Cover Seals

17. When the entire seal has been installed, and making sure that the last stretch of rubber has been compressed as described, cut off the rubber seal about 5mm too long at the join. Push apart the ends of the seal and apply superglue adhesive. Bring the ends together and hold until set. Push the joined seal down into place on the lip and if necessary tap along the seal to seat down evenly.

Assembly Stage 2
Bench Assembly - Window Winding Worm Drives

NOTE. The worm drives are left- and right-handed - ensure they are identified before fitting. While making the following adjustments on the bench it will be necessary to check the bends by taking to the car to try for fit.

1. Refer to Fig. 3. Straighten out the rear bend on each worm drive (1) until it lies at an angle of approximately 40 deg. to the horizontal.

2. Bend the worm drive above the bracket at the front (2) to an angle of approximately 40 deg. to the vertical.

3. Check finally on the correct door and also check the position for the small right-angled bracket (3) that will secure the worm drive.

Assembly Stage 3
Assembly To Car - Window Winding Actuator

1. Weld the small right-angled bracket (3) onto the lower door bar then attach the worm drive (1) to the bracket using an M6 x 16mm screw (4) with a washer and spring washer under the head.

2. Drill an M6 clearance hole in the rear of the top structure of the lower door bar. Bolt on the bracket from the front of the worm drive (5) using an M6 x 16mm bolt with a washer and a spring washer under the head.

3. With the small opening window (6) in place fitted into its frame, attach the worm drive actuator in the small hole in the window (7). (Refer to Module 41, Body Glass)

4. Adjust the worm drive to ensure that it runs parallel to the front edge of the frame and parallel to the vertical plane of the frame (8).

5. Silver-solder a steel plate (9) onto the worm drive to ensure that it lies against the front edge of the lower frame.

6. Cut an aluminium plate (10) and place between the steel plate and the frame.

Key

1. Worm drive
2. Front bracket
3. Worm drive securing bracket
4. Worm drive fixing screw
5. Bracket from front of worm drive
6. Opening window
7. Actuator fixing hole in window
8. Leading edge of frame
9. Steel plate retaining worm drive
10. Aluminium plate
11. Actuator motor assembly, drive end
12. Actuator motor assembly, motor
13. Rear support arms
14. Motor support arms
15. Top limit microswitch
16. Lower limit microswitch
17. Bracket to support lower window frame

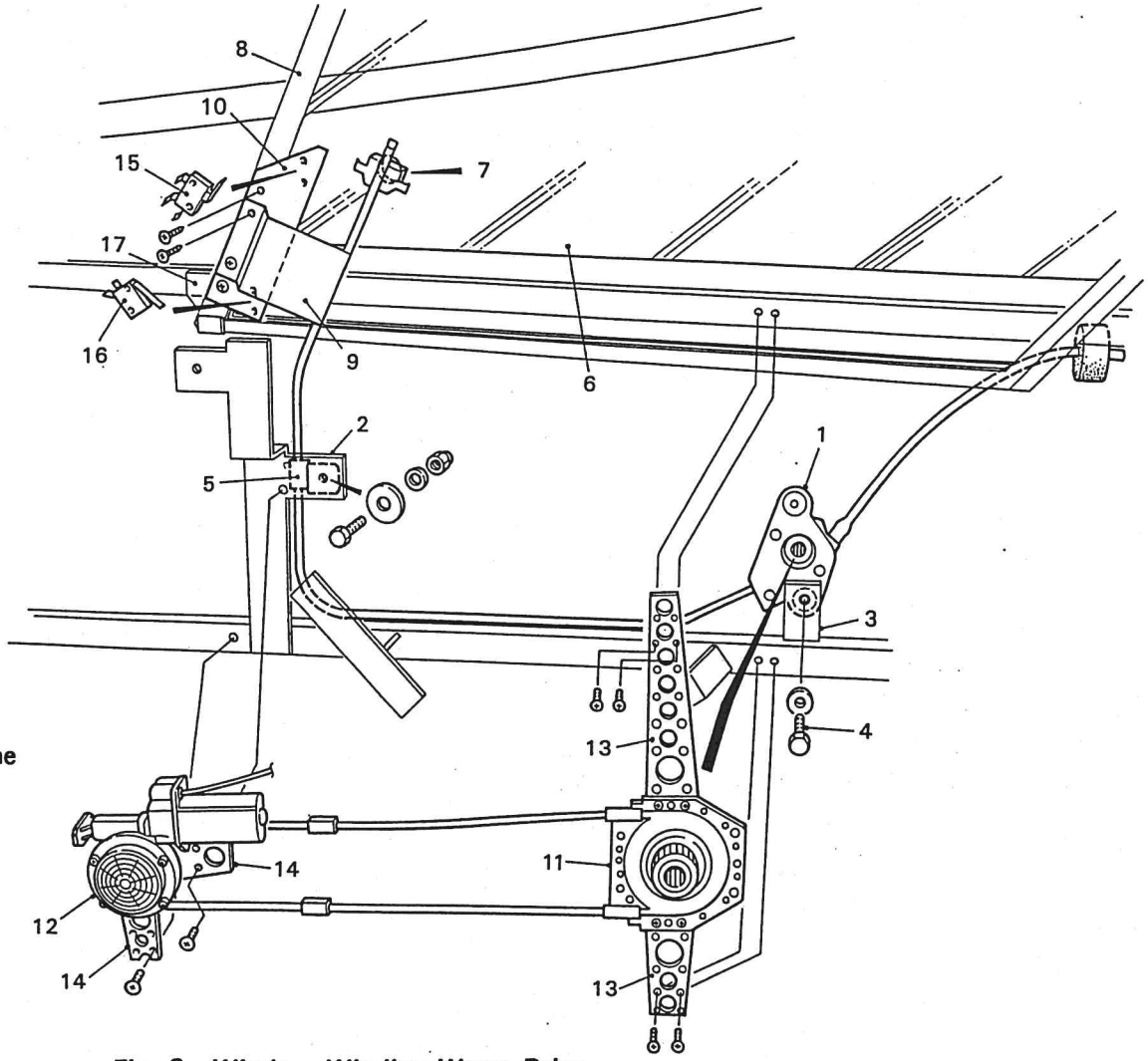


Fig. 3 Window Winding Worm Drive

7. Drill two 4mm holes through the plate, bracket and top of the frame and screw down the assembly using two M4 x 20mm panhead self-tapping screws ensuring that screws will not interfere with glass.

8. Slide actuator motor assembly drive end (11) onto the rear of the worm drive and secure using the drive cog and the retaining clip.

9. Drill holes for M4 Rivnuts in the upper and lower door bars. Attach the two support arms (13) securing the motor assembly drive end (11), using M4 x 16mm posidrive screws.

10. Locate the other two support arms (14) below and to the rear of the motor. Attach using the grub screws supplied. Drill holes for Rivnuts as before and screw down using M4 x 16mm posidrive screws and washers.

CAUTION. - Ensure that the microswitches operate correctly as limit switches otherwise damage to glass, frame and switches will occur.

11. Two microswitches are used as limit switches to cut off power to the motor when the window is fully down or fully up. The top limit switch (15) fits on top of the aluminium strip and the lower limit switch (16) at the bottom. These are riveted on using 3.2 x 16mm pop rivets.

Assembly Stage 4
Assembly To Car - Seat Belt Anchorages

1. Refer to Fig. 4. To bolt the seat belt inertia reels (1) into position, first unreel the webbing belt (5). Insert the bolt supplied, through the reel and carpeted cover box and screw into the thread in the lower roll cage bar 'B' fixing point (2).

2. To bolt the upper belt fixing 'B' (3) to the roll cage fixing point use the bolt, seat belt fastener, anti-vibration washer and spacer, in that order, and screw the bolt into the thread provided.

3. Bolt down the lower belt eye (4) into the pre-tapped hole in the chassis in the sill using the bolt supplied. The order of assembly is, seat belt eye, anti-vibration washer and small spacer, in that order.

4. Fit the female seat belt holder stalk (6) to the fixing point provided on the inside of the centre tunnel using the bolt provided.

5. Check the seat belt fastening and arrest functions for correct operation. Tighten all seat belt fixing bolts to torque.

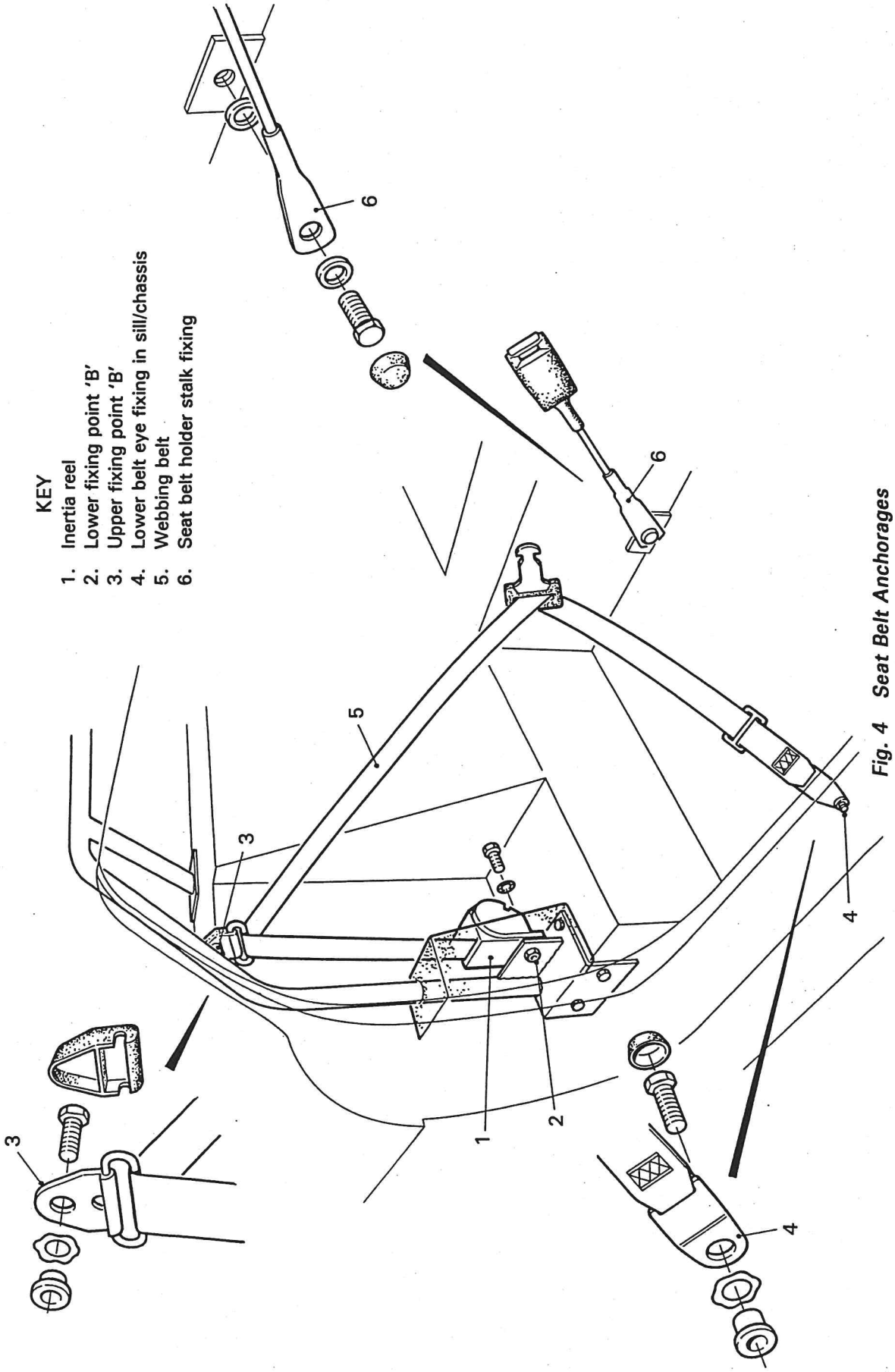


Fig. 4 Seat Belt Anchorages

Assembly Stage 5
Assembly To Car - Windscreen Washer Parts

1. To fit the washer bottle bracket onto the pedal box offer up the bracket into the correct position and mark the fixing holes. Drill 4.9mm holes for fixing. To secure the bracket use 4.8 x 12mm pop rivets.

2. Attach the cap to the washer bottle.

3. Fit the grommet and then the pump into the bottle and locate it into the moulded slot.

4. Bolt the bottle onto the bracket using two M5 x 16mm bolts with washers and nyloc nuts.

5. Cut three lengths of 4mm id plastic pipe:
   - 530mm.
   - 320mm.
   - 420mm.

NOTE. The pipe ends are fitted to the tee piece, jets and pump by warming the pipe to soften the plastic. Push onto the fitting while still warm. Hold in position until cool again and the pipe has shrunk to fit tightly.

6. Push the pipes onto a tee piece with the 530mm length on one side and the 320mm length on the opposite side. The 420mm length fits on the bottom of the tee piece and goes to the washer pump outlet. Orientate the tee piece to suit left- or right-hand drive cars with the longest pipe going to the furthest jet.

7. Push the pipes to connect to the washer jets through the pre-drilled holes in front of the windscreen. Heat the pipes and push on the jets. Apply Sikoflex to seal the pipes to the jets. Pull back the pipes and jets into the bodywork and add more Sikoflex underneath to secure the jets in place.

8. Fit the pipe to the pump outlet.

9. Secure the pipes neatly in position using cable clips where necessary.

10. Fit the electric loom plug into the washer bottle pump, fill the bottle and test for correct operation. Check pipe joints for leaks.

Assembly Stage 6
Assembly To Car - Rear Wing

1. The rear wing is attached to the rear of the engine compartment cover at three points, one at the centre rear and the other two at the sides. The holes for the fixing bolts are already in the engine cover and also the threads in the wing.

2. Pass an M8 x 40mm bolt up through the centre rear of the cover, first fitting a spring washer and a plain washer under the head. Fit the 20mm nylon spacer sprayed with the car colour and then screw the bolt into the wing loosely until the other bolts are fitted.

3. Into each end of the pre-tapped bar running through the front of the wing fit M8 x 25mm bolts to secure it to the engine compartment cover. Under the head of each of the bolts, inside the cover, fit a spring washer and a penny washer. Fit the sprayed nylon spacers on the bolts between the cover and the wing

4. Finally, tighten all three bolts.

Assembly Stage 7
Assembly To Car - Fuel Filler Flap Release Cable
(Refer to Fig. 7)

1. At the fuel flap end the cable is clamped to the glass fibre body by a small plastic bracket. The inner cable terminates in a 'hook' end that engages with the filler flap to hold it closed.

2. Route the cable through the foam sandwich insulating panel beside the right-hand fuel tank and across the front of the engine bay with the fuel pipes. It is secured by the same P clips as the fuel pipes. Route it through the left-hand side fuel tank panel and secure it using Sikoflex adhesive all down the left-hand side corner of the body work to the sill. Drill a 122mm hole down through the sill and feed down the cable, fitting a grommet in the hole.

3. Push the cable through the left-hand sill into the front wheelarch until it emerges in the wheelarch.

4. Approximately 200mm forward of the back of the wheelarch and on the same level as the side-light repeater, drill a 12mm hole into the left-hand side of the passenger compartment. Push the cable through and fit a grommet in the hole. Sikoflex the holes and grommets to seal.

5. Hook the cable into the lever then secure the lever to the inside door pillar using 10 gauge x 1in. countersunk self-tapping screws.

6. Test the fuel flap release mechanism for correct operation.

Assembly Stage 8
Assembly To Car - Battery Mounting Clamp

1. The two battery mounting clamp rod/bolts supplied have to be modified. Cut off 35mm of the existing threads on the rods then using an M6 die run an additional 25mm of thread down the bolts.

2. Drill 6mm holes on each side of the battery holder into the chassis member.

3. Hook the angled ends of the two battery clamp rods into the holes to hook in the chassis and push the angled cross member of the clamp over the threaded rods. Screw down the two wing nuts supplied to clamp the battery in position by clamping the top rear edge of the battery. As the clamp tightens, the battery is pushed towards the wheelarch in its box to rest securely against the side.

Assembly Stage 9
Assembly To Car - Rear Light Cluster Access Panels

1. Refer to Fig. 5. Apertures have to be made in the back face of the engine bay cover behind each of the rear light clusters to provide access to the lights for bulb changing. The holes are cut using a 121mm hole cutter to make two overlapping holes side by side to provide a 200mm wide x 121mm high opening. The bottom of the opening should be located approximately 145mm up this section of panel from the bottom of the recess containing the rear light cluster and central left to right. Clean up the edges of the hole to make a clear oval opening.

2. Offer up the access panel provided into position to cover the aperture that has just been made. Drill eight 3.2mm holes equally spaced around the edge of the access panel and the panel with the aperture to which it is to be screwed, three along the top and bottom edges and one on each side. Screw the access panel in place using 10gauge x 1/2in. big head self-tapping screws. Mark the edge of the aperture panel and the back panel of engine cover to ensure it can be re-located accurately again.

3. Detach the aperture panel again and spray it with two coats of satin black paint.

4, Re-attach using the mark to locate the position.

Assembly Stage 10
Assembly To Car - Engine Compartment Stays

1. When the gearbox overhoop was fitted (refer to Engine Main Module 13) the lower rear body stay brackets were attached by the same bolts.

2. Attach that body stay with the large bend in it using an M6 x 30mm bolt with washer under the head, pass bolt through the bracket, the stay and another washer, then secure with a nyloc nut.

3, Attach the upper half of the stay to the lower stay using an M6 x 30mm bolt with a washer under the head, pass bolt through the stay and another washer and fit two plain nuts locked against each other. This forms a pivot point for the stay.

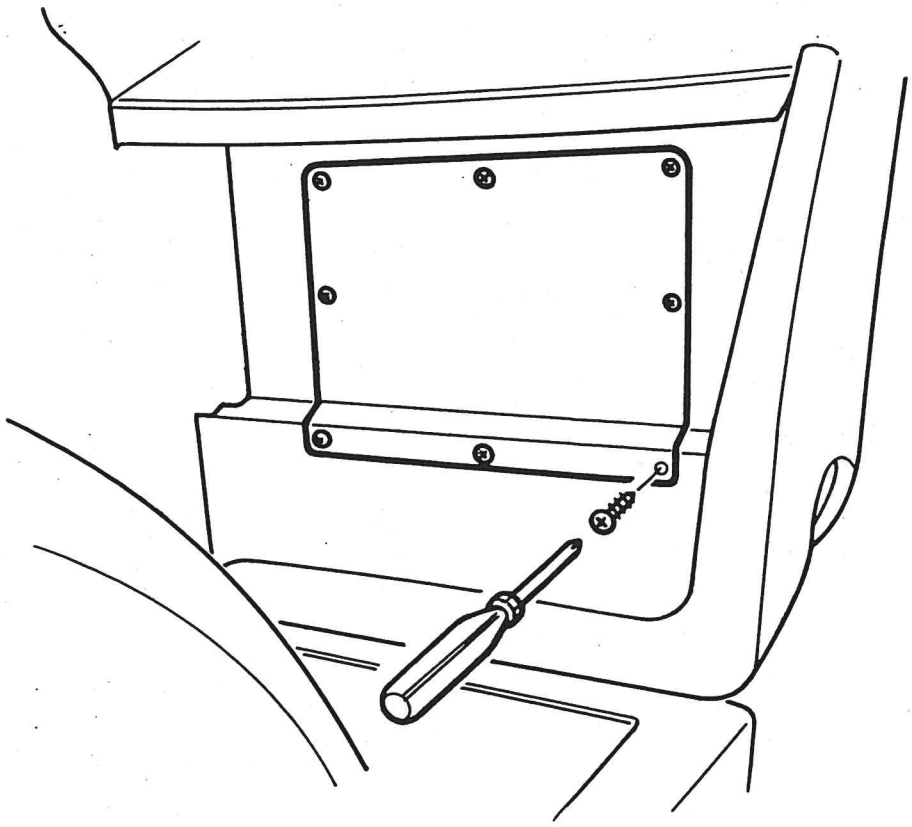


Fig. 5 Rear Lamp Access Panel

4. Raise the engine compartment cover to the desired opening point. Mark the position for connecting the stay on the cover. The point marked must not be too low or the stay will not close properly.

5. Drill a 6mm hole in the cover where marked. Insert an M6 x 30mm bolt with a washer under the head, pass the bolt through the stay and another washer, a penny washer, engine cover, another penny washer then secure with a nyloc nut.

Assembly Stage 11
Assembly To Car - Luggage Compartment Stay

Fitting Stay and Slam Catches
Refer to Fig. 6. Fitting of stay and slam catches is self-evident by reference to the illustration and car.
Refer to Assembly Stage 1 and Fig. 2 for fitting seal to luggage compartment.
Refer to Fig. 7 for information on release levers for luggage compartment and fuel filler flap.

Fitting Luggage Compartment Seal Drains

1. Refer to Fig. 6. Tubes to drain water to underside of car are fitted to the drain channel under the compartment cover. Drill two holes for the tube in the front recess and one hole in the rear recess.

2. Fit adaptors into the holes and seal in position using Sikoflex.

3. Drill holes through floor of car to take the tubes.

4. Cut tubing to length and fit onto adaptors and holes through floor using Sikoflex to seal in position.

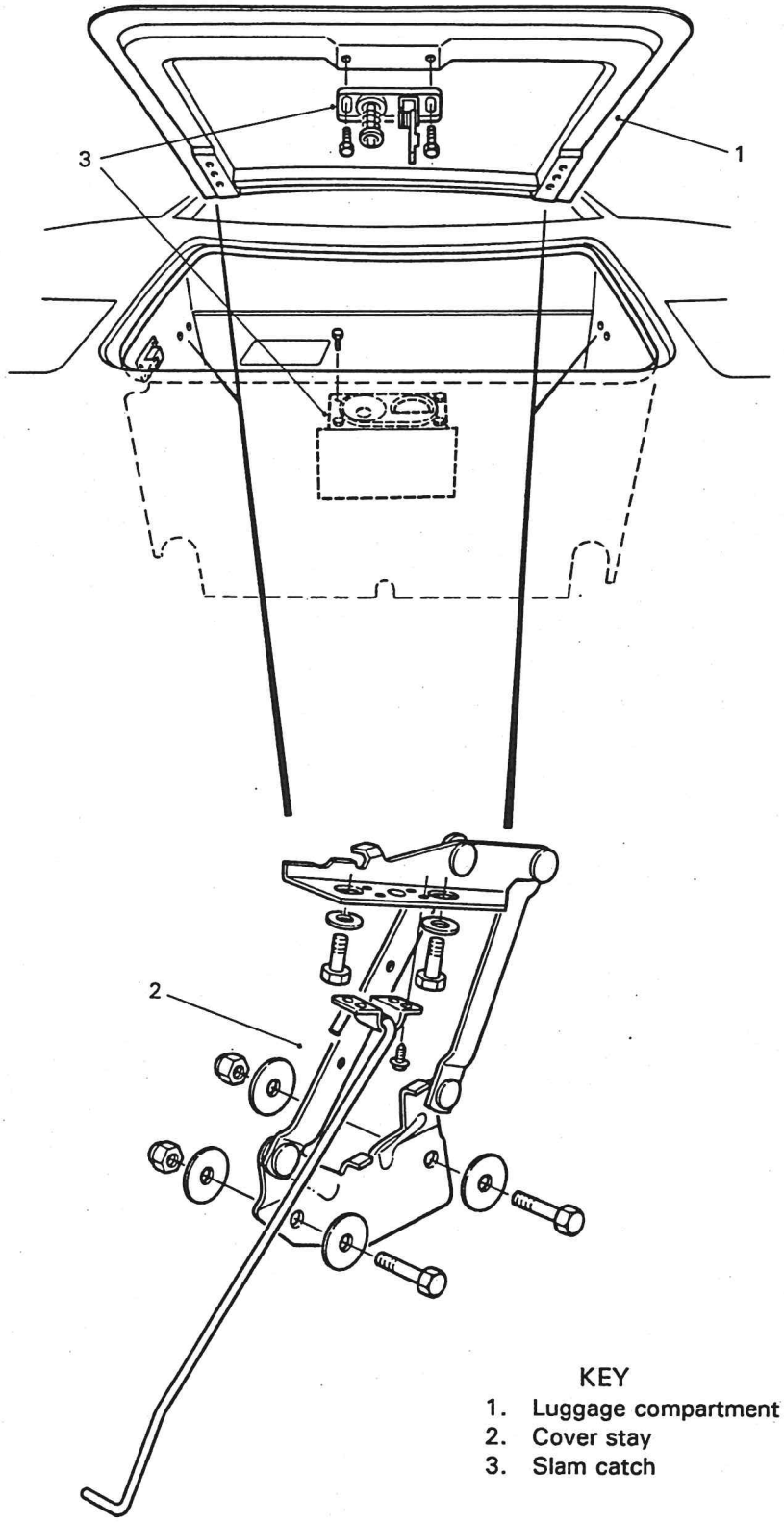
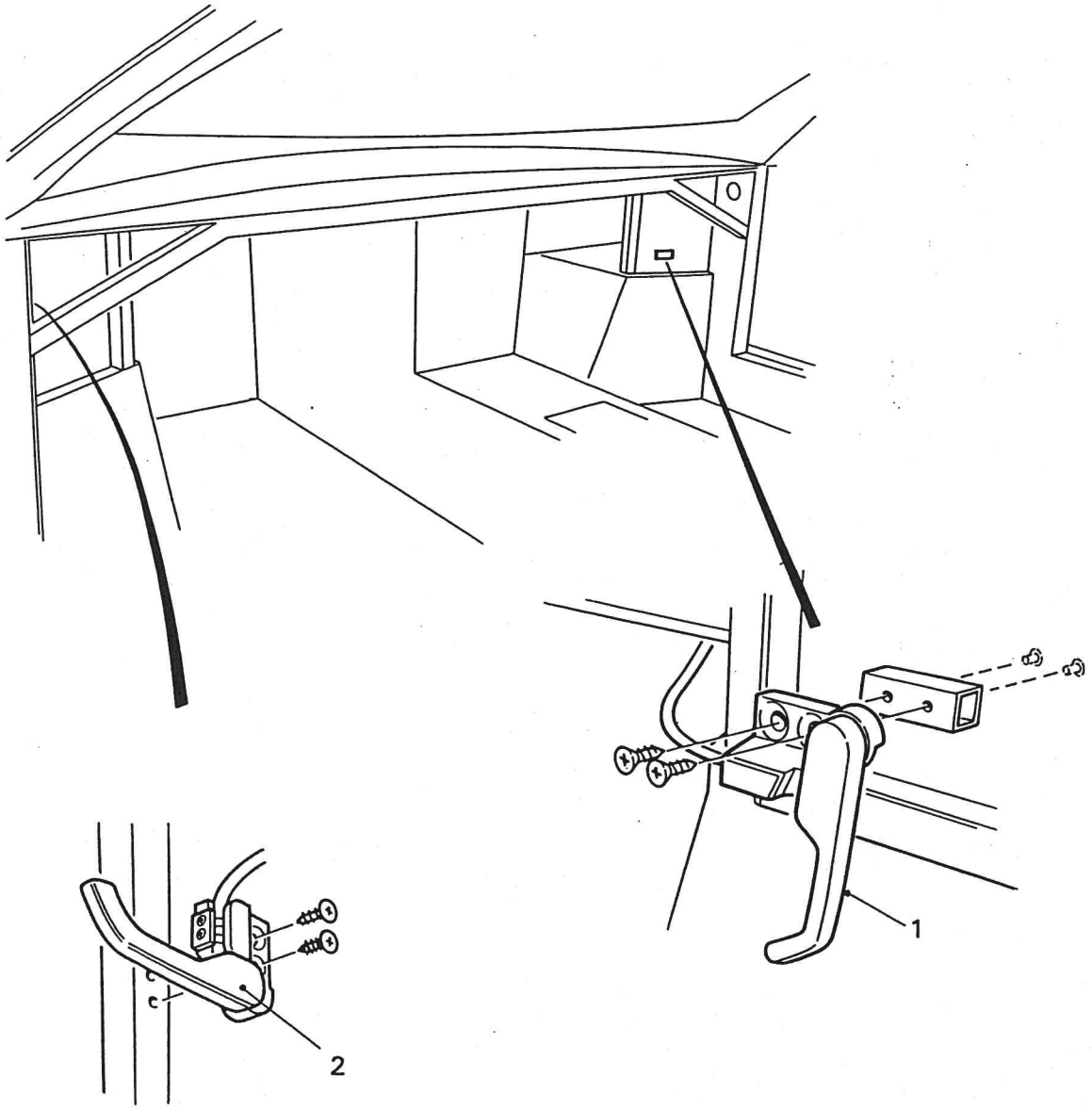


Fig. 6 Luggage Compartment Stay and Typical Slam Catch Fitting



KEY

1. Luggage compartment release lever
2. Fuel filler flap release lever

Fig. 7 Release Levers, Luggage Compartment and Fuel Filler Cap

Section 16

PANEL COVERS Module 30

Contents

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Figure

Section 16

PANEL COVERS Module 30

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Assembly to Car - Fuel Tank/Electrical Box Access Panels

Fuel Tank/Electrical Box/Coolant Header Tank, Access Panels

The left-hand panel covers the left-hand fuel tank and the electrical box fuse and relay banks. The right-hand panel covers the right-hand fuel tank. These panels are pre-fabricated to the approximate shape and some adjustment/fitting will be required while fixing. The following procedure is correct for both panels but refer to Op. 5 for exceptions for the RH panel.

1. Offer up the panel into position aligning the vertical side with the foam sandwich heat insulating panel and the bottom of the chassis. The top lip of the panel will form the fixing edge for the top panel. Trim to achieve a good fit down the curved inside of the body shape so that the top lip of the panel lies flat on the enclosed box section of the chassis. When the correct shape has been achieved proceed.

2. Drill five holes along the top lip of the panel and fit Rivnuts for securing top panel to access panel. Drill another five holes down the lip of the foam sandwich panel and fit Rivnuts to fix access panel to it.

3 Drill two holes in the side of the access panel for fixing it to the body. Another fixing hole is required into the bodywork support above the wheelarch. Fixing hole for all points is for 5mm Rivnuts and M5 screw clearance holes. Mark the fixing holes locations onto the panels and structure through the clearance holes.

4. Secure the panel using M5 x 16mm screws.

NOTE. The coolant header tank on some cars is fitted adjacent to the right-hand petrol tank behind panelling as described below. On other cars the tank is fitted in a high position behind the engine

5. For the RH panel only. Before this panel can be completed two fixing clearance holes have to be located and drilled in the face of the panel for fixing-screws for the coolant header tank fitted (on some cars) behind the panel and outboard of the fuel tank. The fixing procedure for the header tank is described here but reference should be made to Water System Module 08.

6. To fit the header tank, the mounting bracket should first be fitted to the lip of the body beneath the access panel. Locate the correct height position for the tank so that the filler cap neck will be in the correct location and level to protrude through the slot in the top cover panel. Then mark the three fixing holes for the bracket on the right-hand side lip of the body. Drill three 5mm clearance holes. The bracket is fitted with three Rivnuts and M5 x 25mm screws are used through the body to secure the bracket.

7. Bolt the bottom lug fixing on the tank to the Rivnuts on the top of the bracket using M5 x 25mm bolts to secure it in place.

8. By measurement, establish the position of the two fixing holes in the header tank left-hand fixing lug relative to the other fixing holes so that the position of the clearance holes to be drilled through the cover panel can be established. Fit temporarily, the right-hand panel as described in Ops.1 to 4 above and mark the position for the tank fixing holes. Remove the panel to drill the 7.0mm clearance holes then refit as before. Ease the clearance holes if necessary then screw the M5 x 25mm fixing screws through the panel into the tank lug Rivnuts to secure the tank completely. Tighten all the panel fixings.

Assembly Stage 2
Assembly to Car - Fuel Tank Top Panel Covers and the Vertical Panel

1. Manufacture the top panels by preparing templates to lie flat over the fuel tanks and resting on the top lips of the access and foam backed panel lips. Cut the panel from 1.5mm aluminium sheet.

2. Mark the position for the neck of the header tank and cut out a 'U' shaped slot from the neck to the back of the panel.

3. Mark holes to coincide with the Rivnuts on the lip of the access panel and drill clearance holes. Screw down using M5 x 16mm screws.

4. Manufacture from templates the small vertical panels to fit to the rear edge of the top panels and fill the space up to the bodywork above and to the side. This panel should have a lip bent on the bottom facing towards the rear of the car for fixing to the top panel.

5. Drill the vertical panel lip with three clearance holes. Mark the position for the 5.7mm holes to be drilled in the top panel and fit Rivnuts. Screw together using M5 x 16mm screws. On the right-hand top panel the three Rivnuts should be fitted two on one side, one on the other side of the 'U' slot for the header tank neck.

6. In the vertical panel on the right-hand side of the car with the header tank, drill a 12.5mm hole just above the fixing lip for the header tank overflow pipe which passes down through to the bottom of the car.

Assembly Stage 3
Assembly to Car - Gearbox Inner And Outer Panel Covers

These panels are supplied pre-fabricated using templates and bent into a rough shape with a lip bent at the top for overlapping chassis member. Fitting of only one side of the chassis with panels is described below.

1. Match up correct left and right-handed panels and take a pair of an inner and an outer panel for one side. Place the outer panel in position with the top lip resting on the chassis. Take the inner panel and place that in position with the lip overlapping that of the outer panel so that the outer panel lip is sandwiched between the inner panel and the chassis. Clamp them together with the chassis at that point and drill through both panels and the chassis for 4.9 monobolt rivets. Insert a temporary locking pin to secure.

2. Drill another hole at the other end of the outer panel and secure that also with a temporary locking pin.

3. Drill a another hole at the end of the inner panel and rivet to chassis using a 4.9 monobolt. The inner panel will by now be distorted.

4. Continue to drill panels and chassis along the top edge at intervals of approximately 50mm riveting each in turn. Remove the temporary locking pins and rivet the fixings.

5. Use a mallet to shape the inner panel into the chassis.

6. If necessary trim the panels to fit. Then continue to drill and rivet all edges of the panels to the chassis at approximate intervals of 50mm.

Assembly Stage 4
Assembly to Car - Radius Arm Access Panel

1. Offer up the panel which is pre-drilled in the four corners and mark the fixing hole positions.

2. Drill the pilot holes for four 10mm x $^{3}/_{8}$ in self-tapping screws and secure.

3. Fit the opposite side panel in the same way.

Assembly Stage 5
Assembly to Car - Valance Cover Panel

The panels are supplied pre-fabricated to rough shape but may need trimming before fixing permanently. Ensure the panel is cut-away sufficiently over the exhaust pipes.

1. Align the top lip of the valance panel along the valance section of the chassis, perpendicular to the gearbox inner and outer panels, and clamp the lip to the chassis.

2. Drill a 4.9mm hole for a monobolt rivet through panel and chassis and secure temporarily with a locking pin. Drill a similar hole at the other end of the panel and secure with a locking pin.

3. On the left-hand panel drill a third hole mid-way between the other two and this time rivet to the chassis using a 4.9mm monobolt. The right-hand panel is riveted at both ends only and most of the lip is cut-away along the side of the battery container moulding.

4. Remove the temporary locking pins and fix permanently using monobolt rivets.

Assembly Stage 6
Assembly to Car - Engine Compartment Panelling

1. Place chassis left- and right-hand top glass fibre panels (the right-hand panel is for battery box in position on chassis ends. These are sandwiched and riveted to chassis through the top flanges of the chassis outer panels.

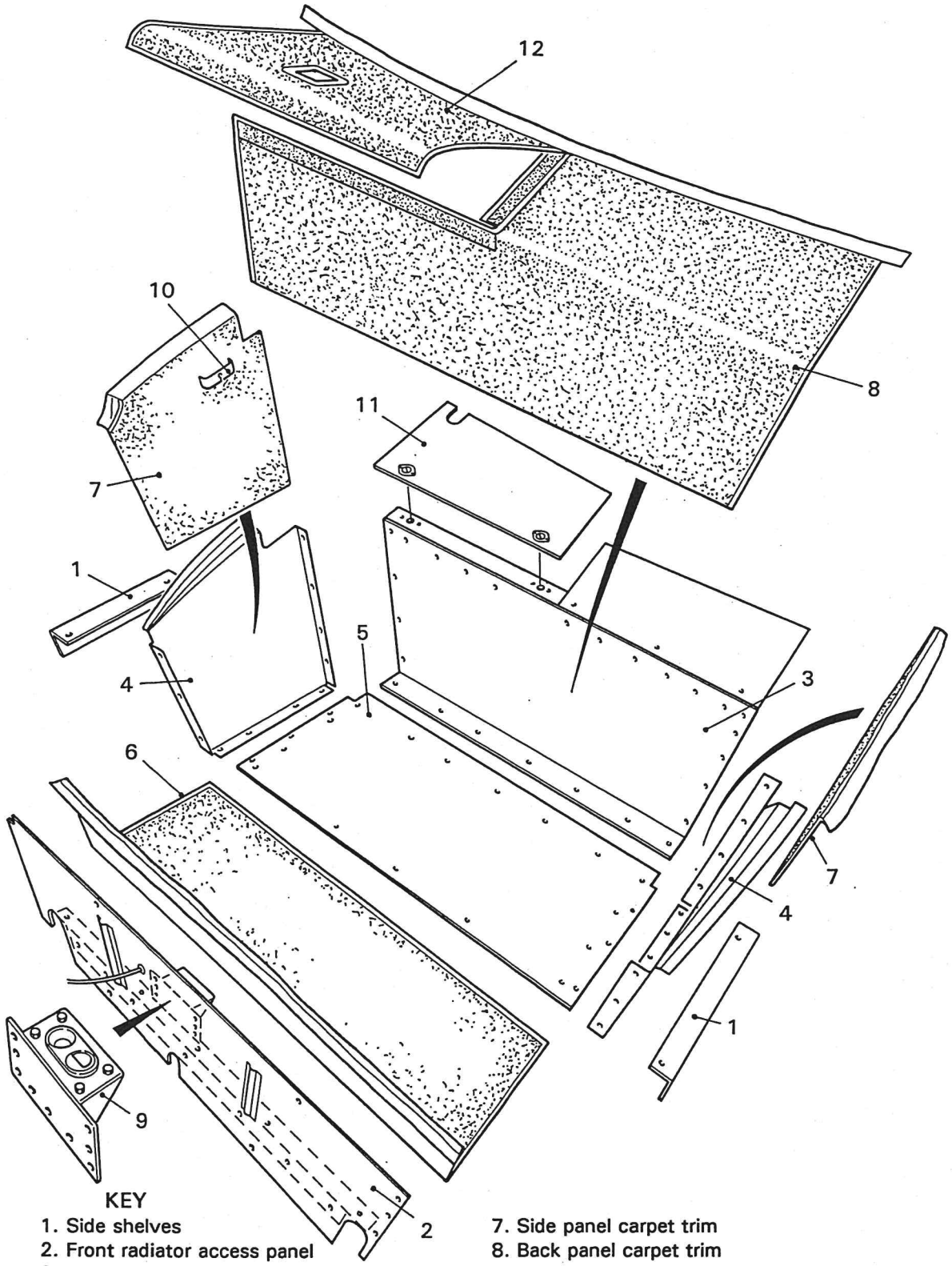
2. Drill plates and chassis and rivet in position.

Assembly Stage 7
Assembly to Car - Luggage Compartment

Refer to Fig.1. The luggage compartment is assembled in position using a kit of parts.

Side Shelves

1. These support the base of the compartment together with the front and back panels which are supplied with lips for supporting the base. The shelf (1) is a simple bent bracket that is mounted with the top lip uppermost and projecting outwards from the inside of the front wheelarch to form the shelf. This horizontal edge is fitted with three M5 Rivnuts to which the base will be fastened down later. To locate the shelf, measure up from the glass



KEY

1. Side shelves
2. Front radiator access panel
3. Back panel
4. Side panels
5. Base
6. Front panel carpet trim
7. Side panel carpet trim
8. Back panel carpet trim
9. Luggage compartment lock
10. Cover support strut mounting point
11. Front service area cover
12. Front service area cover carpet trim

Fig. 1 Luggage Compartment Fittings

fibre bottom of the compartment 95mm and mark a line at this level. This marks the position of the top of the shelf on which the base will sit.

2. Drill through the three pre-drilled holes in the shelf into the wheelarch - the holes should be above the brake pipes and forward of the steering rack. Bolt into position using three M6 x 20mm screws with plain washers under the heads, through the shelf and into the wheelarch. Place penny washers under the nyloc nuts and tighten.

Radiator Access Panel

3. Drill three holes into the lip on the front (2) of the luggage compartment to line up with the three Rivnuts on the radiator access lower flange fitted in Water System, Module 08, Assembly Stage 1.

4. Push the access panel into position, align the fixing holes to the Rivnuts and secure using six M5 x 16mm bolts.

Back and Sides of Luggage Compartment

5. Push the back panel (3) into position at the back of the compartment. This panel has Rivnuts fitted down the sides to which the sides of the compartment (4) will be attached.

6. Fit the left-hand side into position then align the fixing holes in the front and rear lips with the Rivnut fixings on the radiator access panel and the back panel. Secure in place using M5 x 16mm bolts.

7. Repeat to fit the right-hand side.

Luggage Compartment Base

8. Push the base (5) into position and align the fixing holes with the Rivnuts in the other parts. Secure using M5 x 16mm bolts.

9. For the fitting of trim carpeting refer to Module 40. For fitting of lock, cover stay, hinges and cover refer to Module 22.

Section 17

INTERNAL TRIM Module 40

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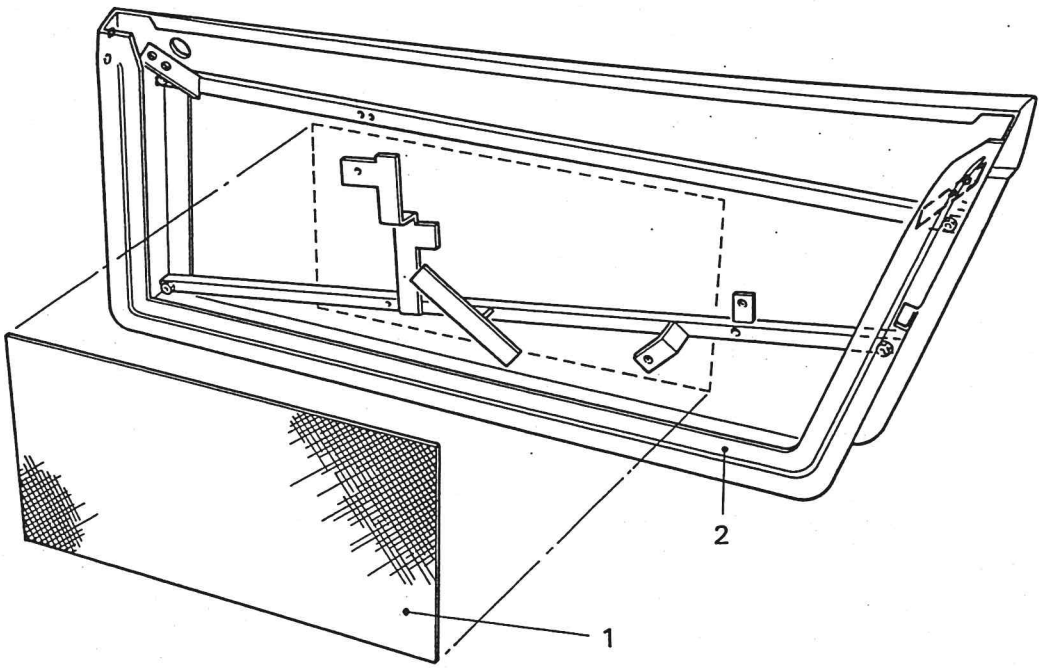


KEY
1. Sound proofing material
2. Glass fibre door panel

Fig. 1 Sound-proofing, Door Panels

Section 17

INTERNAL TRIM Module 40

General

1. Contact adhesive is used for fixing some of the materials fitted in this module. Follow the maker's instructions on the packaging.

Assembly Stage 1
Assembly to Doors - Internal Trim

NOTE. Refer to Fig. 1. Before fitting other parts to the doors it is necessary to apply soundproofing to the glass fibre door panels. Refer to Assembly Stage 4.

Refer to Fig. 2. For each door there are four pieces of glass fibre panelling ready cut to shape and individually numbered in nearside and offside sets:

Door trim panel (1)
Door inner panel (2)
Speaker pod (3)
Arm rest (4)

1. First fit speaker pod (3) to the inner panel (2) and arm rest (4) to the door trim panel using 6mm x $^{1}/_{2}$in. flange screws as necessary. Fit the ash tray and secure with self-tapping srews. (NOTE METRIC/IMP mix)

2. Fit door trim card (1) to the door inner panel using two trim retaining brackets (5). Attach these brackets to the top of the door trim panel using 3.2 x 6mm aluminium pop rivets. At the bottom of the panel there are two pre-fitted big head rivets. The rivets are hidden by the speaker box and arm rest.

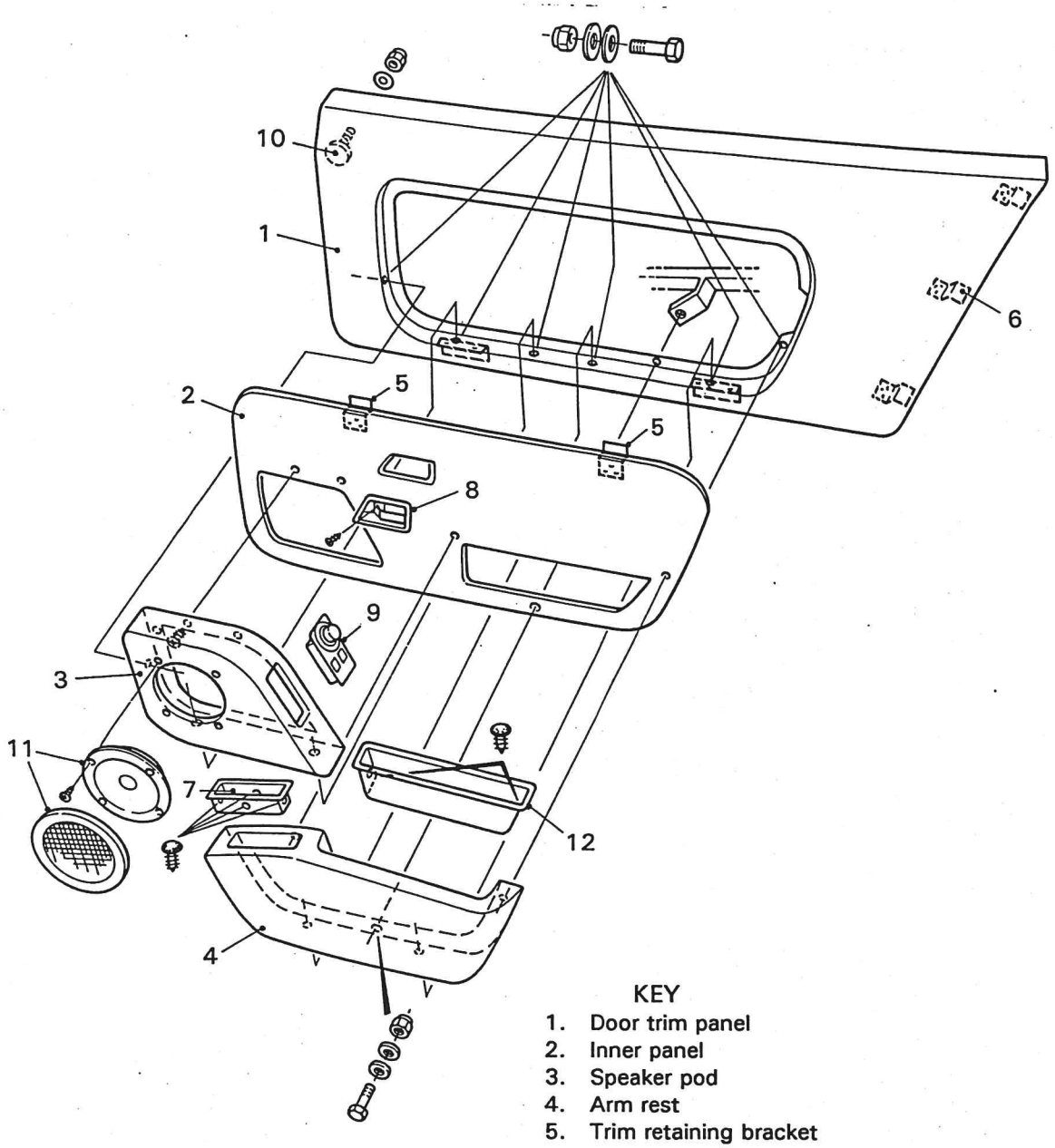
3. Fit door retaining brackets (6) to the back edge of the door inner panel one each side of the door lock mechanism. These are secured using 3.2 x 6mm aluminium pop rivets.

4. The door is then ready for leather trimming carried out by specialists.

Assembly Stage 2
Assembly to Doors - Door Trim to Skin

After leather trimming the door panels are ready for final fitting.

1. It is necessary to line the back of the inside of the door inner panel in heavy-duty plastic sheeting. Cut up a layer of sheeting sufficient to cover the back of the panel and attach it using heavy-duty adhesive tape. Any screws should be pushed through the plastic and then taped over to seal.



KEY

1. Door trim panel
2. Inner panel
3. Speaker pod
4. Arm rest
5. Trim retaining bracket
6. Door retaining brackets
7. Door tray
8. Door opening handle
9. Window and mirror control switch unit
10. Big head screw fixing for door trim panel
11. Radio speaker
12. Grab handle

Fig. 2 Door Trimming

2. Cut out holes using a sharp knife for the door opening handle and for the speaker, electric windows and mirrors fittings and wiring. From a new sheet of plastic cut out flaps sufficiently large to cover the openings cut previously for the door handle and wiring. Attach these flaps with adhesive tape above the openings so that as they hang down over the opening they protect the fitting from any ingress of water from above and prevent it coming into the passenger compartment. The flaps should be sufficiently large to allow easy access as required.

3. Place the door trim into position and attach it to the door skin. pulling through the door opening handle (8) and the switches (9) and wires. Push any plastic back in to ensure that none shows.

4. Push an arm through the speaker hole into the door cavity and attach a penny washer and 6mm plain nut to the big head screw previously attached by glass fibre to secure the trim panel.

5. Screw on the door handle surround using the screw supplied.

6. Connect the wiring for the electric windows and mirrors following the colour code below for window control circuit:
   Passenger side - white plug.
   Driver side - for passenger window, white plug.
   Push the window control switch unit into position and secure with screws provided. Mirrors switch driver's side only.

7. Plug in the speaker wiring and secure speaker to door using screws supplied.

8. Push-in the grab handle (12) and door tray (7) into the recesses provided until they 'click' into place.

Assembly Stage 3
Bench Assembly - For Internal Trim
(Refer to Fig. 3)

Roof and Rear Window Trim

1. Take the head lining panel (1) apply contact adhesive then cover it with Alacantara material.

2. Take the rear bulkhead window trim (4) apply contact adhesive then cover it with Alacantara material.

3. Using the hole in the head lining panel as a guide, cut a small diagonal hole in the centre of the material over the hole, for the roof light wiring to pass through. Fit the light, mirror and visors later (Fig. 4).

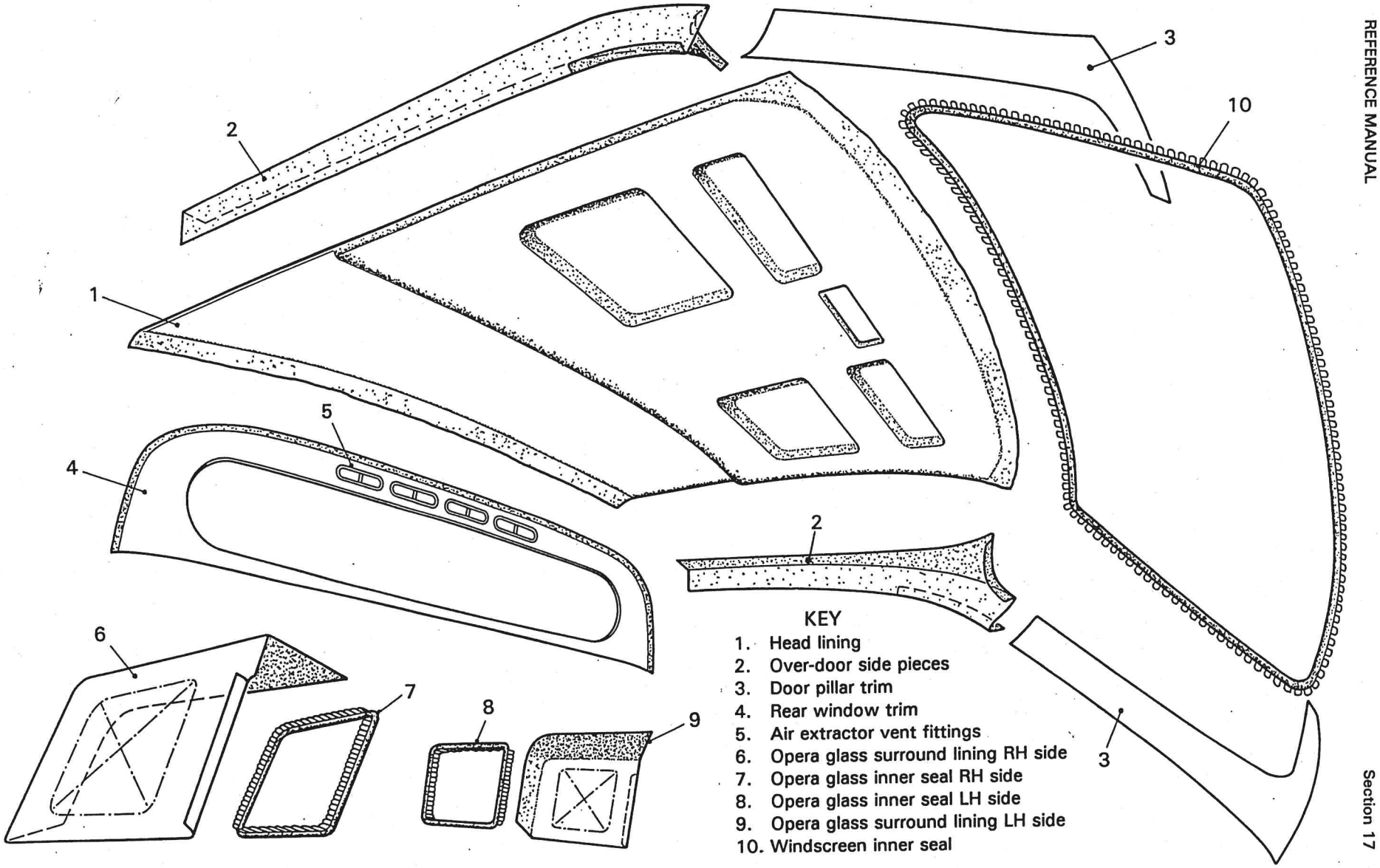


Fig. 3 Head Lining Panel

Assembly Stage 4
Assembly to Car - Interior Sound-proofing

1. Refer to 'starred' items in Fig. 5. Clean all surfaces to which sound-proofing material is to be applied.

2. Cut to shape suitable pieces of material for the following surfaces:
   - Rear window shelf above the engine cover.
   - Engine cover and sides of rear bulkhead.
   - Around the roll cage.
   - The 'step' behind the seats.
   - Door sills.
   - The insides of the outer door panels (note that this has to be carried out in Assembly Stage 1, refer to Fig. 1).

NOTE. Sound-proofing is not required on the tunnel and wheelarches.

3. Apply contact adhesive to the pieces of sound-proofing material and press into place.

Assembly Stage 5
Assembly to Car - Interior Trim
(Refer to Fig. 3 and Fig.4)

Opera Glass and Door Pillars

1. Before fitting head lining panel fit opera glass surround (6 and 9) into position aligning lower edge to parcel shelf and forward flap onto rear door pillar. The remaining material at the top is glued to the roof as a flap. The rear edge flap is glued to the rear panel.

2. At this stage the whole window opening is covered over with Alacantara. Cut this diagonally in both directions, nearly to the corners, as indicated (6). Apply adhesive to the outer face of the opera glass opening and stretch the diagonally-cut material around to fix on the adhesive. Trim off excess material.

Over Door Side Pieces

3. Apply contact adhesive to roof and side panel above the door opening then fit over-door side pieces (2) into position. The top edges will be covered by the head lining panel and the lower edge by the door opening rubber seal.

Roof Lining

NOTE. Before fitting the head lining panel the aerial should be connected. Refer to Electrical System Module 21.

4. Pull the wires for the roof light through the conduit on the left rear window pillar until they are long enough to reach the light position.

5. Thread the wires through the roof lining panel and apply Sikoflex adhesive to the panel to secure the headlining in position on the roof.

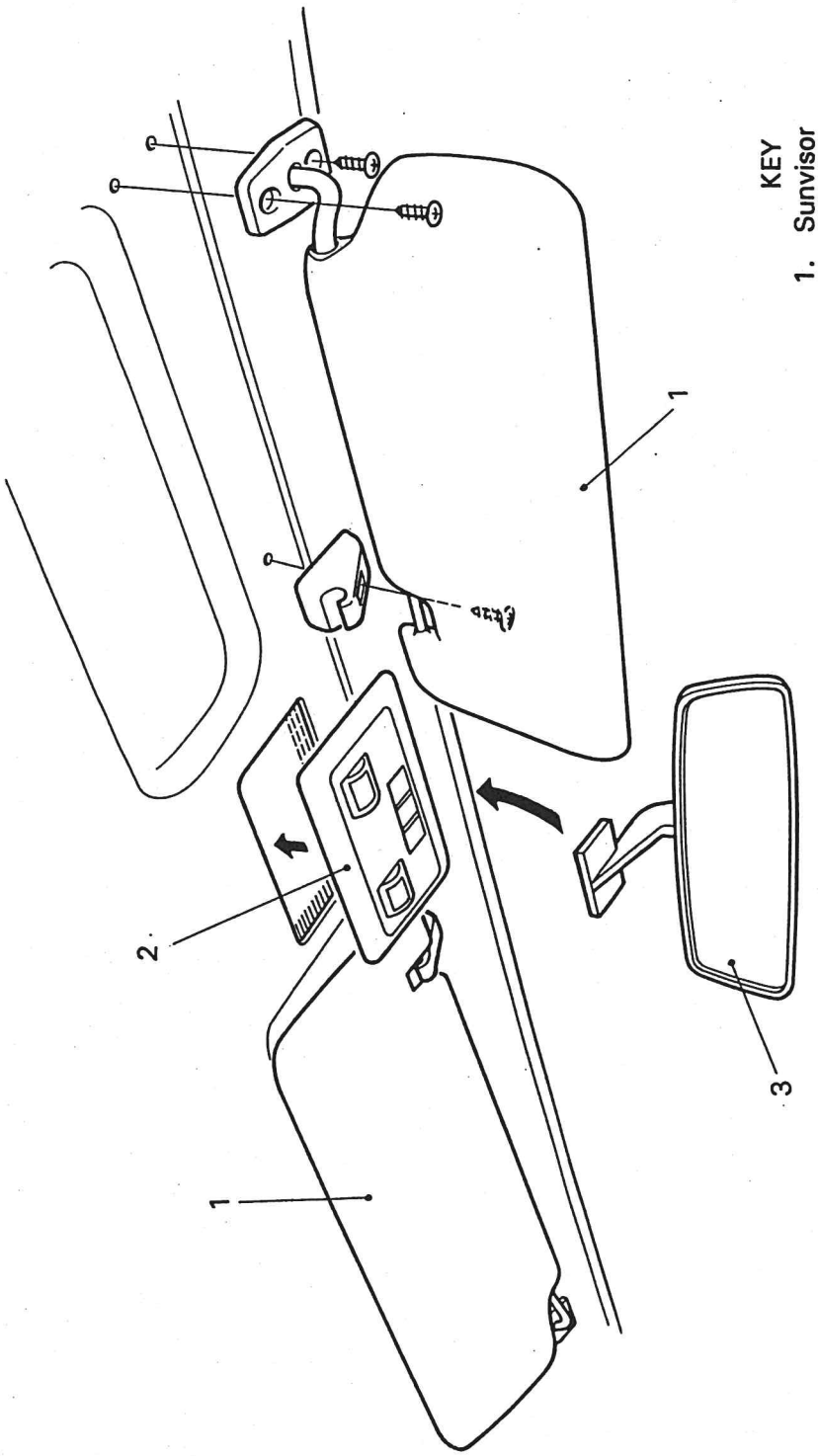


Fig. 4 Fitting Passenger Compartment Light, Mirror and Visor

Rear Window

6. Apply Sikoflex adhesive to the underside of the rear window trim (4) and press it into position around the rear window.

7. Attach the rear bulkhead trim to the window and frame up using the rubber seal. Push rear window into position and fit beading to secure.

Door Pillars

8. Install strips of leather (3) on each front door pillar folding over the top end to form a neat joint with the Alacanta roof lining material. The bottom ends will be covered by the facia when installed. To secure the long edges of the leather fit the windscreen and door pillar rubber seals at this time. Use upholstery spray glue to secure leather.

Carpet Fitting

NOTE. Lay out flat and stretch all material and carpet pieces for a time if they have been rolled. Examine for flaws before fitting and discard any not up to standard. Carpet pieces are pre-cut to size and all are glued down using contact adhesive. Remove the engine cover at the rear of the passenger compartment. Refer to Fig. 5.

9. Locate the pre-cut carpet pieces for covering the ends of the step-like ledge behind the seats (5 and 14). Fix the carpet into position and glue down also glueing down the 25mm approximate overrun on the top and side edges.

Door Sills

10. Locate the carpet pieces for covering the sills (7 and 15). Lay the carpet flush to the door lip and flatten down the sides into the car. Mark the seat belt anchorage points before glueing down, again with about 25mm overrun onto the floor of the car.

Rear Window Shelf

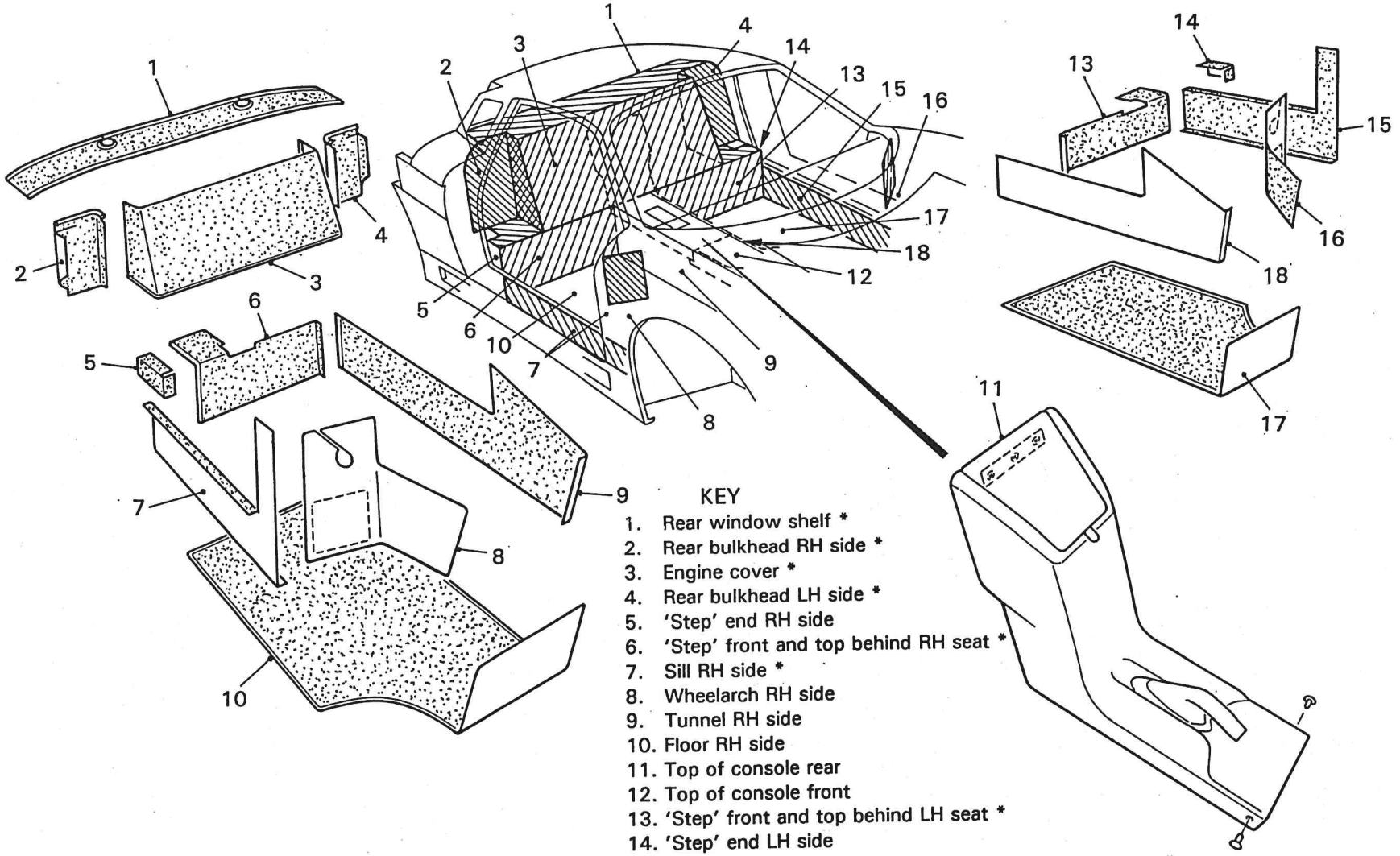
11 Locate the carpet piece for the rear window shelf (1) and cut to fit around the roll cage tubes and down by the engine cover. Glue in position and allow a 50mm overhang where the engine cover fits. This overhang should be glued down to the rear bulkhead cutting a tab for the fixing of the engine cover.

Ledge/Step Behind Seats

12. Locate the pieces of carpet to be applied to the front vertical face and top of the step (6 and 13) to the sides of the tunnel. These hide the excess from the corner pieces and the door sills. Glue these pieces in position.

Rear Bulkhead

13. Locate the carpet pieces for the rear bulkhead (2 and 4) which have a leather-bound edge finish for neatness. These are fitted against the bulkhead and are glued in position hiding the surplus from the window shelf and the step. It may be necessary to trim this carpet around the roll cage tube.



KEY

1. Rear window shelf *
2. Rear bulkhead RH side *
3. Engine cover *
4. Rear bulkhead LH side *
5. 'Step' end RH side
6. 'Step' front and top behind RH seat *
7. Sill RH side *
8. Wheelarch RH side
9. Tunnel RH side
10. Floor RH side
11. Top of console rear
12. Top of console front
13. 'Step' front and top behind LH seat *
14. 'Step' end LH side
15. Sill LH side *
16. Wheelarch LH side
17. Floor LH side
18. Tunnel LH side

* These areas are covered with sound-proofing material before carpet fitted

Fig. 5 Carpet/Trim Parts

Seat Belt Anchorage

14. Push the bench-assembled seat belt anchorage points onto the roll cage tubes. They will be held in place when the inertia reel is bolted onto the roll cage.

Seat belt Anchorage Point

15. Take the two seat belt anchorage boxes which are 'handed' for left and right sides and establish which fits on each side. Cover the boxes in Wilton carpet and secure using contact adhesive. Fold the edges into the box for neatness.

Engine Cover

16. Fit the engine cover in place and glue on the carpet (3).

Tunnel

17. Carpet the sides of the tunnel (9 and 18) all through to the footwells marking holes for the seat belt anchorage points. There should be overhang carpet onto the top of the tunnel and onto the floor. Glue into place.

Wheelarches and Footwells

18. Locate the wheelarch carpets (8 and 16) and glue into place. These carpet pieces have leather map pouches fitted. Excess carpet runs onto the floor and it also covers the underside of the steering column down to the end of the footwell.

Floor

19. Take the floor carpet pieces (10 and 17) and lay in place. Cut out holes for seat securing bolts. The floor carpets are held in place after the seat mounting is installed but they can be glued if necessary.

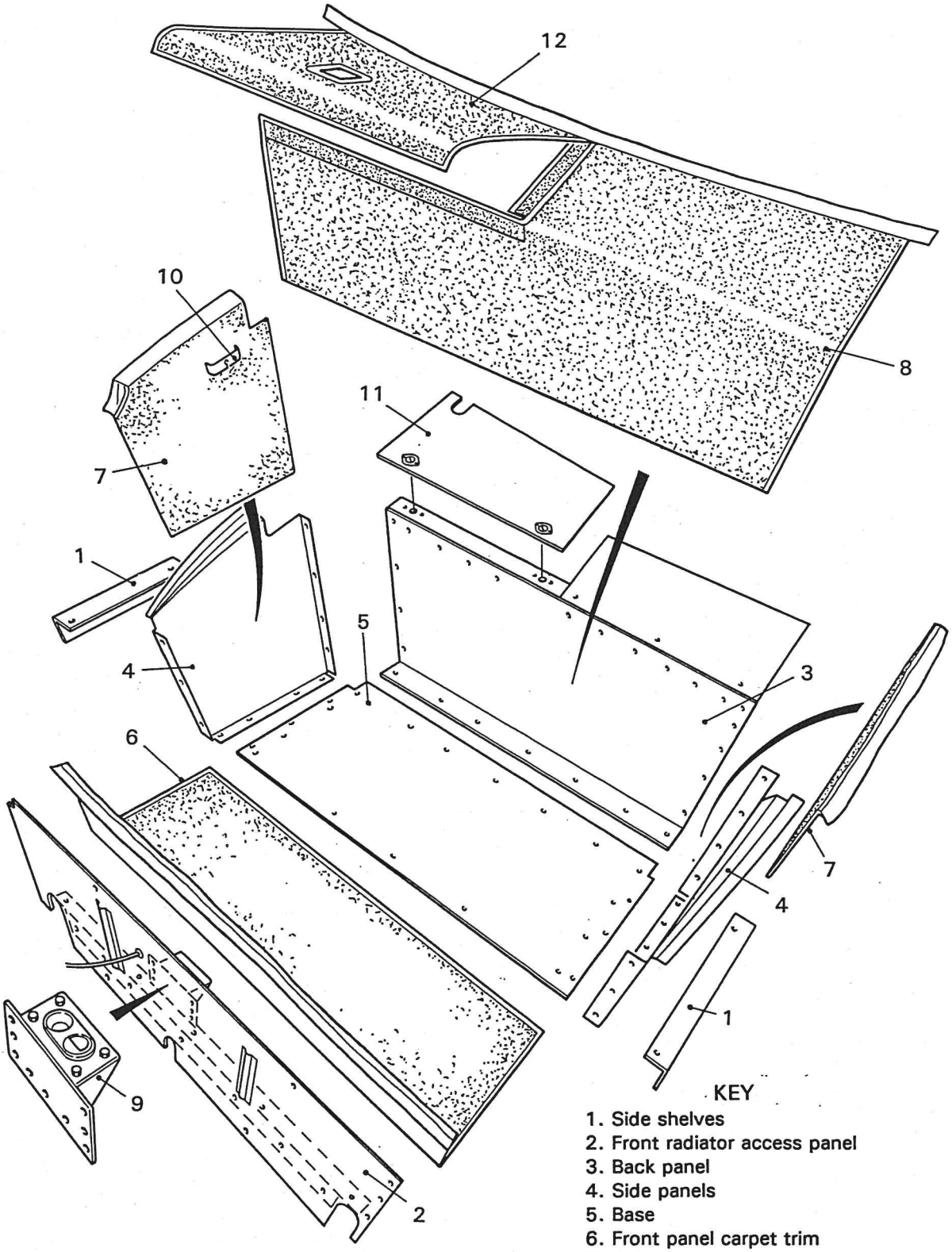
Luggage Compartment

20. Refer to Fig. 6. Take the pre-cut carpet pieces and glue the side pieces (7) in place leaving the top leather edges free of glue.

21. Fit the back panel carpet (8) and glue in place, again leaving the leather top edge free of glue. Part of the back panel carpet is hinged on the top leather trim and is held in place by Velcro. This forms the access panel to the master cylinders for brakes and clutch and a notice indicating the position of the cylinders is fitted near the flap. Under the flap is an aluminium panel secured by two Dzus fasteners and this has to be removed to access the master cylinders.

22. The base and front panel carpet (6) is all one piece and is glued in place last.

23. After all the carpet pieces have been fitted the leather edges should be trimmed to fit the lip of the compartment and then glued in place. This is then sealed in place by the luggage compartment cover seal when it is lowered.



KEY

1. Side shelves
2. Front radiator access panel
3. Back panel
4. Side panels
5. Base
6. Front panel carpet trim
7. Side panel carpet trim
8. Back panel carpet trim
9. Luggage compartment lock
10. Cover support strut mounting point
11. Front service area cover
12. Front service area cover carpet trim

Fig. 6 Luggage Compartment Trim (Right-hand Drive Car Shown)

Assembly Stage 6
Assembly To Car - Fitting Facia and Tunnel Trim

Facia Panel (Dashboard)
Refer to Fig. 7. The dash panel is supplied complete and already clad in leather upholstery ready to fit.

1. Rivet the sponson brackets (12), that will support the front of the dash, onto the lip for the windscreen rubber seal, using 3.2 x 10mm pop rivets.

2. Screw the dash onto the door pillars using self-tapping M6 x 10mm screws through the fixing brackets (11).

3. Pull out the side vents in the dash (2) and pull the side vent hoses (9) through the holes. Seal the hose to the vents using ducting tape to secure. Push the dash vents back into the holes provided and they will 'click' into place.

Tunnel and Front Console

4. To fit the console (4) place it over the gear lever and check that console is level with the floor of the compartment. When straight, secure in position using two M5 x 20mm screws onto the dash and accessible through the hole provided for the radio.

5. Remove the vents (3) from the console then pull the vent hoses (7) through the holes and seal them to the vents using ducting tape. Push the vents back into the holes and they will 'click' into place.

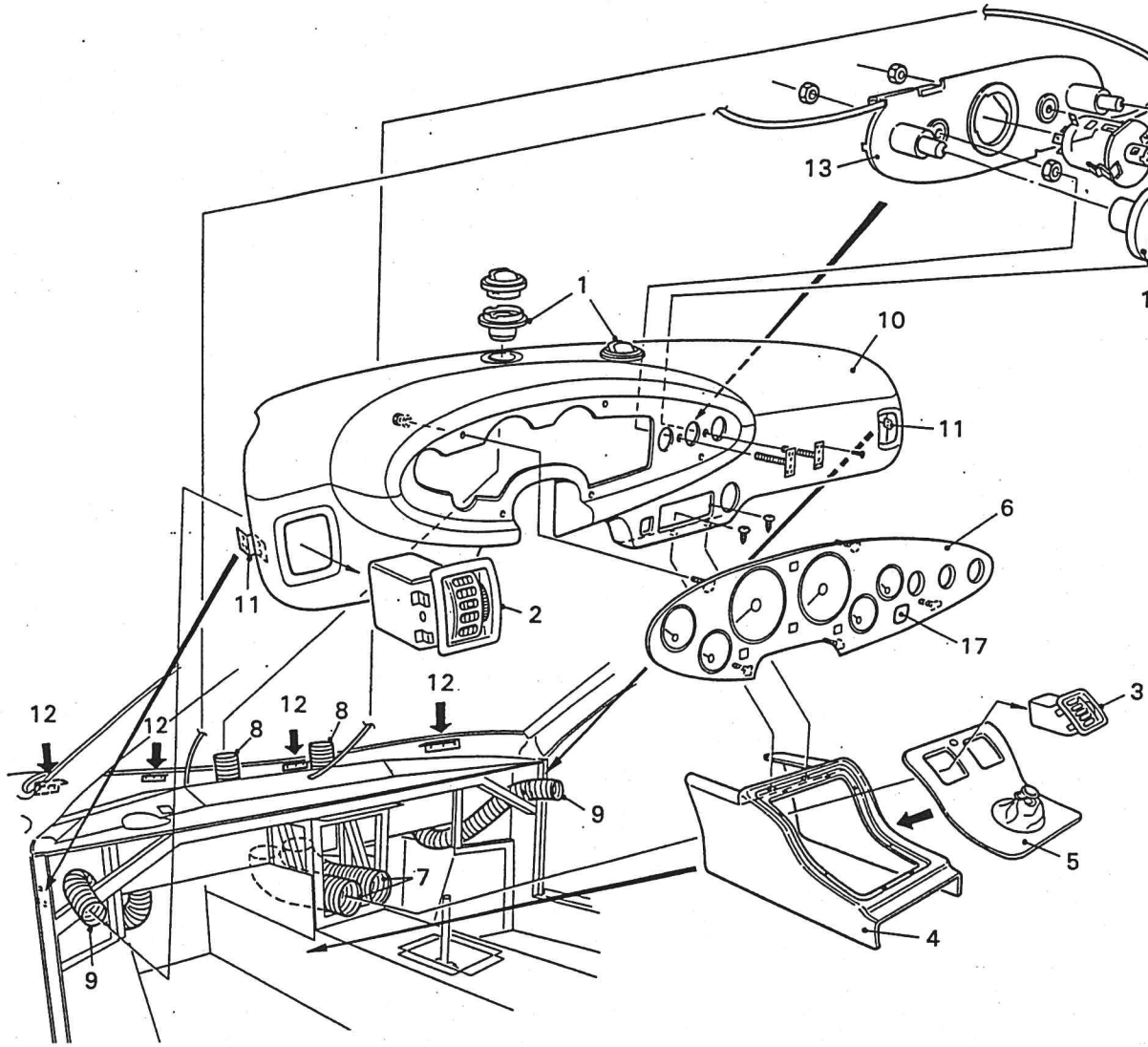
6. Secure the gaiter to the gear lever using the leather 'string'.

7. To fit the rear console first apply the handbrake. Place the console into position over the handbrake. Drill three holes through the carpet on the engine cover. Place a metal strip over the two lips on the console and secure using three self-tapping M6 x 20mm screws.

8. To fit the front of the rear console drill 5.5mm holes through, approximately 25mm behind the join with the front console. Secure the front of the rear console using black trim poppers into the holes. Only fit these when sure that the console is not to be lifted again because they are difficult to remove. It will probably be necessary to drill them out should they have to be removed.

Assembly Stage 7
Bench Assembly - Seat Headrests

1. Refer to Fig. 8. Remove the foam padding from inside each headrest (1) to permit modification. Slit down the middle of the outside of the foam using the frame as a guide. Set aside the foam for re-use by trimmers.



KEY

1. Windscreen vents
2. Vents to outside of footwells
3. Vents to knees and footwells
4. Console
5. Centre console panel for vents and gearchange lever
6. Instrument panel
7. Air ducting tubes to footwells
8. Air ducting tubes to windscreen
9. Air ducting tubes to footwells near doors
10. Facia panel (dash)
11. Dash panel fixing brackets on door pillars
12. Dash panel sponson fixing brackets under windscreen
13. Air conditioning / heater control panel
14. Air temperature control
15. Air conditioning / fan control
16. Air distribution control
17. Air recirculation switch

NOTE. For information - Key numbers not referenced in text

Fig. 7 Dashboard (Facia), Console and Air Conditioning Vent Fitting - Left-hand Drive Car

2. Modify the headrest frame by removing 82mm from the centre of the top of the frame.

3. Push the cut ends of the top of the frame together and weld the join.

4. Send the frame and foam to the trimmers.

Assembly Stage 8
Assembly To Car - Seat Runners

1. Refer to Fig. 8. A pair of seat runners (3), one with handle and one without, are fitted to each side of the passenger compartment complete with 25mm spacers to provide the mountings for the seats. The runner with adjustment handle (4) is always mounted on the right-hand side for both driver and passenger seats.

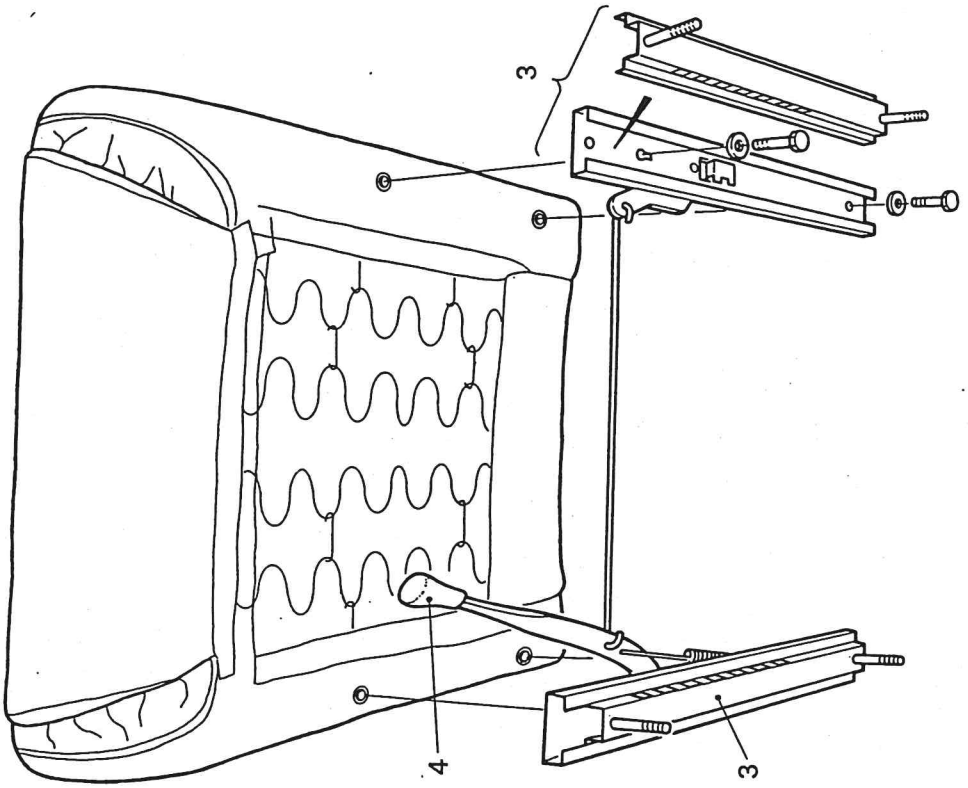
2. The seat mounting holes are already drilled in the chassis but are glassed over when the body is fitted. Locate these positions and drill out 12mm clearance holes. Position the runner slides and fix with spacers, using M10 x 70mm bolts down through the floor. Fit washers beneath the bolt heads and above the nyloc nuts fitted under the floor. Tighten to torque.

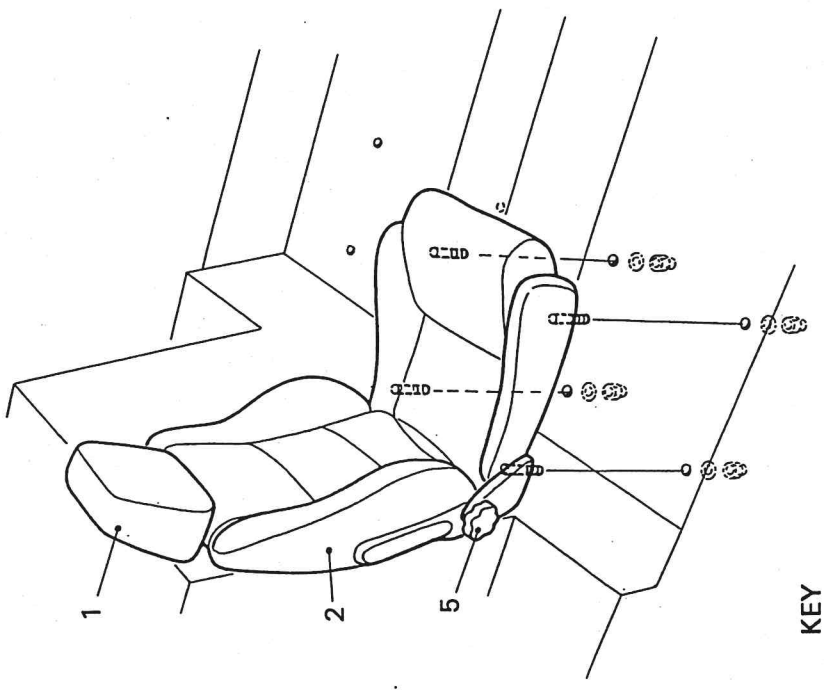
3. Fit the seats in position and check the adjustment and seat locking facility for correct operation.

4. Check the seats rake adjustment (5) control for correct operation.

5. Fit the seat trimmed headrests and check height adjustment facility for correct operation.

NOTE. If alternative option seats are fitted check out for correct operation in accordance with the manufacturer's instructions. If non-standard seat runners have to be fitted the fixing bolts must be of at least the equivalent strength and tightening torque of the standard fixing bolts referred to above.





KEY

1. Seat headrest
2. Seat
3. Seat runners
4. Adjustment handle
5. Rake adjustment control

Fig. 8 Seats and Seat Runners

Section 18

BODY GLASS Module Number 41

Contents

Illustrations

Section 18

BODY GLASS Module 41

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

4. Fitting glass and seals will require up to three operators to carry out these procedures.

5. Adhesive used for joining rubber seal ends is superglue. Follow the maker's instructions on the packaging.

6. Windscreen adhesive used is Wurth KDS 1K-PU. Follow the maker's instructions on the packaging.

7. Abrasive used to roughen the edge of the glass is 'Wet and dry' paper No. 400.

Assembly Stage 1
Bench Assembly - Door Glass

Fixed Glass

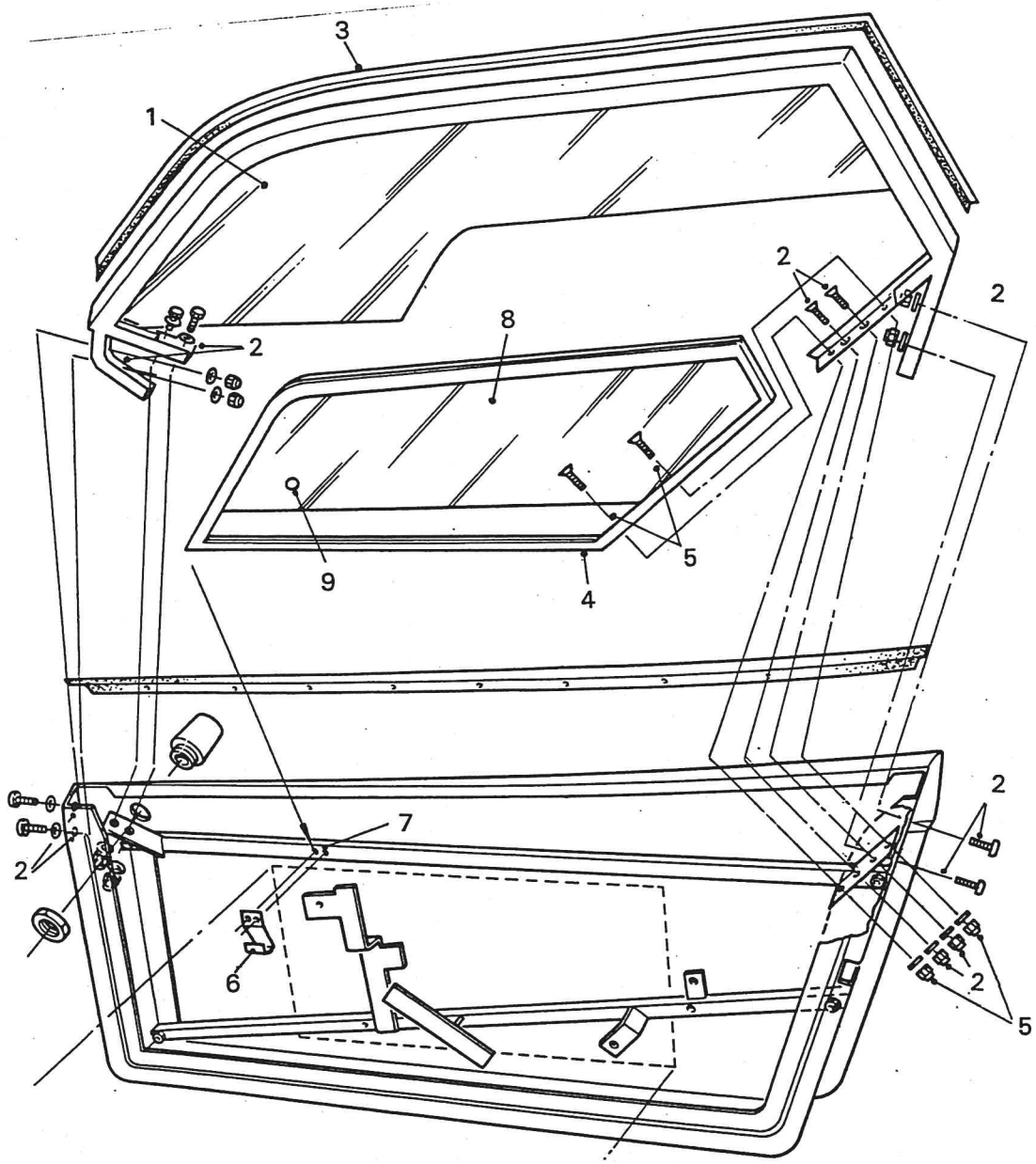
1. These glass parts are left- and right-handed. Fit rubber seal around glass. As the rubber is applied around curves make cuts in the edge of the seal to ensure the rubber fits properly. At the back of the seal a piece about 5mm in length should be removed on the bottom edge to allow it to fit well.

2. Fit the glass fitted with the rubber seal into the main window frame. The front should be fitted in first followed by the rear edge which will have to be manoeuvred in at an angle between the support and the rear edge. Lubricate if necessary to ease it into position.

Moving Glass

3. These glass parts are handed with the glass stamp mark facing the outside. Fit the internal rubber seal into the frame.

4. Fit the external rubber seal on the top and the front face.



KEY

1. Fixed glass assembled into frame
2. Frame fixing holes in door
3. Rubber sealing strip
4. Moving glass frame
5. Moving glass frame fixing points
6. Lower frame bracket
7. Attachment of lower frame to bracket
8. Moving glass
9. Actuator fixing hole in glass

Fig. 1 Door Glass

Assembly Stage 2
Assembly To Car - Door Glass

Fixed Glass

1. Refer to Fig. 1. Check to ensure that the frame with glass fitted (1) aligns with the pre-drilled fixing holes (2). Remove the frame again to allow the rubber along the topside of the door to be fitted - the door glass meets with this to form seal.

2. To fit the rubber strip (3) along the top edge of the door pre-drill the strip for rivets at 50mm intervals using a 3.5mm drill.

3. Hold the rubber strip against the lip on the door and drill through the pre-drilled holes in the rubber using a 3.2mm drill angled downwards at about 15 deg. to avoid damage to the outer skin. Rivet the rubber in place using 3.2mm x 12mm alloy pop rivets.

4. Fit the frame with glass into position and bolt into the pre-drilled fixing holes (2) using six M5 x 16mm countersunk screws with nyloc nuts.

Moving Glass

5. Fit flock channel to the top edge of outer side of moving glass frame and also to top inner channel and the two rear 'vertical' channels. Offer up assembled frame (4) into position pushing it up onto the fixed window. Ensure that the flock channel on the outer edge does not become trapped and rolled up by glass.

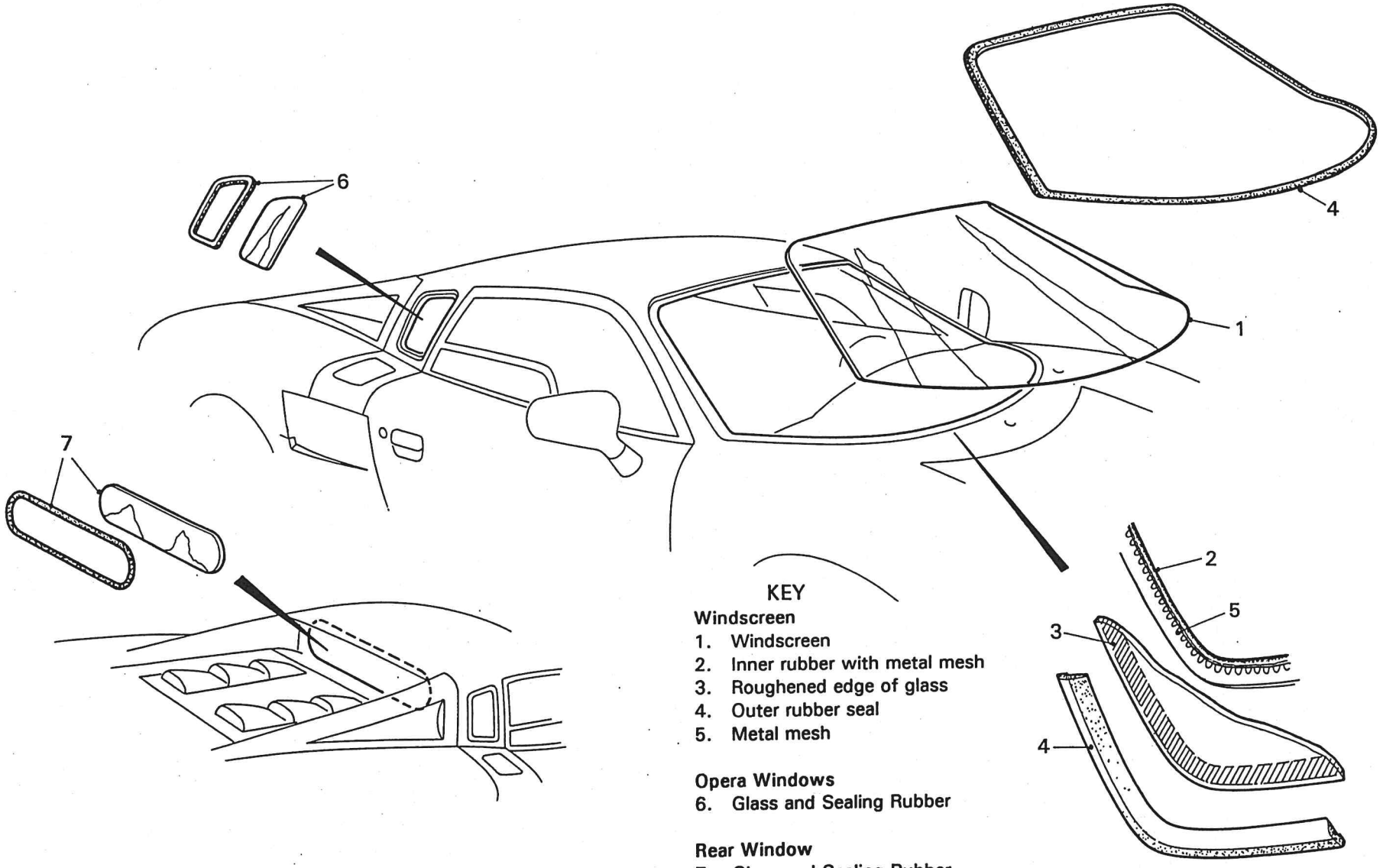
6. Secure frame in position at the two fixing points (5) in the back of the frame using M5 x 20mm countersunk screws.

7. Rivet support bracket (6) in place on the door stiffener bar using two 3.2 x 12mm rivets.

8. Place the glass (8) into the lower frame.

9. Connect the electric window actuator to the glass using the small diameter hole (9) at the front of the glass. Ensure that the tabs on the actuator head are pushed through the glass hole fully then spread them fully to secure it.

10. Refer to Body Hardware Module 22 for window winding actuator. Fix the securing bracket from the actuator pipe to the lower frame using two M5 x 30mm panhead screws with nyloc nuts. Silver-solder the actuator pipe to the securing bracket approximately half-way along its length.



KEY

Windscreen

1. Windscreen
2. Inner rubber with metal mesh
3. Roughened edge of glass
4. Outer rubber seal
5. Metal mesh

Opera Windows

6. Glass and Sealing Rubber

Rear Window

7. Glass and Sealing Rubber

Fig. 2 Windscreen, Opera and Rear Window Sealing

Assembly Stage 3
Assembly To Car - Other Glass

Windscreen
(Refer to Fig. 2)

1. Fit the windscreen inner sealing rubber (2) into the aperture ensuring that the join is at the bottom and sealed with adhesive. Tap in with a mallet to ensure it is fully seated.

2. Roughen the edge of the window (3) using wet and dry abrasive and apply Window Prime on the roughened edge. Inside window paint a 25mm wide band of black paint around to obscure inner seal.

3. Attach the outer rubber window seal (4) ensuring that the join is at the bottom. Seal join with adhesive.

4. Apply a bead of Windscreen Adhesive all round the lip of the aperture over the metal mesh (5) on the windscreen inner seal.

5. Using suction pads to lift it, offer up the windscreen accurately and gently ease it into position, pressing down on the rubber seal adhesive. Wipe away any excess adhesive.

6. Immediately apply masking tape to hold the window rubber in position until the adhesive dries. After windscreen adhesive has dried remove masking tape. Then apply adhesive to outer seal and fit into position. Secure seal joint at bottom as for inner seal.

Opera Windows

7. These two small rear side windows (6) are fitted in the same way as described for the windscreen.

Rear Window

8. Attach the rubber seal to the glass (7) with the join being positioned at the bottom. Apply adhesive to join.

9. Wrap string twice around the groove of the rubber seal on the glass in readiness for lifting out the rubber edge after the glass is fitted to the body aperture.

10. Offer up the glass to the aperture from the outside and first place the bottom edge of the rubber seal in position on the edge of the body. Press the glass and rubber seal in position against the whole of the aperture and apply gentle pressure evenly to all edges. Begin to pull out the first loop of string from the inside of the car. The first loop will bring the rubber lip half-way into position and by the time the second loop is pulled out all the rubber lip should be fitted over the body edge.

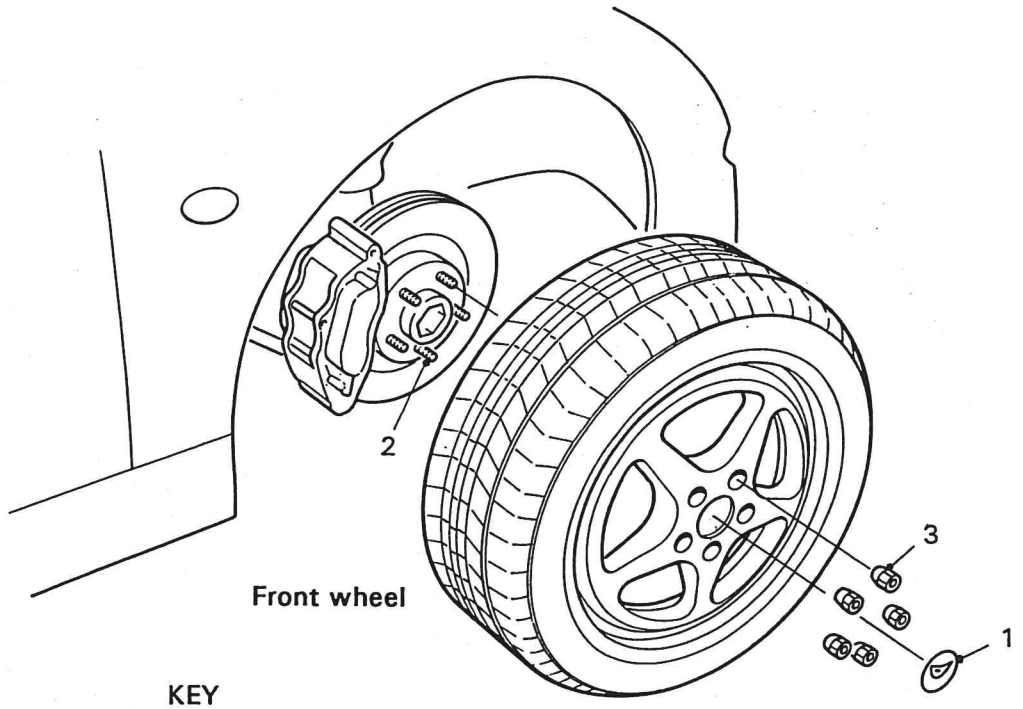
11. The interior window panel should then be positioned against the inside of the rubber seal and, using a suitable tool, pick out all around the seal to overlap the panel.

12. Insert beading in the groove of the rubber seal using a beading tool to complete the installation and hold the glass securely.

Section 19

WHEELS and TYRES Module 42

Contents



KEY

1. Spectre wheel badge
2. Hub bolts
3. Conical seat nuts

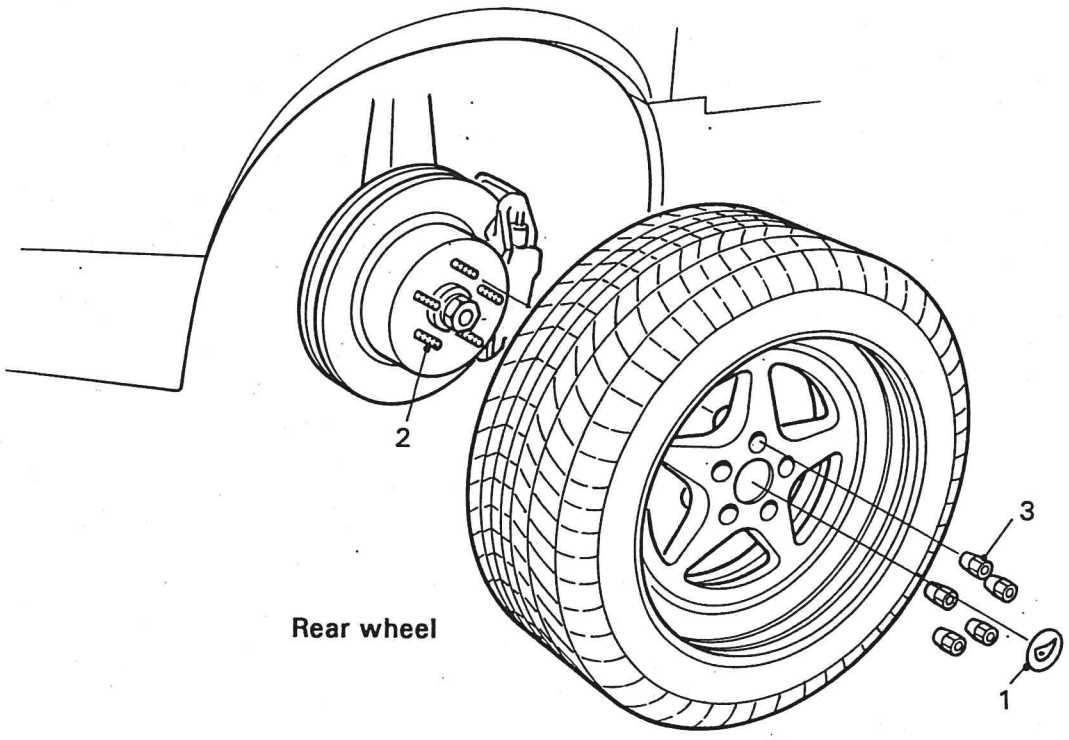


Fig. 1 Wheel Fitting

Section 19

WHEELS AND TYRES Module 42

General

1. Clear all threads of components, splines and bolts and smear with copper slip grease in readiness for assembly. Where necessary smear threads with Loctite.

2. Assembly, tightening, wirelocking, inspection and marking of all bolts and nuts must be carried out in accordance with Engineering Process Specification 5 Appendix A where all tightening torques are listed.

Assembly Stage 1
Bench Assembly - Tyres To Rims, Wheel Badges

Tyres

1. Tyres are assembled to rims and balanced by specialist tyre fitter ready for assembly to car.

Front wheels:	8.5 x 17in
Tyres:	235 / 45 / ZR17
Rear wheels:	11in x 17in
Tyres:	335 / 35 / ZR17

Tyre pressures (cold):

Front 24lbf / sq in (1.6bar)
Rear 26lbf / sq in (1.8bar)

Fitting Wheel Badges

NOTE. Spectre wheel badges should be fitted over the existing badge.

2. Clean the surface of the existing badge by wiping with a suitable cleaner such as thinners and allow to dry.

3. Peal off the backing from a Spectre wheel badge and place centrally over the existing badge. Press firmly to attach.

Assembly Stage 2
Assembly To Car - Wheels

1. Fit wheel/tyre assembly onto the five hub bolts pushing it on evenly as far as possible.

2. Screw on the conical seat nuts and tighten 'opposite' nuts gradually and evenly in stages until all are tight. Then tighten fully to torque.

Appendix A

ENGINEERING PROCESS SPECIFICATION 5

SPECTRE Cars Ltd	ENGINEERING PROCESS SPECIFICATION
	EPS No. 5
	Title: TIGHTENING OF NUTS AND BOLTS

TIGHTENING OF NUTS AND BOLTS

Compiled by: Christian Matthewson Date: 18/03/97.

Approved by: William Male Date: 18 : 03 : 97.

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SPECTRE Cars Ltd	ENGINEERING PROCESS SPECIFICATION
	EPS No. 5
	Title: TIGHTENING OF NUTS AND BOLTS

REVISIONS

REV	*DESCRIPTION*	*EMBODIED BY*	*DATE*
1	Initial issue	C. Matthewson	17/3/97
2	Wire Locking Techniques Illustration added	V. Vunjak	21/8/98

SPECTRE Cars Ltd	ENGINEERING PROCESS SPECIFICATION
	EPS No. 5
	Title: TIGHTENING OF NUTS AND BOLTS

1. SCOPE

This specification details the requirements at Spectre Cars Ltd for the tightening and subsequent torque setting of bolts.

2. GENERAL INFORMATION

2.1 Bolts used are referred to by size and length in mm. These are to be used from the dispensing trays on the shop floor and it is the responsibility of the fitter to select the correct bolts as specified on the drawing. The information given on the drawing should be preferred over the information given in this procedure.

2.2 Washers should normally be used directly under the head of the bolt and under the nut. Spacer washers and special spacers may be used in some places and this information should be referred to on the drawings. Large "penny" washers are used occasionally where sheet metal is bolted.

2.3 Nyloc nuts are used throughout and should be tightened fully by a torque spanner with another plain spanner or socket on the head of the bolt at the same time to prevent the bolt turning. After a nut has been fully tightened, at least 1½ to 3 threads should protrude through the nut.

2.4 Torque settings are generally specified on assembly drawings in Nm and lbf. A summary of all the bolt tightening torque's are listed in the table later in this procedure. Care should be taken to ensure that the torque settings are correct in either Nm or lbf.

2.5 It is the responsibility of the fitter and inspector to ascertain the accuracy of the torque settings and to stamp off the operation as correct on the Route Card.

2.6 Only torque wrenches that are registered and calibrated are to be used. Ref QCP 06.

NOTE - A nylon nut should never be re-used once it has been fully threaded onto a bolt and later removed. Always fit a new nut and discard the used one.

3. MARKING

3.1 After tightening to the correct torque setting, all bolts and nuts are to be marked with a coloured paint spot on the nut/bolt and thread to indicate that they have been finally checked and inspected.

3.2 If a bolt and nut has to be disturbed after checking and marking, the paint spot must be removed immediately to indicate that it will require re-tightening and re-inspection and marking. Remember to fit a new nyloc on re-assembly if one was used initially.

4. WIRE LOCKING

4.1 When any screw, nut, plug or any other fastener is to be wire locked it must be correctly tightened down first to the required torque. It is assumed in the following description that a bolt is being secured. The bolt must not be over tightened beyond the torque setting, or loosened to align the safety wire holes. Only castellated nuts may be tightened more to align the wire locking holes in the bolt. With the castellation and in these cases they should be torqued first to the lower end of the stipulated range. The size and type of safety wire specified on drawings should be used. Never attempt to re-use safety wire. If the wire is kinked do not try to straighten it, start again with a new wire.

4.2 The wire holes should be clearance fit so that the wire is not 'skinned' when pulled through. Thread the wire through the hole and bring it around the screw to meet the wire from the other end of the hole in the direction of the tightening the bolt. Then twist the two wires together to the next locking hole or the next bolt to be locked.

4.3 Due to the small number of safety wire locked bolts used on the car standard pliers will be used to twist the wire. The wire must not be under or over tightened. The twists should be tight and even. Over tightening will stretch the wire and destroy its properties - under tightening will leave the wire loose and a danger the locking function will fail. There should be between 4 to 5 twists per inch, and the wire should be fully twisted between the bolt heads. When completed the wire should be tight enough to prevent the bolt slackening and also from slipping from the head of the bolt. The correct wire locking techniques are shown in Fig 1.

4.4 Twisted wires should not continue around the bolt head but only to the next wire locking hole. At that point a single wire should be passed through the hole and the other wire taken tightly around the bolt head in the direction as though tightening the bolt until it meets the wire coming through the locking hole. At that point the two wires should again

be twisted together as previously described. When a single bolt is to be locked to a frame or bracket check that the bolt is securely locked.

4.5 At the frame or last bolt, if the locking is complete at that point, then the two wires should be twisted together for at least four or five turns and the surplus cut off. Bend back the end of the twisted wire itself to lock the twist and squeeze the fold back with the pliers to secure. Ensure that the sharp end of the twist is snugly folded tight against the bolt or frame/bracket locking hole so that nothing catches in the end of the wire. It is better if the end of the wires can be folded inwards to hide the sharp ends, which are capable of causing injury to hands.

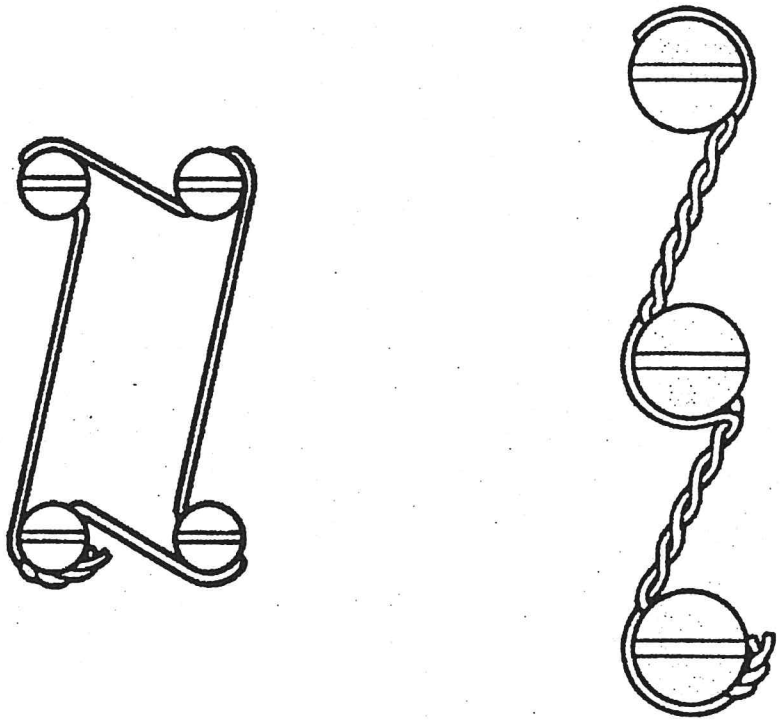

Fig.1 Wire Locking Techniques

5. TORQUE WRENCH SETTINGS

ASSEMBLY/COMPONENT	Nm	lbf
SEAT BELT		
Stalk to floor	29 - 41	22 - 31
Upper 'B' pillar anchorage	29 - 41	22 - 31
Lower 'B' pillar anchorage	29 - 41	22 - 31
Inertia reel	29 - 41	22 - 31
STEERING		
Rack to chassis brackets	95	70
Brackets to bulkhead	40 - 50	30 - 37
Flexi coupling to rack pinion	25 - 30	19 - 22
Flexi coupling to universal joint clamp	25 - 30	19 - 22
Coupling to steering column	25 - 30	19 - 22
Track rod nut-torque/tighten next to slot for pin	35 - 40	26 - 30
Track rod lock nut	40 - 50	30 - 37
Column top bracket to dash bulkhead	41 - 48	30 - 35
Column lower bracket	34 - 41	25 - 30
Column support brkt to column mounting brkt	48 - 54	35 - 40
Steering wheel to shaft	27 - 34	20 - 25
FRONT SUSPENSION		
Hub nuts		
Tighten to stage 2	271	200
Upper wishbone mounting	61 - 61	45 - 50
Lower wishbone brkt to chassis	54 - 61	40 - 45
Lower wishbone brkt through bolt	61 - 68	45 - 50
Lower wishbone mounting rear brkt	61 - 68	45 - 50
Anti-roll bar lower wishbone nut	14 - 21	10 - 15
Anti-roll bar brkt to chassis	48 - 54	35 - 40
Anti roll bar clamps to brkt	41 - 48	30 - 35
Lower wishbone to hub carrier ball joint nut	34 - 41	25 - 30
Upper wishbone ball joint nut	27 - 34	20 - 25
Upper wishbone mounting brkt - 3 bolts	48 - 54	35 - 40

Upper wishbone mounting brkt - 1 bolt	41 - 48	30 - 35
ASSEMBLY/COMPONENT	**Nm**	**lbf**
Upper ball joint to wishbone	11 - 14	8 - 10
Lower ball joints to outer bolts	11 - 14	8 - 10
Lower ball joints to inner bolts	34 - 41	25 - 30
Shock absorber to lower wishbone	48 - 54	35 - 40
Shock absorber to chassis	48 - 54	35 - 40
REAR SUSPENSION		
Hub nuts		
Tighten to stage 1	136	100
Tighten to stage 2	312	230
Hub bearing carrier to upright	48 - 54	35 - 40
'A' frame to chassis	61 - 68	45 - 50
'A' frame to upright	61 - 68	45 - 50
Link arm to chassis	61 - 68	45 - 50
Link arm to upright	54 - 61	40 - 45
Link arm to locking nuts	48 - 54	35 - 40
Radius arm mounting bolts	48 - 54	35 - 40
Radius arm locking nuts	48 - 54	35 - 40
Shock absorber to upright mounting bolt	61 - 68	45 - 50
Shock absorber to chassis	61 - 68	45 - 50
Anti roll bar to upright	21 - 27	15 - 20
Anti roll bar clamp brkt	54 - 61	40 - 45
BRAKES		
Front - calliper to brkt	41 - 48	30 - 35
Front - brkt to hub	48 - 54	35 - 40
Rear - calliper to upright	41 - 48	30 - 35
Rear - upright to handbrake assembly	34 - 41	25 - 30
Pad retaining bolts	10 - 14	7 - 10
DOORS AND GENERAL		
Door hinges to pillar	41 - 48	30 - 35
Door striker box to roll cage brkt	21 - 27	15 - 20
Seat to floor bolts	41 - 48	30 - 35
WHEELS		

ASSEMBLY/COMPONENT	Nm	lbf
All transmission shaft bolts	52 - 57	38 - 42

ASSEMBLY/COMPONENT	Nm	lbf
FUEL BALANCE PIPE		
Unions to tank	163	120
ROLL CAGE		
Roll cage to passenger compartment floor	20 - 30	15 - 22
Roll cage joint, rear window	20 - 30	15 - 22
Roll cage rear supports in engine bay	20 - 30	15 - 22

Appendix B

R42 PARTS LIST

R42

REFERENCE MANUAL

Spectre Cars Ltd

Parts List

Module 00 - Pre-Build

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42101003	ENGINE FIXING PLATE	KAMECH		2
42101005	EXHAUST RECESS PANEL-LH	A.M.L.ENGINEERING		1
42101006	EXHAUST RECESS PANEL-RH	A.M.L.ENGINEERING		1
42101007	CENTRE FACIA PACKING SHIM-SHORT	KAMECH		6
42101009	CENTRE FACIA PACKING SHIM-LONG	KAMECH		6
42101013	FUEL TANK SIDE INSULATION SPONGE-LH	SIDERISE		1
42101014	FUEL TANK SIDE INSULATION SPONGE-RH	SIDERISE		1
42101015	INSPECTION COVER PANEL	KAMECH		2
42101017	INSPECTION COVER PANEL "A"	KAMECH		2
42101019	BULKHEAD PANEL-FRONT	A.M.L.ENGINEERING		1
42101021	TOP PLATE-LH	A.M.L.ENGINEERING		1
42101022	TOP PLATE-RH	A.M.L.ENGINEERING		1
42101025	INNER ENGINE BAY PANEL-LH	A.M.L.ENGINEERING		1
42101035	FUEL TANK SIDE-LH	PRIEST ENGINEERING		1
42101036	FUEL TANK SIDE-RH	PRIEST ENGINEERING		1
42101037	BODY SUPPORT UPRIGHT-LH	PRIEST ENGINEERING		1
42101038	BODY SUPPORT UPRIGHT-RH	PRIEST ENGINEERING		1
42101039	INNER PANEL-LH	PRIEST ENGINEERING		1
42101040	INNER PANEL-RH	PRIEST ENGINEERING		1
42101041	END TUNNEL REAR	A.M.L.ENGINEERING		1
42101043	INNER ENGINE BAY PANEL-RH	A.M.L.ENGINEERING		1
42101701	CHASSIS	PATRICK FABRICATION		1
42102015	DOOR FIXING BRACKET-LH	PRIEST ENGINEERING		1
42102016	DOOR FIXING BRACKET-RH	PRIEST ENGINEERING		1
42102701	ROLL CAGE	A.M.L.ENGINEERING		1
42102901	TUB & CHASSIS FITTING	A.P.M.LAMINATES		1
42104003	SPREADER PLATE	KAMECH		2
42104007	DOOR FLANGE SILL-LH	A.M.L.ENGINEERING		1
42104008	DOOR FLANGE SILL-RH	A.M.L.ENGINEERING		1
42104013	DOOR SEAL BRACKET-LH	A.M.L.ENGINEERING		1
42104014	DOOR SEAL BRACKET-RH	A.M.L.ENGINEERING		1
42104015	HEADLAMP POD BRACKET	SABRE FABRICATIONS		4
42104017	REAR WING TUBE 10MM ID 1.5MM 910MM LONG	KAMECH		1
42104019	INDICATOR LENSE FIXING BRACKET-LH	PRIEST ENGINEERING		1

Module 00 - Pre-Build

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42104020	INDICATOR LENSE FIXING BRACKET-RH	PRIEST ENGINEERING		1
42104023	9MM NYLON REAR WING SPACER	KAMECH		2
42104025	18MM NYLON REAR WING SPACER	KAMECH		1
42104027	SILL SUPPORT REAR-LH	PRIEST ENGINEERING		1
42104028	SILL SUPPORT REAR-RH	PRIEST ENGINEERING		1
42104029	SILL SUPPORT FRONT-LH	PRIEST ENGINEERING		1
42104030	SILL SUPPORT FRONT-RH	PRIEST ENGINEERING		1
42104031	PETROL FLAP NYLON SPACER	KAMECH		1
42104117	CHECK STRAP HINGE MODIFACATION	PRIEST ENGINEERING		2
42104701	STRIKER BOX-LH	SABRE FABRICATIONS		1
42104702	STRIKER BOX-RH	SABRE FABRICATIONS		1
42104703	HEADLAMP POD MOTOR MOUNTING BRACKET-LH	M.D.P.ENGINEERING		1
42104704	HEADLAMP POD MOTOR MOUNTING BRACKET-RH	M.D.P.ENGINEERING		1
42104705	DOOR CATCH MOUNTING BRACKET-LH	PATRICK FABRICATION		1
42104706	DOOR CATCH MOUNTING BRACKET-RH	PATRICK FABRICATION		1
42104707	INNER DOOR FRAME FRONT-LH	PATRICK FABRICATION		1
42104708	INNER DOOR FRAME FRONT-RH	PATRICK FABRICATION		1
42104709	DOOR BAR-LH	PATRICK FABRICATION		1
42104710	DOOR BAR-RH	PATRICK FABRICATION		1
42104711	DOOR STIFFENER BAR-LH	PATRICK FABRICATION		1
42104712	DOOR STIFFENER BAR-RH	PATRICK FABRICATION		1
42104901	COMPOSITE BODY KIT-LHD	A.P.M.LAMINATES		1

THIS KIT IS MADE UP WITH THE FOLLOWING PARTS :-

PART No	*DESCRIPTION*
42104035	*MAIN BODY SECTION*
42104037	*SILL-LH*
42104038	*SILL-RH*
42104039	*REAR BODY SECTION INC INSERTS*
42104041	*DOOR ASSEMBLY-LH*
42104042	*DOOR ASSEMBLY-RH*
42104043	*BONNET ASSEMBLY*
42104045	*ENGINE HATCH*
42104047	*REAR VALANCE*
42104049	*HEADLAMP COVER-LH*
42104050	*HEADLAMP COVER-RH*
42104051	*HEADLAMP BOX-LH*
42104052	*HEADLAMP BOX-RH*
42104053	*HEADLAMP LID-LH*
42104054	*HEADLAMP LID-RH*
42104055	*FRONT NUMBER PLATE PANEL*
42104057	*HEAD LINING PANEL*

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42104059	*FUEL FILLER CAP*			
42104061	*DOOR INNER PANEL-LH*			
42104062	*DOOR INNER PANEL-RH*			
42104063	*DOOR TRIM CARD-LH*			
42104064	*DOOR TRIM CARD-RH*			
42104065	*ARMREST-LH*			
42104066	*ARMREST-RH*			
42104067	*ARMREST INSERT-LH*			
42104068	*ARMREST INSERT-RH*			
42104069	*SPEAKER POD-LH*			
42104070	*SPEAKER POD-RH*			
42104071	*MAIN DASH PANEL-LHD*			
42104073	*LOWER WINDSCREEN SUPPORT PANEL*			
42104075	*HEATER VENT*			
42104077	*GEAR LEVER CONSOLE-FRONT*			
42104079	*GEAR LEVER CONSOLE-REAR*			
42104081	*GEAR LEVER CONSOLE LID*			
42104083	*BATTERY BOX PANEL*			
42104085	*REAR BODY SKIRT SUPPORT CHANNEL*			
42104087	*AIR INTAKE ADAPTER*			
42104089	*REAR WINDOW TRIM PANEL*			
42104091	*FLOOR PANEL*			
42104093	*ENGINE PARTITION*			
42104095	*FUEL TANK SURROUND-LH*			
42104096	*FUEL TANK SURROUND-RH*			
42104097	*INNER SILL-LH*			
42104098	*INNER SILL-RH*			
42104099	*REAR VALANCE CLOSING PANEL*			
42104101	*FOOTWELL TOP*			
42104103	*ENGINE CLEARANCE PANEL*			
42104105	*FUEL FILLER RECESS*			
42104107	*FRONT INNER ARCH-LH*			
42104108	*FRONT INNER ARCH-RH*			
42104501	*REAR SPOILER*			
42114701	FUEL TANK-LH	PATRICK FABRICATION		1
42114702	FUEL TANK-RH	PATRICK FABRICATION		1
42114703	FUEL FILLER NECK MODIFICATION	BECKOX		1
42121505	FRONT SIDE/INDICATOR MODIFACATION-LH	SUB ASSEMBLY AREA 2		1
42121506	FRONT SIDE/INDICATOR MODIFACATION-RH	SUB ASSEMBLY AREA 2		1
42121701	MOTOR BRACKET-LH	A.M.L.ENGINEERING		1
42121702	MOTOR BRACKET-RH	A.M.L.ENGINEERING		1
42122001	DOOR CATCH SPACER 2MM	KAMECH		2
42122009	SMALL ROOF TUBE	A.M.L.ENGINEERING		1
42122011	LONG ROOF TUBE	A.M.L.ENGINEERING		1
42122015	BODY MOUNTING HINGE BRACKET	PATRICK FABRICATION		2
42122025	DOOR MIRROR RISER INNER	KAMECH		2
42122027	DOOR MIRROR RISER OUTER	KAMECH		2
42122029	STRIKER PLATE	M.D.P.ENGINEERING		2
42122039	DOOR CATCH SPACER 3MM	KAMECH		2

Module 00 - Pre-Build

PART No.	DESCRIPTION		SUPPLIER	SUPPLIER No.	QTY
42122501	PULL HANDLE		SPEEDY CABLES LTD		2
42122701	HEADLAMP POD HINGE SUPPORT		PATRICK FABRICATION		4
42122707	REAR SECTION HINGE BRACKET		KAMECH		2
42122709	REAR BODY MOUNT BRACKET-LH		PATRICK FABRICATION		1
42122710	REAR BODY MOUNT BRACKET-RH		PATRICK FABRICATION		1
42122711	FRONT BODY MOUNT BRACKET		PATRICK FABRICATION		2
S1006	POLYURETHANE SEALANT	2178/2213	ALBERT JAGGER LTD	2178/2213	7
S1033	BODY MOUNTING HINGE	6168292	DALTON POWER PRODUCT	6168292	2
S1034	EXTERIOR DOOR HANDLE-RH	7220479	DALTON POWER PRODUCT	7220479/6158705	1
S1035	EXTERIOR DOOR HANDLE-LH	7220481	DALTON POWER PRODUCT	7220481/1638503	1
S1036	DOOR LOCK SET	1667187	DALTON POWER PRODUCT	1667187	1
S1038	DOOR CATCH-LH	6536491	DALTON POWER PRODUCT	6536491	1
S1039	DOOR CATCH-RH	6536494	DALTON POWER PRODUCT	6536494	1
S1040	STRIKER PLATE	6142710	DALTON POWER PRODUCT	6142710	2
S1046	STRIKER	6158189	DALTON POWER PRODUCT	6158189	2
S1058	SCREW	6144650	DALTON POWER PRODUCT	6144650	4
S1064	DOOR MIRROR-RH	CM133115	CIPA	CM133115	1
S1065	DOOR MIRROR-LH	CM134113	CIPA	CM134113	1
S1066	STRIKER PIN	FPJ10009	POWER TRAIN PROJECTS	FPJ10009	2
S1067	STRIKER CUP	EAM8130	POWER TRAIN PROJECTS	EAM8130	2
S1068	STRIKER CATCH	CDP6382	POWER TRAIN PROJECTS	CDP6382	2
S1073	FRONT BONNET HINGE-RH	6892012	DALTON POWER PRODUCT	6892012	1
S1074	FRONT BONNET HINGE-LH	6892014	DALTON POWER PRODUCT	6892014	1
S1085	PETROL FLAP HINGE 2"	97-5577	DO IT ALL	97-5577	1
S1095	DOOR HINGE	1659106	DALTON POWER PRODUCT	1659106	4
S1183	INDICATOR REFLECTOR-RH	T81610/17010	PAGE MOTORS LIMITED	T81610/17010	1
S1184	INDICATOR REFLECTOR-LH	T81620/17010	PAGE MOTORS LIMITED	T81620/17010	1
S1185	INDICATOR LIGHT UNIT-LH	T81510/80083	PAGE MOTORS LIMITED	T81510/80083	1
S1186	INDICATOR LIGHT UNIT-RH	T81520/80083	PAGE MOTORS LIMITED	T81520/80083	1
S1234	BALL JOINT	A100B0353F	LOTUS	A100B0353F	4
S1251	FUEL FILLER NECK	6835562	DALTON POWER PRODUCT	6835562	1
S1252	FUEL FILLER TANK SEAL	1492183	DALTON POWER PRODUCT	1492183	1
S1483	REAR END SAFETY LOCK	9/00589	WESTON BODY HARDWARE	9/00589	2

Module 01 - Main Chassis

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42101011	REAR BULKHEAD INSULATION SPONGE	SIDERISE		1
42101023	STEERING COLUMN COVER PLATE	PRIEST ENGINEERING		1
42101029	SPONSON SUPPORT BRACKET	A.M.L.ENGINEERING		10
42101031	GEARBOX BAY INNER PANEL-LH	PRIEST ENGINEERING		1
42101032	GEARBOX BAY INNER PANEL-RH	PRIEST ENGINEERING		1
42101033	GEARBOX BAY OUTER PANEL-LH	PRIEST ENGINEERING		1
42101034	GEARBOX BAY OUTER PANEL-RH	PRIEST ENGINEERING		1
42108001	CENTRE WATER PIPE 38MM	KAMECH		2
42108011	CENTRE WATER PIPE 16MM	KAMECH		2
42130001	RADIUS ARM INSPECTION PANEL	KAMECH		2
42130021	REAR BULKHEAD ENGINE COVER	A.M.L.ENGINEERING		1
S1006	POLYURETHANE SEALANT 2178/2213	ALBERT JAGGER LTD	2178/2213	2
S1388	FOAM INSULATION 1.1/2" LENGTH TUB 35/13	ALPHA DORSET	TUB 35/13	2
S1389	FOAM INSULATION 5/8" LENGTH TUB 15/13	ALPHA DORSET	TUB 15/13	2

Module 02 - Chassis Build

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42102001	COMPRESSION BAR	LASER PROFILES LTD		1
42102009	BRAKE PIPE COVER LONG-LHD	SABRE FABRICATIONS		1
42102013	REAR TOWING EYE	PATRICK FABRICATION		1
S1133	BLANKING GROMMET GHF829	POWER TRAIN PROJECTS	GHF829	4
S1134	CHASSIS SPONGE 3259	GAWLER TAPES	3259	1
S1141	TITAN FAST SMALL (1 MTR LENGTHS) 251BLK	C.O.H.BAINES LTD	T/FAST 251 BLK	2

Module 03 - Ancillary Controls

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42101027	GEARSHIFT HOUSING BOX	M.D.P.ENGINEERING		1
42103009	WASHER BOTTLE BRACKET	PATRICK FABRICATION		1
42103501	THROTTLE CABLE	SPEEDY CABLES LTD	GTD-01	1
S1011	GEARCHANGE TRANSLATOR 211211	FLEXMORE LTD	211211	1
S1012	GEARSHIFT LIFT TUBE 211939	FLEXMORE LTD	211939	1
S1013	GEARSHIFT MASTER UNIT 211940	FLEXMORE LTD	211940	1
S1014	GEARCHANGE RMS CABLE 01.90 MTR 211515	FLEXMORE LTD	211515	2
S1015	THROTTLE CABLE DUCTING PIPE 500.75.40W	ALPHA DORSET	5000.75.40W	1
S1017	SPEEDO CABLE 803001S20M050	PEPPERL & FUCHS	803001S20M050	1
S1201	CENTRE/ENGINE LOOM R42/LR/09/00	S.J.FOOT	R42/LR/09/00	1
S1267	VACUUM HOSE 1/8"(5MTR LENGTHS) V9121	V.R.S.	V9121	5

Module 04 - Body Work

PART No.	DESCRIPTION		SUPPLIER	SUPPLIER No.	QTY
42104001	FLITCH PANEL SUPPORT BRACKET		PRIEST ENGINEERING		2
42104009	WIPER MOTOR INSPECTION PLATE		KAMECH		1
42104011	WIPER MOTOR INNER RE-INFORCEMENT PANEL		PRIEST ENGINEERING		1
42104909	BODY PAINT (FOR COSTING PURPOSES ONLY)		WOODVILLE STRATTON		1
42122033	FRONT GRILLE BAR		KAMECH		1
42130003	FRONT CONSOLE SIDE		SABRE FABRICATIONS		2
42140017	DOOR TRIM RETAINING PLATE		A.M.L.ENGINEERING		12
S1132	BLACK ANODISED EXPANDED SHEET	601A	METALEX	601A (4 X 2)	1
S1449	TRIMSPRAY AEROSOL GLUE (CAN)		WILCOX WASH SUPPLIES		1

Module 05 - Heating / Air Conditioning

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42105003	HEATER CONTROL CABLE	SPEEDY CABLES LTD		2
42105005	AIR CONDITIONING ADAPTOR	KAMECH		1
42105007	A/C CONTROL LEVER	PRIEST ENGINEERING		1
42105009	VACUUM VALVE BRACKET	PRIEST ENGINEERING		1
42105901	A/C KIT-LHD	BLACK & WHITE CARS		1
S1170	HEATER CONTROL SLIDE 6872633	DALTON POWER PRODUCT	6872633/6701050	1
S1245	BATTERY 0468830	AUTOCAVAN	0468830	1
S1266	AIR DUCT BULKHEAD HOSE ADAPTOR 44-K0001	A.M.A	44-K-0001	3
S1268	VACUUM SOLENOID VALVE V9199	V.R.S.	V9199	1
S1269	3" DUCTING HOSE (2 MTR LENGTHS) V9007	V.R.S.	V9007	3
S1270	VACCUUM VALVE 6420780	DALTON POWER PRODUCT	6420780	1

Module 06 - Suspension Front

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42106001	FRONT HUB CARRIER-LH	KAMECH		1
42106002	FRONT HUB CARRIER-RH	KAMECH		1
42106003	FRONT ANTI-ROLL BAR CLAMP	PATRICK FABRICATION		2
42106005	FRONT ANTI-ROLL BAR	HARVEY BAILEY ENG		1
42106007	FRONT HUB CARRIER-LH **CASTING ONLY**	SOUTH LINCS PATTERNS		1
42106008	FRONT HUB CARRIER-RH **CASTING ONLY**	SOUTH LINCS PATTERNS		1
42106009	LOWER SUSPENSION BALL JOINT MODIFICATION	KAMECH		2
42106701	FRONT WISHBONE UPPER-LH	J.T.TUBES		1
42106702	FRONT WISHBONE UPPER-RH	J.T.TUBES		1
42106703	FRONT WISHBONE LOWER-LH	J.T.TUBES		1
42106704	FRONT WISHBONE LOWER-RH	J.T.TUBES		1
42106705	WISHBONE BRACKET LOWER-LH	M.D.P.ENGINEERING		1
42106706	WISHBONE BRACKET LOWER-RH	M.D.P.ENGINEERING		1
42106707	FRONT ANTI-ROLL BAR BRACKET-LH	PATRICK FABRICATION		1
42106708	FRONT ANTI-ROLL BAR BRACKET-RH	PATRICK FABRICATION		1
42106709	WISHBONE BRACKET UPPER-LH	M.D.P.ENGINEERING		1
42106710	WISHBONE BRACKET UPPER-RH	M.D.P.ENGINEERING		1
S1097	FRONT BRAKE DISC CP3575-18P	A.P.RACING	CP3575-18P	2
S1098	FRONT BRAKE CALIPER-RH CP5200-22S4	A.P.RACING	CP5200-22S4	1
S1099	FRONT BRAKE CALIPER-LH CP5200-23S4	A.P.RACING	CP5200-23S4	1
S1100	FRONT CALIPER MOUNTING BRACKET CP5200-28	A.P.RACING	CP5200-28	2
S1101	FRONT CALIPER MOUNTING BOLT CP3521-117	A.P.RACING	CP3521-117	4
S1295	SHOCK ABSORBER-FRONT G66AP-AS200	SPAX	G66AP-AS200	2
S1296	FRONT SPRING 233825002	LESJOFORS AUTOMOTIVE	233825002	2
S1297	BB2 BONDED SUSPENSION BUSH 12MM SPL	SPAX	SPECIALPART	4
S1298	FRONT HUB-RH 6542121	DALTON POWER PRODUCT	6542121	1
S1299	FRONT HUB-LH 6542128	DALTON POWER PRODUCT	6542128	1
S1300	FRONT WHEEL BEARING KIT-LH 5012477	DALTON POWER PRODUCT	5012477	1
S1301	FRONT WHEEL BEARING KIT-RH 5012346	DALTON POWER PRODUCT	5012346	1
S1302	FRONT HUB SPLINED WASHER 6127922	DALTON POWER PRODUCT	6127922	2
S1303	FRONT HUB GREASE CAP 6142524	DALTON POWER PRODUCT	6142524	2
S1305	ANTI-ROLL BAR BUSH 1492170	DALTON POWER PRODUCT	1492170	2
S1306	LOWER SUSPENSION BALL JOINT TC247	F.P.S.	TC247	2
S1308	TOP SUSPENSION BALL JOINT TC260	F.P.S.	TC260	2

Module 06 - Suspension Front

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
S1344	WASHER 0242046	DALTON POWER PRODUCT	0242046	6
S1362	PEANUT BUSH 1481463	DALTON POWER PRODUCT	1481463	4
S1391	WHEEL STUD 50MM 12 X 1.5 ES1	EUROPA SPARES	ES1	10
S1453	FLANGED BUSH-SHORT PIF032003000	FERRABYRNE LIMITED	PIF032003000	8

Module 07 - Suspension Rear

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42107001	TOP RADIUS ARM MOUNT	PATRICK FABRICATION		2
42107023	REAR HUB UPRIGHT-LH	KAMECH		1
42107024	REAR HUB UPRIGHT-RH	KAMECH		1
42107027	REAR BEARING CARRIER MODIFICATION	KAMECH		2
42107029	REAR HUB UPRIGHT-LH **CASTING ONLY**	DAVID HUNT CASTINGS		1
42107030	REAR HUB UPRIGHT-RH **CASTING ONLY**	DAVID HUNT CASTINGS		1
42107701	RADIUS ARM	J.T.TUBES		4
42107703	LINK ARM	KAMECH		2
42107705	REAR WISHBONE A FRAME	A.M.L.ENGINEERING		2
42107707	RADIUS ARM ADJUSTER	J.T.TUBES		4
42107709	SHOCK AND RADIUS ARM BRACKET	PATRICK FABRICATION		2
S1109	HANDBRAKE ASSEMBLY-RH CP4185-2	A.P.RACING	CP4185-2	1
S1110	HANDBRAKE ASSEMBLY-LH CP4185-3	A.P.RACING	CP4185-3	1
S1129	REAR BEARING CARRIER 1637603	DALTON POWER PRODUCT	1637603	2
S1297	BB2 BONDED SUSPENSION BUSH 12MM SPL	SPAX	SPECIALPART	4
S1344	WASHER 0242046	DALTON POWER PRODUCT	0242046	4
S1347	SHOCK ABSORBER-REAR G67AP-AS200	SPAX	G67AP-AS200	2
S1348	REAR SPRING 233825001	LESJOFORS AUTOMOTIVE	233825001	2
S1351	REAR HUB CARRIER BOLT-UPPER M12 X 220 HT	ALLFIX.	M12X220HTBLK	2
S1353	OUTER SHAFT-LH 6146627	DALTON POWER PRODUCT	6146627	1
S1354	OUTER SHAFT-RH 6146631	DALTON POWER PRODUCT	6146631	1
S1355	REAR WHEEL BEARING KIT-LH 5012347	DALTON POWER PRODUCT	5012347	1
S1356	REAR WHEEL BEARING KIT-RH 5012478	DALTON POWER PRODUCT	5012478	1
S1357	REAR HUB 1637225	DALTON POWER PRODUCT	1637225	2
S1358	REAR SPINDLE WASHER 6102937	DALTON POWER PRODUCT	6102937	2
S1359	ROSE JOINT-RH 22CMR08U1	GOLDLINE BEARINGS	22CMRO8U1	2
S1360	ROSE JOINT-LH 22CML08U1	GOLDLINE BEARINGS	22CMLO8U1	2
S1362	PEANUT BUSH 1481463	DALTON POWER PRODUCT	1481463	4
S1391	WHEEL STUD 50MM 12 X 1.5 ES1	EUROPA SPARES	ES1	10
S1413	ROSEJOINT HALF LOCK NUT-RH 1/2 X 2 UNF	ALLFIX	RH 1/2 X 2 UNF	2
S1414	ROSEJOINT HALF LOCK NUT-LH 1/2 X 2 UNF	ALLFIX	LH 1/2 X 2 UNF	2
S1453	FLANGED BUSH-SHORT PIF032003000	FERRABYRNE LIMITED	PIF032003000	8
S1454	FLANGED BUSH-LONG PIF032002000	FERRABYRNE LIMITED	PIF032002000	2

Module 08 - Water System

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42108003	WATER PIPE FRONT	J.T.TUBES		2
42108005	ENGINE BAY PIPE	J.T.TUBES		1
42108007	HEATER SYSTEM CONNECTING PIPE	KAMECH		4
42108009	ENGINE BAY PIPE	KAMECH		1
42108013	RADIATOR MOUNTING BRACKET-LH	PRIEST ENGINEERING		1
42108014	RADIATOR MOUNTING BRACKET-RH	PRIEST ENGINEERING		1
42108017	RADIATOR FAN FIXING BRACKET	KAMECH		2
42108019	RADIATOR ACCESS LOWER FLANGE	PRIEST ENGINEERING		1
42108701	ENGINE HEATER PIPE	J.T.TUBES		1
42108703	ENGINE HEATER PIPE	J.T.TUBES		1
42108705	RADIATOR	PACE PRODUCTS		1
42108707	EXPANSION TANK BRACKET-LH	PRIEST ENGINEERING		1
42108708	EXPANSION TANK BRACKET-RH	PRIEST ENGINEERING		1
S1221	WATER TEMP SENDER UNIT TT6811-03	CAERBONT AUTOMOTIVE	TT6811-03	1
S1247	FUEL/RADIATOR NYLON 6MM I.D PIPE 3.5 MTR	HYPHOSE	MNF 8/6	1
S1248	FUEL FITTING UNION 17475	HYPHOSE	17475	1
S1249	FUEL FITTING OLIVE 20136	HYPHOSE	20136	1
S1250	FUEL FITTING NUT 20137	HYPHOSE	20137	1
S1376	STRAIGHT HOSE 38mm ID X 102 (4" LONG)	TRANSPORT & TRADE	C3/38/102	5
S1377	DRAINAGE HOSE 8MM I.D PVC (PER METRE)	HYPHOSE	MH8-11	2
S1378	EXPANSION TANK 6181109	DALTON POWER PRODUCT	6181109	1
S1379	EXPANSION TANK CAP 1659287	DALTON POWER PRODUCT	1659287	1
S1380	90 DEGREE ELBOW 15mm ID 50 X 50mm LEGS	TRANSPORT & TRADE	CE3/15/40X40	3
S1381	90 DEGREE ELBOW 38mm ID 102mm/115mm LEGS	TRANSPORT & TRADE	CE3/38/102X105	4
S1382	WATER HOSE 19MM (PER METRE) 80273	TRANSPORT & TRADE	80273	2
S1383	WATER HOSE 16MM (PER METER) 80271	TRANSPORT & TRADE	80271	2
S1384	90 DEGREE ELBOW 15mm ID 80mm LEGS	TRANSPORT & TRADE	CE3/15/80X80	4
S1385	RADIATOR BLANK BF1034	ALPHA DORSET	BF1034	1
S1386	EXPANSION TANK WATER HOSE 9.5MM ID (MTR)	HYPHOSE	MULTIPURPOSE	1
S1387	RADIATOR FAN VA10-AP9/C6-25A	SPAL U.K.	VA10-AP9/C6-25A	2

Module 09 - Brake Parts

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42109001	FRONT BRAKE HOSE BRACKET	KAMECH		4
42109003	BRAKE PIPE COVER PLATE	SABRE FABRICATIONS		2
42109005	SERVO MOUNTING BRACKET	SABRE FABRICATIONS		2
42109007	PEDAL BOX COVER	PRIEST ENGINEERING		1
42109009	BRAKE LIGHT SWITCH BRACKET	PATRICK FABRICATION		2
42109011	THROTTLE CABLE BRACKET	PATRICK FABRICATION		1
42109013	PEDAL CARRIER SPACER	KAMECH		1
42109703	BRAKE PEDAL-LHD	PRIEST ENGINEERING		1
42109707	THROTTLE PEDAL-LHD	PRIEST ENGINEERING		1
42109709	PEDAL BOX-LHD	PRIEST ENGINEERING		1
42109711	PEDAL CARRIER	PRIEST ENGINEERING		1
42109713	HANDBRAKE COMPENSATOR	PATRICK FABRICATION		1
42109715	HANDBRAKE MOUNTING BOX	M.D.P.ENGINEERING		1
42111703	CLUTCH PEDAL-LHD	PRIEST ENGINEERING		1
42122719	WIPER MOTOR MOUNTING BRACKET	PATRICK FABRICATION		1
S1003	UNIVERSAL DOT4 BRAKE FLUID (1 LTR)	MOBIL OIL LTD		5
S1096	PEDAL RUBBER 1631037	DALTON POWER PRODUCT	1631037	2
S1102	FRONT BRAKE PAD KIT CP3345-37-3432F	A.P.RACING	CP3345-37-3423F	1
S1103	REAR BRAKE DISC CP4450-126P	A.P.RACING	CP4450-126P	2
S1104	REAR BRAKE CALIPER-RH CP3645-12S7	A.P.RACING	CP3645-12S7	1
S1105	REAR BRAKE CALIPER-LH CP3645-13S7	A.P.RACING	CP3645-13S7	1
S1106	REAR BRAKE PAD KIT CP3215-167-3432F	A.P.RACING	CP3215-167-3432F	1
S1107	REAR BRAKE CALIPER PIPE ADAPTOR CP4270-7	A.P.RACING	CP4270-7	2
S1108	BRAKE MASTER CYLINDER CP5627-2PRT130	A.P.RACING	CP5627-2PRT130	1
S1111	BRAKE SERVO CP3787-3	A.P.RACING	CP3787-3	2
S1112	BRAKE PIPE TO SERVO UNION KAG008	THREAD & PIPE	KAG008	4
S1113	BRAKE LIGHT SWITCH 6088639	DALTON POWER PRODUCT	6088639	2
S1114	3 WAY UNION TO FOOT WELL KAG038	THREAD & PIPE	KAG038	2
S1115	METRIC FEMALE 10MM KAG001	THREAD & PIPE	KAG001	10
S1116	MALE-MALE ADAPTOR 10MM KAG073	THREAD & PIPE	KAG073	6
S1117	METRIC LONG REACH MALE 10MM KAG010L	THREAD & PIPE	KAG010L	6
S1118	METRIC MALE 10MM SHORT KAG010	THREAD & PIPE	KAG010	2
S1119	BRAKE PIPE METAL CLIP 3/16 EN34-0218-03	THREAD & PIPE	EN34-0218-03	25
S1120	BRAKE PIPE CLIP 3/16" GFK7511	POWER TRAIN PROJECTS	GFK7511	24

Module 09 - Brake Parts

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
S1121	REAR BRAKE FLEXI HOSE ZZAS0120-007	GOODRIDGE	ZZAS0120-007	2
S1122	HANDBRAKE LEVER 1647535	DALTON POWER PRODUCT	1647535/6161474	1
S1123	WARNING SWITCH 6111456	DALTON POWER PRODUCT	6111456	1
S1124	NUT 1478162	DALTON POWER PRODUCT	1478162	4
S1125	HANDBRAKE CABLE 6194542	DALTON POWER PRODUCT	6194542	1
S1127	BRAKE SERVO HOSE T-PIECE TS10	HYPHOSE	TS10	2
S1128	BRAKE SERVO HOSE (6.5 MTR) 80372	TRANSPORT & TRADE	80372	1
S1130	FRONT BRAKE FLEXI HOSE ZZAS0120-006	GOODRIDGE	ZZAS0120-006	2
S1143	CLUTCH MASTER CYLINDER YOKE 64671286	PERFORMANCE BRAKING	64671286	1
S1144	CLUTCH MASTER CYLINDER 5/16 LOCKNUT	PERFORMANCE BRAKING	64100052	1
S1403	KUNIFER BRAKE PIPE 3/16 X 25 (FEET)	THREAD & PIPE	3/16 X 25	50

Module 10 - Engine Ancillaries

PART No.	DESCRIPTION		SUPPLIER	SUPPLIER No.	QTY
42102003	GEARBOX OVER HOOP		LASER PROFILES LTD		1
42110001	EXHAUST TAILPIPE		JANSPEED		2
42110701	CATALYTIC CONVERTER-LH		KAMIRA METALKAT G.B.		1
42110702	CATALYTIC CONVERTER-RH		KAMIRA METALKAT G.B.		1
42110703	EXHAUST SILENCER BOX		P.D.GOUGH		1
42110705	GEARBOX TO SILENCER MOUNTING BRACKET		PATRICK FABRICATION		1
42112011	GEARBOX ADAPTOR DOWELL		KAMECH		2
S1153	ENGINE MOUNT-RH	F3LY6038A	DALTON POWER PRODUCT	F3LY6038A	1
S1154	ENGINE MOUNT-LH	F3LY6038B	DALTON POWER PRODUCT	F3LY6038B	1

Module 11 - Clutch Parts

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42111001	CLUTCH HOSE BRACKET	KAMECH		1
S1142	CLUTCH MASTER CYLINDER.625(5/8") 3112242	PERFORMANCE BRAKING	3112242	1
S1143	CLUTCH MASTER CYLINDER YOKE 64671286	PERFORMANCE BRAKING	64671286	1
S1144	CLUTCH MASTER CYLINDER 5/16 LOCKNUT	PERFORMANCE BRAKING	64100052	1
S1145	CLUTCH MASTER CYLINDER GASKET 3/8 378710	PERFORMANCE BRAKING	378710	1
S1146	CLUTCH MASTER CYLINDER ADAPTOR 7/16 UNF	PERFORMANCE BRAKING	64470431	1
S1147	CLUTCH MASTER CYLINDER ADAPTOR 3/8M-7/16	PERFORMANCE BRAKING	64473617	1
S1148	MALE TO MALE UNION 7/16 UNF BH1J-4	THREAD & PIPE	BH1J-4	2
S1149	CLUTCH PIPE METAL CLIP 1/4 EN34-0218-04	THREAD & PIPE	EN34-0218-04	10
S1150	CLUTCH PIPE PLASTIC CLIP STLB-CLIP 1/4	THREAD & PIPE	STLB CLIP 1/4	10
S1151	UNION 7/16 UNF FEMALE KAG003	THREAD & PIPE	KAG003	3
S1152	CLUTCH FLEXI HOSE ZZAS0120-005	GOODRIDGE	ZZAS0120-005	1
S1405	KUNIFER CLUTCH PIPE 1/4 X 25 (FEET)	THREAD & PIPE	1/4 X 25	25

Module 12 - Transmission

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42101027	GEARSHIFT HOUSING BOX	M.D.P.ENGINEERING		1
42103001	DRIVE SPEEDO RING	KAMECH		1
42103003	DRIVE SPACER RING	KAMECH		1
42103005	SPEED SENSOR BRACKET	PATRICK FABRICATION		1
42103007	MACHINED M10 X 20 CAP HEAD STL	KAMECH		12
42112001	DRIVESHAFT-SHORT	JACK KNIGHT		1
42112003	DRIVESHAFT-LONG	JACK KNIGHT		1
42112005	REAR GEARBOX CHASSIS MOUNTING BRACKET	PATRICK FABRICATION		2
42112007	GEAR CABLE RETAINING BRACKET	PRIEST ENGINEERING		1
42112013	GEARBOX BELL HOUSING ADAPTOR	KAMECH		1
42112015	GEARBOX HOUSING ADAPTOR **CASTING ONLY**	DAVID HUNT CASTINGS		1
42112701	GEARSHIFT ARM EXTENSION	KAMECH		1
42112703	GEAR CABLE CLAMP BRACKET	PATRICK FABRICATION		1
42112705	GEARSHIFT LINKAGE MODIFACATION	KAMECH		1
42113001	GEARBOX MOUNTING BRACKET-LH	PATRICK FABRICATION		1
42113002	GEARBOX MOUNTING BRACKET-RH	PATRICK FABRICATION		1
S1012	GEARSHIFT LIFT TUBE 211939	FLEXMORE LTD	211939	1
S1013	GEARSHIFT MASTER UNIT 211940	FLEXMORE LTD	211940	1
S1018	SPEEDO SENSOR NBN4-12GM50-E0V1	PEPPERL & FUCHS	NBN4-12GM50-E0V1	1
S1363	5 SPEED GEARBOX O1E300044D	AUTOCAVAN	01E300044D	1
S1364	GEARSHIFT LINKAGE 4AO711185B	AUTOCAVAN	4AO711185B	1
S1365	C V JOINT 6962754	DALTON POWER PRODUCT	6962754	4
S1366	C V JOINT METAL COVER 1505915	DALTON POWER PRODUCT	1505915	4
S1367	C V JOINT RUBBER COVER 1495776	DALTON POWER PRODUCT	1495776	4
S1368	CIRCLIP 6166681	DALTON POWER PRODUCT	6166681	8
S1369	DRIVESHAFT BOLT M8 TOR-X 6769287	DALTON POWER PRODUCT	6769287	24
S1370	WASHER SPRING M8 1613374	DALTON POWER PRODUCT	1613374	4
S1371	LOCKPLATE 1018715	DALTON POWER PRODUCT	1018715	12
S1372	C V GASKET 6962760	DALTON POWER PRODUCT	6962760	4
S1374	CLUTCH SLAVE CYLINDER 4A0721261	AUTOCAVAN	4A0721261	1
S1397	6 SPEED GEARBOX *CUSTOMER OPTION*	AUTOCAVAN	01E300042M	1
S1454	FLANGED BUSH-LONG PIF032002000	FERRABYRNE LIMITED	PIF032002000	2

Module 13 - Engine Main

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42110003	COIL MOUNTING BRACKET-LH	A.M.L.ENGINEERING		1
42110004	COIL MOUNTING BRACKET-RH	A.M.L.ENGINEERING		1
42110007	FLYWHEEL	KAMECH		1
42110009	FLYWHEEL BELL	KAMECH		1
42112009	FLYWHEEL DOWELL	KAMECH		3
42113003	TEMPERATURE SENDER ADAPTOR	KAMECH		1
42113005	OIL TEMPERATURE ADAPTOR	KAMECH		1
42113701	GEARBOX CABLE BRACKET	PATRICK FABRICATION		1
S1001	15W/40 MOBIL SUPER ENGINE OIL (5 LTR)	MOBIL OIL LTD		1
S1155	SPIGOT BEARING 034105313A	AUTOCAVAN	034105313A	1
S1156	CLUTCH PLATE 077141031D	AUTOCAVAN	077141031D	1
S1157	CLUTCH PRESSURE PLATE 077141117E	AUTOCAVAN	077141117E	1
S1158	OIL FILTER 6636968	DALTON POWER PRODUCT	6636968	1
S1159	AIR INTAKE HOSE TPE 400/1-C	JAMES DAWSON & SON	TPE 400/1-C	1
S1161	MUSTANG V8 ENGINE 6G-839AA	DALTON POWER PRODUCT	6G-839AA	1

THIS PART HAS TO BE ORDERED EXTRA TO THE ENGINE:-
F6ZZ14401AK-ENGINE WIRING LOOM

SPARE EXHAUST MANIFOLDS :
RIGHTHAND F6ZZ9430BA
LEFTHAND F6ZZ9431BA

THE FOLLOWING IS SUPPLIED WITH THE ENGINE:
F6AB9341AA SWITCH ASSY - INERTIA QTY 1.
F6ZC6A098AB BRACKET ASSY - ENGINE REAR MTG - RH QTY 1.
F6ZC6A099AB BRACKET ASSY - UNGINE REAR MTG - LH QTY 1.
E7ZC7C305AA EXT ASSY - TRANS GEARSHIFT QTY 1.
F4ZC7C428AB BOOT ASSY - TRANS GEARSHIFT QTY 1.
F4ZC7K327BAZHCX KNOB ASSY QTY 1.
F4ZZ7512A SHIELD - CLUCH RELEASE LEVER DUST QTY 1.
F6ZE8A520AB TUBE ASSY WATER OUTLET QTY 1.
F4ZC9A228AA TUBE - FUEL VAPOUR QTY 1.
F6ZC9A317BD CLIP - FUEL TUBE QTR 1.
F6ZC9A758BD CABLE ASSY - ACCEL CONTROL - COBRA QTY 1.
E7ZE9B07SAA FILTER + BASE ASSY QTY 1.
E7DC9B953AA VALVE ASSY - FUEL VAPOUR QTY 1.
F7ZE9C772BE CLEANER DUCT ASSY QTY 1.
F6ZE9C987GD HOSE + VALVE - FUEL VAPOUR QTY 1.
F6ZE9E857AB CANNISTER + BRACKET QTY 1.
F6ZE9D271FB TUBE ASSY FUEL VAPOUR RETURN QTY 1.
F6ZE9S459AF PUMP + BRACKET ASSY EXH AIR QTY 1.
(INCLUDES F8LB-2C013AA SOLID STATE RELAY)
F4ZB11A152AA SW ASSY - STARTER QTY 1.
F6ZB12A581CY WIRE ASSY ENG CONTROL SENSOR QTY 1.
F6ZF12A650JD PROCESSOR ASSY EEC QTY 1.
F4ZF12A692AA BRACKET ASSY - ENGINE ELECT CONTROL QTY 1.
F6ZF12B581AC BRACKET + CONTROL ASSY - RELAY - CCRM QTY 1.
E8AZ9H465B VACUUM SOLENOID QTY 1.

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
	F6ZZ9H308BD IDLE AIR CONTROL VALVE INLET TUBE QTY 1.			
	E9VY12A197A VACUUM CHECK QTY 1.			
	F4ZZ9A307A FUEL PUMP RETAINING RING QTY 1.			
	F6ZZ9350AA FUEL PUMP QTY 1.			
	F57Z9J459C EGR VACUUM REG SOLENOID QTY 1.			
	COAF9276A FUEL PUMP GASKET QRT 1.			
	F6ZZ9D360AA FUEL PUMP RESISTOR QTY 1.			
	FOAZ14N089A FUEL PUMP RELAY QTY 1.			
	N806187S190 CONNECTOR QTY 3.			
	N806188S190 CONNECTOR QTY 3.			
	N806206S190 CONNECTOR QTY 3.			
	N806207S190 CONNECTOR QTY 3.			
	F6DZ19A366AA PATS CONTROL MODULE QTY 1.			
	F6ZZ19A435A PATS CONTROL MODULE BRACKET QTY 1.			
	F6ZZ15607A PATS TRANSCEIVER QTY 1.			
S1384	90 DEGREE ELBOW 15mm ID 80mm LEGS	TRANSPORT & TRADE	CE3/15/80X80	1
S1406	FLYWHEEL BOLT M10 X 75 1.0mm PITCH	ALLFIX	M10 X 75 X 1MM	8

Module 14 - Fuel System

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42114001	FUEL TANK RING	KAMECH		1
42114003	FUEL PUMP EXTENSION	KAMECH		1
42114501	FUEL BALANCE PIPE ASSEMBLY	HYPHOSE		1
	THIS PART IS MADE UP OF THE FOLLOWING PARTS:- *HA1616NNU90S COUPLING = 2 PER CAR* *BE716 HYD HOSE 64292 = 1 PER CAR* *1B/16 ADAPTOR = 2 PER CAR* *1BT/16 ADAPTOR = 2 PER CAR* *35X3 TUBE = .40 PER CAR* *HH0038 12826 P CLIP = 3 PER CAR.*			
42114503	10MM FUEL VENT PIPE KIT	HYPHOSE	MNF 10-7	1
	THIS KIT IS MADE UP OF THE FOLLOWING :- *MNF10/8 NYLON 8347 X 2M.* *TS10.10MM PLASTIC TEE (PUSH FIT) X 1.* *2601 9 3/8 HOSE TAIL-MALE X 1.* *2020 3/8 MALE-FEMALE ELBOW X 1.* *10 FUEL X 1M.*			
42114505	6MM FUEL VENT PIPE KIT	HYPHOSE		1
	THIS KIT IS MADE UP OF THE FOLLWING:- *TS6.6MM PLASTIC X1* *6 FUEL HOSE 13334 X 2M* *MNF 6/4 NYLON X 4.5M.*			
S1160	FUEL PUMP F3LY9A407B	DALTON POWER PRODUCT	F3LY9A407B	1
S1218	FUEL TANK SENDER UNIT TA9050-000	CAERBONT AUTOMOTIVE	TA9050-000	1
S1253	FUEL CAP 6744299	DALTON POWER PRODUCT	6744299	1
S1254	ROLL OVER VALVE 6170437	DALTON POWER PRODUCT	6170437	1
S1255	IN LINE REDUCER 6166159	DALTON POWER PRODUCT	6166159	1
S1256	T-PIECE 6MM 6583240	DALTON POWER PRODUCT	6583240	2
S1259	FUEL FILTER CANISTER 6688744	DALTON POWER PRODUCT	6688744	1
S1260	FUEL FILTER BRACKET 6468373	DALTON POWER PRODUCT	6468373	1
S1261	COPPER WASHER M14 1503882	DALTON POWER PRODUCT	1503882	1
S1262	COPPER WASHER M12 6054981	DALTON POWER PRODUCT	6054981	1
S1263	FUEL LINE (TANK TO FILTER) ZZAS0120-002	GOODRIDGE	ZZAS0120-002	1
S1264	FUEL LINE (FILTER TO ENGINE)ZZAS0120-003	GOODRIDGE	ZZAS0120-003	1
S1265	FUEL LINE (RETURN TO TANK) ZZAS0120-004	GOODRIDGE	ZZAS0120-004	1
S1346	P.A.S.PIPE KIT 2808/1101-5	HYPHOSE	2808/1101-5	1

Module 20 - Steering

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42101001	STEERING COLUMN MOUNTING BRACKET	PATRICK FABRICATION		1
42102005	LOWER BEARING SUPPORT BRACKET	PATRICK FABRICATION		1
42120001	STEERING COLUMN GROMMET RETAINING PLATE	PRIEST ENGINEERING		1
42120501	STEERING SHAFT MODIFACATION	SUB ASSEMBLY AREA 1		1
	THIS MODIFICATION REQUIRES THE FOLLOWING PART :- *S1340.STEERING SHAFT.QTY 1.*			
42120503	UNIVERSAL P.A.S.COUPLING MODIFICATION	SUB ASSEMBLY AREA 1		1
	THIS MODIFICATION REQUIRES THE FOLLOWING PART :- *S1323.UNIVERSAL P.A.S.COUPLING.QTY 1.*			
42120505	STEERING COLUMN ASSEMBLY	SUB ASSEMBLY AREA 1		1
	THIS ASSEMBLY IS MADE UP OF THE FOLLOWING PARTS :- *42120501.STEERING COLUMN MODIFICATION.QTY 1.* *42120503.UNIVERSAL JOINT MODIFICATION.QTY 1.* *S1315.SHROUD BRACKET.QTY 1.* *S1317.SCREW.QTY 4.* *S1322.STEERING COLUMN BOLT.QTY 1.* *S1327.COLUMN TUBE.QTY 1.* *S1328.UPPER BEARING.QTY 1.* *S1329.LOWER BEARING.QTY 1.* *S1330.COLUMN SUPPORT BRACKET.QTY 1.* *S1331.SPACER.QTY 1.* *S1332.SPRING.QTY 1.* *S1333.PLASTIC WASHER.QTY 2.* *S1334.PLASTIC WASHER.QTY 2.* *S1335.BOLT.QTY 1.* *S1336.STEERING COLUMN ADJUSTMENT LEVER.QTY 1.* *S1337.PLASTIC WASHER.QTY 1.* *S1338.PLASTIC SPACER.QTY 1.* *S1339.NUT.QTY 1.* *S1341.SPRING.QTY 1.* *S1343.DIRECTION CAM.QTY 1.*			
42120701	STEERING RACK FIXING BRACKET	PATRICK FABRICATION		2
42120703	P.A.S.RESERVOIR BRACKET MODIFACATION	SUB ASSEMBLY AREA 1		1
S1135	BEARING INNER 6609200	DALTON POWER PRODUCT	1638549	1
S1136	BEARING OUTER 6609199	DALTON POWER PRODUCT	6609199	1
S1137	GROMMET 6132940	DALTON POWER PRODUCT	6132940	1
S1139	STEERING GAITOR M/M GAITOR	C.O.H.BAINES LTD	M/M GAITER	1
S1140	WASHER SPECIAL 1650936	DALTON POWER PRODUCT	1650936	1
S1309	TRACK ROD END-RH 5021413	DALTON POWER PRODUCT	5021413	1
S1310	TRACK ROD END-LH 5021414	DALTON POWER PRODUCT	5021414	1
S1311	HEADLAMP/WIPER COLUMN SWITCH 6579913	DALTON POWER PRODUCT	6579913	1
S1312	INDICATOR/HAZARD COLUMN SWITCH 6742790	DALTON POWER PRODUCT	6742790	1
S1313	STEERING COLUMN UPPER SHROUD 6512340	DALTON POWER PRODUCT	6512340	1
S1314	STEERING COLUMN LOWER SHROUD 6479914	DALTON POWER PRODUCT	6479914	1
S1315	STEERING COLUMN SHROUD BRACKET 6570312	DALTON POWER PRODUCT	6570312	1

Module 20 - Steering

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
S1316	SCREW 1516221	DALTON POWER PRODUCT	1516221	1
S1317	SCREW 1472067	DALTON POWER PRODUCT	1472067	4
S1318	P.A.S.RACK-LHD 5023570	DALTON POWER PRODUCT	5023570	1
S1320	SCREW SHROUD 6508476	DALTON POWER PRODUCT	6508476	2
S1321	P.A.S.RACK INSULATOR 6115927	DALTON POWER PRODUCT	6115927	2
S1322	STEERING COLUMN BOLT 6160261	DALTON POWER PRODUCT	6160261	1
S1323	UNIVERSAL P.A.S. COUPLING 6200555	DALTON POWER PRODUCT	6200555	1
S1325	P.A.S.RESERVOIR 7253634	DALTON POWER PRODUCT	7253634	1
S1326	P.A.S.RESERVOIR BRACKET 6159970	DALTON POWER PRODUCT	6159970	1
S1327	STEERING COLUMN TUBE 6620094	DALTON POWER PRODUCT	6620094	1
S1328	UPPER BEARING 1583755	DALTON POWER PRODUCT	1583755	1
S1329	LOWER BEARING 6118528	DALTON POWER PRODUCT	6118528	1
S1330	COLUMN SUPPORT BRACKET 6670894	DALTON POWER PRODUCT	6670894	1
S1331	SPACER 6187271	DALTON POWER PRODUCT	6187271	1
S1332	SPRING 1661988	DALTON POWER PRODUCT	1661988	1
S1333	PLASTIC WASHER 6187409	DALTON POWER PRODUCT	6187409	2
S1334	PLASTIC WASHER 6177809	DALTON POWER PRODUCT	6177809	2
S1335	BOLT 6149076	DALTON POWER PRODUCT	6149076	1
S1336	STEERING COLUMN ADJUSTMENT LEVER 6508478	DALTON POWER PRODUCT	6508478	1
S1337	PLASTIC WASHER 6177815	DALTON POWER PRODUCT	6177815	1
S1338	PLASTIC SPACER 6177817	DALTON POWER PRODUCT	6177817	1
S1339	NUT 1637119	DALTON POWER PRODUCT	1637119	1
S1340	STEERING SHAFT 6201329	DALTON POWER PRODUCT	6201329	1
S1341	SPRING 6118529	DALTON POWER PRODUCT	6118529	1
S1342	WIRE HORN 6629016	DALTON POWER PRODUCT	6629016	1
S1343	DIRECTION CAM 6091291	DALTON POWER PRODUCT	6091291	1
S1410	STEERING WHEEL HUB 144032	KENMORE IND LTD	144032	1
S1411	STEERING WHEEL MODEL 62 WITH CENTRE PAD	KENMORE IND LTD	0623621301	1
S1480	STEERING WHEEL OFFSET ADAPTOR 55003	KENMORE IND LTD	55003	1

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42120001	STEERING COLUMN GROMMET RETAINING PLATE	PRIEST ENGINEERING		1
42121001	MICRO SWITCH MOUNTING BRACKET	KAMECH		2
42121003	FRONT FUSE BOX**(E/B)**	PRIEST ENGINEERING		1
42121007	STAR TEST CONNECTOR PLATE	A.M.L.ENGINEERING		1
42121017	MULTI-PLUG HOLDER BRACKET	PRIEST ENGINEERING		1
42121021	ELECTRICAL BAY TOP PANEL	PRIEST ENGINEERING		1
42121031	HORN MOUNTING PLATE	KAMECH		2
42121033	HEADLAMP SPACER 12MM	KAMECH		2
42121503	REAR LIGHT UNIT MODIFACATION-LH	SUB ASSEMBLY AREA 2		1
42121504	REAR LIGHT UNIT MODIFACATION-RH	SUB ASSEMBLY AREA 2		1
42121703	ROTARY LINK POD	KAMECH		2
42121705	MICROWAVE DEFLECTOR	PRIEST ENGINEERING		1
42121801	SPEED TRANSLATOR**(E/B)**	IN HOUSE (ELECT BAY)		1
	THIS PART IS MADE UP OF THE FOLLOWING PARTS FROM RS COMPONENTS:- *R1 680 OHM PART No:- 148-461 QTY 1* *R2 470 OHM PART No:- 148-472 QTY 1* *C1 3.3 uf PART No:- 768-447 QTY 1* *BOX PART No:- 502-607 QTY 1* *PCB PART No:- 434-201 QTY 1*			
42140011	VENEER INSTRUMENT PANEL-LHD**(E/B)*	AUTOMARINE		1
42321503	ENGINE MANAGEMENT MODULE	SUB ASSEMBLY AREA 2		1
S1139	STEERING GAITOR M/M GAITOR	C.O.H.BAINES LTD	M/M GAITER	1
S1162	1" EARTH BRAID (143CM)**(E/B)** 365-559	R.S.COMPONENTS	365-559	1
S1163	UNIVERSAL GROMMET V9059	V.R.S	V9059	10
S1164	LIMIT SWITCH 159-4433	R.S.COMPONENTS	159-4433	4
S1165	ROOF AERIAL EXTENSION	SOUTH ELECTROMOTIVE	AE300	1
S1166	ROOF AERIAL**(E/B)** B7691270083	LEWISHAM ELECTRICS	B7691270083	1
S1167	ROOF AERIAL EXTENSION END	SOUTH ELECTROMOTIVE	E130	1
S1168	WIPER LINKAGE ASSEMBLY S606005	DUDLEYS SCREENWIPERS	S606005	1
S1169	WIPER MOTOR 10078800	DUDLEYS SCREENWIPERS	10078800	1
S1171	HEATER BLOWER SWITCH 6422009	DALTON POWER PRODUCT	6422009	1
S1172	BLOWER SWITCH 6195755	DALTON POWER PRODUCT	6195755	1
S1173	SIDE CONTROL SWITCH 6584659	DALTON POWER PRODUCT	6584659	2
S1174	FOG LIGHT SWITCH 1003589	DALTON POWER PRODUCT	1003589	2
S1175	BULB H4-HEADLAMP (55/60W) HB472	LEWISHAM ELECTRICS	HB472	2

Module 24 - Electrical System

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
S1176	HEADLAMP MOUNTING BRACKET-LH 94344858	TICE	94344858	1
S1177	HEADLAMP MOUNTING RING 94269845	TICE	94269845	2
S1178	HEADLAMP RETAINING RING 94216530	TICE	94216530	2
S1179	HEADLAMP MOUNTING BRACKET-RH 94344859	TICE	94344859	1
S1180	HEADLAMP ADJUSTING SCREW 94216526	TICE	94216526	4
S1181	HEADLAMP BODY SPRING 94216529	TICE	94216529	2
S1182	HEADLAMP RETAINING RING GROMMET 94279725	TICE	94279725	6
S1187	REAR LIGHT UNIT-RH 33500-SPOE02	HORIZON MOTOR CO LTD	33500-SPOEO2	1
S1188	REAR LIGHT UNIT-LH 33500-SPOG02	HORIZON MOTOR CO LTD	33550-SPOGO2	1
S1189	BULB-No PLATE/INT LAMP(12/5W) 239	LEWISHAM ELECTRICS	239	3
S1190	NUMBER PLATE LAMP 6690143	DALTON POWER PRODUCT	6690143	2
S1192	FRONT WING LOOM-N/S R42/LR/02/00	S.J.FOOT	R42/LR/02/00	1
S1193	FRONT WING LOOM-O/S R42/LR/03/00	S.J.FOOT	R42/LR/03/00	1
S1194	BULKHEAD LOOM-LHD R42/L/04/00	S.J.FOOT	R42/L/04/00	1
S1195	A/C PRESS SWITCH LOOM R42/LR/04/4B	S.J.FOOT	R42/LR/04/4B	1
S1197	DASH LOOM-LHD R42/L/05/00	S.J.FOOT	R42/L/05/00	1
S1198	DASH POD LOOM-LHD R42/L/06/00	S.J.FOOT	R42/L/06/00	1
S1199	PASSENGER DOOR LOOM R42/LR/07/00	S.J.FOOT	R42/LR/07/00	1
S1200	DRIVER DOOR LOOM R42/LR/08/00	S.J.FOOT	R42/LR/08/00	1
S1202	GEARBOX LOOM R42/LR/10/00	S.J.FOOT	R42/LR/10/00	1
S1203	REAR LIGHTING LOOM R42/LR/11/00	S.J.FOOT	R42/LR/11/00	1
S1204	ENGINE LINK LOOM R42/LR/12/00	S.J.FOOT	R42/LR/12/00	1
S1205	ENGINE SUB LOOM R42/LR/13/00	S.J.FOOT	R42/LR/13/00	1
S1206	INTERIOR LIGHT LOOM R42/LR/14/00	S.J.FOOT	R42/LR/14/00	1
S1209	INTERIOR LIGHT 7356631	DALTON POWER PRODUCT	7356631	1
S1210	SPEEDOMETER-KPH**(E/B)** EES5-1132-01B	CAERBONT AUTOMOTIVE	EES5-1132-01B	1
S1212	TACHOMETER**(E/B)** EET5-1832-00B	CAERBONT AUTOMOTIVE	EET5-1832-00B	1
S1213	OIL PRESSURE GAUGE**(E/B)**EOP1-1352-03B	CAERBONT AUTOMOTIVE	EOP1-1352-03B	1
S1214	WATER TEMP GAUGE**(E/B)** ECT1-1152-03B	CAERBONT AUTOMOTIVE	ECT1-1152-03B	1
S1215	FUEL GAUGE**(E/B)** EFC1-1152-00B	CAERBONT AUTOMOTIVE	EFC1-1152-00B	1
S1216	OIL TEMP GAUGE**(E/B)** E0T1-1152-03B	CAERBONT AUTOMOTIVE	EOT1-1152-03B	1
S1217	CLOCK**(E/B)** EAC1-1152-03B	CAERBONT AUTOMOTIVE	EAC1-1052-03B	1
S1219	OIL TEMP SENDER UNIT TT6817-00	CAERBONT AUTOMOTIVE	TT6817-00	1
S1220	OIL PRESSURE SENDER UNIT PTR2000-7-16	CAERBONT AUTOMOTIVE	PTR2000-7-16	1

Module 21 - Electrical System

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
S1222	JUMPER LEAD 6824836	DALTON POWER PRODUCT	6824836	2
S1223	SIDE REPEATER KIT 6859847	DALTON POWER PRODUCT	6859847	2
S1224	HIGH TONE HORN 2000096	DALTON POWER PRODUCT	2000096	1
S1225	LOW TONE HORN 1659201	DALTON POWER PRODUCT	1659201	1
S1226	LIFT MODULE A100M6027F	LOTUS	A100M6027F	1
S1227	RELAY/DELAY MODULE B100M0110F	LOTUS	B100M0110F	1
S1228	HEADLAMP MOTOR-RH**(E/B)** A100B6064F	LOTUS	A100B6064F	1
S1229	HEADLAMP MOTOR-LH**(E/B)** A100B6063F	LOTUS	A100B6063F	1
S1231	HEADLAMP SPACER SMALL A100B1059F	LOTUS	A100B1059F	2
S1232	SPACER 4MM B100B1060F	LOTUS	A100B1060F	2
S1233	ACTUATOR ROD ASSEMBLY B100B1004F	LOTUS	B100B1004F	2
S1235	ELECTRIC MIRROR SWITCH 6913144	DALTON POWER PRODUCT	6913144	1
S1236	ELECTRIC WINDOW SWITCH 1003639	DALTON POWER PRODUCT	1003639/6193161	3
S1237	ELECTRIC WINDOW MECHANISM 33000021	SEMPAL LIMITED	33000021	1
S1238	HEADLAMP-LHD 1AE003427021	LEWISHAM ELECTRICS	1AE003427021	2
S1239	COURTESY LIGHT SWITCH 6737169	DALTON POWER PRODUCT	6737169	2
S1241	GREEN WARNING LENS**(E/B)** 594460	S.E.D.	594460	2
S1242	BLUE WARNING LENS**(E/B)** 595195	S.E.D.	595195	1
S1243	RED WARNING LENS**(E/B)** 596144	S.E.D.	596144	1
S1244	WARNING LIGHT POD**(E/B)** 511502	S.E.D.	511502	2

Module 22 - Body Hardware

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42104713	GAS STRUT MOUNTING BRACKET	PATRICK FABRICATION		2
42121005	CAR STEREO FIXING BRACKET	A.M.L.ENGINEERING		1
42121009	WINDOW MECHANISM MOUNTING BRACKET	A.M.L.ENGINEERING		2
42122013	SEATBELT ANCORAGE POINT COVER-LH	SABRE FABRICATIONS		1
42122014	SEATBELT ANCORAGE POINT COVER-RH	SABRE FABRICATIONS		1
42122017	DOOR KICK PLATE	PRECISION UNITS LTD		2
42122019	DOOR LOCKING CABLE	SPEEDY CABLES LTD		2
42122021	HEADLAMP ACCESS PANEL	KAMECH		2
42122023	BONNET BADGE	L.C.B.DIRECT		2
42122037	LOWER BONNET STAY BRACKET	PATRICK FABRICATION		1
42122713	BONNET CATCH MOUNTING BRACKET	PATRICK FABRICATION		1
42122901	BATTERY MOUNTING CLAMP MODIFACATION	SUB ASSEMBLY AREA 1		1
42130011	FRONT LIGHT LOWER APETURE COVER-LH	A.M.L.ENGINEERING		1
42130012	FRONT LIGHT LOWER APETURE COVER-RH	A.M.L.ENGINEERING		1
42141001	LOWER FRAME SUPPORT	PRIEST ENGINEERING		2
42141007	SIDE WINDOW TOP-LH (BRONZE TINT)A0688 BZ	TRIPLEX	A0688 BZ	1
42141008	SIDE WINDOW TOP-RH (BRONZE TINT)A0689 BZ	TRIPLEX	A0689 BZ	1
42141009	SIDE WINDOW LOWER-LH (BRONZE TINT)	TYNESIDE GLASS CO		1
42141010	SIDE WINDOW LOWER-RH (BRONZE TINT)	TYNESIDE GLASS CO		1
42141501	WINDOW MECHANISM MODIFACATION-LH	SUB ASSEMBLY AREA 1		1
	THIS MODIFICATION REQUIRES THE FOLLOWING PARTS :- *42121009.WINDOW MECHANISM BRACKET.QTY 1.* *S1094.WWINDOW MECHANISM-LH.QTY 1.*			
42141502	WINDOW MECHANISM MODIFACATION-RH	SUB ASSEMBLY AREA 1		1
	THIS MODIFICATION REQUIRES THE FOLLOWING PARTS. :- *42121009.WINDOW MECHANISM BRACKET.QTY 1.* *S1093.WINDOW MECHANISM-RH.QTY 1.*			
42141701	DOOR WINDOW FRAME UPPER-LH	PRIEST ENGINEERING		1
42141702	DOOR WINDOW FRAME UPPER-RH	PRIEST ENGINEERING		1
42141703	DOOR WINDOW FRAME LOWER	PRIEST ENGINEERING		2
S1028	LOWER FRAME FLOCK CHANNEL (3MTR)VCR 3/16	C.O.H.BAINES LTD	VCR 3/16	6
S1030	DOOR WEATHER STRIP 5139/002	ALBERT JAGGER LTD	5139/002	3
S1032	MAIN DOOR WINDOW RUBBER (2 MTR) SPL00573	C.O.H.BAINES LTD	SPL00573	4
S1037	CENTRAL LOCKING MOTOR 1652145	DALTON POWER PRODUCT	1652145	2
S1041	BOOT BOX FASTENER EHF6-50	ALLFIX	EHF6-50	2
S1042	BOOT BOX FASTENER SPRING S6-300	ALLFIX	S6-300	2

Module 22 - Body Hardware

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
S1043	CLIP 6694883	DALTON POWER PRODUCT	6694883	2
S1044	CLIP 6178895	DALTON POWER PRODUCT	6178895	2
S1045	RETAINER 1659779	DALTON POWER PRODUCT	1659779	4
S1047	INTERIOR HANDLE-RH 6195702	DALTON POWER PRODUCT	6195702	1
S1048	INTERIOR HANDLE-LH 6195703	DALTON POWER PRODUCT	6195703	1
S1051	HANDLE BEZEL-RH 6199165	DALTON POWER PRODUCT	6199165	1
S1052	HANDLE BEZEL-LH 6199166	DALTON POWER PRODUCT	6199166	1
S1053	SCREW 4.2 X 13 PANHEAD 1520557	DALTON POWER PRODUCT	1520557	6
S1054	PAD 7018242	DALTON POWER PRODUCT	7018242	2
S1056	DOOR LOCKING ROD 6148964	DALTON POWER PRODUCT	6148964	2
S1061	DOOR SEAL (4 MTR) DX81	C.O.H.BAINES LTD	DX81	8
S1062	BONNET SEAL (10 MTR) DX82	C.O.H.BAINES LTD	DX82	10
S1063	BATTERY MOUNTING CLAMP 008775	LEWISHAM ELECTRICS	008775	1
S1070	BONNET STAY 7700753843	OLYMPIAN	7700753843	1
S1071	BONNET STAY BRACKET 7705028008	OLYMPIAN	7705028008	1
S1072	BONNET STAY CLIP 7703078086	OLYMPIAN	7703078086	1
S1075	BONNET STRIKER PIN 192823507	AUTOCAVAN	192823507	1
S1076	BONNET CATCH 192823509	AUTOCAVAN	192823509	1
S1077	BONNET CATCH CABLE 192823531	AUTOCAVAN	192823531	1
S1078	BONNET RELEASE HANDLE 192823533	AUTOCAVAN	192823533	2
S1086	WINDSCREEN WASHER BOTTLE 1583438	DALTON POWER PRODUCT	1583438	1
S1087	WASHER BOTTLE CAP 6017716	DALTON POWER PRODUCT	6017716	1
S1088	WASHER PUMP 7003177	DALTON POWER PRODUCT	7003177	1
S1089	WASHER JET 1591399	DALTON POWER PRODUCT	1591399	2
S1090	WASHER TUBE 4MM I.D(2 MTR PER CAR)WSB178	S.E.D.	WSB178	1
S1091	WASHER T-PIECE WSB163	S.E.D.	WSB163	1
S1092	WASHER PUMP GROMMET 6138476	DALTON POWER PRODUCT	6138476	1
S1093	WINDOW MECHANISM-RH 7611664	VERWOOD AUTO CENTRE	7611664	1
S1094	WINDOW MECHANISM-LH 7611665	VERWOOD AUTO CENTRE	7611665	1
S1131	SOUND PROOFING PAD 0890100060	WURTH U.K.	0890100060	12
S1138	DOOR BRACKET PIN CLIP 6122626	DALTON POWER PRODUCT	6122626	6
S1246	FUEL CAP RELEASE CABLE FSN10027	POWER TRAIN PROJECTS	FSN10027	1
S1481	GAS STRUT 1245/7983	ALBERT JAGGER LTD	1245/7983	2

Module 30 - Panel Covers

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42102011	CHASSIS PLATE	R.MATTHEW LTD		1
42104005	REAR VALENCE CLOSING PANEL-LH	A.M.L.ENGINEERING		1
42104006	REAR VALENCE CLOSING PANEL-RH	A.M.L.ENGINEERING		1
42104021	HEADLAMP INSIDE COVER	KAMECH		2
42104033	GEAR LEVER CONSOLE BRACKET	KAMECH		1
42122031	AIR CONDITIONING COVER PANEL	KAMECH		1
42122705	PASSENGER FOOTREST-LHD	M.D.P.ENGINEERING		1
42130005	BOOT BOX ACCESS PANEL LIP	PRIEST ENGINEERING		1
42130007	BRAKE/CLUTCH/WASHER BOTTLE ACCESS PANEL	SABRE FABRICATIONS		1
42130009	BOOT BOX BASE LIP	PRIEST ENGINEERING		1
42130013	RADIATOR ACCESS PANEL	PRIEST ENGINEERING		1
42130015	FUEL TANK ACCESS PANEL-LH	PRIEST ENGINEERING		1
42130016	FUEL TANK ACCESS PANEL-RH	PRIEST ENGINEERING		1
42130017	LUGGAGE COMPARTMENT BASE BRACKET	PRIEST ENGINEERING		2
42130019	LUGGAGE COMPARTMENT SIDE-LH	PRIEST ENGINEERING		1
42130020	LUGGAGE COMPARTMENT SIDE-RH	PRIEST ENGINEERING		1
42130023	LUGGAGE COMPARTMENT BASE	PRIEST ENGINEERING		1
42130025	LUGGAGE COMPARTMENT BACK	PRIEST ENGINEERING		1
S1004	UNIVERSAL ANTIFREEZE (4 LTR)	MOBIL OIL LTD		1
S1081	WIPER BLADE 22" WITH SPOILER** SB550	TRICO LIMITED	SB550	2
S1082	WIPER ARM CAP PRC8253	POWER TRAIN PROJECTS	PRC8253	2
S1083	WIPER ARM-O/S-LHD 120025	TRICO LIMITED	120025	1
S1084	WIPER ARM-N/S-LHD 120129	TRICO LIMITED	120129	1
S1294	BIGHEAD FASTENER M1/T38-M6 X 50/S1	BIGHEAD FASTENERS	M1T38M6X50S1	2

Module 40 - Internal Trim

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42140001	SEAT SPACER	KAMECH		8
42140005	KEY FOB	L.C.B.DIRECT		2
42140007	HEADLAMP LEVEL DECAL	P.P.S.		1
42140009	BRAKE/CLUTCH FLUID DECAL	P.P.S.		1
42140013	VENEER CENTRE CONSOLE	AUTOMARINE		1
42140015	VENEER TRIM STRIP-LHD	AUTOMARINE		1
42140065	GEAR KNOB	KAMECH		1
42140067	GEARKNOB BADGE 27MM	L.C.B.DIRECT		1
42140501	SEAT RUNNER WITH HANDLE MODIFACATION	SUB ASSEMBLY AREA 1		2
	THIS MODIFICATION REQUIRES THE FOLLOWING PART :-			
	S1283.SEAT RUNNER WITH HANDLE.QTY 1.			
42140503	SEAT RUNNER WITHOUT HANDLE MODIFACATION	SUB ASSEMBLY AREA 1		2
	THIS MODIFICATION REQUIRES THE FOLLOWING PART :-			
	S1284.SEAT RUNNER WITHOUT RUNNER.QTY 1.			
42140519	SEAT BELT 50001GTD	CARSTYLE SAFETY LTD	50001 GTD	2
42140901	TRIM KIT-LHD	AEROTRIM LIMITED		1
S1006	POLYURETHANE SEALANT 2178/2213	ALBERT JAGGER LTD	2178/2213	1
S1056	DOOR LOCKING ROD 6148964	DALTON POWER PRODUCT	6148964	2
S1273	WINDSCREEN VENT 2090-0001	SPAL U.K.	2090-0001	2
S1274	WINDSCREEN VENT ADAPTOR 2090-0017	SPAL U.K.	2090-0017	2
S1275	SUN VISOR-LH-LHD 7246718	DALTON POWER PRODUCT	7246718	1
S1276	SUN VISOR-RH-LHD 7246716	DALTON POWER PRODUCT	7246716	1
S1279	SUN VISOR CLIP 1659640	DALTON POWER PRODUCT	1659640	2
S1280	FRESH AIR VENT-LH JBD100630PMA	POWER TRAIN PROJECTS	JBD100630PMA	2
S1281	FRESH AIR VENT-RH JBD100620PMA	POWER TRAIN PROJECTS	JBD100620PMA	2
S1283	SEAT RUNNER WITH HANDLE 6119576	DALTON POWER PRODUCT	6119576	1
S1284	SEAT RUNNER WITHOUT HANDLE 6119578	DALTON POWER PRODUCT	6119578	1
S1285	INTERIOR MIRROR 1644639	DALTON POWER PRODUCT	1644639	1
S1286	STEREO/RADIO (CASABLANCA) B7645733010	LEWISHAM ELECTRICS	B7645733010	1
S1287	DRIVER CONTROL PANEL 6628590	DALTON POWER PRODUCT	6628590	1
S1288	PASSENGER CONTROL PANEL 6628592	DALTON POWER PRODUCT	6628592	1
S1289	CAR SPEAKERS B7606094002	LEWISHAM ELECTRICS	B7606094002	1
S1290	CENTRE CONSUL FIXING 0500025206	WURTH U.K.	0500025206	20
S1292	BULKHEAD FRESH AIR VENT 90263306	TICE	90263306	4

Module 40 - Internal Trim

PART No.	DESCRIPTION		SUPPLIER	SUPPLIER No.	QTY
S1293	DOOR INNER PULL HANDLE	1621836	DALTON POWER PRODUCT	1621836	2
S1422	DRIVER/PASSENGER SEAT		A.C.S.(DAVE BURGESS)		2
S1448	UNDERBODY SCHUTZ		SPRAY SHOP SUPPLIES	SSS100	2
S1449	TRIMSPRAY AEROSOL GLUE (CAN)		WILCOX WASH SUPPLIES		4
S1450	FOAM TRIM SPRAY		WILCOX WASH SUPPLIES		1

Module 41 - Body Glass

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42141003	BRONZE WINDSCREEN A0551 BZ	TRIPLEX	A0551 BZ	1
42141005	BULKHEAD WINDOW (BRONZE TINT)	TYNESIDE GLASS CO		1
42141011	OPERA WINDOW-LH (BRONZE TINT) A0558 BZ	TRIPLEX	A0558 BZ	1
42141012	OPERA WINDOW-RH (BRONZE TINT) A0559 BZ	TRIPLEX	A0559 BZ	1
S1009	BLACK WINDSCREEN BONDER 2178/2553FCS	ALBERT JAGGER LTD	2178/2553FCS	1
S1010	BLACK WINDSCREEN PRIMER 2178/2051	ALBERT JAGGER LTD	2178/2051	1
S1020	WINDSCREEN OUTER RUBBER (5 MTR) WT02	C.O.H.BAINES LTD	WT02	5
S1021	WINDSCREEN+OPERA INNER RUBBER WT25	C.O.H.BAINES LTD	WT25	2
S1022	BULKHEAD INNER RUBBER (3 MTR) GP241	C.O.H.BAINES LTD	GP241	3
S1023	BULKHEAD OUTER RUBBER (3 MTR) GP291	C.O.H.BAINES LTD	GP291	3
S1029	EXTERNAL FRAME RUBBER (3 MTR) S9457	HAPPICH AGENCY LTD	S9457	4
S1031	OPERA GLASS OUTER RUBBER (2 MTR) WT01	C.O.H.BAINES LTD	WT01	2

Module 42 - Wheels and Tyres

PART No.	DESCRIPTION	SUPPLIER	SUPPLIER No.	QTY
42142001	WHEEL BADGE	L.C.B.DIRECT		4
S1390	WHEEL NUT D21/077	O.Z.RACING	D21/077	20
S1415	WHEEL-FRONT (8 1/2 X 17)	O.Z.RACING	47857GT1 ET41,5	2
S1416	WHEEL-REAR (11 X 17)	O.Z.RACING	47117GT2 ET51	2
S1417	TYRE-FRONT (235/45/ZR17)	RED STAR TYRES	235/45/ZR17	2
S1418	TYRE-REAR (335/35/ZR17)	RED STAR TYRES	335/35/ZR17	2