

## CHAPTER R

## WHEELS AND TYRES

## Data

## Wheels

Rim diameter	15.00 in.
Rim width	6.00 in.

## Tyres sizes

Silver Cloud	}	8.20 in. × 15.00 in.
Silver Cloud II		
Bentley S1	}	8.20 in. × 15.00 in.
Bentley S2		
Bentley Continental S1 (early)		7.60 in. × 15.00 in.
Bentley Continental S1 (late)	}	8.00 in. × 15.00 in.
Bentley Continental S2		
Phantom V		8.90 in. × 15.00 in.

## Wheels

The steel well-base wheel is secured to the hub by five nuts ( $\frac{1}{2}$  in. U.N.F. 20 t.p.i.).

Left-hand nuts secure the wheels on the left-hand side of the car and right-hand nuts secure the right-hand wheels; an arrow stamped on the crown of each nut indicates whether it has a left-hand or right-hand thread.

A small hole is drilled through the crown of the nuts to prevent 'air pocketing' when tightening.

Care should be taken to ensure that the spherical seatings of the nuts are not damaged and a light coating of grease should be applied to the threads of the nuts before fitting.

The wheel embellishing disc assembly comprises the disc, claw ring and outer painted ring.

To remove the wheel discs, insert a tommy bar between the disc and the tyre.

To fit the wheel discs, locate the valve stem through the hole provided in the disc and tap around the edge of the disc with a hide mallet.

Care should be taken to avoid damaging the chrome or painted surfaces when removing or re-fitting the discs.

## Wheel Balancing

The wheels are both statically and dynamically balanced on initial assembly and it is advisable to check the balance every 5000 miles.

When wheels are to be re-balanced, it is essential that the weight of the car is removed from the tyres as soon as possible, as failure to do so will cause temporary 'flats' to form on the tyres; this is especially so with nylon tyres.

It is pointless to re-balance wheels when the tyres are in this condition, as the static balance may be affected by as much as 10 in./oz.

Special equipment is required to balance road wheels and it is essential that only balance weights obtained from Rolls-Royce Service Departments are fitted.

The standard weights generally available are intended only for fitting to 12 gauge rims and should not be fitted to heavier gauge wheels. Insecurity of the weights when the car is travelling at high speeds could result in considerable damage.

The recommended balance weights are identified by the letters HG stamped on the outer face. These can be obtained from Rolls-Royce Service Departments in the following range:

UG.1460	...	$\frac{1}{2}$ oz.
UG.1461	...	1 oz.
UG.1462	...	$1\frac{1}{2}$ oz.
UG.1463	...	2 oz.
UG.1464	...	$2\frac{1}{2}$ oz.
UG.1465	...	3 oz.

The approved weights incorporate a strengthened spring clip of larger dimensions to accommodate the heavier gauge wheel. The weights can be removed or re-fitted with a special tool supplied by the manufacturer of the wheel balancing machine.

## Pressures

The recommended tyre pressures are:

### Silver Cloud and Bentley S1 — 8.20 × 15 tyres

Power-assisted steering:

Front	21 lb/sq.in.	(1.48 kg/sq.cm.)	} Cold
Rear	26 lb/sq.in.	(1.83 kg/sq.cm.)	

Manual steering:

Front	19 lb/sq.in.	(1.33 kg/sq.cm.)	} Cold
Rear	26 lb/sq.in.	(1.83 kg/sq.cm.)	

### Silver Cloud and Bentley S1 Long Wheelbase — 8.20 × 15 tyres

Front	22 lb/sq.in.	(1.55 kg/sq.cm.)	} Cold
Rear	28 lb/sq.in.	(1.97 kg/sq.cm.)	

### Bentley Continental S1 (early) — 7.60 × 15 tyres

Front	22 lb/sq.in.	(1.55 kg/sq.cm.)	} Cold	{ for normal speed running
Rear	24 lb/sq.in.	(1.70 kg/sq.cm.)		
Front	30 lb/sq.in.	(2.1 kg/sq.cm.)	} Cold	{ for maximum speed running
Rear	35 lb/sq.in.	(2.46 kg/sq.cm.)		

### Silver Cloud II and Bentley S2 — 8.20 × 15 tyres

Front	22 lb/sq.in.	(1.55 kg/sq.cm.)	} Cold
Rear	27 lb/sq.in.	(1.90 kg/sq.cm.)	

### Silver Cloud II and Bentley S2 Long Wheelbase — 8.20 × 15 tyres

Front	23 lb/sq.in.	(1.62 kg/sq.cm.)	} Cold
Rear	29 lb/sq.in.	(2.04 kg/sq.cm.)	

When fitting the weights to the rim, use only sufficient force to secure them in position; too much force will tend to slacken them.

It is essential, when balancing wheels on these machines, that the maker's instructions are fully observed.

## Tyres

Information regarding the latest approved tyres for Rolls-Royce and Bentley cars can be obtained from Service Bulletins which will be issued when necessary.

**When the fitting of new tyres is being contemplated, reference should be made to the latest Bulletin.**

When new tyres have been fitted, the speed of the car must not exceed 90 m.p.h. for the first 100 miles; heat generated by a new tyre until it is sufficiently flexed makes it unsafe for really fast driving.

After fitting a new tyre it is necessary to re-balance the wheel.

**Bentley Continental S1 (late) and S2 — 8.00 × 15 tyres**

Front	20 lb/sq.in.	(1.41 kg/sq.cm.)	} Cold	{ for normal speed running
Rear	25 lb/sq.in.	(1.76 kg/sq.cm.)		
Front	25 lb/sq.in.	(1.76 kg/sq.cm.)	} Cold	{ for maximum speed running
Rear	30 lb/sq.in.	(2.11 kg/sq.cm.)		

**Bentley Continental S2 Park Ward Convertible Coupe**

Front	20 lb/sq.in.	(1.41 kg/sq.cm.)	} Cold	{ for normal speed running
Rear	28 lb/sq.in.	(1.97 kg/sq.cm.)		
Front	25 lb/sq.in.	(1.76 kg/sq.cm.)	} Cold	{ for maximum speed running
Rear	33 lb/sq.in.	(2.33 kg/sq.cm.)		

**Phantom V — 8.90 × 15 tyres**

Front	22 lb/sq.in.	(1.55 kg/sq.cm.)	} Cold
Rear	27 lb/sq.in.	(1.90 kg/sq.cm.)	

It is essential when checking tyre pressure that the tyre be cold; a hot tyre **must not** be deflated in order to obtain the required pressure, for as a tyre cools, so the pressure decreases.

**Snow Tyres**

The approved tyres for winter driving are Dunlop 'Weathermaster' and Firestone 'Town and Country'; these tyres are designed to provide adequate traction in snow and mud. The sustained speed on these tyres must be limited to 80 m.p.h. The correct pressure for these tyres is 30 lb/sq.in. (2.11 kg/sq.cm.).

**Tyre Service****Interchanging wheels**

Every 5000 miles the wheels should be interchanged in order to equalise wear between the front and rear tyres. This should be so arranged that the best tyres of the set are used on the front wheels.

When interchanging the wheels, the tread of the tyres should be examined for uneven wear due to steering geometry faults. Excessive wear on the front tyres indicates the necessity for checking the steering geometry; any apparent faults should be rectified immediately.

Remove any flint or pebbles embedded in the tyre tread.

**Tubeless tyres**

Rolls-Royce and Bentley cars are fitted with tubeless tyres when delivered, unless the customer specifically requests 'tubed' equipment.

Before servicing tubeless tyres, dealers should make certain that appropriate tools are available and that personnel are familiar with the procedure for fitting and removal.

It is essential, when fitting tubeless tyres, that the bead is correctly seated in order to obtain an efficient seal, if necessary with the assistance of a tyre bead lubricant. This lubricant can be obtained from Rolls-Royce Service Departments in London or Crewe either in 1 gallon tins (Part No. RH.652) or in 5 gallon drums (Part No. RH.653); it is also suitable for fitting 'tubed' tyres.

A puncture in a tubeless tyre can be repaired with a Dunlop 'Reddiplug' repair outfit. This method of repair is quite simple and can be carried out without removing the tyre from the rim; full instructions are provided with each outfit.

**'Tubed' tyres**

'Butyl' inner tubes, although manufactured from synthetic rubber, can be repaired in the same manner as tubes of natural rubber.

When installing an inner tube, ensure that it is free from 'kinks' when placed inside the cover. Unlike

tubes of natural rubber, synthetic tubes retain their extended size when deflated.

### **Tyres — to remove**

Remove the tyre in the usual manner, ensuring that the narrow bead seating is uppermost. A liberal amount of lubricant should be applied to the tyre levers and the tyre beads when removing the tyre.

A special tool for removing and fitting the valve is manufactured by the Dunlop Rubber Co. Ltd.

Lubricate the valve and remove it by means of the special tool. If the tool is not available, a thin pointed screwdriver may be used by gently forcing it between the shoulder of the valve and the hole in the rim at the same time pushing the valve inward.

The valve must then be discarded and a new one fitted.

### **Tyres — to fit**

Remove any burrs, high spots and scale from the wheel, particular attention being given to the tyre bead seating.

A specially designed Schrader air valve is fitted for use with tubeless tyres. Smear the valve with tyre bead

lubricant and press it into the hole in the rim, using the special tool.

If this tool is not available, the valve can easily be installed as follows:

Smear the valve with tyre bead lubricant and insert it into the hole from inside the rim, hold the outer end of the valve and whilst working it from side to side, press on the spherical end with a piece of wood.

If tyre bead lubricant is not available, a solution of soap and water may be used; industrial soft soap must not be used.

Lubricate the tyre beads, rim flanges and the area of the bead ledge and carry out the normal fitting procedure, ensuring that the narrow edge of the rim is uppermost.

Inflate the tyre to a maximum pressure of 50 lb/sq.in.

**Note: It is important that the initial inflation pressure of 50 lb/sq.in. is not exceeded.**

If the beads are not correctly seated at this pressure, deflate the tyre and lubricate further, then centralise the tyre and again inflate to the maximum pressure.

Ascertain that the beads are correctly seated, then deflate the tyre to the required pressure.

## CHAPTER R

## WHEELS AND TYRES

**Data**

(Page R 1 in Workshop Manual)

**Wheels — S3 cars only**

Rim diameter	15.00 in.
Rim width	6.00 in.

**Tyre sizes**

Silver Cloud III	8.20 in. × 15.00 in.
Bentley S3	8.20 in. × 15.00 in.
Bentley Continental S3	8.00 in. × 15.00 in.
Phantom V	8.90 in. × 15.00 in.

**Wheel balancing**

(Page R1 in Workshop Manual)

**For S3 cars the first paragraph to read**

The wheels are both statically and dynamically balanced on initial assembly and it is advisable to check the balance every 6000 miles (10,000 Kms.).

**Pressures**

(Page R2 in Workshop Manual)

**On S3 cars the recommended tyre pressures are:**

Silver Cloud III and Bentley S3 — 8.20 in. × 15.00 in. tyres		
Front	22 lb/sq.in. (1.55 kg/sq.cm.)	} Cold
Rear	27 lb/sq.in. (1.90 kg/sq.cm.)	

**Silver Cloud III and Bentley S3 Long Wheelbase 8.20 in. × 15.00 in. tyres**

Front	23 lb/sq.in. (1.62 kg/sq.cm.)	} Cold
Rear	29 lb/sq.in. (2.04 kg/sq.cm.)	

Bentley Continental S3 8.00 in. × 15.00 in. tyres	Front 20 lb/sq.in. (1.41 kg/sq.cm.)	}	Cold for normal speed running
	Rear 25 lb/sq.in. (1.76 kg/sq.cm.)		
	Front 25 lb/sq.in. (1.76 kg/sq.cm.)	}	Cold for maximum speed running
	Rear 30 lb/sq.in. (2.11 kg/sq.cm.)		
Phantom V 8.90 in. × 15.00 in. tyres	Front 22 lb/sq.in. (1.55 kg/sq.cm.)	}	Cold
	Rear 27 lb/sq.in. (1.90 kg/sq.cm.)		

**Tyre service**

(Page R3 in Workshop Manual)

**Interchanging wheels**

For S3 cars the first paragraph to read

Every 6000 miles (10,000 Kms.) the wheels should be

interchanged in order to equalise wear between the front and rear tyres. This should be so arranged that the best tyres of the set are used on the front wheels.

The remaining information in this Section which applies to S2 cars is also applicable to S3 cars.