Chapter R

WHEELS AND TYRES

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It must be noted that the car serial numbers shown in this Chapter are the earliest numbers which incorporate changes. Before requesting new components, always consult the appropriate section of the Parts List, Service Bulletins and Spares Information Sheets.

When radial-ply tyres are fitted the following information shows the Car Serial Numbers at which the various types and combinations of Road Wheels, Hubs, Tyre Valves and Wheel Discs are fitted.

Prior to Car Serial Numbers

Silver Shadow and T Series	R.H.D. 5572 L.H.D. 6752
Long Wheelbase	6744 (including 6712, 6714 and 6720)
Coachbuilt	6760

(a) Road wheels fitted with radial-ply tyres and inner tubes (see Fig. R1).
(b) Length of tyre valve 4,9 cm. (1.9 in.). This measurement does not include the dust cap.

From Car Serial Numbers

Silver Shadow and T Series	R.H.D. 5572 L.H.D. 6752
Long Wheelbase	6744 (including 6712, 6714 and 6720)
Coachbuilt	6760

(a) Road wheels with flat ledge rims enabling radial-ply tyres to be fitted without inner tubes (see Fig. R1).
(b) Length of tyre valve 6,1 cm. (2.4 in.). This measurement does not include the dust cap.
(c) Introduction of wheel discs with high profile claw rings.

Note It is important to note that the two types of road wheel shown in Figure R1 are not interchangeable as individual items, and that fitting a different type of wheel to a car would also involve changing the wheel disc and tyre valve.

Regardless of the type of wheel fitted, the wheel retaining nuts should be torque tightened to between 6,22 kg.m. and 6,91 kg.m. (45 lb.ft. and 50 lb.ft.).

From Car Serial Numbers

Silver Shadow and T Series	R.H.D. 8387 L.H.D. 9075 (including 9068 fitted to front hubs only)
Long Wheelbase	9113
Coachbuilt	8421 (9102 fitted to front hubs only)

(a) Introduction of spigotted hubs.
(b) Wheel discs incorporating new claw rings and locating lugs are fitted.
(c) Road wheels with wheel disc locating holes are fitted.

From Car Serial Numbers

Silver Shadow and T Series	10500 (including 10494)
Long Wheelbase	10563

Ventilated wheel discs are fitted to all cars except those destined for North America.

From Car Serial Numbers

Silver Shadow and T Series	18269 (including 18225 and 18259)
Corniche	18563

Ventilated wheel discs are fitted to all cars.

From Car Serial Numbers

Front wheel hubs	
Silver Shadow and T Series	11715
Long Wheelbase	11857
Corniche	11840
Rear wheel hubs	
Silver Shadow and T Series	11625
Long Wheelbase	11820
Corniche	11757

Introduction of spigotted hubs with interference wheel stud fittings.

Note When renewing a damaged wheel stud, it may be necessary to use a press of approximately 2 032 kg. (2 tons) capacity to remove and fit the wheel stud.

When fitting the new wheel stud it should be rotated until the splines line up with those already cut in the hub and then pressed into position. Adequate interference is maintained to enable each wheel stud to be renewed approximately three times when in service.

It is important to note that new wheel hub and stud assemblies are in no way interchangeable with old assemblies.

Road wheels— To remove

1. Apply the handbrake/parking brake.
2. Remove the wheel disc with the tommy bar provided in the tool kit.

On all cars other than the Corniche, place the tommy bar in one of the positions indicated by the arrows shown in Figure R2 noting the relationship between these arrows and the tyre valve and then press the tommy bar outwards towards the tyre. Do not twist the tommy bar.

On Corniche cars the wheel disc and wheel trim are separate items. To remove the wheel disc, place the tommy bar in position as shown in Figure R3 and press the tommy bar downwards.

To remove the wheel trim, place the tommy bar in position as shown in Figure R4, then press the tommy bar outwards towards the tyre; do not twist the tommy bar. Repeat this operation at several points around the circumference of the wheel.

3. Slacken the wheel retaining nuts approximately half-a-turn before raising the car. Nuts on the left-hand wheels have left-hand threads and nuts on the

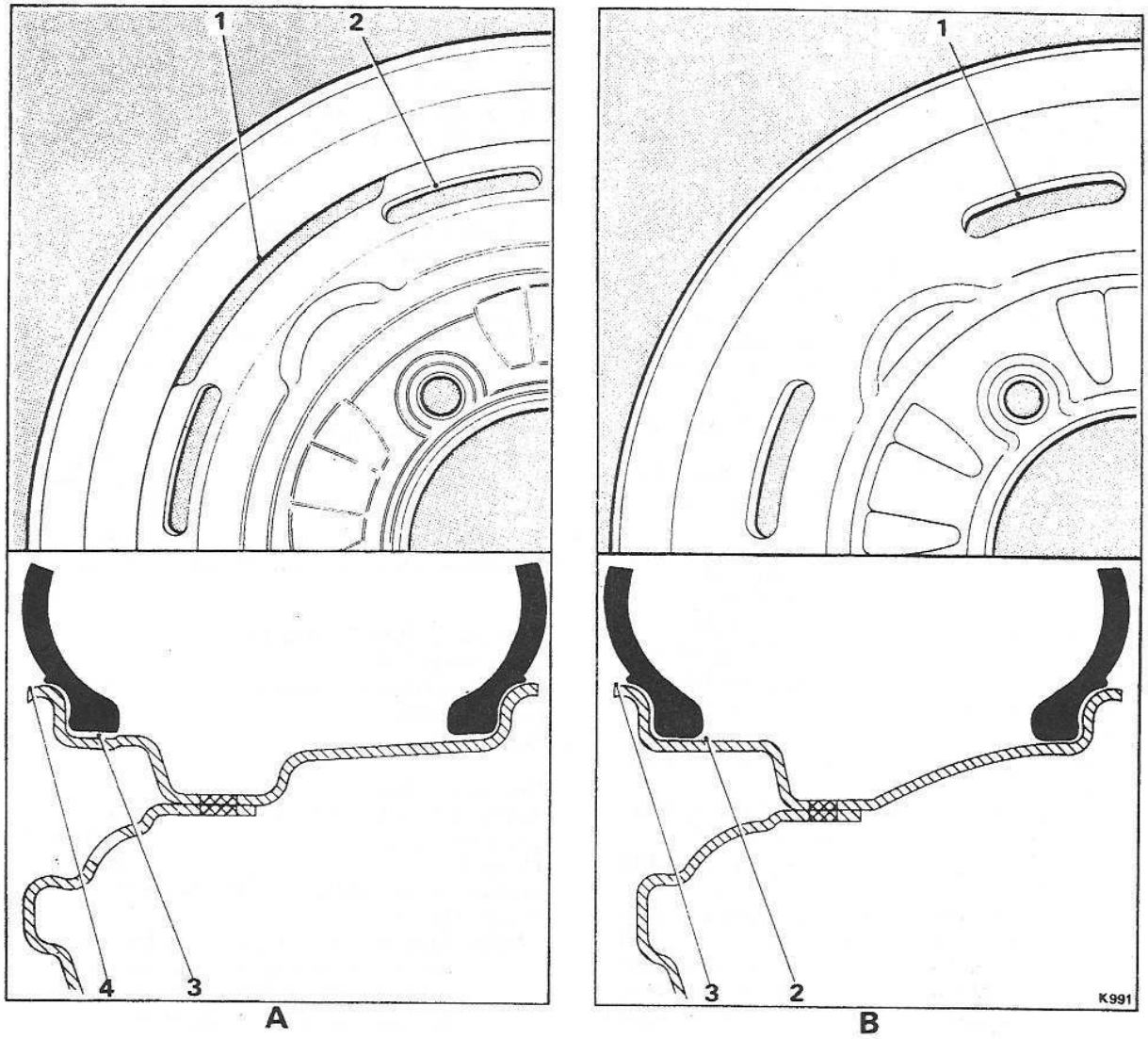

FIG. R1 IDENTIFICATION OF WHEELS

A Original wheel
1 Window in outer edge of knave (four in each wheel)
2 Slot in knave pressing (six in each wheel)
3 Angled seat
4 Outer rim

B Flat ledge rim wheel
1 Slot in knave pressing (six in each wheel)
2 Flat seat
3 Outer rim

right-hand wheels have right-hand threads. An arrow and the word 'OFF' stamped on each wheel nut indicates the direction of removal.

4. Open the cover plate on the sill, fit the jack in position as shown in Figure R5 and then raise the car.
5. Remove the nuts and wheel.

Road wheels—To fit

Fit the wheel by reversing the procedure described for its removal, noting the following points.

1. Ensure that the spherical seatings of the nuts and wheels are not damaged.
2. Lightly coat the spherical seats of the nuts with grease before fitting.
3. Torque tighten the nuts to between 6,22 kg.m. and 6,91 kg.m. (45 lb.ft. and 50 lb.ft.).

Failure to observe the torque figures when tightening the nuts can cause damage to the spherical seating faces and cause difficulty in removing and fitting the nuts.

Wheel discs

The following information is not applicable to Corniche cars.

Two types of wheel discs may be fitted, either the ventilated type or the non-ventilated type. Both types of discs are secured to the wheel by a steel claw ring. The claw ring engages with three equally spaced protrusions on the wheel.

On non-ventilated type wheel discs that do not incorporate locating lugs it is possible that road vibrations may cause a rattle. This is due to the disc not being a secure fit over the wheel protrusions. If a rattle occurs the radius of the claw ring can be reduced to ensure a tight fit on the wheel by carrying out the following procedure.

1. Remove the wheel disc.
2. Locate the three marks on the claw ring which indicate the points at which the ring locates on the wheel protrusions.
3. Place a tommy bar on the outer edge of the claw ring, as shown in Figure R6.
4. Support the wheel disc on a piece of wood to prevent damage to the outer edge. Using a hammer, strike the tommy bar downwards until the claw ring radius is reduced at that point. Fit the disc to the wheel and if necessary repeat the operation until a secure fit is obtained.
5. Repeat the procedure on each of the three marks on the claw ring.

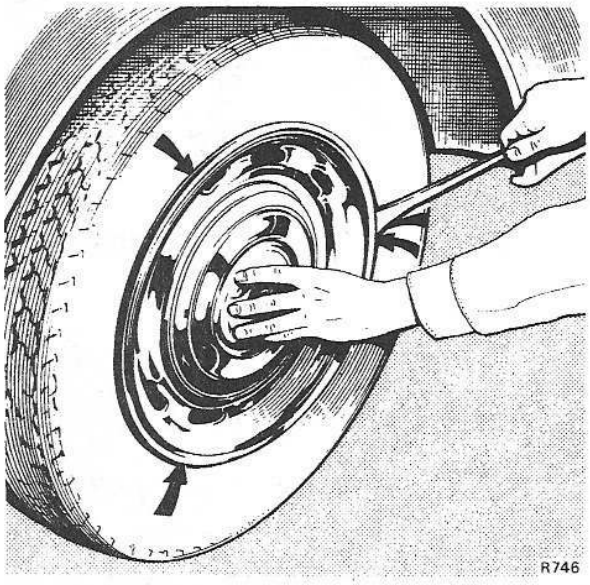

FIG. R2 REMOVING A WHEEL DISC

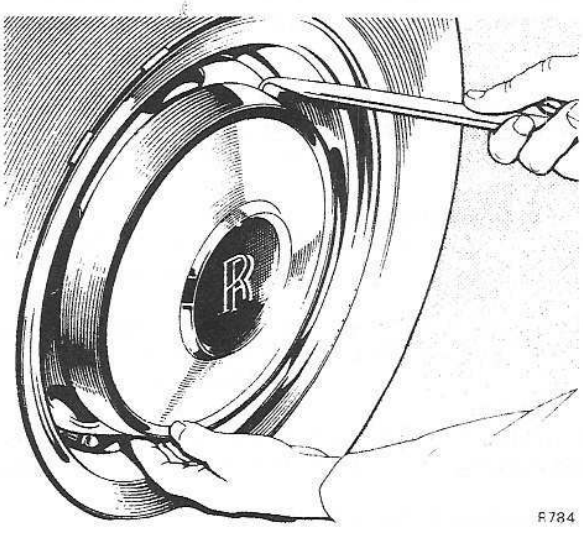

FIG. R3 REMOVING A WHEEL DISC (CORNICHE)

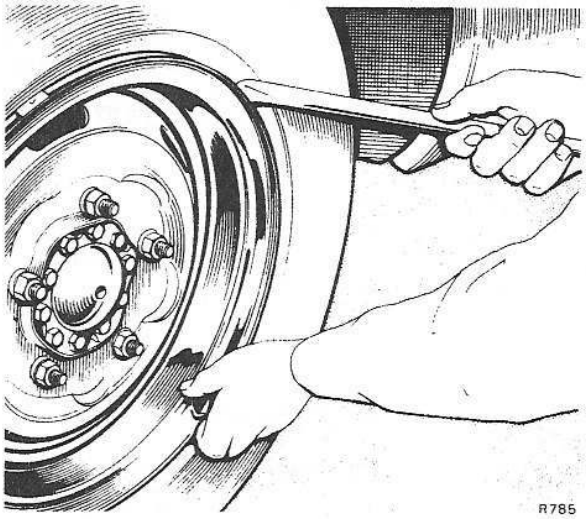

FIG. R4 REMOVING A WHEEL TRIM (CORNICHE)

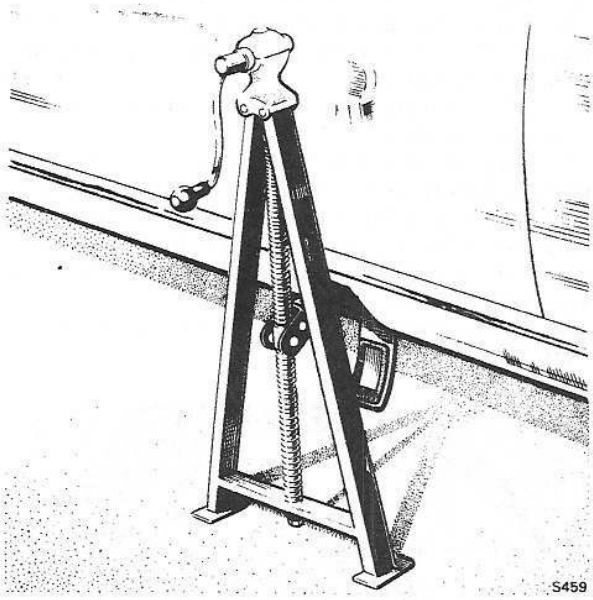

FIG. R5 JACK CORRECTLY POSITIONED

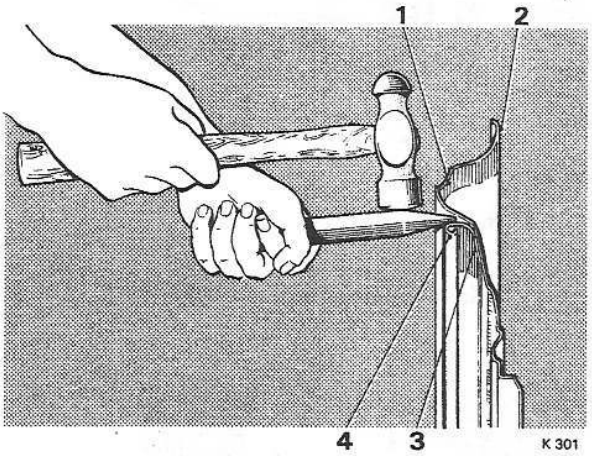

FIG. R6 CLAW RING ADJUSTMENT

1 Valve hole
2 Wheel disc
3 Claw ring
4 Point at which claw ring locates on wheel protrusion

Tyre pressures

When checking tyre pressures, ensure that the tyres are cold. A hot tyre must not be deflated in order to obtain the required pressure. As a tyre cools, the pressure decreases.

The recommended tyre inflation pressures (cold) are:

Prior to Car Serial Numbers

Silver Shadow saloon	18269
Bentley 'T' Series saloon	18225
Long Wheelbase saloon (without division)	19577
Long Wheelbase saloon (with division)	19640
Corniche Saloon	18564
Corniche Convertible	18563

All cars except those domiciled in the U.S.A., Canada and the Federal Republic of Germany fitted with 8.15 x 15 cross-ply tyres.

All cars other than the Silver Shadow Long Wheelbase
Front - 1,8 kg/sq.cm. (26 lb/sq.in.)
Rear - 1,8 kg/sq.cm. (26 lb/sq.in.)
For continuous high speed motorway driving the tyre pressures should be increased by 0,14 kg/sq.cm. (2 lb/sq.in.).

Long Wheelbase
1 - 3 occupants - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,1 kg/sq.cm. (30 lb/sq.in.)

4 - 5 occupants - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,25 kg/sq.cm. (32 lb/sq.in.)

5 occupants and luggage - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,4 kg/sq.cm. (34 lb/sq.in.)

All cars fitted with 205 x 15 radial-ply tyres and all cars domiciled in the U.S.A. and Canada fitted with 8.15 x 15 cross-ply tyres.

Silver Shadow and Bentley 'T' Series saloon
1 - 5 occupants - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,0 kg/sq.cm. (28 lb/sq.in.)

5 occupants and luggage - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,25 kg/sq.cm. (32 lb/sq.in.)

Long Wheelbase
1 - 3 occupants - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,1 kg/sq.cm. (30 lb/sq.in.)

4 - 5 occupants - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,25 kg/sq.cm. (32 lb/sq.in.)

5 occupants and luggage - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,4 kg/sq.cm. (34 lb/sq.in.)

Two-Door Saloon and Convertible
1 - 4 occupants - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,0 kg/sq.cm. (28 lb/sq.in.)

4 occupants and luggage - Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
- Rear - 2,25 kg/sq.cm. (32 lb/sq.in.)

All cars domiciled in the Federal Republic of Germany fitted with 8.15 x 15 cross-ply tyres or 205 x 15 radial-ply tyres.

All cars other than the Silver Shadow Long Wheelbase
Front and Rear 2,0 kg/sq.cm. (28 lb/sq.in.)

Long Wheelbase
Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
Rear - 2,4 kg/sq.cm. (34 lb/sq.in.)

From Car Serial Numbers

Silver Shadow saloon	18269
Bentley 'T' Series saloon	18225
Long Wheelbase saloon (without division)	19577
Long Wheelbase saloon (with division)	19640
Corniche Saloon	18564
Corniche Convertible	18563

All cars except those domiciled in Australia, Canada, Japan and the U.S.A. fitted with HR 70 HR 15 (235/70 HR 15) radial-ply tyres.

For all loading conditions up to 5 occupants in Silver Shadow and Long Wheelbase cars or 4 occupants in Corniche cars and 113,5 kg. (250 lb.) of luggage.

Silver Shadow and Bentley T Series, Long Wheelbase saloon without division, Corniche Convertible and Corniche Saloon.

For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,7 kg/sq.cm. (24 lb/sq.in.)
Rear - 2,0 kg/sq.cm. (28 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,1 kg/sq.cm. (30 lb/sq.in.)
Rear - 2,4 kg/sq.cm. (34 lb/sq.in.)

Long Wheelbase saloon with division

For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,7 kg/sq.cm. (24 lb/sq.in.)
Rear - 2,1 kg/sq.cm. (30 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,1 kg/sq.cm. (30 lb/sq.in.)
Rear - 2,5 kg/sq.cm. (36 lb/sq.in.)

For cars domiciled in Australia, Canada and the U.S.A.

For all loading conditions up to 5 occupants in Silver Shadow and Long Wheelbase cars or 4 occupants in Corniche cars and 113,5 kg. (250 lb.) luggage.

Silver Shadow, Bentley T Series and Long Wheelbase saloon without division.

For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,7 kg/sq.cm. (24 lb/sq.in.)
Rear - 2,0 kg/sq.cm. (28 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
Rear - 2,25 kg/sq.cm. (32 lb/sq.in.)

Long Wheelbase saloon with division

For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,8 kg/sq.cm. (26 lb/sq.in.)
Rear - 2,25 kg/sq.cm. (32 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,1 kg/sq.cm. (30 lb/sq.in.)
Rear - 2,5 kg/sq.cm. (36 lb/sq.in.)

Corniche Saloon and Convertible

For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,7 kg/sq.cm. (24 lb/sq.in.)
Rear - 2,0 kg/sq.cm. (28 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,1 kg/sq.cm. (30 lb/sq.in.)
Rear - 2,4 kg/sq.cm. (34 lb/sq.in.)

For cars domiciled in Japan

Cars applicable to Car Serial Numbers

Silver Shadow saloon	from 18269 to 22117 inclusive
Bentley 'T' Series saloon	from 18225 to 22141 inclusive
Long Wheelbase saloon (without division)	from 19577 to 22072 inclusive
Long Wheelbase saloon (with division)	from 19640 to 22171 inclusive
Corniche Saloon	
R.H.D.	from 18564 to 22647 inclusive
L.H.D.	from 18680 to 22918 inclusive
Corniche Convertible	
R.H.D.	from 18563 to 22582 inclusive
L.H.D.	from 18678 to 22780 inclusive

For all loading conditions up to 5 occupants in Silver Shadow and Long Wheelbase cars or 4 occupants in Corniche cars and 113,5 kg. (250 lb.) of luggage.

Silver Shadow and Bentley T Series, Long Wheelbase saloon without division, Corniche Convertible and Corniche Saloon.

For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,7 kg/sq.cm. (24 lb/sq.in.)
Rear - 2,0 kg/sq.cm. (28 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,1 kg/sq.cm. (30 lb/sq.in.)
Rear - 2,4 kg/sq.cm. (34 lb/sq.in.)

Long Wheelbase saloon with division
For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,7 kg/sq.cm. (24 lb/sq.in.)
Rear - 2,1 kg/sq.cm. (30 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,1 kg/sq.cm. (30 lb/sq.in.)
Rear - 2,5 kg/sq.cm. (36 lb/sq.in.)

From Car Serial Numbers	
Silver Shadow saloon	22118
Bentley T series saloon	22142
Long Wheelbase saloon (without division)	22073
Long Wheelbase saloon (with division)	22172
Corniche Saloon	R.H.D. 22648
	L.H.D. 22919
Corniche Convertible	R.H.D. 22583
	L.H.D. 22781

For all loading conditions up to 5 occupants in Silver Shadow and Long Wheelbase cars or 4 occupants in Corniche cars and 113,5 kg. (250 lb.) of luggage.

Silver Shadow, Bentley T Series and Long Wheelbase saloon without division.

For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,7 kg/sq.cm. (24 lb/sq.in.)
Rear - 2,0 kg/sq.cm. (28 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,0 kg/sq.cm. (28 lb/sq.in.)
Rear - 2,25 kg/sq.cm. (32 lb/sq.in.)

Long Wheelbase saloon with division
For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,8 kg/sq.cm. (26 lb/sq.in.)
Rear - 2,25 kg/sq.cm. (32 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,1 kg/sq.cm. (30 lb/sq.in.)
Rear - 2,5 kg/sq.cm. (36 lb/sq.in.)

Corniche Saloon and Convertible
For speeds up to 180 k.p.h. (110 m.p.h.)
Front - 1,7 kg/sq.cm. (24 lb/sq.in.)
Rear - 2,0 kg/sq.cm. (28 lb/sq.in.)

For sustained speeds in excess of 180 k.p.h. (110 m.p.h.)
Front - 2,1 kg/sq.cm. (30 lb/sq.in.)
Rear - 2,4 kg/sq.cm. (34 lb/sq.in.)

Tyres

Manufacturing tolerances on wheels and tyres, if accumulated, will create sufficient radial 'run-out' to cause undesirable vibrations and impair the ride characteristics of the car. Therefore, it is important to adhere to the following instructions regarding tyre fitting and balancing. Distributors, Retailers and Dealers should pass on these instructions to Tyre Fitting Agents, who may be employed to fit tyres.

Manufacturers mark the lowest point of the tyre with a red spot approximately 9 mm. (⅜in.) diameter, on the tyre side wall. The highest point of the wheel is indicated with the letter 'H' stamped on the wheel inner rim as shown in Figure R7.

Tyre—To remove

When removing a tyre from a flat ledge rim wheel it is recommended that the tyre is removed from the inboard edge of the wheel.

1. Remove the tyre ensuring that the narrow bead seating is uppermost. A liberal amount of bead lubricant should be applied to the tyre levers and the tyre beads when removing the tyre.
2. Use one of the following methods to remove the valve:

(a) Lubricate the valve and remove it by means of the special tool manufactured by Dunlop Limited.

If this tool is not available, a thin pointed screwdriver or similar object may be used by gently forcing it between the shoulder of the valve and the hole in the rim, simultaneously pushing the valve inwards.

(b) Cut the valve with a sharp tool ensuring that damage to the tyre does not occur.

3. Discard the valve.

Tyre—To fit (with high and low spot marks)

1. Remove any burrs, high spots and scale from the wheel, paying particular attention to the tyre bead seating area.
2. On wheels to be fitted with tubeless tyres, fit a new valve and smear it with tyre bead lubricant, then press the valve into the hole in the rim, using the special valve fitting tool.

If the tool is not available, the valve can be installed as follows. Smear the valve with the tyre bead lubricant and from inside the rim fit the valve into the hole. Hold the outer end of the valve and while working it from side to side, apply pressure to the spherical end with a piece of wood or similar blunt object, until the valve seats correctly in the rim.

3. Lubricate the tyre beads, rim flanges, rim bead seats and the area of the bead ledge.

Note Dunlop Tyre Bead Lubricant TBLI or TBL2 is recommended for use when fitting tyre valves and tyres. It is most important that soap or other similar agents are not used.

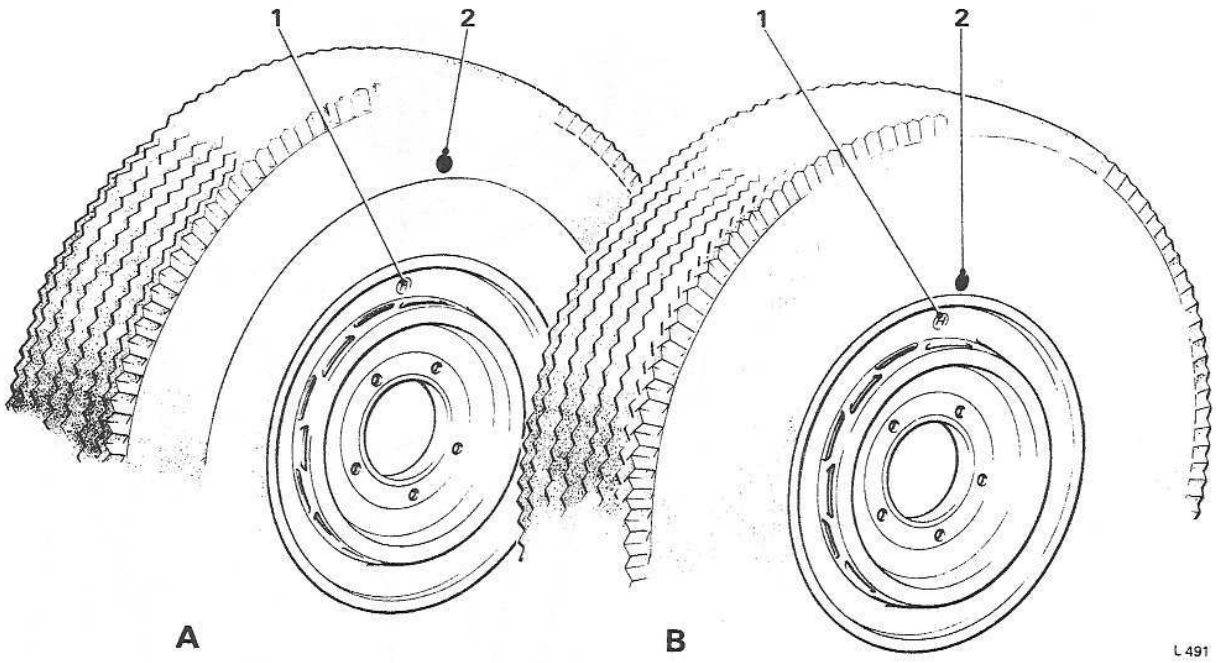

FIG. R7 WHEEL AND TYRE MARKINGS

A Whitewall tyre

B Blackwall tyre

1 'H' marking
2 Red spot marking

4. Fit the tyre to the wheel ensuring that the red spot on the tyre is aligned with the letter 'H' marked on the wheel rim *(see Fig. R7)*.

It should be noted that in addition to the red spot, some tyres may be marked with either a green, yellow or white spot. These markings can be ignored as they are merely used by the tyre manufacturer for inspection purposes.

Tyre—To fit (without high and low spots)

Some wheels and tyres of early origin will not be marked with the high and low spots and in these cases a trial and error method of fitting should be adopted as follows.

1. To determine the high spot on a wheel bead seat, rotate the wheel on a balancing machine and mark the high spot with a piece of chalk.

2. Each bead seat rim should be marked *(see Fig. R8)*, as the high spot on one bead seat rim may vary slightly from the high spot on the other. In this case, the mean distance between the two spots should be taken as the actual high spot.

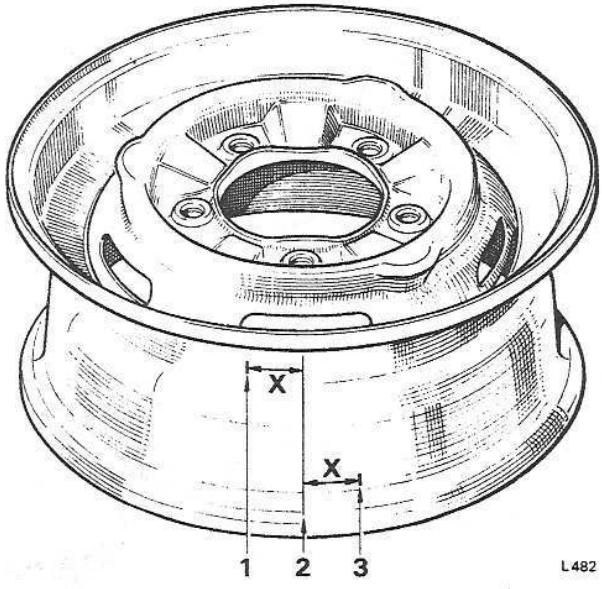

FIG. R8 METHOD OF DETERMINING THE HIGH SPOT OF A WHEEL

1 High spot
2 Actual high spot
3 High spot

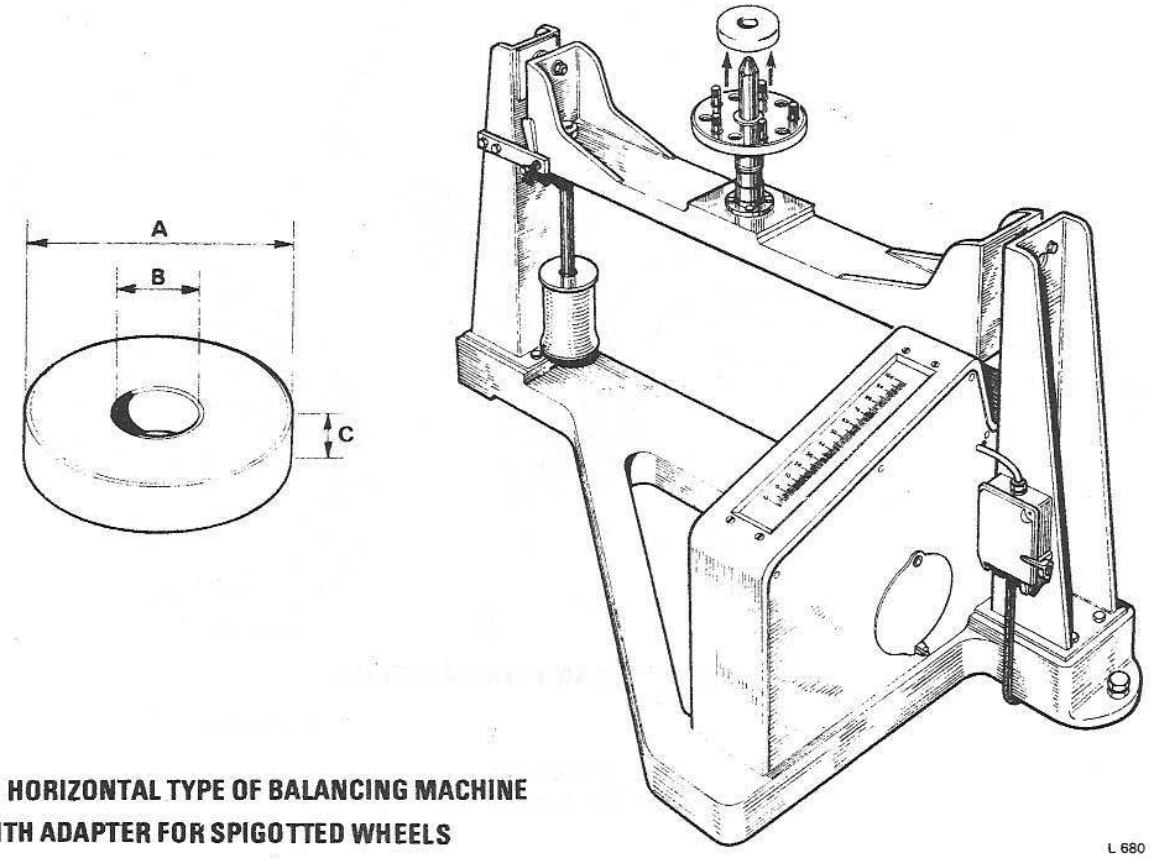

FIG. R9 HORIZONTAL TYPE OF BALANCING MACHINE WITH ADAPTER FOR SPIGOTTED WHEELS

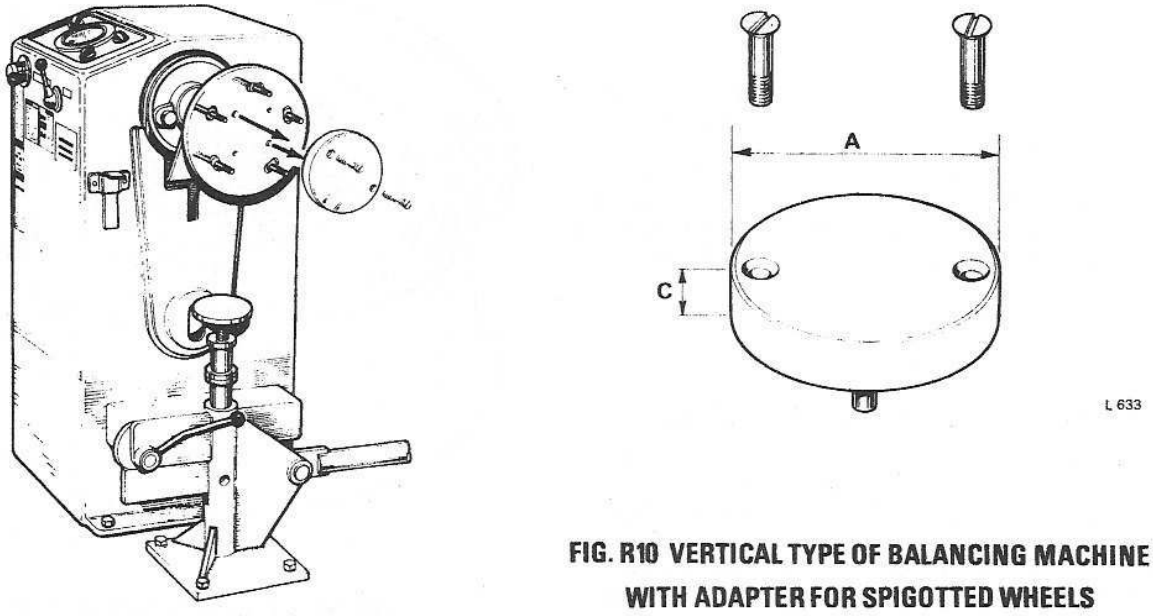

FIG. R10 VERTICAL TYPE OF BALANCING MACHINE WITH ADAPTER FOR SPIGOTTED WHEELS

Key to Fig. 9 and Fig. 10

A 11,75 cm. minus 0,005 cm. (4.626 in. minus 0.002 in.)

B Bore to give 0,051 mm. (0.002 in.) to 0,076 mm. (0.003 in.) clearance on spindle

C 2,54 cm. (1.00 in.)

3. To determine the low spot on the tyre, mount the tyre on a rim which is known to be true and rotate it on a balancing machine. Mark the low spot on the tyre.
4. Fit the tyre and inner tube (if fitted) to the wheel so that the lowest spot of the tyre is aligned with the high spot of the wheel bead seat, then inflate the tyre to the recommended pressure.

After fitting the tyres to the wheels as described previously, balance each wheel.

Wheel and tyre balance

Wheels can be balanced using either a vertical or horizontal type of balancing machine.

For the earlier non-spigotted wheels the Dunlop adapter plate WH13 and balancing machine WBM3 are approved. For the later spigotted wheels the Dunlop adapter plate AP30 has been designed for use in conjunction with the balancing machine WBM20.

Alternatives to the Dunlop balancing machines can be obtained from the following; Hofmann Balancing Techniques Limited, Carl Schenck (U.K.) Limited and Leycock Engineering Limited.

If the specified balancing equipment is not available reference should be made to Figures R9 and R10. These illustrations show two types of small adapter collars which convert existing wheel balancing equipment for use on spigotted road wheels.

When fitting the adapter collar, it must be accurately centralised on the adapter plate.

The manufacturer's instructions must be observed when using the balancing equipment, and the following points noted.

1. When checking wheel balance on the car, it is essential that the weight of the car is removed from the tyres as soon as possible after stopping the car. This prevents temporary 'flats' from forming on the tyres. It is pointless attempting to balance wheels on which flats have formed, as the static balance may be affected by as much as 720 gm. cm. (10 oz. in.).
2. Before balancing ensure that the tyres are inflated to the correct cold inflation pressure.
3. The static and dynamic balance of the wheels should be within 216 gm.cm. and 360 gm.cm. (3 oz.in. and 5 oz.in.) respectively.
4. Balance weights can be removed and fitted with a special tool supplied by the manufacturer of the wheel balancing machine. When fitting the weights to the rim, only sufficient force should be used to secure them; excessive force will only tend to slacken them.
5. After fitting balance weights, paint the steel fittings to prevent them from rusting.
6. If an 'on the car' wheel balancing machine is available, it should be used to check the balance of the front wheels after they are fitted to the car. This type of balancing machine enables any small amount of run-out which exists in the tyre, wheel, hub and brake disc, to be virtually balanced out.

New tyres

On no account should tyres other than those approved in this Workshop Manual or in subsequent Service Bulletins be fitted to the car, as this could have undesirable effects on the handling and stability of the car. Therefore, when fitting new tyres, reference should be made to the latest Service Bulletin.

When new tyres have been fitted, sustained speeds of 112 k.p.h. (70 m.p.h.) or over, during the first 800 km. (500 miles) must not be undertaken. Fast cornering, hard braking and harsh acceleration must also be avoided. This is important as heat generated by a new tyre, until it is sufficiently flexed, makes driving at speed inadvisable.

When fitting new tyres, fit new valves also and balance the wheels.

After fitting new radial-ply tyres, wheel vibrations may be felt during the initial running-in period. This is quite normal, but it is recommended that after the initial running-in period the tyres on all four wheels are again balanced, both statically and dynamically.

Legal requirements

All Distributors, Retailers and Dealers are advised to familiarise themselves with the legal requirements covering tyres and tyre wear, for the country in which they operate. The following are examples of requirements which apply in the United Kingdom.

1. Tyre tread.

The legal requirement for tyre tread is as follows.

Tread depth must not be less than 1 mm. (0.039 in.), in a continuous area extending to a minimum of 75 per cent of the tread width and this area must extend around the complete circumference of the tyre.

2. Tyre combination.

The legal requirements with regard to tyre combinations are as follows.

(a) Under no circumstances should radial-ply tyres be fitted to the front wheels with cross-ply tyres fitted to the rear wheels.

(b) Cross-ply and radial-ply tyres should not be used on the same axle.

(c) Best results are obtained by fitting either radial-ply tyres to all wheels including the spare, or, on early cars only, cross-ply tyres to all wheels including the spare.

Tyre wear characteristics
Front tyres

The front tyres tend to wear on the shoulders leaving approximately three or four ribs of the tread pattern showing more prominently in the centre of the tyre. This condition may be evident from a fairly early mileage, finally resulting in an amount of tread remaining on the centre ribs while the tyre rubber on the shoulders is worn smooth. The tyre tread assumes a rather rounded outline as shown in Figure R11.

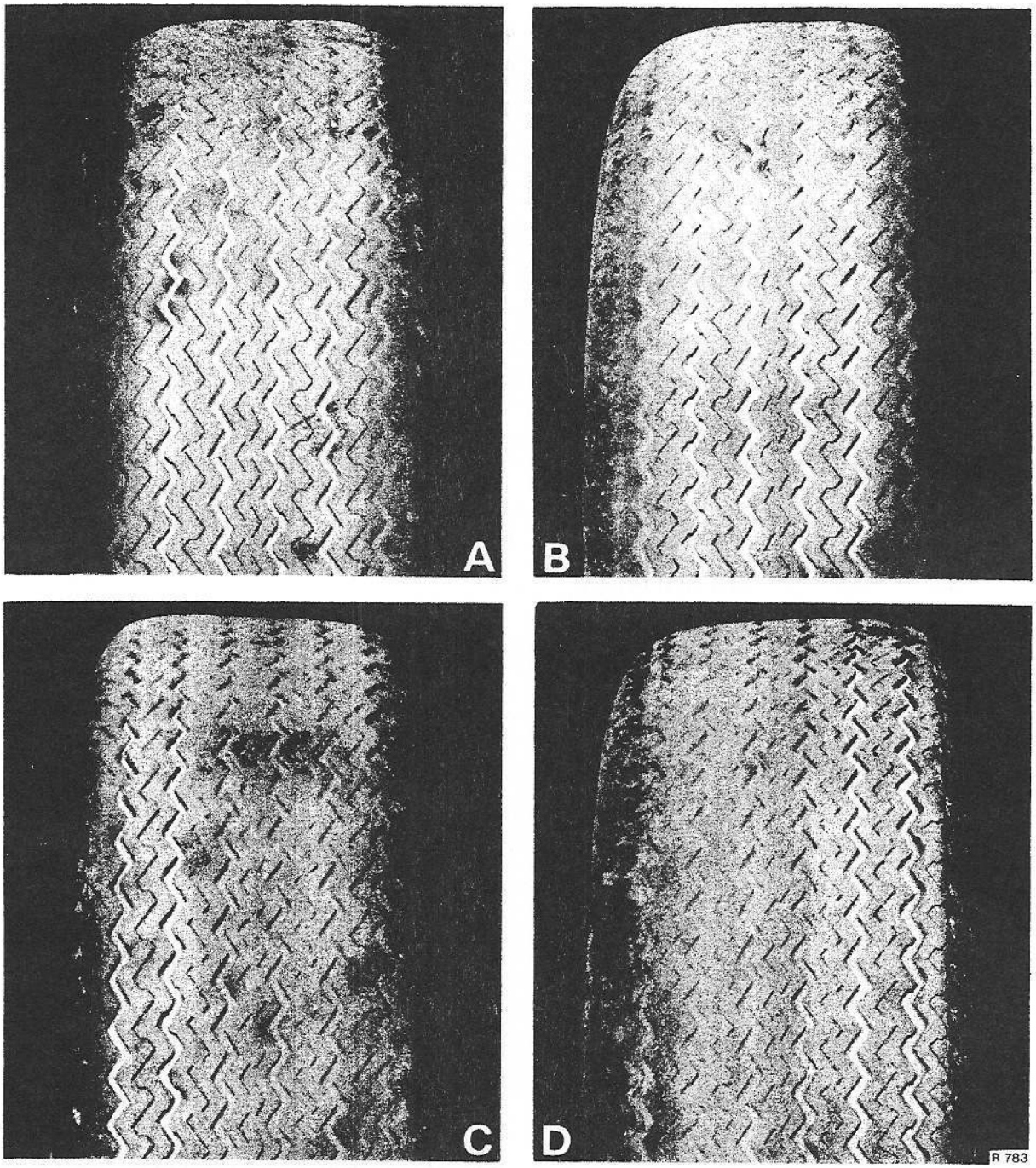

FIG. R11 TYRE WEAR

A Left-hand front-Inner edge
B Right-hand front-Inner edge
C Left-hand rear-Inner edge
D Right-hand rear-Inner edge

Note Letters shown adjacent to inner edges of tyres

Rear tyres

The rear tyres tend to wear in a tapered form from the outer shoulder across to the inner shoulder; the centre and inside shoulder showing most wear. An example of a normally worn rear tyre is shown in Figure R11.

When assessing tyre wear the following points should also be considered.

1. The wear rate on the outer shoulders of the front and rear tyres which run on the kerb side of the road will be slightly greater than the other outer shoulders, particularly if the car is driven on roads with a pronounced camber.
2. Tyre wear is critical to tyre inflation pressures, particularly with respect to under-inflation. Therefore, it is imperative that the recommended tyre pressures are maintained.
3. The higher the speed at which a car is driven through corners, the more the rear tyres will wear on the inner shoulders. The effects of hard cornering will be shown also by the 'feathering' which occurs on the rib edges as shown in Figure R11. Do not change the position of a partially worn set of tyres as the subsequent rate of wear will be increased.

Tread wear indicators

To provide a visual indication that the depth of tread remaining on a tyre is 1,6 mm. ($\frac{1}{16}$ in.) or less, tread wear indicators are incorporated into the construction of the tyres.

These indicators are integrally moulded ribs located in the tread grooves. The ribs are spaced at frequent intervals around the circumference of the tyre and at each point they extend across the full width of the tyre tread in all primary grooves.

When a tyre has worn so that one or more of the indicators are flush with the tread (1,6 mm. ($\frac{1}{16}$ in.) or less, tread depth) a new tyre is required.

Remould tyres

In cases where new tyres fail to meet the overall quality standards laid down by the manufacturers, but remain structurally sound and are suitable for sale as a remoulded tyre, the sidewalls will bear one of the following markings, 'Regraded Quality', 'Remould Quality' or 'Seconds'. In addition the speed rating of the tyre (e.g. the H in HR15) will be obliterated.

Under no circumstances should any tyres be fitted which have been branded 'Regraded Quality', 'Remould Quality' or 'Seconds', or those which have had the speed rating removed or altered.

Spare wheel—To remove

1. Turn the bolt in the luggage compartment anti-clockwise, using the box spanner and tommy bar provided in the tool kit. This operation lowers the carrier and facilitates removal of the spare wheel (*see Fig. R12*).

On cars fitted with a spare wheel retainer it is necessary to release the retainer before lowering the spare wheel platform. To release the retainer first remove the rubber plug situated in the luggage compartment floor (*see Fig. R12*). Lift the cable passing through the small bracket then visible.

Turn the toggle parallel to the cable and push the toggle down through the bracket. Lower the spare wheel platform by turning the lowering bolt anti-clockwise and remove the spare wheel, passing the cable out through the wheel stud hole.

Spare wheel—To fit onto spare wheel platform

Fit the spare wheel onto the platform by reversing the procedure described for its removal, noting the following points.

1. Rotate the spare wheel so that the tyre valve is in its most rearward position and is visible through the luggage compartment access hole.

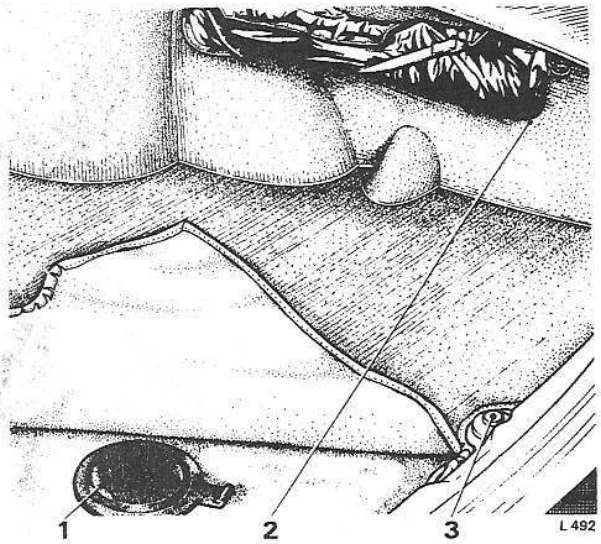

FIG. R12 LUGGAGE COMPARTMENT

1 Spare wheel inflation access plug
2 Tool kit
3 Lowering bolt for spare wheel platform

2. Fit the spare wheel retainer (if fitted) as follows. Raise the wheel and platform, pass the cable with both toggles parallel, down through the bracket and the nearest stud hole in the spare wheel.

Spare tyre inflation (see Fig. R12)

1. Lift the carpet on the luggage compartment floor to expose the rubber plug.
2. Remove the plug to gain access to the tyre valve.
3. Adjust the tyre pressure as necessary.

Spare wheel stowage

If attention is drawn to a rattle from the rear of the car, it may be that the spare wheel carrier is incorrectly adjusted, thus allowing slight movement of the spare wheel under its clamping arrangement.

Adjustment can be effected by slackening the nut and bolt connecting the carrier to the operating tube which forms the rear suspension point of the carrier. As this bolt passes through a slotted hole in the operating tube, it will then be possible to move the carrier to a position which will allow the tyre to be correctly clamped. Tighten the nut and bolt after adjustment.

Winter tyres
Dunlop Weathermaster tyres

The Dunlop Weathermaster SP 44 radial-ply 205 x 15 tyres are approved and should be fitted to either the rear wheels (with HR70 HR15 on the front) or to all four wheels.

Prior to Car Serial Numbers

Silver Shadow saloon	18269
Bentley 'T' Series saloon	18225
Long Wheelbase saloon (without division)	19577
Long Wheelbase saloon (with division)	19640
Corniche Saloon	18564
Corniche Convertible	18563

When fitting a Dunlop Weathermaster tyre to a front wheel a small portion of the front wing undersheet must be removed (*see Fig. R13*). When carrying out work on the right-hand side undersheet care should be taken not to damage the air silencer mounted beneath the wing.

Maximum speed limitations

The maximum permissible speed limitations for the Dunlop Weathermaster SP44 tyre is 137 k.p.h. (85 m.p.h.) with an inflation pressure of 1,97 kg/sq.cm. (28 lb/sq.in.).

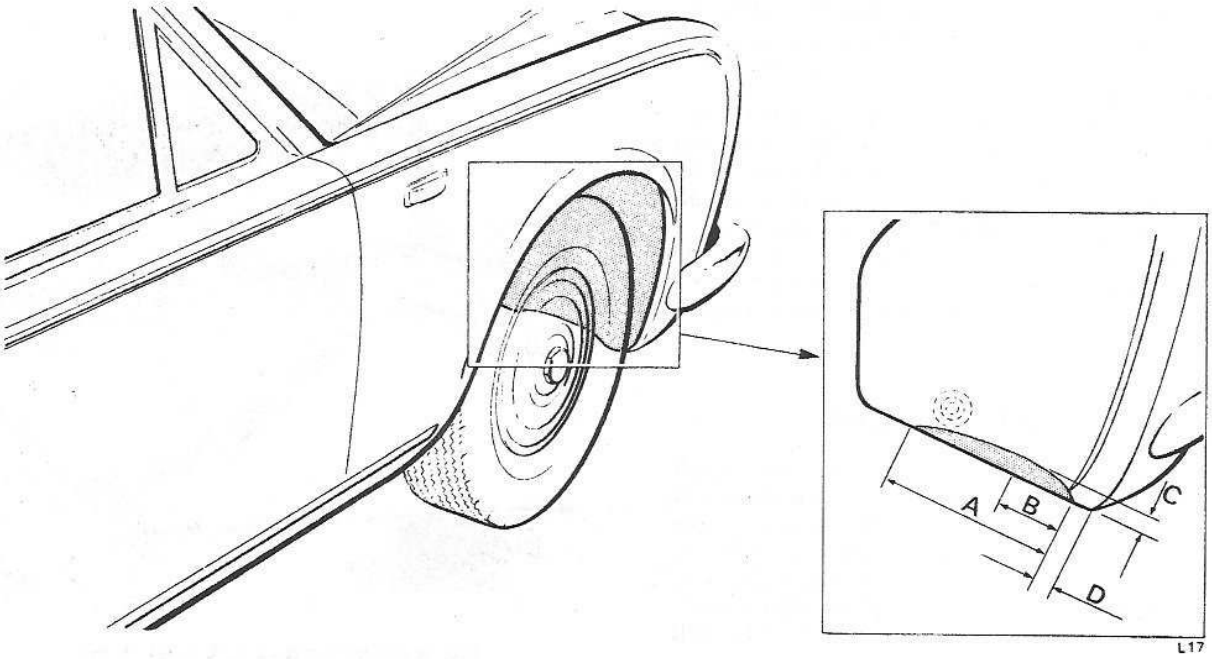

FIG. R13 UNDERWING SHEET CUT AWAY

A 24,13 cm. (9.50 in.)
B 7,62 cm. (3.00 in.)
C 2,54 cm. (1.00 in.)
D 2,54 cm. (1.00 in.)

Note Shading shows area under the wing

By increasing the inflation pressure to 2,25 kg/sq.cm. (32 lb/sq.in.) the safe maximum permissible speed may be increased to 153 k.p.h. (95 m.p.h.).

Studs

The approved tyres are supplied with 116 moulded holes for the acceptance of studs. If studs are to be fitted all holes should be utilised.

It is recommended that, Secomet P2-140 studs are used and when fitting studs to a tyre ensure that they protrude between 1,5 mm. and 2,0 mm. (0.06 in. and 0.79 in.).

Whenever possible a tyre should be studded from new, however, it is acceptable to stud a partially worn tyre provided the studs do not protrude beyond 4,0 mm. (0.157 in.) when fitted. If this limit is exceeded the tyre must be considered too worn to be successfully studded.

Snow chains

On all types of snow chains it is important to note that if the chains are fitted too tightly and the car is driven at fast speeds, or for long distances, on roads which are free of snow, irreparable damage to the tyres and the chains will occur.

Three types of snow chains are recommended, they are as follows.

(a) Kantenspur 07-745
(b) Union S2-3082
(c) Union S2-3081

The Kantenspur 07-745 snow chains are recommended for use on front wheels when HR 70 HR 15 (235/70 HR 15) tyres are fitted.

Union S2-3082 snow chains are recommended as an alternative to the Kantenspur.

Union S2-3081 snow chains are recommended for use on Dunlop Weathermaster 205-15 SP 44 radial-ply tyres.

These snow chains can be used on all four wheels or to the rear wheels only when HR 70 HR 15 (235/70 HR 15) tyres are fitted to the front wheels.

Union S2-3081 snow chains can also be fitted to other 205-15 radial-ply and 8.15 H 15 cross-ply tyres.

When snow chains are fitted, a speed limit of 50 k.p.h. (31 m.p.h.) must not be exceeded on snow free roads.

Note It is advisable when fitting snow chains to wear the plastic gloves provided.

The spare links supplied with the kit are only intended to permit emergency road side repairs to be carried out if a chain is damaged.

Tyre pressures—
With or without snow chains

The recommended tyre inflation pressures (cold) are.

All cars other than Long Wheelbase division

(a) 205-15 Weathermaster to front and rear wheels.
1,97 kg/sq.cm. (28 lb/sq.in.)
(b) HR70 HR15 (235/70 HR15) to front wheels
1,69 kg/sq.cm. (24 lb/sq.in.)
and 205-15 Weathermaster to rear wheels
2,25 kg/sq.cm. (32 lb/sq.in.)
(c) When HR70 HR15 (235/70 HR15) tyres are fitted to both front and rear wheels refer to the figures quoted on Page R5.

Long Wheelbase division cars

(a) 205-15 Weathermaster to front and rear wheels
1,97 kg/sq.cm. (28 lb/sq.in.)
(b) HR70 HR15 (235/70 HR15) to front wheels
1,8 kg/sq.cm. (26 lb/sq.in.)
and 205-15 Weathermaster to rear wheels
2,5 kg/sq.cm. (36 lb/sq.in.)
(c) When HR70 HR15 (235/70 HR15) tyres are fitted to both front and rear wheels refer to the figures quoted on Page R5.

Kantenspur snow chains—To fit

1. Ensure that the car is standing on a level surface.
2. Apply the handbrake/parking brake.
3. Holding the chain apart by the red plastic handles, ensure that it hangs as shown in Figure R14 inset A.
4. Position the chain in an oval shape immediately before or behind the front wheel and move the car until the tyre is situated centrally inside the chain (*see Fig. R14 inset B*).
5. Holding the red handles lift the chain over the tread of the tyre (*see Fig. R14 inset C*).
6. Lift the upper chain and place it completely over the full width of the tyre (*see Fig. R14 inset D*).
7. Fit the rubber tensioner supplied with the kit horizontally near the bottom of the tyre and move the wheel one quarter of a revolution in either a forward or rearward direction (*see Fig. R14 inset E*).
8. Remove the rubber tensioner, disengage the fastener and pull the chain as indicated by the arrow to produce tension (*see Fig. R14 inset F*).
9. To take up the remaining chain, thread it through the outer circumference as shown in Figure R14 inset G and hook in the fastener.
10. Check to ensure that the fastener is hooked securely in the side of the chain and that a clearance of approximately 12,7 mm. (0.5 in.) exists between the chain and the tyre. This clearance is necessary as snow chains should not be fitted too tightly.
11. Repeat Operations 1 to 10 on the other front wheel.

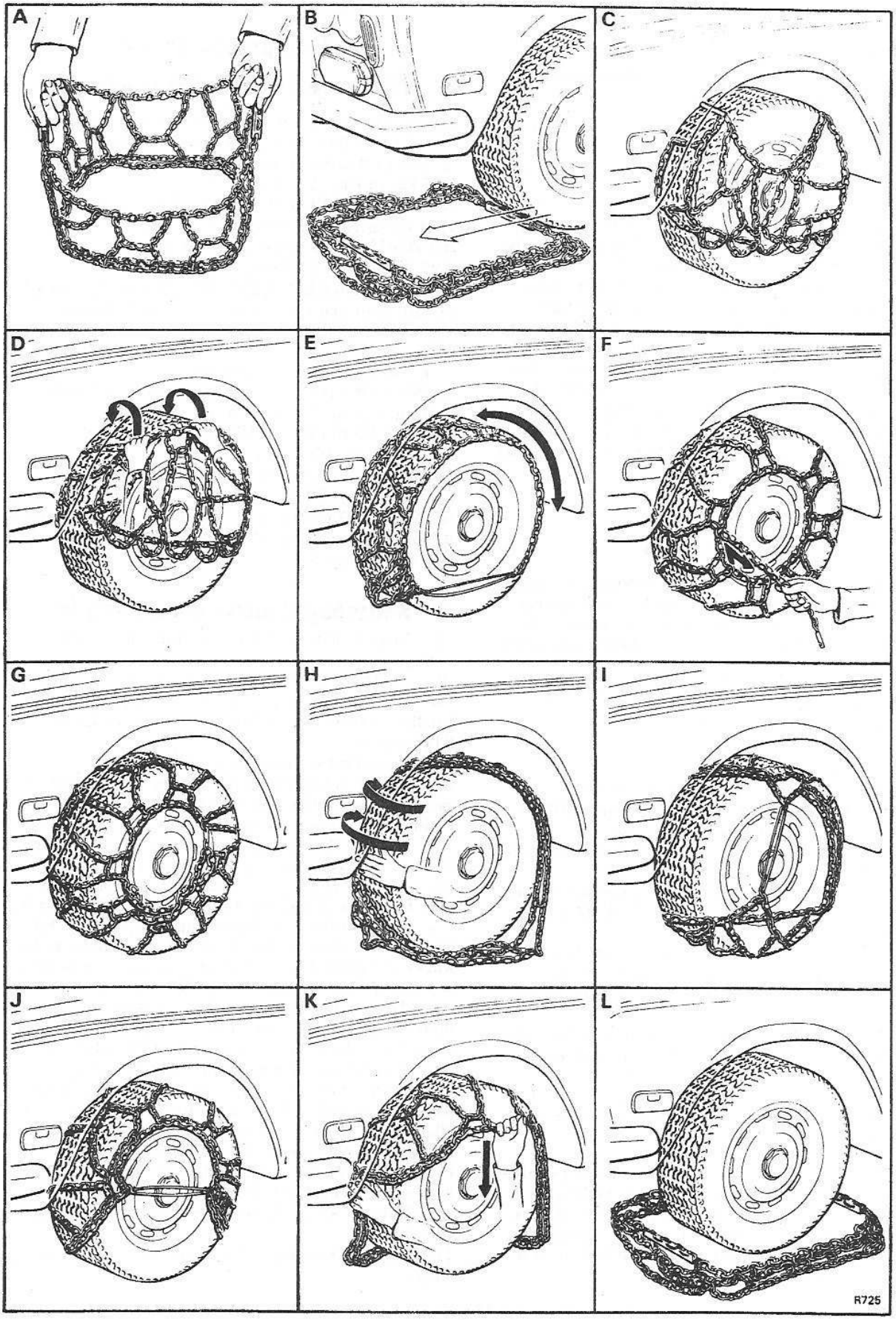

FIG. R14 FITTING AND REMOVING KANTENSPUR SNOW CHAINS

Kantenspur snow chains—To remove

1. Unhook the fastener, unthread it and allow it to hang at the bottom of the wheel *(see Fig. R14 inset H)*.
2. Move the chain towards the inner side of the wheel until part of the tread is visible *(see Fig. R14 inset H)*.
3. Attach the rubber tensioner vertically over the wheel centre *(see Fig. R14 inset I)*.
4. Repeat Operations 1, 2 and 3 on the other wheel.
5. Move the wheels one quarter of a revolution until the free part of the tread is on the ground *(see Fig. R14 inset J)* then remove the tensioners.
6. Hold the chain on the upper part of the wheel, then pull it outwards and downwards until the chain is situated around the base of the wheel *(see Fig. R14 insets K and L)*. Repeat this operation on the other front wheel.
7. Drive the car out of the chains.

Union S2 snow chains (see Fig. R15)

Union S2 chains can be fitted using either of two methods:
(a) Not raising the wheels, and using a fitting clip.
(b) Raising the wheels clear of the ground.

Wheels not raised

1. Ensure that the car is standing on a level surface.
2. Apply the handbrake/parking brake.
3. Position the chain adjacent to the rear wheel ensuring that the tension chain and tensioning key are positioned away from the car *(see Fig. R16 inset A)*.
4. Hook the end or hook links onto the fitting clip and fasten the clip to the tyre *(see Fig. R16 inset B)*.
5. Move the car forward one revolution of the wheels so that the clip can be removed.
6. Remove the clip and evenly distribute the free anti-skid sections around the tyre.
7. Check that the hooks and links are not twisted.
8. Connect the inner and outer chains by means of the hook link and the end or extension links. The inside chain should be connected first.
9. Tighten the tension chain and lock the tensioning key.
10. Check to ensure that the tensioning key is correctly tightened; snow chains must not be fitted too tightly to the tyres. When correctly fitted it should be possible to slide a hand between the chain and tyre *(see Fig. R16 inset C)*.

Wheels raised

Rear wheels

1. Ensure that the car is standing on a level surface.
2. Apply the handbrake/parking brake.
3. Chock the front wheels to prevent the car from rolling.
4. Position a jack in the centre of the final drive casing on the rear suspension crossmember. Place a piece of soft wood between the jack head and the casing. Raise the car until the rear road wheels are clear of the ground.

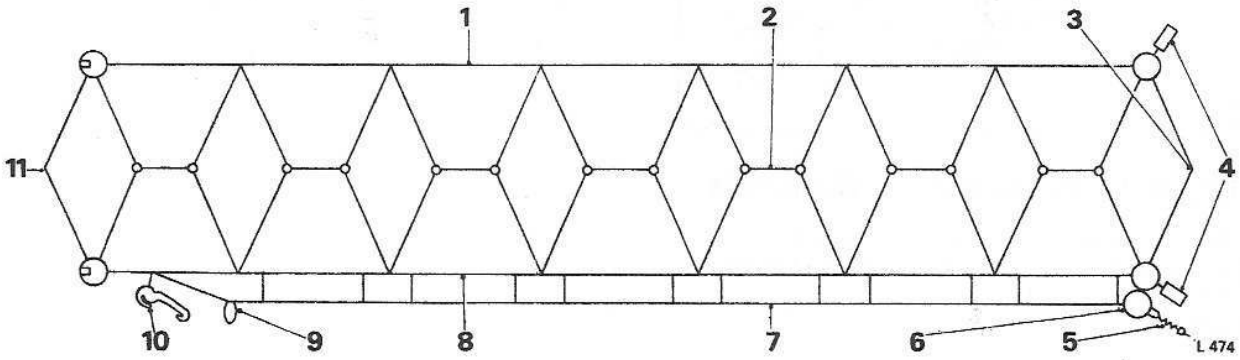

FIG. R15 SNOW CHAIN (UNION S2)

1 Inner chain
2 Anti-skid section
3 End link
4 Extension links
5 Spring hook
6 End fitting
7 Tension chain
8 Outer chain
9 Safety link
10 Tensioning key
11 Hook link

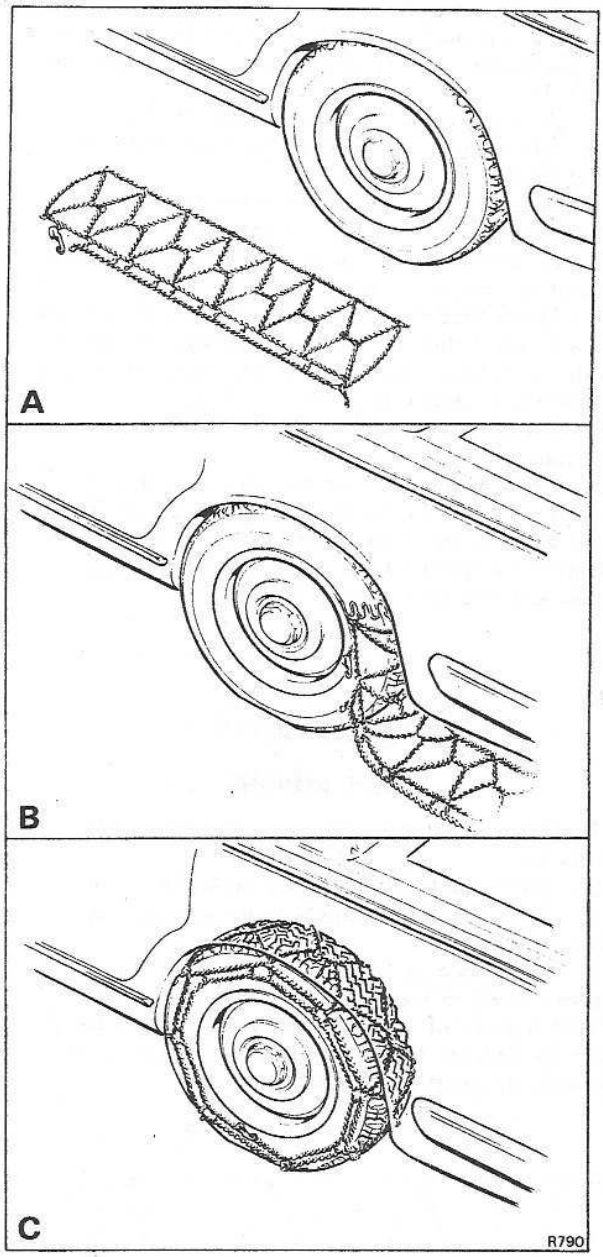

FIG. R16 FITTING UNION S2 3081 SNOW CHAIN

A Snow chain in position prior to fitting
B Fitting snow chain with the aid of the fitting clip-Wheels not raised
C Snow chain correctly fitted

The car jack can be used for this operation by opening the cover plate on the body sill, positioning the jack correctly and raising the side of the car. This method will allow only one rear wheel to be raised at a time.

5. Position the chain adjacent to the rear road wheel ensuring that the tension chain and tensioning key are positioned away from the car (*see Fig. R16 inset A*). The chain should lie flat and not twisted.
6. Lift the chain by the inner side (i.e. the one nearest the wheel) and place it onto the tyre. Spread the anti-skid sections evenly over the tyre.
7. Ensure that the hooks and links are not twisted.
8. Connect the inner and outer chains by means of the hook link and the end or extension links. The inside chain should be connected first.
9. Tighten the tension chain and lock the tensioning key.
10. Repeat Operations 5 to 9 inclusive on the other rear wheel.
11. Lower and remove the jack.
12. Remove the chocks from the front wheels.

Front wheels

1. Repeat Operations 1 and 2 as described for the rear wheels.
2. Chock the rear wheels.
3. Position a jack under the front pivot mounting for the lower triangle levers on the sub-frame and follow the same procedure as in Operation 4 of the rear wheels.
4. Repeat Operations 5 to 9 inclusive as described for the rear wheels.
5. Repeat these operations on the other wheel.
6. Lower and remove the jack.
7. Remove the chocks from the rear wheels.

Cleaning snow chains

To protect the chains against rust, wash in hot water and dry them as soon as possible after use.