Sales Directory

Rolls-Royce & Bentley motor cars

Rolls-Royce Silver Spirit II
Rolls-Royce Silver Spur II
Rolls-Royce Corniche IV
Rolls-Royce Silver Spur II Touring Limousine
Bentley Brooklands
Bentley Turbo R
Bentley Continental
Bentley Continental R

TSD 4440

September 1992

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The information in this document is the latest available at the time of publication. However, Rolls-Royce and Bentley motor cars are the subject of a continuous development programme and the data presented may therefore become out of date.

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Design philosophy, engineering integrity, craftsmanship, fine materials, comprehensive specifications and tradition all play their part in maintaining the reputation of Rolls-Royce and Bentley motor cars as the best in the world. They also combine to make any Rolls-Royce or Bentley a uniquely satisfying car to own and drive.

Establishing this important link between philosophy, feature and customer benefit is something that every Rolls-Royce sales executive endeavours to master.

This Sales Directory is designed to help him by providing the information he needs in a readily accessible form – specific customer benefits, for example, are shown in **bold** type. Used in conjunction with other Rolls-Royce Motor Cars publications – particularly the New Car Order guides and the respective handbooks – it will prove to be an invaluable work of reference.

About this edition of the Sales Directory

Like every Rolls-Royce and Bentley before them, the Rolls-Royce Silver Spirit II and its derivatives are the subject of a continuous development programme designed to keep them at the forefront of automotive technology. Thus the 1993 range described in this edition of the Sales Directory embraces not only significant new models but also a number of major technical innovations introduced over a two year period. The principal changes have coincided with the 1992 and 1993 model years with effect from the VIN serial numbers and dates shown in the table:

For convenience, and to avoid constant repetition of the entire range, it is the 1993 Silver Spirit II that forms the principal subject of this directory and, unless qualified by text or context, the features described can be taken to be equally applicable to all other Rolls-Royce and Bentley models.

Marque	Model	1992MY		1993MY	
		First VIN	First deliveries	First VIN	First deliveries
Rolls-Royce	Silver Spirit II	44007	Dec 1991	46009	June 1992
	Silver Spur II	44001	Dec 1991	46001	July 1992
	Corniche IV	40001	Feb 1992	40501	Nov 1992
	Silver Spur II Touring Limousine	80001	April 1992	80019	Oct 1992
Bentley	Eight	44022	Dec 1991		
	Mulsanne S	44015	Dec 1991		
	Brooklands			46004	Sep 1992
	Turbo R	44002	Dec 1991	46003	July 1992
	Continental	40002	Feb 1992	405	
	Continental R	42001	March 1992	42501	Oct 1992

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All models – specifications compared

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Summary

- a Rolls-Royce or Bentley motor car to suit every requirement
- distinctive model identity
- a sporting accent for the Bentley marque
- a comprehensive range of fine motor cars

Key

* standard equipment or feature

O optional equipment or feature available at no extra charge if requested when ordering

● equipment or feature available at extra charge

A blank space in a column indicates that the equipment or feature is not available for that particular model.

Aust'ia	Australia
E	Europe
ME	Middle East
NAm	North America

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		Rolls-Royce				Bentley			
		Silver Spirit II	Silver Spur II	Corniche IV	Touring Limousine	Brooklands	Turbo R	Continental	Continental R
Date introduced	current model	9.89	9.89	2.92	10.91	9.92	5.85	6.84	3.91
	initial model	10.80	10.80	3.71		10.80	3.82	3.71	
Country availability	all	*	*			*	*		*
	exceptions			Sweden	Australia Canada			Sweden	
Coachwork									
Body style	4-door saloon, 5 seats	*	*			*	*		
	4-door limousine, 6 seats				*				
	2-door coupé, 4 seats								*
	2-door convertible, 4 seats			*				*	
Coachbuilder	Rolls-Royce Motor Cars	*	*			*	*		*
	Mulliner Park Ward			*	*			*	
Construction	integral body chassis	*	*	*	*	*	*	*	*
Wheelbase	120.5in 3061mm	*		*		*	*	*	*
	124.5in 3162mm		*			●	●		
	148.5in 3772mm				*				
Technical features									
Engine	6750cc 412cu.in V8	*	*	*	*	*	*	*	*
Engine management	K-Motronic	*	*	*	*	*		*	
	K-Motronic, turbocharger						*		*
Compression ratio	8.0:1	*	*	*	*	*	*	*	*
Electronic ignition	dual 4-point distributor	*	*	*	*	*	*	*	*
Exhaust system	dual, 2 silencer, 1 outlet	*	*	*	*	*		*	
	dual, 3 silencer, 2 outlets						*		*
Braking system	4 disc, powered hydraulic system, anti-lock	*	*	*	*	*	*	*	*
Suspension	independent front and rear, automatic ride control, ride height control	*	*	*	*	*	*	*	*
Anti-roll bar stiffness	normal	*	*	*	*			*	
	increased					*	*		*
Damper settings	softer – bias to comfort	*	*	*	*			*	
	firmer – bias to handling					*	*		*
	automatic selection of firm setting in Sport transmission mode								*
Panhard rod	to rear suspension						*		*
Sub-frame mounts, front	soft	*	*		*				
	firm			*		*	*	*	*
rear	soft forward, firm rear	*	*		*				
	firm front and rear			*		*	*	*	*
Steering	power assisted rack and pinion	*	*	*	*	*	*	*	*
Weighting	normal	*	*	*	*				
	increased					*	*	*	*

All models – specifications compared

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		Rolls-Royce				Bentley			
		Silver Spirit II	Silver Spur II	Corniche IV	Touring Limousine	Brooklands	Turbo R	Continental	Continental R
Transmission	4-speed automatic, electronic control	*	*	*	*	*	*	*	*
	Sport mode						*		*
Final drive ratio	2.69:1 40mph (64kph) per 1000rpm in top gear						*		
	3.07:1 35mph (56kph) per 1000rpm in top gear	*	*	*	*	*		*	*
External features									
Badges									
Front wing	no badge	*	*	*	*			*	*
	BENTLEY					*			
	TURBO R						*		
	TURBO R L						* lwb		
Rear quarter panel	marque	●	*			●	●		
						* lwb	* lwb		
	Mulliner Park Ward				*				
Bentley radiator shell									
Shell	polished					○	○	*	
	painted					*	*		*
Vanes	etched finish					*	*		*
	polished with polished shell only					○	○		
	painted							*	
Badge colour	green (1993 model year only)					*	*	*	*
	black label					*	*		*
	red label							*	
Bonnet	centre polished strip	*	*	*	*		*	*	
	no centre strip					*			*
Bumpers	black rubber, polished top plate	*	*						
	black rubber, painted top plate – body colour					*	*		
	body colour, plated top plate			*	*			*	*
Door mirrors	polished	*	*		*	○	○	○	
	painted in body colour			*		*	*	*	*
Everflex roof covering		●	*	*		●	●	*	
Fine lines	no fine lines	○	○	○	○	○	○	○	*
	single: thin	○	○	○	○	○	○	○	○
	thick	○	○		○	○	○		
	double: thin-thick	*	*		○	*	*		
	thick-thin	○	○		○	○	○		
	thick-thick	○	○		○	○	○		
	thin-thin	○	○	*	○	○	○	*	
	triple: thin-thin-thin				*				
Tyres	black	○	○	○	○	*	*	*	*
	whitewall	*	*	*	*	●		●	
Wheels	6½ J x 15 alloy	*	*	*	*	*		*	
	7½ J x 15CH alloy						*		
	7½ J x 16CH alloy								*

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All models – specifications compared

September 1992

		Rolls-Royce				Bentley			
		Silver Spirit II	Silver Spur II	Corniche IV	Touring Limousine	Brooklands	Turbo R	Continental	Continental R
Instruments	clock	*	*	*	*	*	*	*	*
	coolant temperature gauge	*	*	*	*	*	*	*	*
	fuel/oil level gauge	*	*	*	*	*	*	*	*
	oil pressure gauge	*	*	*	*	*	*	*	*
	oil temperature gauge								*
	outside air temperature gauge	*	*	*	*	*	*	*	*
	speedometer:								
	150mph (240kph)	*	*	*	*				
	170mph (274kph)					*	*	*	*
	tachometer				*		*	*	*
*									
	voltmeter	*	*	*	*	*	*	*	*
Rear quarter companions		*	*		*	*	*		
Rear seat adjustment			*		*	● lwb	● lwb		
Sports style fluted seats				*		●	*	*	*
Steering wheel	2-spoke – not available in North America	* ● E ME	* ● E ME	* ● E ME	* ● E ME				
	3-spoke sports style – not available in North America					* ● E ME	* ● E ME	* ● E ME	* ● E ME
	4-spoke air bag – standard in North America, Europe, ME	●	●	●	●	●	●	●	●
Through console	front			*		*	*	*	
	front, removable rear								*

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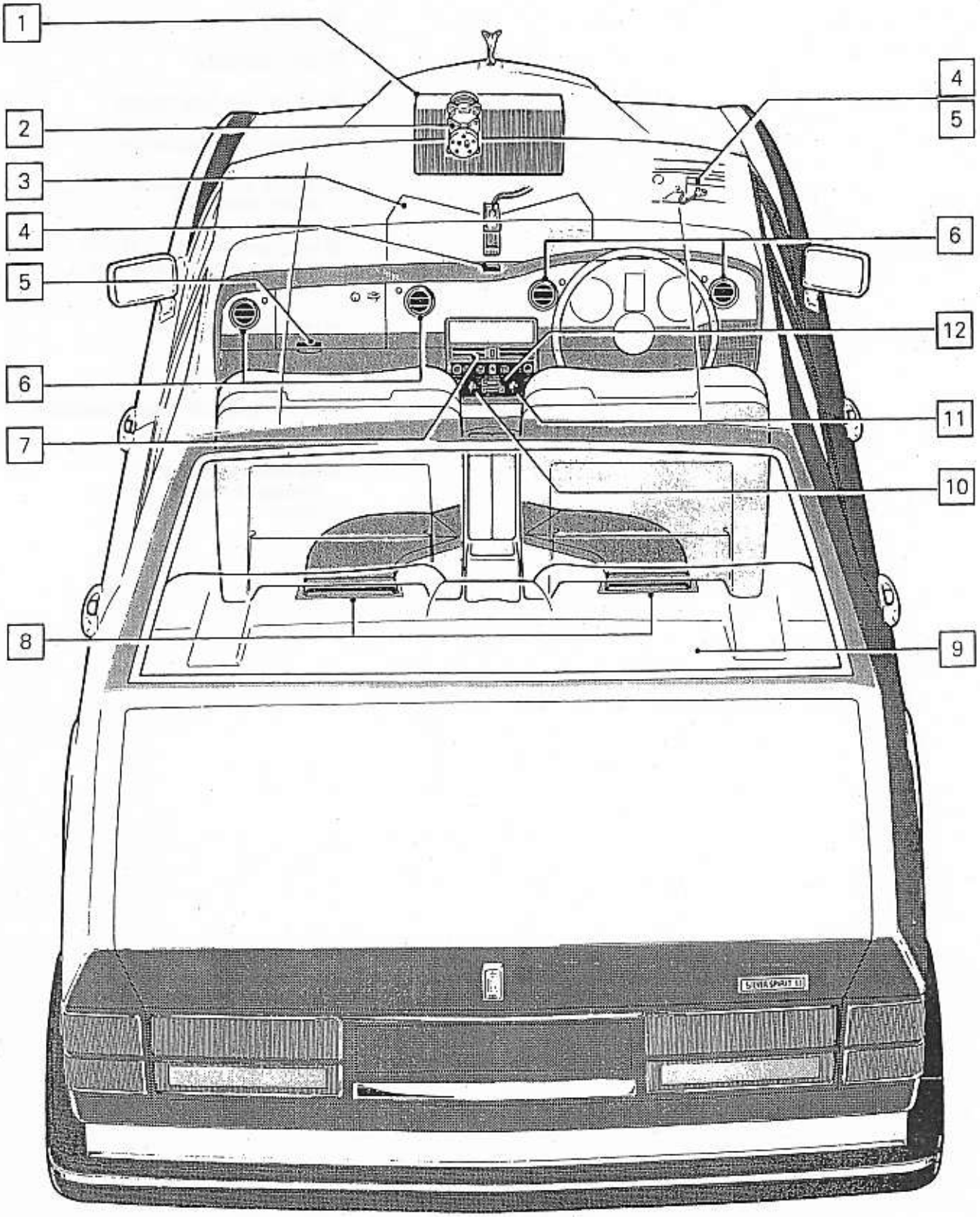
		Rolls-Royce				Bentley			
		Silver Spirit II	Silver Spur II	Corniche IV	Touring Limousine	Brooklands	Turbo R	Continental	Continental R
Wheel centres	enamelled RR	✱	✱	✱					
	enamelled RR plus MPW				✱				
	enamelled B							✱	
	enamelled B, octagonal motif					✱			
	blind embossed B						✱		
	blind embossed winged B								✱
Wheel arch finisher	stainless steel			✱	✱			✱	
Wheel trim	plain	✱	○	○					
	with painted ring	●	✱	✱	✱				
Internal features									
Air conditioning	fully automatic	✱	✱	✱		✱	✱	✱	✱
	fully automatic front, manual rear				✱				
Air horns		●	● ✱ NAm	✱	✱	✱	✱	✱	✱
Cellular telephone	where system available	●	✱	● ✱ NAm	✱	● ✱ lwb	● ✱ lwb	● ✱ NAm	✱
Audio equipment CD player	multi – to front	✱	✱	✱		✱	✱	✱	✱
	multi – to rear				✱				
Radio-cassette	to front – 25W/channel	✱	✱	✱	✱	✱	✱	✱	✱
	to front – 40W/channel	●	●	●		●	●	●	●
	to rear – 40W/channel				✱				
Speakers, number of	front	6	6	6	6	6	6	6	6
	rear	4	4	4	6	4	4	4	2
TV and video player	rear				✱				
Finishes and appointments									
Facia trim	hide	✱	✱	✱	✱	✱	✱	✱	✱
Fluted door trim						✱			
Footrests	loose to rear	✱	✱			✱	✱		
Opening centre armrest	front			✱				✱	✱
	rear	●	✱	●	✱	● ✱ lwb	● ✱ lwb	●	✱
Picnic tables	padded or veneered	●	✱	●	✱	● ✱ lwb	● ✱ lwb	●	
Roll top lid	to stowage bin	✱	✱		✱	●	✱		✱ rear
Rugs	lambswool	✱	✱	✱	✱	●	✱	✱	✱
Veneers	black lacquer	○	○	○	○	○	○	○	○
	elm, burr with crossband	●	●	●	●	●	●	●	●
	mahogany with crossband	○	○	○	○	○	○	○	○
	maple, bird's eye	●	●	○	●	●	●	○	●
	walnut, burr with crossband and boxwood inlay	✱	✱	✱	✱			✱	
	walnut, burr with crossband and silver inlay				●				
	walnut, burr (crossband on doors)	○	○	○	○	✱	✱	○	✱
Gear range selector	on steering column	✱	✱	✱	✱			✱	
	on centre console					✱	✱		✱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Air conditioning

September 1992

Summary

- fully automatic
- unique two level control
- refined and unobtrusive
- interior misting almost totally eliminated
- automatic switching of rear window demister and door mirrors
- standard equipment

Related Sales Directory sections

Air conditioning –
Rolls-Royce Silver Spur II
Touring Limousine
Controls

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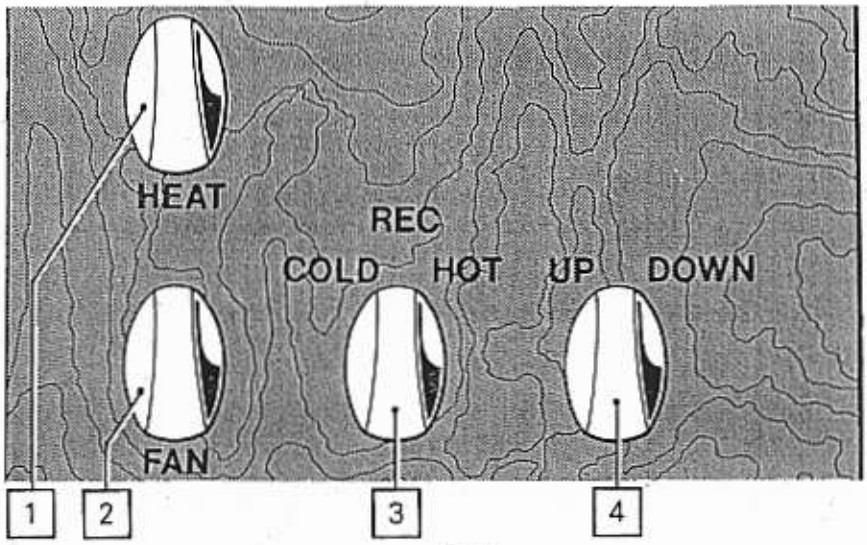
While the front compartment of the Touring Limousine is served by the standard automatic air conditioning system, two air conditioning units mounted within the division structure provide the rear compartment with totally independent heating and cooling. The units and their integral fans work in parallel under the manual control of four switches situated on the master passenger seat armrest. Although independent in function and control, the units do depend on the same heat and refrigerant sources as the front compartment installation and so their correct operation requires the engine to be running and the refrigerant compressor engaged (ie the front compartment function selector in a position other than OFF or ECON). The system draws air from the front compartment and heats or cools it in accordance with the 'instructions' received from the manual control switches.



1

HEATing switch

The HEAT switch controls the degree to which the hot water tap on the pipe to the units is opened. It therefore governs the temperature of heated air. There are 19 settings giving very fine control as the switch is turned clockwise.

2

FAN switch

The FAN switch controls the air conditioning system. When off, the hot water tap is closed and the solenoid valve on the refrigerant pipe shut. As soon as the FAN switch is moved clockwise, one or other will open if the mode switch is set to an appropriate position. There are nine fan speeds selected progressively as the switch is turned clockwise. Control over the flow rates of air entering the rear compartment is therefore very precise.

3

Mode switch

This switch has three settings.

COLD closes the hot water tap and opens the refrigerant solenoid valve to enable the air conditioning units to cool incoming air.

The RECirculation setting closes both hot and cold sources and allows the air already in the compartment to be pumped round by the fans. It is useful on those occasions when air drawn in from outside is affected by fumes.

HOT closes the solenoid valve and opens the hot water tap to a position governed by the HEATing switch. Incoming air is therefore heated.

4

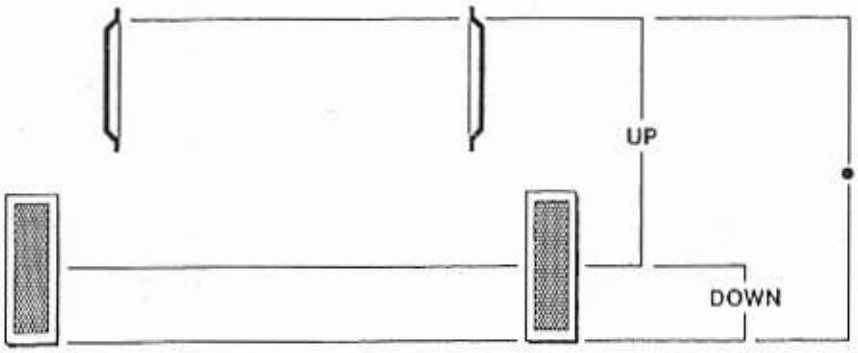
Distribution control

The fourth switch governs the way the air is directed into the rear compartment through the division outlets. There are four outlets visible but the lower pair are effectively two with upper and lower elements. The switch has three positions:

UP directs air into the compartment at the upper level through the division glass level outlets and the top part of the lower outlets.

The centre position (marked with a dot) gives bi-level distribution using all six outlets.

DOWN directs air through the bottom part of the lower outlets.



The operation of the system may be summarised as follows:

for heat
(a) engine running
(b) FAN switch on - adjust to control air flow
(c) mode switch to HOT
(d) adjust HEAT switch to control temperature

for cooling
(a) refrigerant compressor operational - front mode switch not in OFF or ECON positions
(b) engine running
(c) FAN switch on - adjust to control air flow
(d) mode switch to COLD

for recirculation
(a) FAN switch on - adjust to control air flow
(b) mode switch to REC

In all cases, govern distribution with UP.DOWN control.

Air conditioning

Rolls-Royce Silver Spur II Touring Limousine

September 1992

Summary

- fully automatic system for front compartment
- totally separate system for rear compartment under contour of 'master' passenger
- refined unobtrusive and versatile

Related Sales Directory section

Air conditioning
Appointments
Rolls-Royce Silver Spur II
Touring Limousine

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Air conditioning

Air conditioning - the capability to cool as well as to heat the car interior - was first offered on Rolls-Royce and Bentley motor cars in 1956 and has been part of the standard specification since 1969. The fully automatic system now used was introduced on the new Rolls-Royce Camargue in 1975 after an 8 year long development programme. The first major changes came in with the 20,000 series (from October 1986) when a fully electronic micro-processor control unit and the introduction of the most modern components brought even higher standards of efficiency and reliability.

The Rolls-Royce air conditioning system is unique because it gives completely separate and fully automatic control over both upper and lower level temperatures within the car. It is notably effective and unobtrusive in operation and represents a very impressive feature of the current Rolls-Royce and Bentley range.

1

Condenser
The refrigerant condenser is mounted in front of the radiator matrix. Its function is to get rid of heat gained by the coolant (Refrigerant 12) when passing through the air conditioning unit (ACU) evaporator, heat which has been removed in cooling the car interior. To aid the process of heat rejection in adverse conditions, the air conditioning system is one of two (the other being the engine cooling system) which can switch on the two auxiliary electric fans in front of the condenser.

2

Compressor
The refrigeration system uses a vapour compression cycle similar to that of a domestic refrigerator. The compressor is engine driven through a magnetic clutch which is controlled by a temperature sensor situated in the ACU evaporator. It is therefore driven only when needed - a benefit to fuel economy as well as ACU efficiency.

The driver can switch out the compressor permanently by selecting the ECON setting on the function switch. This facility was introduced with the 20,000 series (from October 1986) and may be used in ambient temperatures where heating is required to (a) save power and therefore fuel consumption and (b) to help passengers who may be sensitive to the dried air produced by the ACU in its automatic modes.

3

Air conditioning unit
The ACU lies at the heart of the air conditioning system. All air entering the car has to pass through it first. Unless the compressor has been disengaged by use of the ECON setting, incoming air is initially cooled to about 0°C (so causing all moisture to condense and effectively eliminating the possibility of misting on cold glass window surfaces within the car) and then heated as required to establish and maintain chosen temperatures. Two dynamically balanced blower fans, both carefully designed for quiet operation, under the control of an electronic speed module operate as quickly or slowly (unless the function switch is in its LOW setting in which case there is a constant low fan speed) as necessary to achieve and stabilise the selected temperatures as rapidly as possible.

The micro-processor control system has several advantages compared with its electro-mechanical predecessor:

a) a reduced number of parts brings even higher standards of reliability
b) fault diagnosis and servicing is greatly simplified
c) it is lighter

The ACU is mounted in the bulkhead where it acts as an effective noise barrier.

Capacities: heat 9kW; cooling 1.5 tons of refrigeration.

4

Sensors - upper system
Three thermistor sensors (one behind the front bumper sensing ambient temperatures, one in the centre of the roof in saloons and on the cantrail of convertibles, and the third on the facia top roll sensing the effect of the sun through the windscreen) provide temperature information to the micro-processor controlling the upper system.

5

Sensors - lower system
Temperature information for the lower system micro-processor is supplied by the external sensor shared with the upper system (for ambient temperatures) and an internal unit mounted beneath the front passenger knee roll.

6

'Bulls-eye' vents
Four adjustable facia vents, each with push-pull volume control, admit cool or cold air whenever the upper system is cooling the car interior - it will be ambient air if the ECON function is selected and it could be warm or hot air if the RECIRC-AUTO-SCREEN FACIA switch is used to direct air from the windscreen to the facia while heated air is being directed up the screen. By introducing cooler air at head and face level, they help to maintain alertness.

The outer vents are a Silver Spirit II feature. They bring a flow of air to the sides of the car interior so improving further the overall distribution of cool and cold air and therefore the comfort of passengers.

7

Central facia outlet
The primary purpose of the central facia outlet is to direct upper level cool or cold air between the front seats to the rear compartment. With the introduction of the Silver Spirit II, the outlet became a fixed non-directional vent with thumbwheel volume control.

Like the 'bulls-eye' vents, the outlet can also introduce ambient air if the ECON function is selected and warm or hot air if the SCREEN FACIA switch has been used to divert air from the windscreen.

8

Ducts to rear compartment
A revised layout introduced with the 20,000 series (from October 1986) brought further improvements to the distribution of lower system heated and cooled air to the rear. The outlets are beneath the front seats.

9

Rear window demister

Rear window demisters have been standard on Rolls-Royce and Bentley saloon models since 1952. Very fine, almost invisible wires are buried within a laminated screen and are **switched on automatically** (there is no switch within the car) whenever upper system air is being directed to the windscreen.

The same switch also controls the electrically heated door mirrors introduced with the 20.000 series (from October 1986).

A laminated glass rear window with electric demisting is a feature of the new hood introduced on the Corniche IV (40001) and its 1992 Bentley Continental counterpart. When the hood is down, the heating circuit is automatically isolated.

The current demands of the window and mirror demister circuits are high but well within the capability of the alternator power output under normal conditions. However, as an **additional safeguard, the battery voltage is constantly monitored by the micro-processor** and, if voltage falls below a predetermined level, the demister elements are switched off to relieve load.

10

Function selector

The function selector switch gives the option of fully AUTOmatic operation, a fixed LOW fan speed, automatically varied but HIGHer than AUTO fan speeds, the ECONomy setting which cuts out the refrigeration compressor, or switching OFF. The sixth position, marked by a symbol, selects maximum heat and maximum fan speed for very rapid windscreen defrosting. In this position, all available air is directed up the screen automatically.

11

RECIRC-AUTO-SCREEN FACIA switch

The rotary switch located on the Silver Spirit II to the right of the temperature selectors has two functions.

Moved clockwise to SCREEN FACIA (after which it will return to the central AUTO position), it will divert air from the screen to the facia vents. A further clockwise move will reverse the process.

This overriding of the automatic distribution is particularly useful in those circumstances when the selected in-car temperatures have been reached and the ACU has little more to do than direct small quantities of air up the screen in order to compensate for heat gain or loss through the glass. Diverting this air to the facia vents brings a **pleasant face level draught which makes drowsiness less likely.** If it has not been selected earlier, the upper system will revert to automatic control when the ignition is switched off.

Moved anti-clockwise to RECIRC (where it will stay), the switch converts the fresh air system into a recirculating one. It is the air already within the car which is then heated or cooled to maintain a chosen temperature and the facility enables **a comfortable interior environment to be enjoyed at times when outside air might introduce unpleasant fumes.** To avoid an accumulation of stale air, it is recommended that the mode is cancelled as soon as is practicable. There is no automatic cancellation.

12

Temperature selectors

The temperature selectors are, on the Silver Spirit II located with other ACU controls on the centre console.

They enable temperatures of between 17°C and 35°C (61°F - 91°F) to be independently selected for upper and lower interior levels. In normal use, they need hardly ever be touched once set as no manual overriding will better an automatic system designed to attain selected temperatures as quickly as possible and then maintain them with great accuracy. But there are circumstances when occupants prefer to retain high levels of heating or cooling for longer periods than the sensors would normally provide and to meet this requirement the selectors in the Silver Spirit II can be turned past detents at each end of the scale to provide increased fan speed and either maximum heat or maximum refrigeration.

On convertibles, with the hood up the automatic ACU operates in exactly the same way as in saloon models. When the hood is down, the upper selector changes role automatically to become a conventional controller of the air coming through the upper system ducts. Thus the blue sector provides progressively colder air rather than a constant temperature in the 17°C - 26°C range (26°C representing the temperature commanded by the mid point in the white segment) and the red sector offers progressively warmer air. The lower selector continues to govern the temperature in the lower level of the passenger compartment.

Refinements

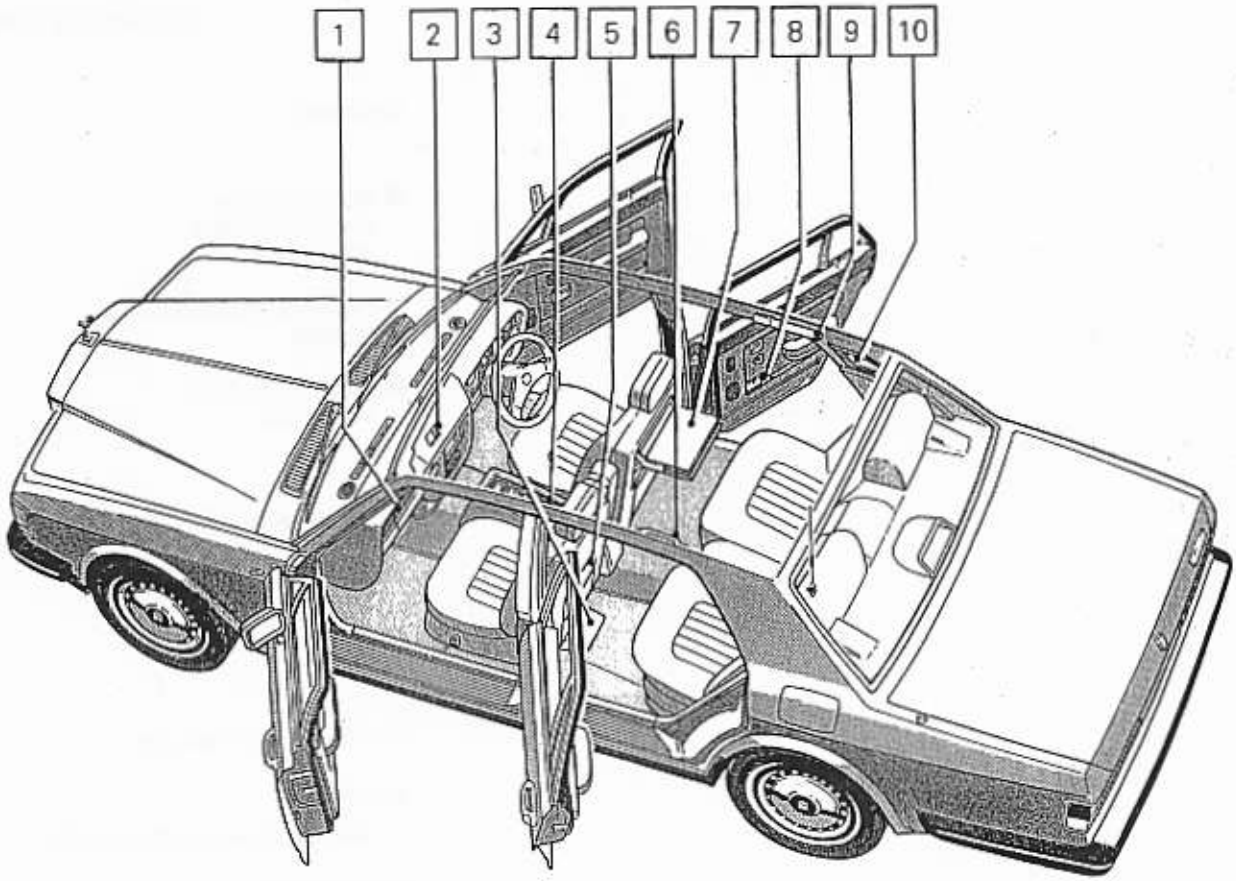
a) the ACU is prevented by an 'engine run sensor' from operating until the engine is running. **This eases the load on the battery and ensures that noises arising from the unit adjusting itself to changed conditions are suppressed.**

b) when heat is required, **the fans will not operate until coolant temperature has reached 44°C (111°F)** unless the defrost mode is selected. No such delay is necessary when cooling is demanded.

c) during a short stop after a period of driving, warm air left in various ducts may absorb water vapour and cause windscreen misting when the system is restarted. **A thirteen second delay is applied to the fan motors to give the moisture in the air time to freeze and dry out before being directed to the screen.**

Should misting persist (and assuming that the ECON mode is not selected), turning the function switch to the defrost mode will quickly clear it.

d) during the engine warm-up phase, flaps feeding the lower system are closed **to prevent cold air affecting passengers' feet.**



Every Rolls-Royce and Bentley is heir to the British coachbuilding tradition. It is seen not only in fine materials and painstaking craftmanship but also in the standard of appointment. Current models continue to abound in a wealth of thoughtful detail fittings which add considerably to the comfort and wellbeing of passengers while contributing greatly to the pleasure of ownership.

1

Glove box
The illuminated glove box provides storage for more valuable items as it can be locked only with the master key and so made secure if the car (and its limited function ignition key) is left with someone else. Inside are three switches: an OFF-FULL ALARM control for the anti-theft alarm system, CLOCK adjustment, and BOOT UNLOCK selection between KEY and AUTOmatic. Their functions are therefore also secured when the box is locked.

2

Vanity mirrors
Vanity mirrors are set into the sunvisors for the convenience of front seat passengers. On four-door saloons, both visors have mirrors each with veneered sliding covers (a Silver Spirit II feature) and an adjacent light for night-time use. A light on either side is also specified for the Continental R. The lights in all cases have individual switches on the centre console but are also controlled by the visor angle – when folded flat against the roof, the lights are turned off regardless of the position of the console switch.

3

Footrests
Loose footrests covered in carpet add to the comfort of rear seat passengers. They are standard in all four-door saloons.

4

Centre stowage bin
A lockable roll top is specified for the front centre stowage bin of all four-door saloons except the Brooklands for which it may be ordered instead of the standard open bin at extra cost. A removable tray providing storage for four cassettes and six compact discs is located in the bin.

Cocktail requisites can be fitted to the centre stowage bin at extra charge. The installation on the Brooklands includes a roll top lid.

5

Map pocket
A pocket for maps, newspapers and magazines is built into the back of the front seats for the benefit of rear seat passengers.

6

Grab handles
Roof mounted grab handles trimmed in hide are fitted as standard to the Turbo R and also other models in certain markets. Where not offered as standard, they may be ordered at extra cost.

Grab handles instead of the standard Duchess straps can also be specified at extra cost for the rear compartment of four-door saloons.

September 1992

Summary

- all models very comprehensively appointed
- traditional coachbuilding features
- attention to detail throughout

Related Sales Directory sections

Controls
Seating
Security

The Bentley difference

Brooklands

- open top to centre stowage bin

Continental R

- removable rear console

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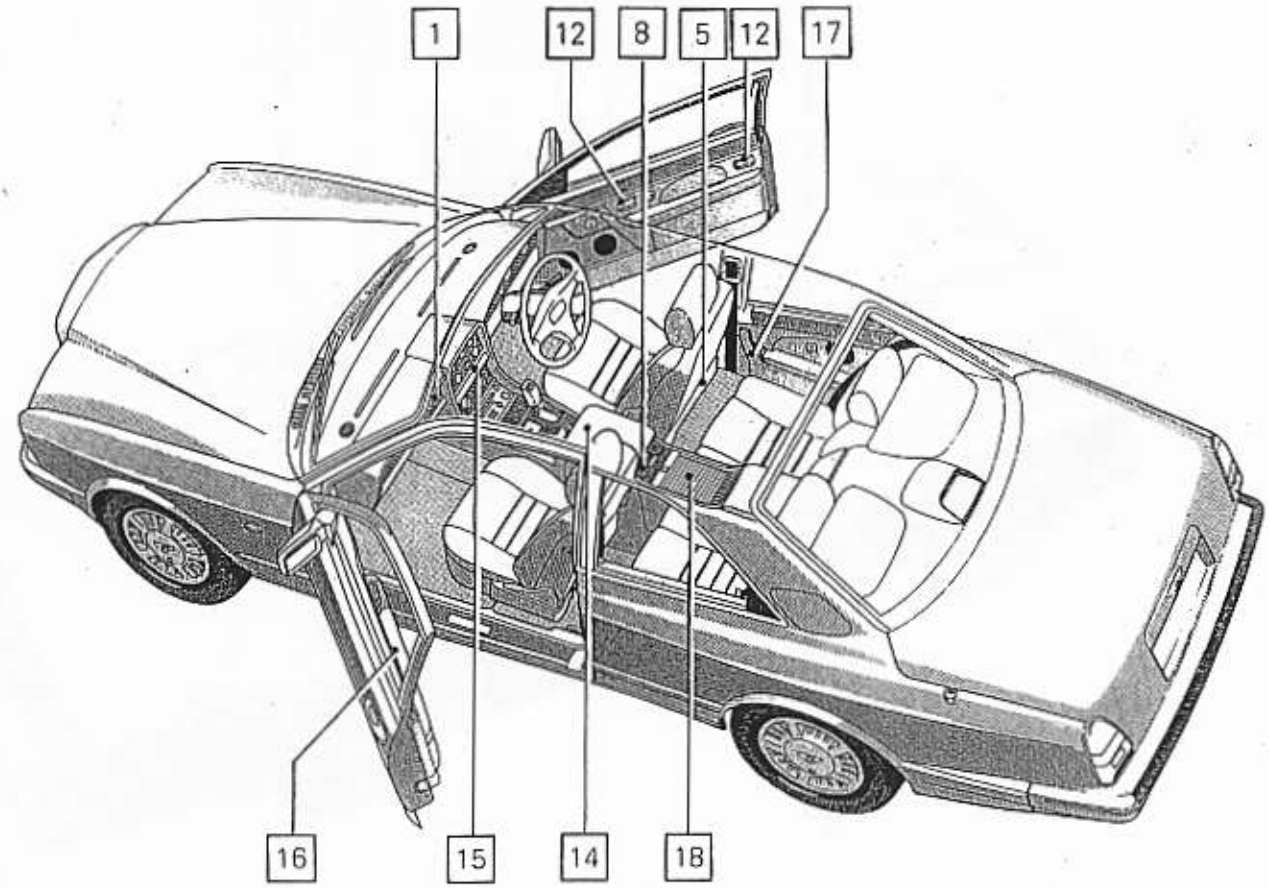


between the front seats of two-door cars.

That on convertibles has an upper stowage compartment with a hinged padded lid complete with magnetic catches. It houses the telephone handset when fitted. Beneath it is a spring loaded drawer for which a light in the lid provides automatic illumination when the drawer is opened. The same light illuminates the whole console area at a lower level of intensity when the main lighting switch is on.

A deep compartment on the Continental R has a similar padded lid. If a telephone handset is fitted, it occupies a polished wood mount hinged so that it can be lifted out of the way to gain access to the compact disc changer and stowage area. The handbook pack is also normally kept in this compartment.

15

Coin compartment
A coin compartment in the centre console is a Continental R feature. It is particularly appreciated when coin operated car parks or tolls are part of the regular routine.

16

Door bins
Adding to the generous provision of storage space in the Continental R are stowage bins in each door.

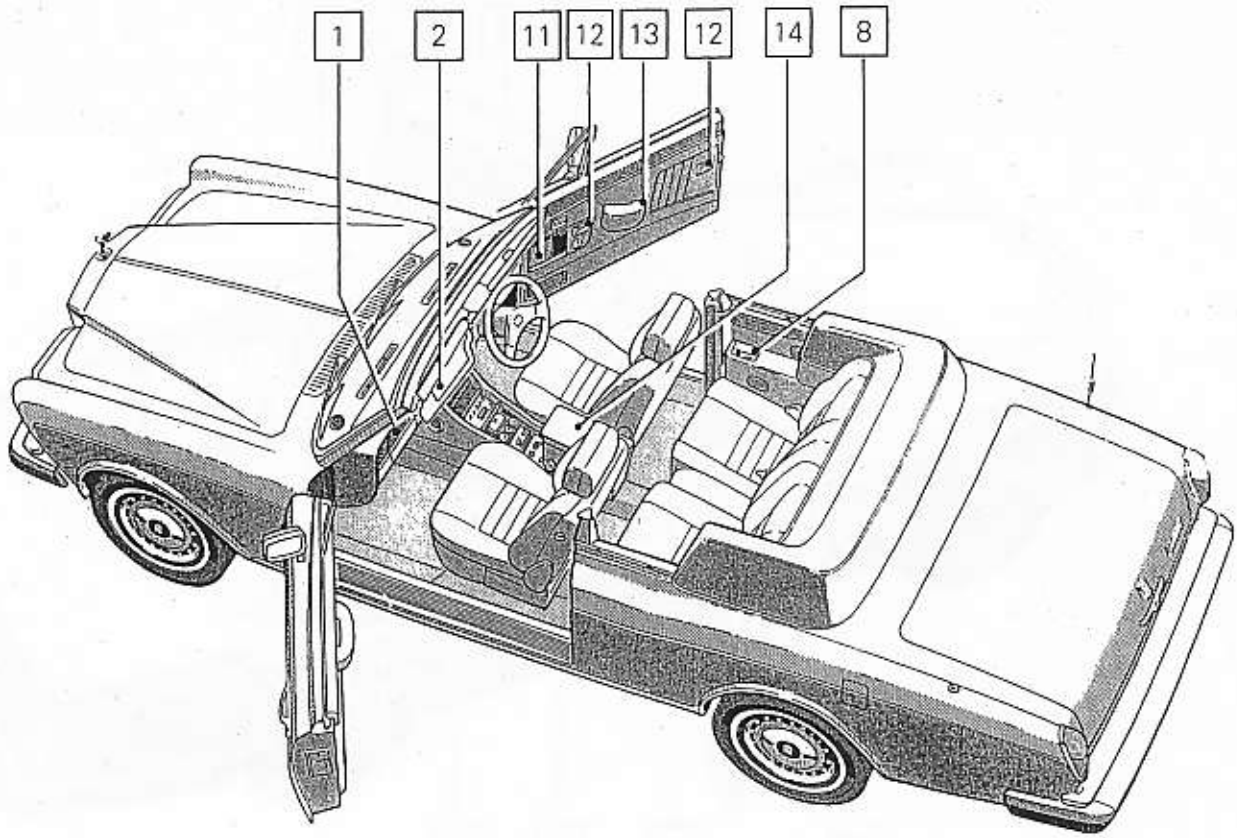
17

Grab handles
The design of the Continental R rear armrest embodies a grab handle. The support provided by individual rear seats and the rear console makes this feature of greatest value in getting out of the rear seat rather than high speed travel.

18

Rear console
The through console from front to rear is a distinctive and valuable Continental R feature. Apart from enhancing the intimacy of the close coupled interior and the lateral support provided by the two individual rear seats, the console provides two further stowage compartments. One is beneath the hinged padded armrest, the other a lockable (only with the master key) roll-top compartment in the forward section.

The rear console is **removable.** A retaining screw is located underneath the false floor of the armrest compartment and releasing this enables the unit to be lifted out. A veneered hinged panel can then be raised to cover the forward location point and a matching leather cushion supplied loose fixed in the centre of the rear seat.
The arrangement brings versatility to the luxuriously appointed interior.



7

Picnic tables
Picnic tables are a standard feature of the Silver Spur II and Bentley long wheelbase variants. They are not available for the Continental R but may be specified at extra cost for all other models.

There are two types. A table veneered on both front and back surfaces is offered in most world markets but a version with a padded back trimmed in hide to match the seat when folded meets UK and European legal requirements and is available as an option elsewhere.

8

Smoker's companion
A unit containing a cigar lighter and large ashtray is provided for the convenience of rear seat passengers in all models. It is located in each rear door of four-door saloons, the rear armrests of convertibles, and at the rear of the centre console between the front seats of the Continental R.

9

Duchess straps
Hide covered straps, spring loaded to keep them in a retracted position, are provided in the rear compartment of all four-door saloons. They are primarily intended as an aid to getting out of the rear seat but are also useful during rapid motoring.

10

Rear quarter companions
A traditional coachbuilding feature to be found on all four door saloons. The veneered unit incorporates a mirror and a two-way switch for either the overhead reading light or the general rear compartment lighting.

11

Stowage compartment
A stowage compartment is built into both front doors of convertible models. It is normally open but a lockable sliding door can be fitted at extra cost. At further additional cost a customer may specify for either door a vanity kit (in pigskin or Morocco hide) or a cocktail cabinet.

12

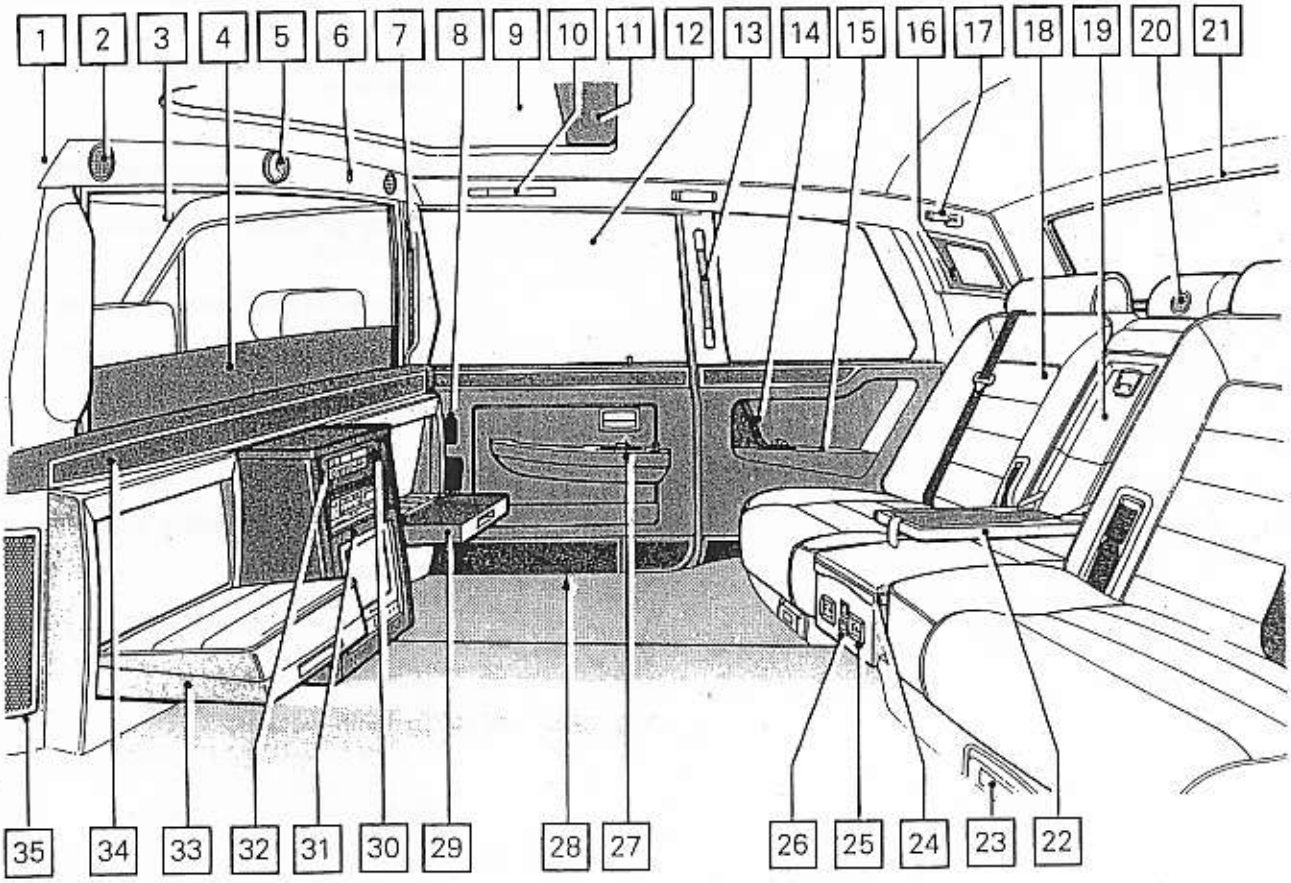
Door latches
Two interior door latches are provided for the convenience of front and rear passengers in both convertibles and the Continental R. Combined with the automatic forward movement of the seat when the backrest is released, they make exit from the rear as easy as possible. They have a safe flush design.

13

Armrest
The door armrest of convertibles can be adjusted both vertically and horizontally.

14

Centre front armrest
A single box type armrest is fitted



The raison d'être of a limousine is the rear compartment and, although the chauffeur and front passenger of the Rolls-Royce Silver Spur II Touring Limousine enjoy all the comfort of the Silver Spur II from which it is derived, it is the rear passengers who benefit from the 24in (610mm) extra length and the very comprehensive appointments that distinguish the Mulliner Park Ward coachwork. The combination of superb materials, immaculate craftsmanship and a standard specification which fulfils almost every conceivable need establishes a level of luxury motoring which is unsurpassed.

The Touring Limousine's rear compartment has been designed on the assumption that the senior passenger will occupy the position behind the front passenger seat and thus enjoy a reasonably clear view forward and also be adjacent to the nearside kerb for convenient entry and exit. The controls allocated to the 'master' passenger seat are therefore handed according to whether the car is left or right hand drive.

In describing the rear compartment features of the car, this section of the Sales Directory embraces such subjects as audio equipment and seating which, in the case of other models, have qualified for sections of their own. This comes in recognition of the unique nature of their application to the Touring Limousine.

1

A division is an essential feature of a limousine and ensures privacy for rear compartment passengers. The installation has been designed to ensure that front compartment comfort is not compromised with the result that the front seats retain their full range of movement except in rake, which is limited to 25°. The division, which conforms with international safety standards, is trimmed in hide to match the seating

2

The high frequency tweeters mounted above the division glass are part of a six-speaker sound system giving excellent reproduction and high fidelity.

3

In the interests of safety, the division glass is made of laminated glass and is curved to prevent unwanted reflections in the rear view mirror. It is electrically operated, a switch being provided in each rear armrest and in the centre console of the front compartment.

4

When extra privacy is required, rear compartment passengers can draw an electrically operated blind across the division glass. There is a switch in each armrest but none in the front compartment. The blind is trimmed in hide to match the division.

5

An electric clock of traditional style with Roman numerals adds distinction to the compartment. It is mounted centrally above the division glass where it can be easily seen by all rear passengers.

September 1992

Summary

- accent on rear compartment luxury
- very comprehensive appointments standard
- traditional coachbuilding features
- meticulous attention to detail
- the ultimate limousine

Related Sales Directory sections

Air conditioning
Air conditioning
Rolls-Royce Silver Spur II
Touring Limousine
Audio equipment
Controls
Exterior features –
Rolls-Royce Silver Spur II
Touring Limousine
Radio telephone
Safety features
Seating
Security

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19

A refrigerated compartment for the storage of drinks is installed between the individual rear seats - it is therefore not available with a bench seat. The electrically powered refrigeration unit is installed remotely in the left hand side of the luggage compartment. Opening the inner door switches on the internal light. To prevent a drain on the battery which, if the engine is not running, would leave the car without enough power to start, an automatic cut-out switches off the refrigerator if battery voltage falls below 11.2 volts.

20

The combined microphone and speaker of the front-rear intercom system is mounted at face level between the rear seats.

21

A wooden fillet around the smaller rear window of the limousine is typical of many traditional coachbuilding features to be found in the car.

22

The outer lid of the refrigerated drinks cabinet folds down to form a convenient table. It has a veneered top surface.

23

Rear compartment lighting is very comprehensive and adds to an ambience of luxury. Lamps beneath each seat flood the floor with light when a rear door is opened.

24

The stowage compartment between the rear seats houses a cellular telephone when fitted, a notebook and pen, and remote controls for the audio equipment. A padded lid is provided. The compartment cannot be fitted if a bench seat is specified.

25

The lumbar support switches for each rear seat are located for easy operation.

26

The intercom system is under the sole control of rear compartment passengers. It is activated by the lower of two switches situated conveniently between the rear seats and the red light emitting diode mounted above the division glass in the senior passenger's line of sight indicates that it is on. The upper switch controls the microphone and speaker - press to speak, leave alone to receive. A similar switch and a combined microphone/speaker unit are mounted in the front compartment header panel close to the rear view mirror.

27

Smoker's requisites are fitted to the rear door pull.

28

A 'puddle' lamp located in the underside of the door is automatically switched on, together with the rearward facing red warning light, when the door is opened. It illuminates the running board area and the ground outside, a particularly valuable feature appreciated by passengers alighting in the dark.

29

The cocktail cabinet holds three crystal decanters and four crystal tumblers. There are also sockets for four mixer bottles. The interior light is switched by the lid which has a veneered surface designed for use as a table. When closed, a picnic table on the outer surface is accessible for use.

The cocktail cabinet is mounted in front of the master passenger seat. If requested by a customer, it could be replaced by a second occasional seat or even omitted from the specification altogether.

30

The cocktail cabinet is opened electrically by use of this button.

31

The centre cabinet contains, as part of the standard specification, a full suite of advanced and very high quality audio equipment. The upper unit is a radio-cassette player through which a multiple compact disc player located in the luggage compartment also plays. A front-loading video player occupies the central position and a television the lower. An aerial in the right rear wing gives satisfactory television reception when the car is stationary but less so on the move. All three units have remote controls for the convenience of passengers and, when not in use, these are stowed in the compartment between the seats.

32

The solenoid release for the occasional seat is operated by this button.

33

One occasional seat is included in the standard specification of the Touring Limousine but it can be omitted or replaced by a second cocktail cabinet if a customer prefers. It is always installed behind the chauffeur's seat and when stowed proffers a picnic table for the use of the second rear seat passenger.

34

Following the practice established for all Rolls-Royce models, the division dado and all other woodwork is veneered in burr walnut with crossbanding and boxwood inlay. A silver inlay is available at extra cost.

35

What are effectively two air inlets use one grille on the flanks of the division. They provide heated or cooled air at the lower level.

6

A small red light emitting diode is mounted above the division glass in the line of sight of the senior rear passenger to indicate when the intercommunications (intercom) system is 'live'.

7

Large air inlets provide heated or cooled air for the rear compartment, those on either side of the division glass supplying upper level air. They are fed by two air conditioning units installed within the division. These units, which have integral fans and use hot water and refrigerant circuits extended from the standard front bulkhead air conditioning installation, draw air from the front compartment and either heat or cool it according to the setting of the controls mounted in the armrest of the master passenger seat. The rear compartment system is therefore under totally independent control.

8

The mid-range and low frequency loudspeakers are mounted in the rear doors.

9

The laminated glass moonroof is a standard feature adding to the sense of spaciousness at the rear. The glass is tinted.

10

A Duchess strap above each door is a useful aid when getting out of the car. On the appropriate side, it also serves as a grab handle for the occupant of the occasional seat.

11

An electrically operated screen is provided for the moonroof. There is a switch in each rear armrest.

12

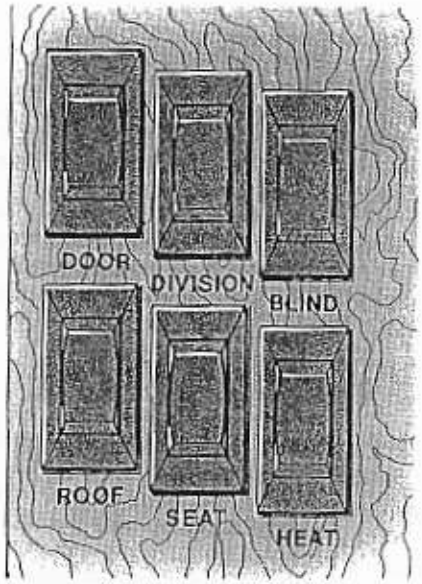
The rear door provides an uninterrupted 38.5in (978mm) wide opening for easy access to the rear compartment. Entry and exit are made easier still by wide running boards which, in the traditional way, carry a plate identifying the coachbuilder.

13

A stout grab handle on each D post enables passengers to more easily get out of the rear seat. The handles can also be appreciated during brisk motoring.

14

The principal controls for rear compartment appointments and features are conveniently grouped in the master passenger seat armrest. Two sets of controls are mounted on a veneered panel. On the vertical face are six switches:



DOOR	controls the central locking system. All four doors and boot can be locked by this switch; all except the boot can be unlocked.
DIVISION	controls the DIVISION glass
BLIND	controls the division BLIND
ROOF	controls the moonROOF blind
SEAT	controls the fore-and-aft position and rake of the adjacent SEAT
HEAT	controls the HEATing elements in the same seat. Two levels of heat are available as for the front.

These switches are duplicated on the opposite armrest, those for SEAT and HEAT controlling the relevant functions in the other rear seat.

A second set of controls governs the operation of the rear compartment air conditioning system described separately (see **Air conditioning Rolls-Royce Silver Spur II Touring Limousine**). The four switches are not duplicated on the opposite side and are therefore under the exclusive control of the senior passenger.

15

A stowage compartment in each rear armrest provides storage space for audio and video cassettes.

16

The rear quarter companion which is a feature of all four-door saloons is retained in the Touring Limousine. The two-way switch energises the swivelling reading light on that side (down) or switches on the general rear compartment lighting (up).

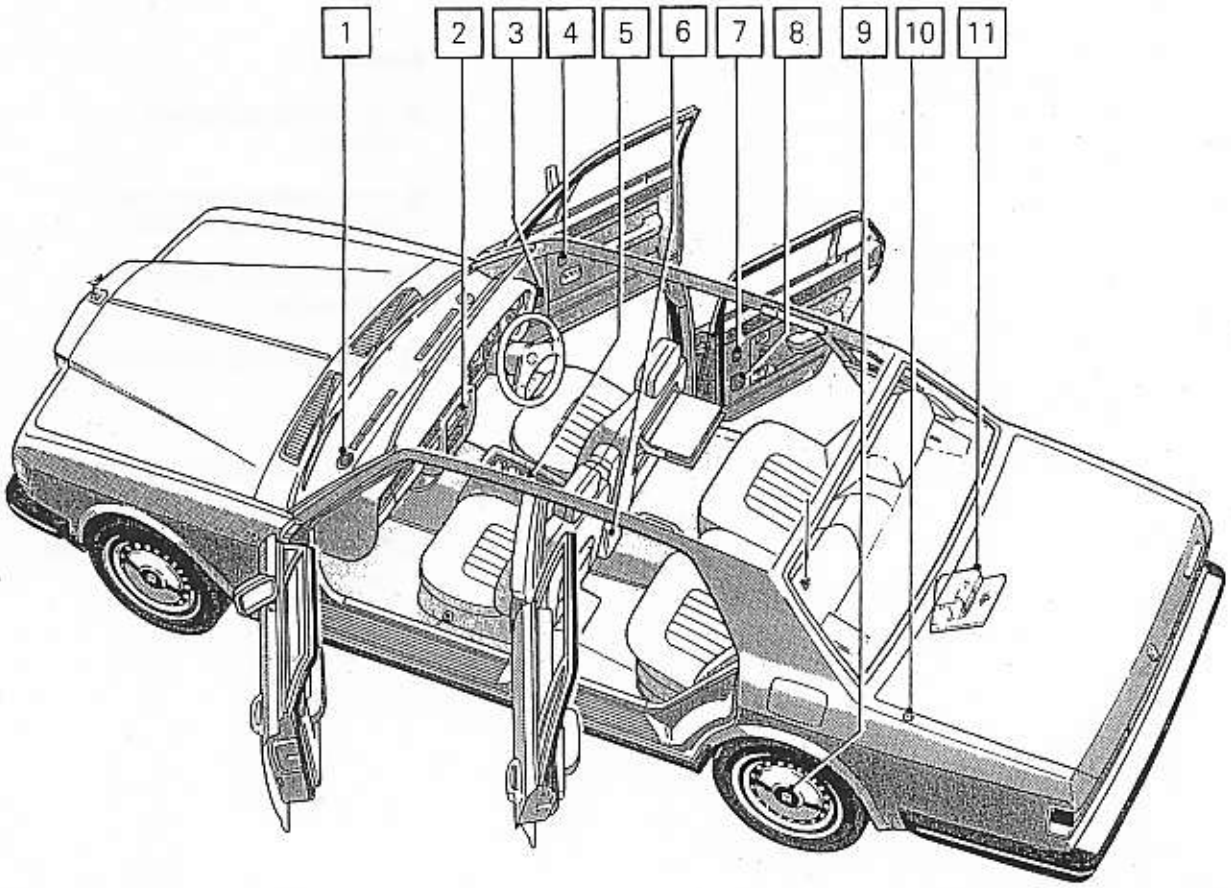
17

The swivelling reading light can be adjusted to provide optimum illumination of the subject. It is energised by the rear quarter companion switch but does not actually come on until moved from its parked position. A similar light is also fitted to the opposite quarter.

18

Horizontal fluting identifies the specially styled limousine seats. The individual design, electrically powered adjustment over a fore-and-aft range of 4in (100mm), electrically adjustable lumbar support and two levels of electric heating ensure the highest level of comfort. Trim is in hide.

A bench type rear seat is available as an option but comes without the adjustment, lumbar support and heating features.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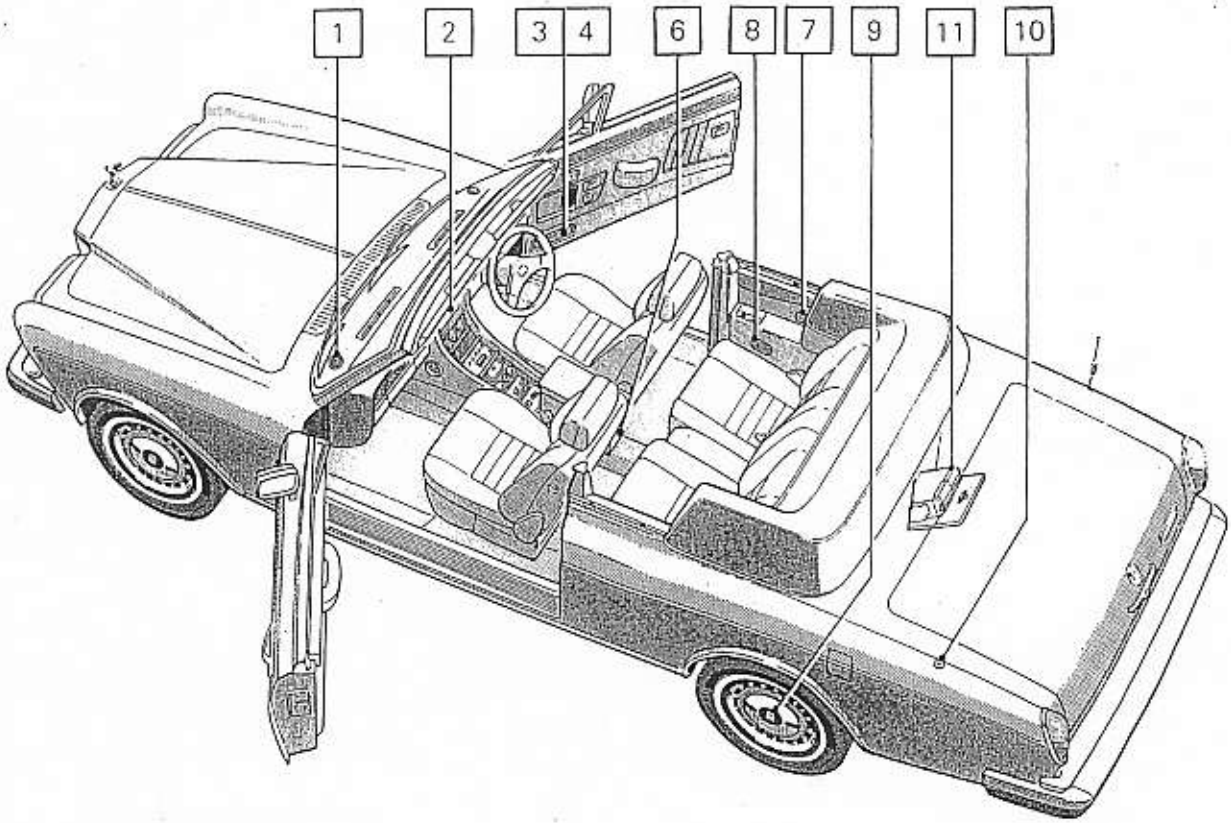
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Audio equipment

September 1992

Summary

- high quality equipment standard
- multi-speaker system for best sound reproduction
- comprehensive interference suppression
- fully engineered installation

Related Sales Directory sections

Appointments –
Rolls-Royce Silver Spur II Touring Limousine
Controls

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comprehensive suite embracing a radio-cassette unit, a CD player with a six disc changer in the luggage compartment, a video player, a television set and 40 watt (music rating) per channel amplification. Details are given in *Appointments Rolls-Royce Silver Spur II Touring Limousine*.

Audio equipment

September 1992

For more than forty years, the best available radio equipment has been included in the standard specification of Rolls-Royce and Bentley motor cars. Later, once they had reached Rolls-Royce standards of performance and reliability, tape players of various kinds were also included. Installations were always comprehensively engineered with typical thoroughness and the company has throughout employed at least one electrical engineer whose sole responsibility has been audio equipment installation. Working in close co-operation with equipment manufacturers, Rolls-Royce specialists have been able to assist in advancing technology in the audio field helping, for example, to develop circuits for FM radios which recognise interference and filter it out before it has a chance to be heard by the listener.
For the Silver Spirit II, they brought together high quality audio equipment with a multi-speaker sound system offering very high standards of fidelity. The specification was further enhanced in mid-1992 (46001) when a multi-disc compact disc (CD) installation became standard on all models.

1

Tweeter
A high frequency tweeter unit is mounted on either side of the facia demister panel. The purpose of the sound system of which this is part is to lift sound off the floor and away from the muffling effects of rugs, seating and occupants' limbs. The high mounted tweeters, and the sound they reflect from the windscreen, help to achieve this.

2

Radio cassette-CD player
A high specification stereo radio-cassette-CD unit became part of the standard specification of all cars in 1992 (46001) - up until then, a single CD player had become standard in the Silver Spur II and both convertibles while a multi-disc unit had been specified for the Continental R and the rear compartment of the Touring Limousine since their introduction. Excellent sound reproduction is guaranteed by the two 25 watt (music rating) per channel stereo amplifiers mounted in the luggage compartment. One drives the front speakers, the other the rear. Even this impressive performance can be uprated at moderate extra cost by specifying the 40 watt per channel amplifiers which form part of the rear compartment audio suite of the Touring Limousine.

3

Bass unit
The low frequency speaker, uprated in mid-1992 (46001), is mounted in the door on either side. On convertibles, it is mounted alongside and shares an aperture with the mid-range unit.

4

Mid-range speaker
The third front speaker on either side, the mid-range unit, is also door mounted and completes a front compartment installation capable of a very wide frequency response.

5

Cassette and CD storage tray
A removable polished wood tray trimmed with hide to match the car interior is located in the centre stowage bin to provide neat and secure storage for four cassettes and six compact discs.

6

Remote control
A battery powered remote control unit for the convenience of rear seat passengers is a feature of the mid-1992 audio installation. It controls all the basic radio, cassette and CD functions of the facia mounted unit and so is particularly valuable when, for example, the motor car owner is being chauffeur driven. When not in use, the remote control is neatly stowed in a pocket provided at the rear of the front centre stowage bin.

7

Tweeter - mid-range unit
A combined tweeter and mid-range speaker unit is mounted in the rear door of four-door saloons and above the rear armrest in convertibles - a single multi-cone speaker is specified for either side of the Continental R rear compartment. In the saloon installation, the speaker is angled towards the rear passengers so directing the sound past the backs of the front seats, a measure of the care taken to provide the best possible sound reproduction.

8

Bass unit
The rear bass speaker is a separate item mounted in the door of four-door saloons and the armrest of convertibles.

9

Suppression
Within the hub of each wheel there is a brass earthing strip which ensures that static electricity generated by the tyres does not cause radio interference. Such attention to detail is typical of the comprehensive interference suppression measures to be found on the motor car as a whole as well as in the circuit design of the radio.

10

Aerial
An electrically operated aerial is mounted in the left hand rear wing. It extends automatically when the radio-cassette-CD unit is switched on and retracts when either the audio unit or the ignition is switched off. On cars built to Japanese specifications, it will also retract when tapes or CDs are played.

11

Compact disc changer
A CD changer holding up to six discs is mounted remotely in the luggage compartment of all models except the Continental R where it is installed in the centre stowage bin. A hinged flap on the forward face of the luggage compartment gives easy access to the changer and its magazine.

Rolls-Royce Silver Spur II Touring Limousine
The audio equipment specified for the front compartment of the Touring Limousine comprises a radio-cassette player and the standard six speaker sound system. In the rear, there is a particularly

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Type
All models: integral body-chassis

With the introduction of the Silver Shadow in 1965, Rolls-Royce were among the pioneers in the development of monocoque structures for large cars. The concept is now the established convention for several reasons:

(a) it gives greater stiffness for weight which in turn leads to

(b) superior handling

(c) it provides maximum passenger space for given external dimensions

(d) the car is lower, another handling benefit

(e) entry and exit are easier

(f) the best possible passenger protection in an accident is more easily achieved.

Construction
All models: steel structure (zinc coated in areas vulnerable to corrosion) with aluminium for doors, bonnet and luggage compartment of all except the Continental R which has steel throughout.

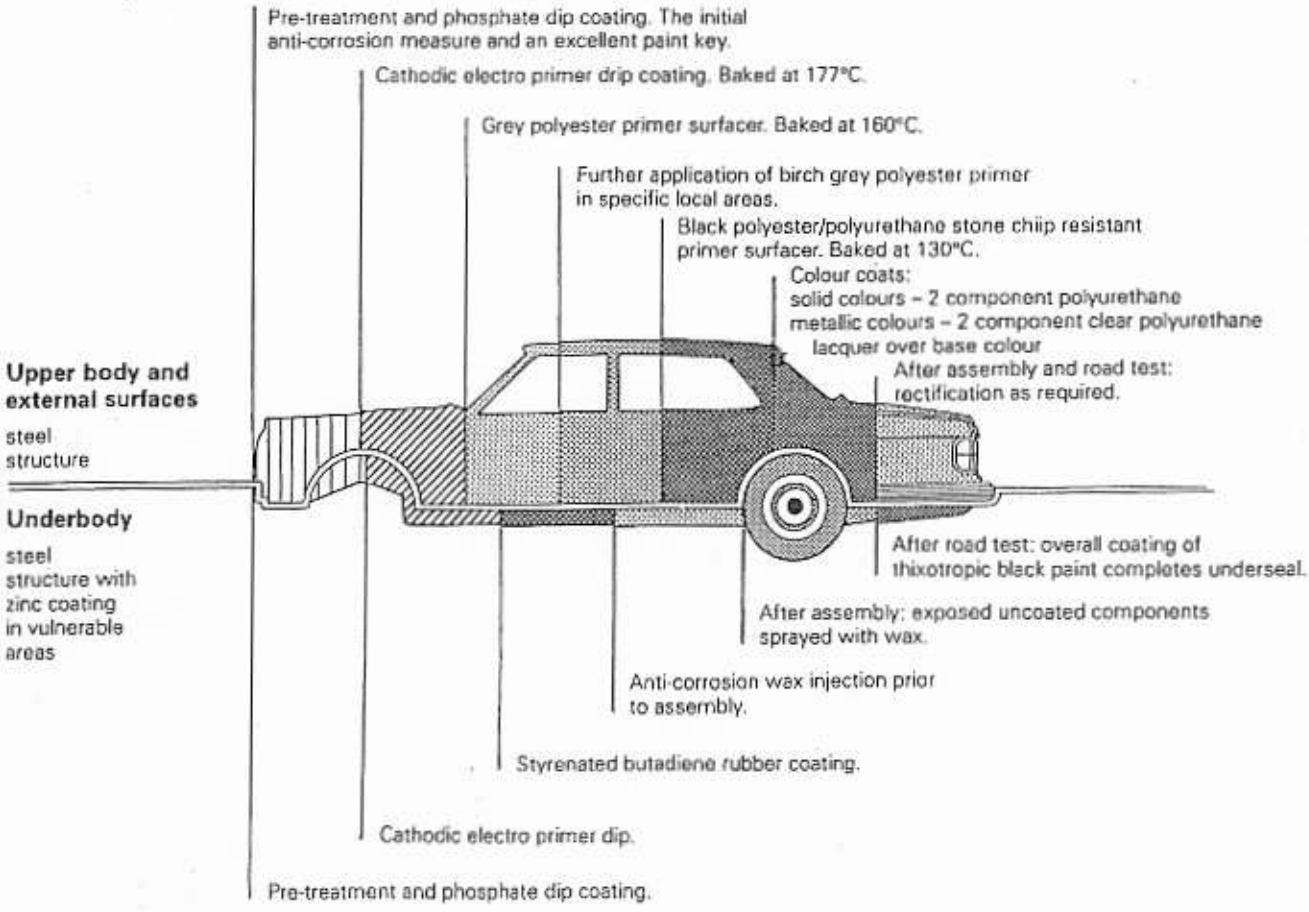
Body shell constructors:
four-door saloons - Rover Group, Oxford
convertibles - HJ Mulliner Coachworks, London
Continental R - Park Sheet Metal, Coventry.

The sheet metal specified for the main structure is about two gauges (0.036in/0.914mm) thicker than is normal for car construction. Outer skins are 0.875mm (0.034in) thick. Aluminium components are fabricated in 1.6mm (0.063in) thick material.

Corrosion prevention
Durability is an important element in the Rolls-Royce reputation. In the context of monocoque structures, it also has significant safety connotations. Rolls-Royce Motor Cars therefore give major priority to corrosion prevention in the design, specification of materials and finishes applied to every component. The body shell is particularly well protected by the extensive use of zinc coating and the application of an anti-corrosion and paint system which provides a finish thicker than that of an average mass produced car.

Safety
The body shell of all models is designed to give maximum energy absorption and therefore protection to occupants in the event of an accident. Deformable sections front and rear, roll-over strength, a very rigid passenger compartment and side intrusion resistance all contribute to a structure which meets all, and exceeds many, current international standards.

Corrosion prevention



Body shell

September 1992

Summary

- monocoque structure
- very stiff
- deformable front and rear sections
- rigid passenger compartment
- zinc coating in vulnerable areas
- comprehensive proofing against corrosion

Related Sales Directory sections

Exterior features – Silver Spirit II
Paint and interior trim
Safety features

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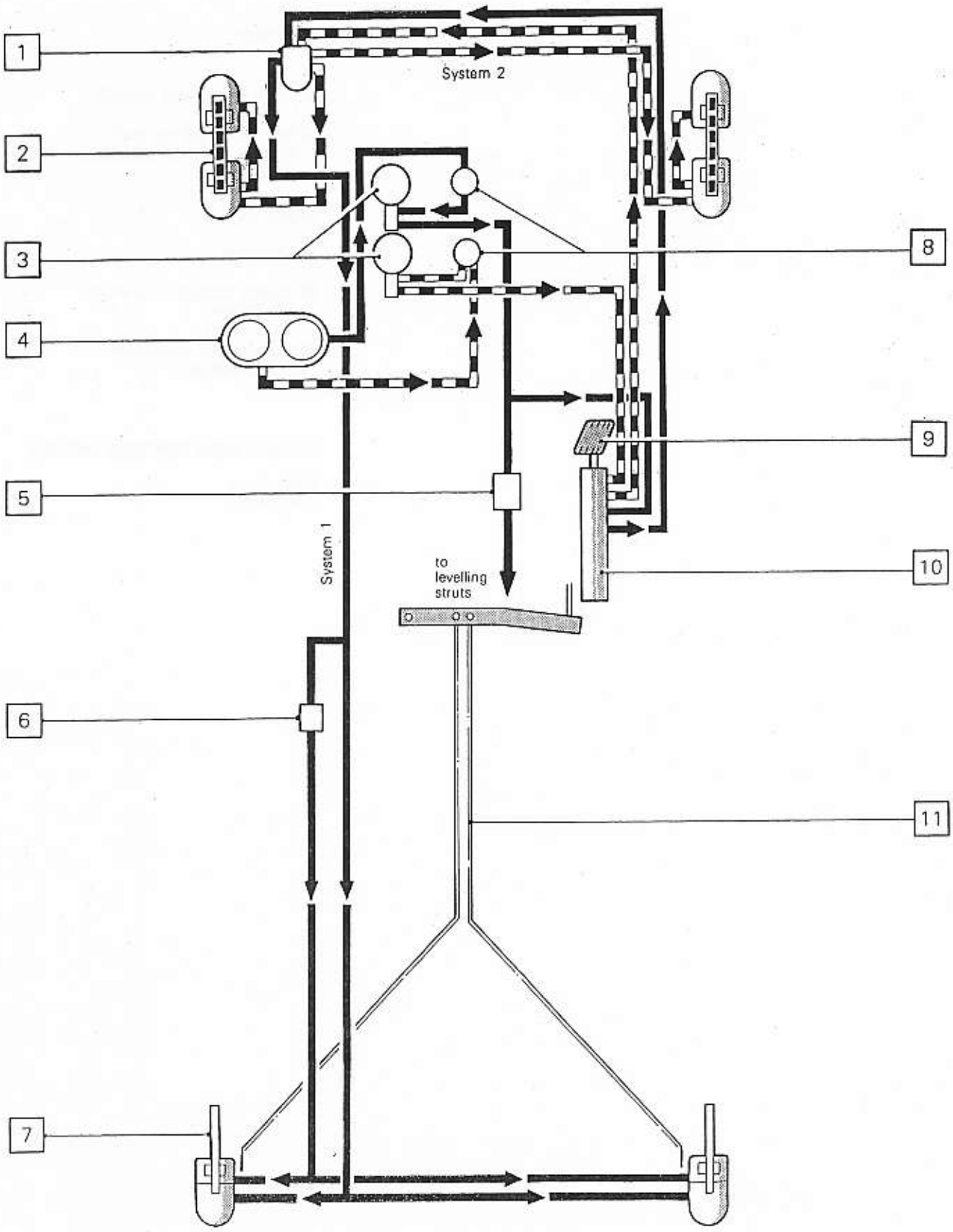
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System 2
System 1
to
levelling
struts

Braking system

September 1992

Summary

- discs on all four wheels
- fully powered hydraulic systems provide effortless control
- anti-lock
- split circuit
- careful attention to noise elimination
- superb and consistent performance

Related Sales Directory sections

Controls
Suspension

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A fully powered braking system in which hydraulic pressure for brake operation is generated by the engine rather than by the driver has been a feature of Rolls-Royce and Bentley motor cars since 1965. The safety benefits of split systems ensuring that a measure of braking remains in the event of the failure of one element were recognised when hydraulic operation was first incorporated in 1946. Progressively (according to market) since October 1986 (20001), the safety, efficiency and security offered by the powerful Rolls-Royce braking system has been further enhanced by the adoption of the ABS electronic anti-lock system.

1

ABS modulator
Located in the engine compartment, the modulator is the component through which the ABS electronic control unit (ECU) controls the hydraulic pressure to the brakes. It has three solenoid valves (one in each line to the front brakes, the third in the line to the two rear wheels) which, in response to signals received from the ECU, can have the effect of increasing, maintaining or reducing their respective line pressures independently of each other. The ECU's instructions are based on information received from each wheel where a sensor constantly monitors acceleration, deceleration and slip. If a particular sensor detects an imminent wheel lock (a hazard for the car and its passengers), the ECU reduces pressure in the appropriate line by means of that line's solenoid valve.

The principal advantage of ABS is in primary safety - the avoidance of an accident. It brings braking stability in icy conditions and other circumstances where wheels on either side of the car are turning on surfaces of different friction or grip characteristics. It also brings the important ability to steer, around an obstacle perhaps, under heavy braking. Its operation is unlikely to be apparent in normal motoring as it is designed to provide a safeguard in emergencies.

The braking system will function quite normally should the ABS system fail. Any malfunction is indicated by a facia warning light.

2

Front disc
Ventilated 28cm (11.0in) diameter front discs provide excellent heat dissipation and fade free performance. They are operated by two calipers fed from the System 2 hydraulic circuit which is completely independent of System 1 operating the rear brakes and levelling struts. In a departure from the usual practice, the disc and hub are separate components joined by a crimping process which leaves an air gap between the two. This gap is significant in the suppression of squeak, squeal and rumble. Specially selected pads (which are asbestos free and incorporate electric wear indicator probes) also contribute to noise suppression. The discs are treated to make the non-rubbing surfaces resistant to corrosion.

3

Hydraulic accumulators
Two spherical accumulators, one for each hydraulic system, are mounted low on the left-hand side of the engine.

They provide a means of storing hydraulic energy and allow up to about twenty applications of the braking when the engine is not running; a safety feature.

Before installation, each accumulator is charged with nitrogen to a pressure of 77kgf/cm² (1090lbf/in²). In operation, hydraulic fluid is pumped by the engine against the pressure of the gas (the two media are separated by a neoprene rubber diaphragm) with the result that gas volume is reduced and it becomes even further compressed. The very high gas pressure is relieved only when the brake pedal is pressed or the levelling system is called upon to raise the car.

Operating pressure range: 77-176kgf/cm² (1090-2500 lbf/in²). Loss of pressure is indicated by facia warning lights.

4

Hydraulic reservoirs
Hydraulic system mineral oil (HSMO) was adopted as the hydraulic medium in Rolls-Royce and Bentley models in 1979. Among its advantages are:

a) excellent lubricity - that is, it is oily and eliminates noise from system components as well as extending their life.

b) it is not hygroscopic - the absorption of water from the atmosphere is a constant threat to the integrity of systems using conventional vegetable based fluids especially if they are not serviced regularly.

c) it is not chemically active and will not, for example, damage paintwork.

The rubber components in the system are not interchangeable with apparently identical items used with conventional fluids and will rapidly deteriorate and fail if contaminated with a vegetable based fluid. To guard against the possibility of using the wrong fluid for topping up, there are various warning labels and the reservoirs are designed to accept only the specially shaped nozzle of the 500cc HSMO plastic container stowed behind the rear panel of the luggage compartment ready for use.

Another example of attention to detail is to be found in the fluid level indicator at the top of each reservoir. This will not indicate that topping up is required until there is sufficient room for all the contents of the container – a partly used container, with all the associated risks of spillage, does not have to be stored in the luggage compartment.

5

Priority valve
In the interests of safety, it is essential that a leak in the levelling system should not affect the operation of the rear brakes. This valve in System 1 gives the brakes priority in the use of available pressure to maintain their effectiveness.

6

Pressure limiting valve
This valve is placed in one of the two System 1 lines operating the rear brakes. It contains a ball which rises

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Controls

September 1992

Summary

- all controls readily accessible
- instruments positioned for maximum visibility
- high priority given to 'feel' and precision
- controls light and power assisted where necessary
- comprehensive warning systems
- subtle variations to reflect the character of individual models

The Bentley difference

All models

* tachometer standard
* Bentley badging
* 170 mph or 270 kph speedometer
* sports style steering wheel except where air bag specified

All saloons

* console mounted gear range selector
* black indicator stalk stem

Brooklands, Turbo R

* flattened oval switch apertures on lower facia

Continental R

* oil temperature gauge

Related Sales Directory sections

Air conditioning
Appointments
Audio equipment
Braking system
Driver's information panel
Radio telephone
Safety features
Steering
Transmission

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up a ramp under braking and its action under deceleration is to limit the hydraulic pressure in that line. The result is that when deceleration exceeds 0.43g. a greater proportion of the braking is undertaken by the ventilated front discs and both overheating and excessive wear at the rear are avoided.

7

Rear disc
The 28cm (11.0in) diameter solid rear discs have four piston calipers fed from the System 1 hydraulic circuit. They are phosphorised during manufacture to inhibit corrosion of the non-rubbing surfaces.

8

Hydraulic pumps
The pumps maintaining hydraulic pressure in the two braking systems are driven by lobes on the engine camshaft. They operate over a pressure range of 127-176kgf/cm² (1800-2500lbf/in²) providing 'on tap' the sort of line pressures which in a conventional system would have to be generated by the driver perhaps with the aid of a servo or supplementary hydraulic pump.

9

Brake pedal
A wide pedal moves through a carefully designed natural arc which helps to make driving both comfortable and smooth.

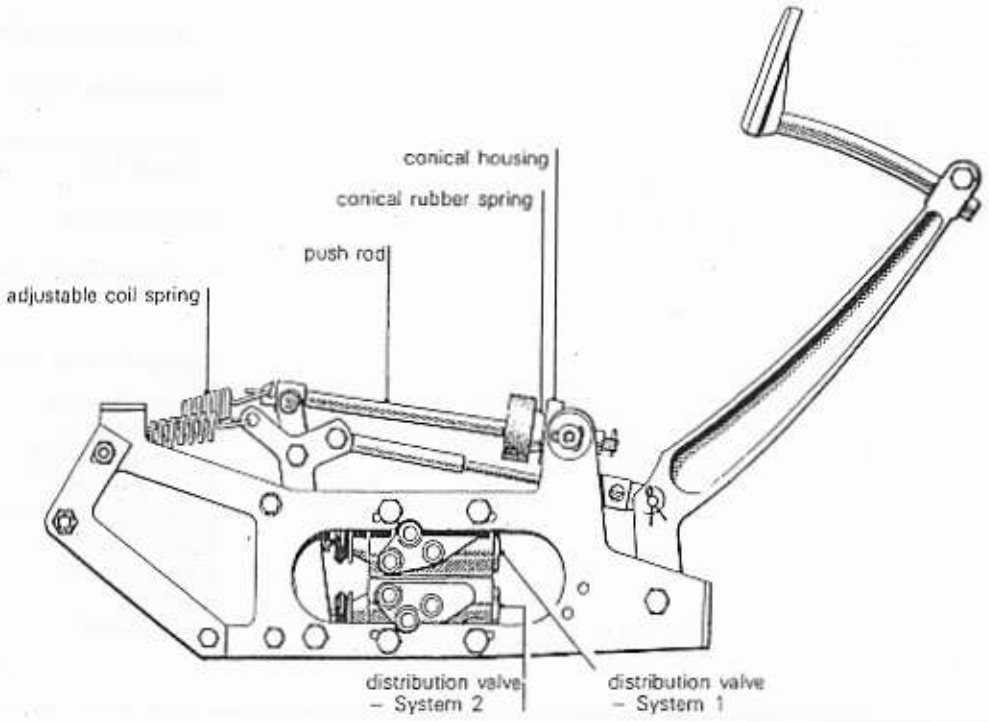
10

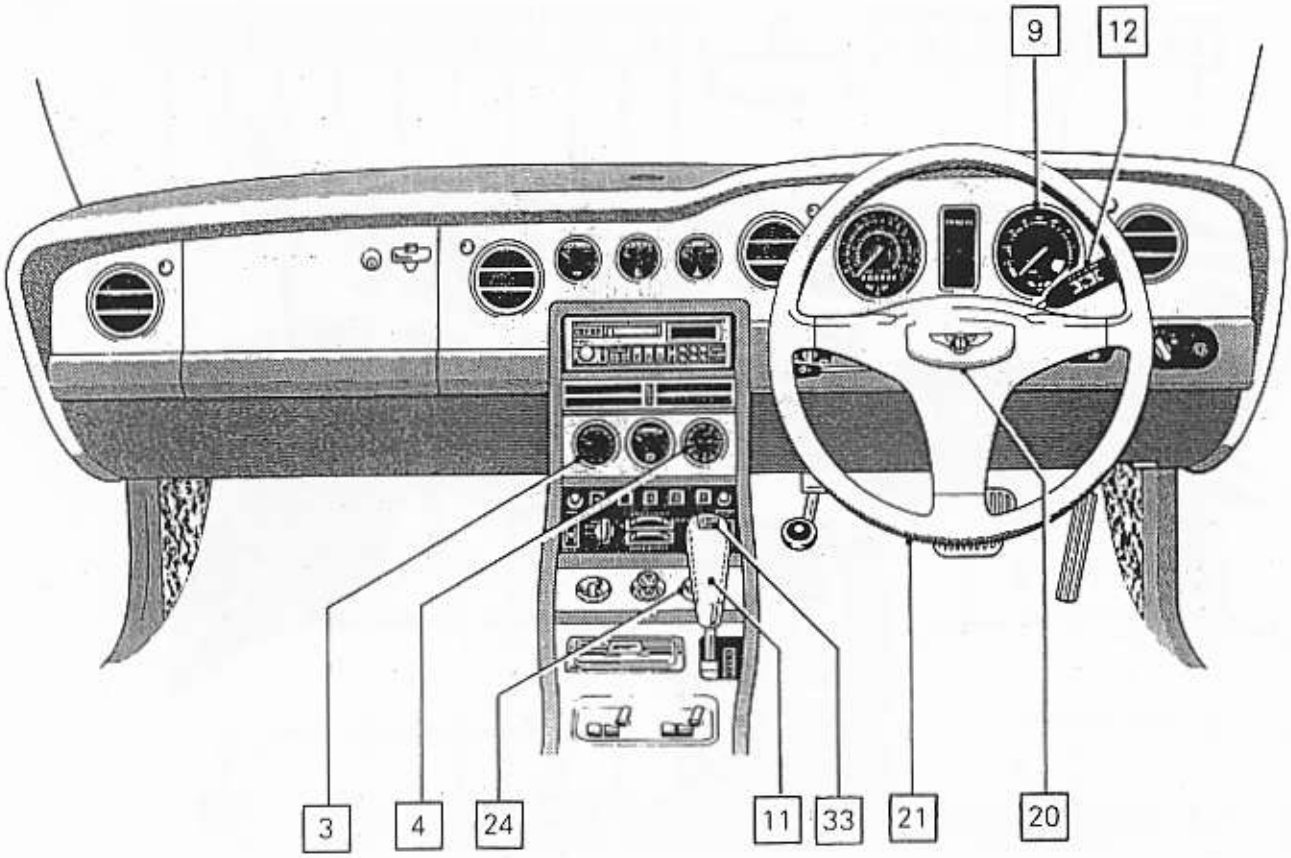
Brake actuator mechanism
For the driver, operation of the brakes is so effortless because the real work is done by the engine. The function of the pedal mechanism is essentially to open valves to allow fluid at high pressure through to the disc calipers. However, high priority has always been given to making the brake pedal action and its 'feel' normal. This is achieved artificially by means of a simple and ingenious device within the actuator assembly. The mechanism comprises a conical rubber spring in the end of a push rod. When the brake pedal is pressed, the spring is compressed into a conical housing thus resisting the movement of the pedal and providing an increasing degree of resistance which successfully simulates normal 'feel'. Initial feel (for the short movement of the brake pedal from the off position to the point where the pads caress the disc) is provided by an adjustable coil spring mounted on the end of the push rod – more attention to detail.

It is vital that a component such as the actuator mechanism should not be affected by corrosion. In addition to being constructed of corrosion resistant materials, the unit is protected by an aluminium alloy sheet when installed underneath the car.

11

Parking brake
A foot operated parking brake operates separate wedge calipers acting on the rear discs. With the introduction of an automatic release mechanism on the Silver Spirit II, the parking brake will lock on if the gear range selector lever is in the Park or Neutral or if the engine is not running. The selection of a gear range while the engine is running will result in its automatic release. A small lever enabling the parking brake to be released manually if necessary is mounted above the pedal mechanism.





specified for all Rolls-Royce saloons was superseded in June 1990.

5

An electrochromic mirror which darkens automatically when it detects a bright light source behind the car replaced the conventional mechanical dipping mirror in mid-1992 (46001).

The unit incorporates one forward and one rearward facing sensor. When the light intensity detected at the rear exceeds that at the front, a voltage is generated which, by means of liquid crystal technology, darkens the glass and filters out the glare. The process is reversed once the light source has gone.

An OFF-LOW-FULL switch gives a choice of two levels of darkness density or, alternatively, enables the driver to switch off the dimming circuit completely. The device is switched off automatically when Reverse gear is selected so that the mirror's value as a reversing aid is not compromised

6

The wiper switch controls the two-speed wipers and offers intermittent settings with intervals of about 4, 7, 14 and 21 seconds.

7

The direction indicators, headlamp dip and flasher, and the wash-wipe control (covering both screen and, when on, the headlamp washer system) are all operated by the left-hand steering column stalk.

The benefit of having several major and regularly used functions under one control has been enhanced further on the Silver Spirit II by a feature which provides a convenient alternative to the main wiper switch.

Pressing the end of the stalk briefly will start the wipers operating at their lower speed; a further brief press will stop them. The wash-wipe sequence is started by more prolonged pressure - washer fluid is directed onto the screen (and the headlamps if they are on) and the wipers started. The flow of fluid remains until the control is released following which there is a further 4.5 cycles of the wipers to dry the screen and return them to their parked position. A one second delay is built into the electronic control logic so that the driver's choice of function is accurately determined.

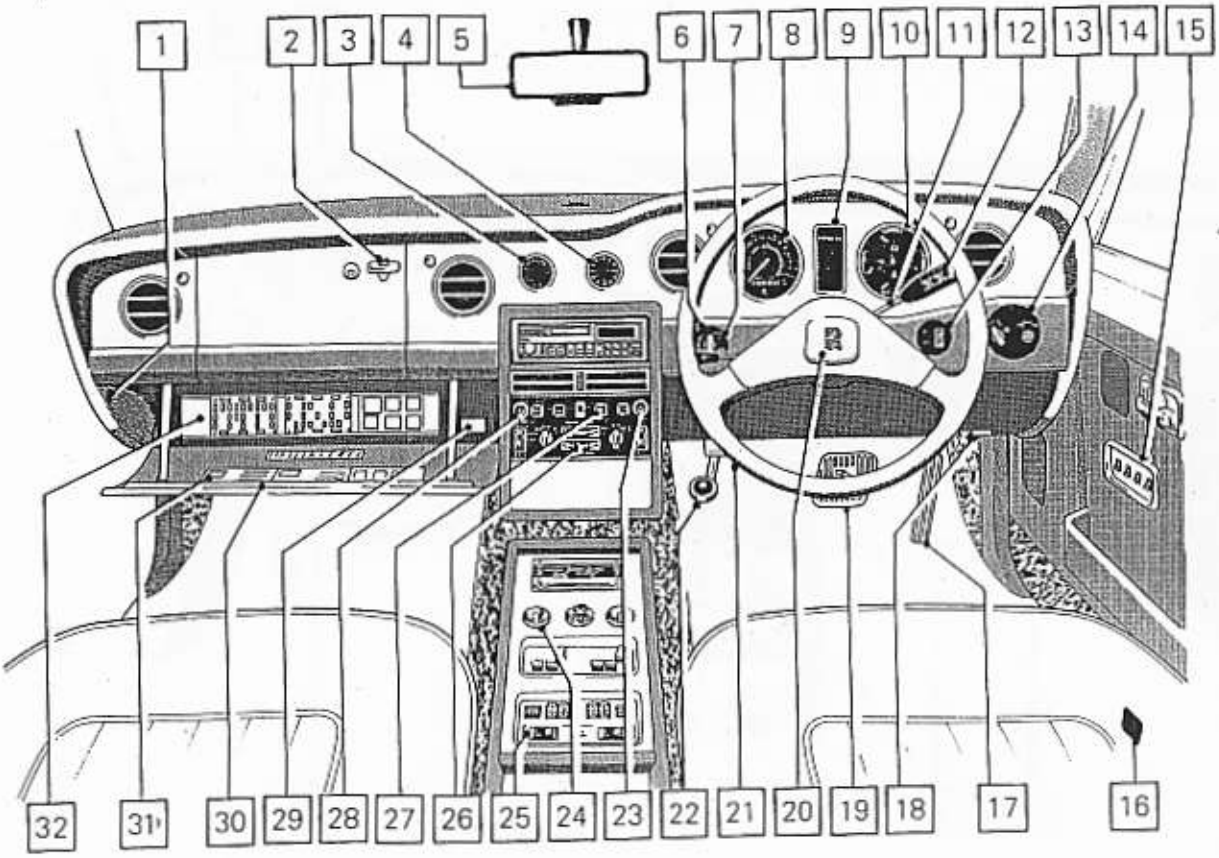
From mid-1992 (Brooklands 46004, Turbo R 46003, Continental R 42501), all Bentley models except the Continental have a black indicator stalk to match the speed control stalk on the opposite side of the column

8

The speedometer is electronic - the absence of a mechanical drive makes it quieter and more reliable than those with cables.

On the Silver Spirit II, the speedometer is part of a modular instrument pack which includes the neighbouring large instrument and the driver's information panel. The new design offers greatly improved illumination as a result of the instrument face being made of translucent acrylic sheet through

Silver Spirit II and Silver Spur II



The fine engineering which is the hallmark of Rolls-Royce and Bentley motor cars extends to even the smallest components. How a switch or latch or ashtray looks and feels and functions is just as important to the engineer as a refined engine or a magic carpet ride. The quality and precision of the controls, the comprehensiveness of specification and the design for safety all contribute to the pleasure of owning and driving a Rolls-Royce or Bentley.

While controls have a great deal in common across the Rolls-Royce and Bentley range, variations in layout and other more subtle differences combine to reflect the character of marques and models. The extended 'through' console of Bentley models and both convertibles, for example, is a feature which gives the front compartment something of the ambience of a cockpit and is entirely suited to motor cars designed for high performance and the sheer enjoyment of driving.

It should be noted that there are differences in specification between models and markets which may mean that not all the features described in this section will be found on a particular car. If they are, they may work in a different way. For detailed information, reference should be made to the relevant Owner's Handbook.

1

The panel covering the fuse board is released by a push button at the side of the facia surround.

2

The glove box catch is placed at the end of the lid to make it easier to reach from the driver's seat. Accessibility of all controls is a major objective in the design of the interior.

3

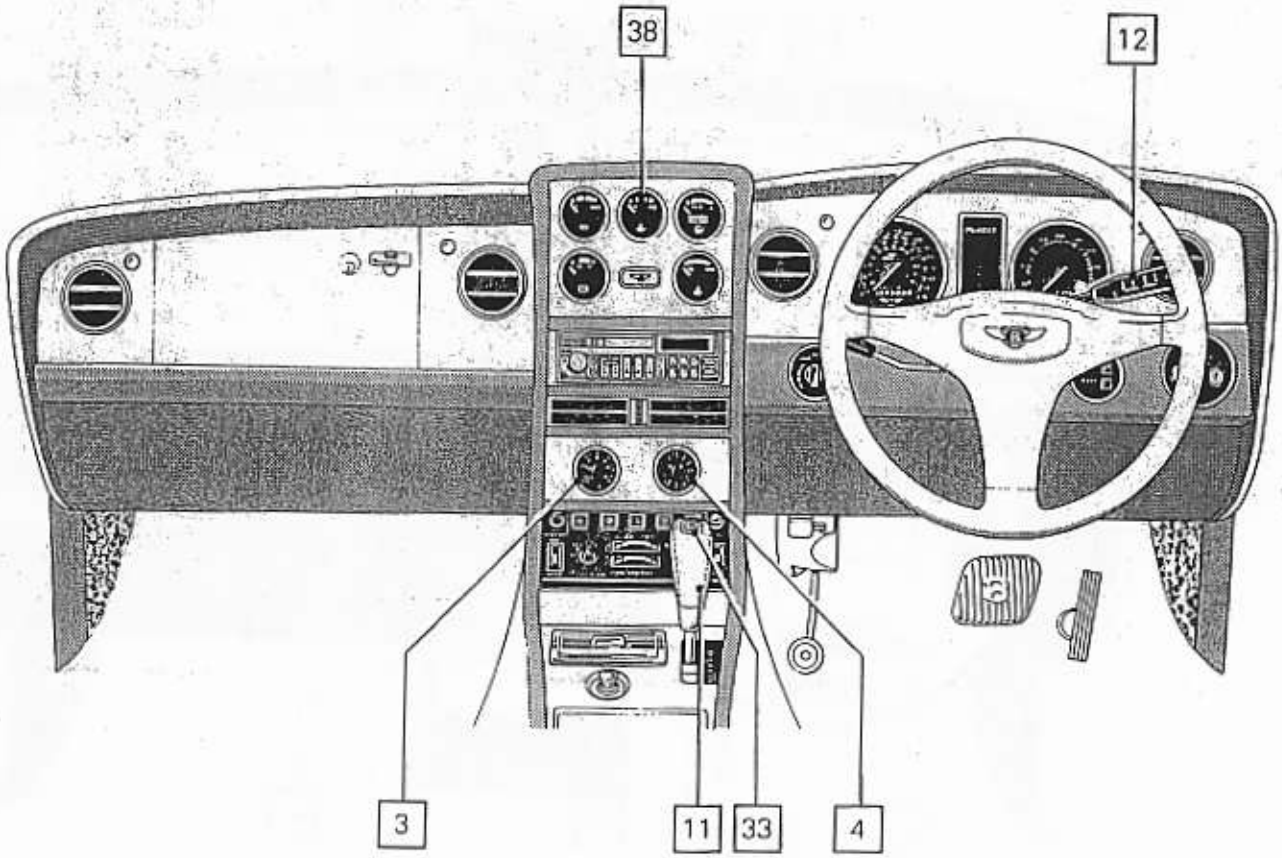
The outside air temperature (OAT) gauge indicates the external ambient temperature, most accurately when the car is in motion and the distorting effects of sun or a hot engine compartment are eliminated. The sensor is mounted behind the front bumper and also triggers the ice warning on the driver's information panel. The gauge covers a temperature range of -20°C to +40°C (-4°F to +104°F for the US market). It is mounted in the centre console of convertibles and all Bentley models.

Digital presentation of OAT information was a feature of Rolls-Royce saloons until June 1990 (Silver Spirit II 33118, Silver Spur II 33147) when the analogue instrument specified for all other models was made standard throughout.

4

The clock has a quartz electronic movement accurate to within four seconds per week. It can be adjusted by means of a switch fitted inside the glove box. Pressing the toggle will cause the hands to move forward, slowly at first to make fine adjustment easy and then accelerating to speed major adjustment.

An analogue clock became standard on all cars when the digital unit



Sport mode selector button of the Turbo R and Continental R is conveniently mounted in the centre of the knob (see 33 below).

12

The switches for the standard automatic speed control system are ideally placed for finger tip operation at the end of the gear range selector stalk on all Rolls-Royce models and the Bentley Continental. They have a dedicated column mounted stalk on those Bentleys fitted with a central gear range lever.

The system allows any speed over 30mph (48kph) to be selected and constantly maintained. The setting is immediately cancelled when the brake pedal is pressed, the CANCEL switch on the lever is operated or the ignition is switched off. If cancellation is by the brake pedal during normal driving, the chosen speed can be regained automatically by use of the RESUME control.

The speed control adds to driving convenience and allows economical cruising speeds to be easily maintained.

13

Two switches in the flattened oval (Brooklands, Turbo R) or round apertures in the lower facia control driver's information panel functions.

A brief (less than 1.2 seconds) touch of the TRIP button will switch off the electronic trip odometer display but counting will continue and can be recalled by a further brief touch. Longer operation will reset the trip to zero.

The CANCEL switch enables all non-critical warnings on the dot matrix panel to be cancelled and, by further operation, recalled. It also has other functions which are described in the Driver's information panel section.

14

The switchbox is a traditional Rolls-Royce feature transferred to the lower facia panel in the Silver Spirit II. A flattened oval aperture is used on the Brooklands and Turbo R.

15

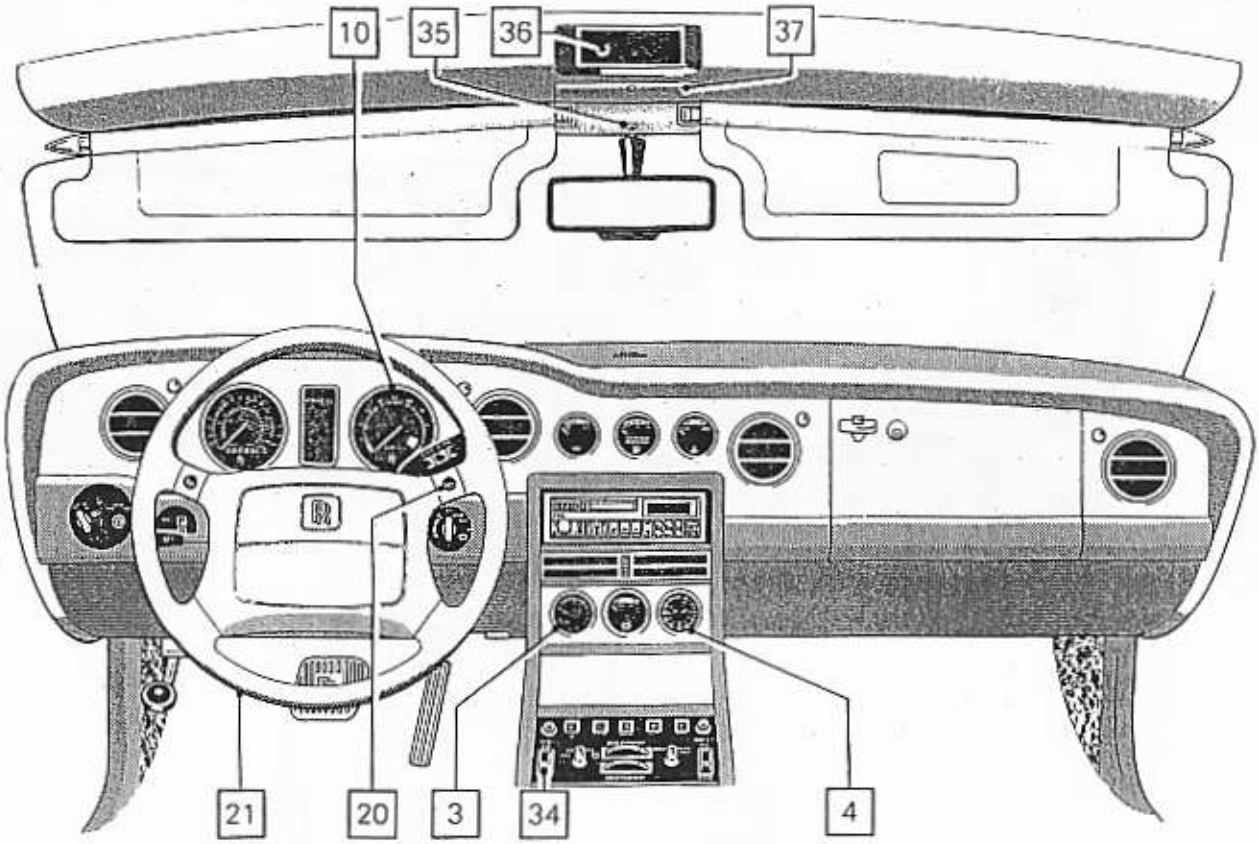
All electrically operated windows can be controlled by the driver - each passenger has an individual switch. An electronic control unit allows the mode of operation to vary between markets, usually to meet local legal requirements.

On cars built for North America and Australia, window operation depends upon the ignition being on although electrical feed is maintained after switching off until the driver's door is opened. European specification cars are similar but the feed remains until the driver's door is subsequently closed again. In both cases, further operation is impossible until the ignition is switched on once more.

The window lift switches on UK, Middle Eastern and Japanese specification cars function whether the ignition is on or off.

A very convenient 'one-shot' operation of the driver's window was introduced on the Silver Spirit II. A short touch (less than 0.4 second) of the button enables the window to be

Corniche IV and Continental



which light can be transmitted. The earlier design was made of aluminium sheet off which instrument lighting was reflected.

Another Silver Spirit II innovation is the use of the ABS sensor (see Braking system) on the left-hand front wheel as the source of electronic information for the speedometer. With 52 pulses per wheel revolution instead of the ten formerly received from a gearbox mounted sensor, speedometer accuracy of better than 98% throughout the speed range is achieved.

Rolls-Royce speedometers read up to 150 mph or 240 kph, depending on market specification. Those used for Bentley models read up to 170 mph or 270 kph.

9

The driver's information panel introduced on the Silver Spirit II brings all essential information and warnings into one easily seen unit mounted centrally within the driver's peripheral vision.
Full details are given separately. See Driver's information panel section.

10

The second major instrument in the modular pack is a tachometer on all models except the Rolls-Royce Saloon. For these, a 4-in-1 instrument combining coolant temperature gauge, battery voltage indicator, oil pressure gauge and fuel gauge is specified. On cars with a tachometer, the subsidiary instruments are located elsewhere on the facia or central console. All benefit from the improved illumination developed for the speedometer.

With the exception of the fuel gauge, normal operation of the functions being monitored by the subsidiary instruments is indicated by all needles being at the centre of their respective scales – an aid to rapid scanning.

11

The gear range selector is an electric switch, a unique Rolls- Royce and Bentley feature giving a light, positive control which eliminates the noise path of a mechanical link. The selected range is displayed on the driver's information panel, a Silver Spirit II innovation. Park or Neutral has to be selected before the engine can be started. Selection of Reverse or any forward gear while the engine is running automatically releases the parking brake.

In keeping with their sporting character, the Bentley saloons have a console mounted selector lever - a feature inherited from the Continental R in mid 1992 (Brooklands 4600 , Turbo R 4600). The action is more heavily weighted than that of the column mounted lever which is retained by the Continental, a difference accounted for by the need to suit hand as opposed to finger tip operation. The leather trimmed knob has to be lifted to clear the mechanical stops which protect the Park and Reverse positions. Elsewhere in the gate, there are varying degrees of weighting between ranges but, to meet the requirements of the keen driver, there is easy movement between Drive and 3 ranges. The

and loss of traction are potential hazards - hence the snowflake symbol. Selection of manual mode cuts out first gear and programmes the gearbox electronic control unit to progress as quickly as possible to the highest ratio available within the chosen range. Selection is indicated by the word MANUAL in the driver's information panel. The transmission automatically reverts to normal mode when the ignition is switched off.

Hazard warning switch. The warning light showing that the system is in use is on the driver's information panel.

Switches that are dependent upon specification are:

Rear window isolation switch. This restricts operation of the rear windows to the driver's door panel - a safety provision of particular value when children are travelling in the rear. The switch is not fitted to the Continental R - this model has fixed rear windows.

Air horn change-over switch. Fiamm Avanti air horns are fitted as standard to all Bentley models, the Silver Spur II Touring Limousine and the Corniche IV. They are also specified for all cars built for North American markets. Where not part of the standard specification, they are available at extra cost. When fitted, change-over from standard horns to air horns and back again is effected by this switch.

Front foglamp switch. Bumper mounted foglamps are standard on the Brooklands and Rolls-Royce models built for Japan while the inboard 'headlamps' of Bentley saloons and the Continental R destined for the Japanese and US markets are also separately switched foglamps. Bumper mounted foglamps are offered at extra cost on all models except the Continental R where they are not fitted as standard. Their use requires the main lighting switch to be on and is indicated on the driver's information panel. If necessary because all other switch positions are occupied, the foglamp switch can displace the engine oil level indicator switch.

Rear foglamp switch. High intensity foglamps are fitted to cars built for the UK, European and certain other markets. They come on only when dipped headlamps are in use and there is an indication on the driver's information panel.

Engine oil level indicator switch. When pressed while the engine is idling, an indication of oil sump level is presented on the fuel gauge - a covenient feature typifying Rolls-Royce attention to detail. When all six switch positions are required for other purposes, this function is transferred to the fuel filler door release button.

28

The fuel filler door is released electrically by use of this button when the ignition is off - the key is in the LOCK position, not either RUN or ACC. There is a manual override in the luggage compartment. If the car has no separate oil level indicator switch on the switch panel, this button is marked OIL/REFUEL and gives a sump oil level indication on the fuel gauge when pressed while the engine is idling.

29

A socket mounted adjacent to the fuseboard enables service technicians to monitor the function of and diagnose faults in the engine management, automatic ride control, air bag (when fitted) and transmission systems. The two way switch on the left of the fuseboard is part of the same Mastercheck installation and should not be operated by anyone other than service personnel.

30

Valuable information on the correct tyre pressures for various running conditions is presented on a label mounted on the fuseboard access panel for all cars other than those specified for Australia. Cars for Australia have a label mounted on the 'B' post.

31

The second access panel label is the diagrammatic key to the fuseboard itself.

32

Depending on motor car specification, up to 45 fuses (of a standard type for which replacements are widely available) and ten spares are carried on the illuminated fuseboard together with a thermal cut-out (with press button re-set) protecting the central locking system. A small tool stowed on the board allows fuses to be easily removed and replaced.

33

The Sport transmission mode is a feature of the two turbocharged Bentley models. When first introduced on the Turbo R (44002, December 1991), the push-on,push-off switch was located in the centre console but the adoption of a centrally mounted gear range selector in mid-1992 (46003) enabled the very convenient knob mounted switch of the Continental R to be fitted.

The mode raises the speeds at which changes take place and so makes the transmission more responsive to the demands of the skilled driver during high speed motoring. Its selection is indicated by the word SPORT in the driver's information panel. There is an automatic reversion to the normal transmission mode when the ignition is switched off.

An additional feature exclusive to the Continental R is the automatic switching of the ride control system into its firmest setting when Sport mode is selected. This very high performance model is thereby instantly prepared for safe and secure rapid motoring.

nudged up and down. A longer press, up or down, will command an eight second operation of the motor, long enough to ensure that the window completes its full up or down travel without the need to keep the switch pressed. Operation of the switch in the opposite direction will stop the window during the course of its automatic movement.

'One-shot' operation can take place only while the engine is running. At other times the switch reverts to a conventional mode of working like those controlling the other three windows.

16

The switches controlling the electrically operated lumbar support arrangement (a Silver Spirit II feature) are mounted readily to hand on the front seat valance of four-door saloons and on the inboard face of the squab on two-door models.

17

The accelerator pedal controls the engine through a carefully designed mechanical linkage which uses rods, levers and traditional Royce conceived ball-joints instead of cables (which introduce friction and stickiness as well as the potential to break). A special link isolates the effects of engine movement and vibration from the driver's foot. The arc of movement, the precisely calculated weighting, the progressive throttle opening for smooth driving, the total lack of lost motion and friction, and the relationship with the neighbouring brake pedal, the steering wheel and the driver's seat are all considered with typical Rolls-Royce thoroughness.

18

The bonnet release catch is beneath the knee roll and is designed for smooth and easy operation.

19

Unusually for a modern car, both brake and accelerator pedal operate through the floor. Although more demanding than pendant types in terms of engineering and sealing, the arrangement is chosen because it gives an excellent arc of movement for comfortable driving.

20

The horn button is mounted in the centre of the steering wheel of all models except those fitted with the four spoke wheel which houses an air bag. The air bag wheel formerly had a horn button in each of the four spokes but a revised design introduced in mid-1992 (46001) has two controls, one in each of the upper spokes.

Like all Rolls-Royce electrical components, the control operates with ease and precision. Silver plated contacts ensure a long, trouble free life.

21

Three types of steering wheel are used:

1 A two spoke wheel specified for all Rolls-Royce models which are not fitted with an air bag passive restraint system. It was introduced on the Silver Spirit II and is normally trimmed in black hide although six other colours are available at extra cost.

2 A three spoke sports style wheel fitted to all Bentleys except those equipped with an air bag. It is available only in black hide.

3 The four spoke wheel containing an air bag. This is standard on all cars built for the European, Middle Eastern and North American markets and may be ordered at extra cost elsewhere. Originally available only in black hide, it has, since mid-1992 (46001), been offered for Rolls-Royce applications only with the rim trimmed in one of the six colours available for the two-spoke wheel.

All three are designed for comfortable handling and maximum visibility of the main instruments.

22

A foot operated parking brake enables a substantial leverage to be applied to the pads on the rear discs with little effort. A very convenient automatic release mechanism was introduced on the Silver Spirit II. The parking brake mechanism locks on, when the gear range selector lever is in Park or Neutral or when the engine is not running; it is released automatically when a forward or reverse gear range is selected while the engine is running. There is a manual override release above the pedal mechanism.

23

A rheostat control for panel lighting intensity covers general switch and panel illumination as well as the trip odometer and gear range indicator within the driver's information panel.

24

Four way switches enable both exterior mirrors to be controlled electrically from within the car. Their settings are included in the driver's seat position memory - a new feature on the Silver Spirit II.

25

The controls for seat adjustment, heating and memory are mounted very accessibly on the console between the front seats.

26

The four ACU controls are grouped together on the centre console where they are readily accessible to both driver and front passenger.

27

A centre console switch panel is a feature of the Silver Spirit II facia layout. Following the introduction of the four-speed transmission (44001, December 1991), the panel was fitted with either five or six switches according to individual specification.

All switches are of the 'push on, push off' type. Those common to all cars are:

Transmission manual mode switch. An aid to safety in adverse driving conditions when wheelspin

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Summary

- instrument positioned for maximum visibility
- comprehensive warning system

Related Sales Directory sections

Controls
Safety features
Transmission

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34

The switch operating the hood on convertibles functions only when the car is stationary - parking brake on, gear range selector in Park or Neutral, ignition on.

The completely redesigned hood of the Corniche IV and its Bentley counterpart shares the same electro-hydraulic power operation of its predecessor but has a powered closing mechanism with two electric motors driving the locks. Lowering the hood is a **fully automatic** sequence involving no more manual assistance than might be required to ensure a clean release from the screen header rail. Raising it is also **automatic** but manual intervention is needed to pull the hood onto the header rail and so activate the locking motors.

35

A light emitting diode above the mirror shows a small red light whenever the hood mechanism is in operation. Once the raising or lowering cycle is completed, it will go out. If full locking is not achieved when raising the hood, the visual indication is accompanied by a warning tone - the hood must be lifted slightly from the header rail and the manual part of the procedure repeated. The same visual and audible warnings will be given if the lock sensors are activated while the car is in motion. The car should be stopped as soon as is convenient and the uppermost part of the hood switch pressed until full locking is restored.

36

A recess in the hood header is the hand hold for the final manual stage of the closing sequence.

37

A panel in the header next to the hand hold recess gives access to the locking motor spindles. Each spindle has a nut which can be turned by a tool provided in the tool kit, a provision which permits manual operation of the locking mechanism in the event of a loss of electrical power or some other malfunction. The panel is retained by a screw.

38

Symbolic of the very high performance of the Bentley Continental R is the inclusion of an engine oil temperature gauge as part of the very comprehensive set of instruments. The temperature indication is shown when the ignition is switched on. It will vary according to the type of driving being undertaken.

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7

The hazard warning light indicator (red) flashes when the system is switched on.

8

The appropriate arrow shows in green which direction indicator is being used.

9

A green light is displayed whenever the parking lights are on.

10

A malfunction in the anti-lock braking system is indicated by the ABS light (amber). A fault will not affect normal use of the brakes but the ultimate safety benefits of the system will not be available until it is corrected.

11

Headlamp main beam indicator (blue).

12

The low fuel level warning light (amber) comes on when the tank contents fall below 3.5 gallons (16 litres, 4.2 US gallons).

13

The CHECK ENGINE warning (amber) has two functions:

a) it warns the driver of any fault within the engine management system which requires immediate investigation by a Rolls-Royce dealer.

b) it forms part of an integral diagnostic system which allows a service technician to interrogate the management system's memory and retrieve information concerning up to eleven different functions, the exact number depending on the particular exhaust emission control specification. Fault which may have arisen since the previous service can be revealed by a Morse-like code of long and short light pulses plus a three word read-out on the sequential warning panel.

14

The sequential warning panel is made of very visible (even in strong sunlight) light emitting diodes which are arranged in a matrix to show red, amber or green warnings and indications by means of words or symbols.

There are three warning categories:

Priority 1 warnings take precedence over all others and, if necessary, will displace an indication already on view. If this occurs, two arrows at the foot of the matrix will remind the driver that a previous warning has been superseded and can be recalled later by use of the CANCEL button. Priority 1 warnings are displayed immediately a fault occurs, displayed permanently and cannot be cancelled.

AIR BAG — Cars equipped with the air bag passive restraint system, red. The system is constantly monitored electronically and any malfunction affecting its serviceability is not only notified to the driver by this legend but also recorded in the memory of the electronic control unit from where it can be recalled later if, for example, a query arises concerning its performance in a subsequent accident.

EXHAUST TEMP — Japanese market cars only, red. Will always appear in conjunction with the CHECK ENGINE warning.

Red. A warning of low engine oil pressure.

Red. Indicates that the ignition is on but the engine is not running. If the warning appears while the engine is running, a fault in the battery charging system is indicated.

ENGINE COOLANT — Amber. Signalled when the engine coolant level falls to the safe minimum. Topping up is required.

CHECK GEARBOX — Amber. The electronic control unit of the four-speed automatic transmission is another component which undergoes constant monitoring. If a malfunction occurs within the control system, this warning appears and the gear-box automatically moves into and holds second gear regardless of the gear range selector lever position - in the interest of safety, this default selection of second gear would not take place until a car travelling at high speed had slowed down. If the warning appears, the car should not be driven at any speed above 70mph (113kph) until the fault has been rectified by a Rolls-Royce dealer. Because there is no safety change to a higher gear ratio, the restriction is necessary to avoid damage to the engine.

Priority 2 warnings and indications can be cancelled by means of the CANCEL button and later recalled by repeated use of the same control. When a warning has been cancelled, the driver is reminded by the appearance at the foot of the matrix of two arrows.

Red. In normal operation, the appearance of the symbol would indicate a fault or failure in the charging system. But the symbol is also used to show that the ignition key is in its ACCessory position.

AUTO RIDE — Amber. A warning of a malfunction in the Automatic Ride Control system. Should a fault occur, the system moves into its safest firm setting and the car can be driven quite confidently until the fault is rectified.

Green. When front foglamps are fitted, this symbol indicates that they are on.

Amber. When rear foglamps are fitted, this symbol appears when they are actually on – ie the foglamp and headlamp switches are on simultaneously.

ICE — Amber. Triggered by the front bumper mounted outside air temperature gauge sensor at +1°C (34°F), this warns of potentially hazardous driving conditions.

WASHER FLUID — Amber. Indicates a low level in the windscreen and headlamp washer fluid reservoir. If it is cancelled, the

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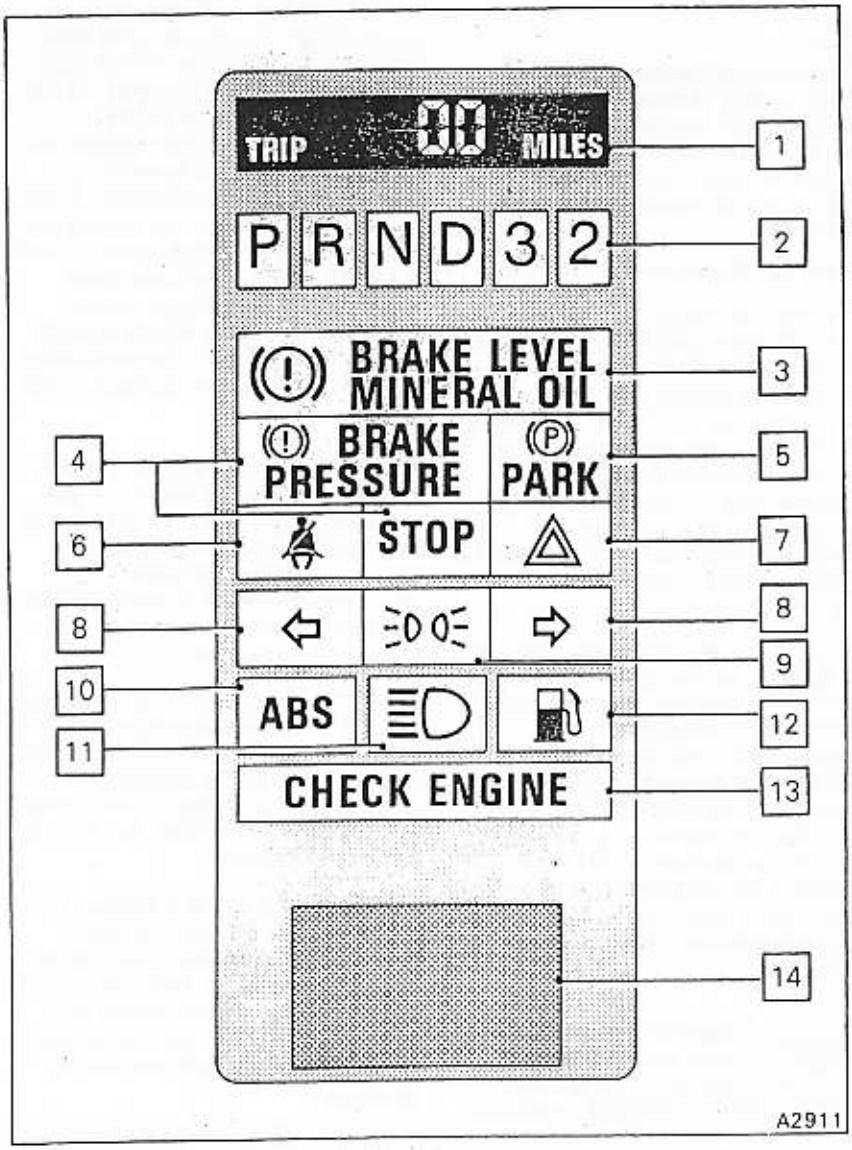


Introduced on the Silver Spirit II, the driver's information panel provides very comprehensive monitoring of all essential functions and a number of secondary systems. To ensure that nothing is missed, the panel is mounted just below the driver's normal line of sight and new information presented on the sequential warning panel is accompanied by an audible tone. Colour – red, amber and green – is used to indicate priority.

The panel functions only when the ignition is on.

1

The trip odometer records either miles or kilometres according to market specification. The electronically generated amber numerals are at full brightness when the parking lights are off, reduced slightly in intensity when they are on and then come under the control of the panel light rheostat. The display can be switched on or off while still counting by brief (less than 1.2 seconds) use of the TRIP button on the lower facia. A longer press of the button will re-set the trip reading to zero.

2

The gear range indicator shows an amber panel behind the gear range selected. Lighting arrangements are identical to those of the trip odometer.

3

The brake fluid warning is illuminated when the level of mineral oil in either of the two underbonnet reservoirs falls below the minimum. The need for topping up is indicated only when either reservoir is capable of accepting the whole contents of the 500cc container stowed in the luggage compartment. If the warning appears, replenishment should be carried out without delay and, if necessary, the cause of the fluid loss investigated by a Rolls-Royce dealer.

4

The brake pressure warning light and its associated STOP warning are the most important of the six lights monitoring vital brake functions.

It is not unusual for it to stay on when starting the car after a prolonged stop but it will go out once the engine driven pumps have restored operating pressure.

If System 1 (rear brakes and levelling) then falls below the safe minimum operating pressure, the BRAKE PRESSURE light (red) will come on and the car must then be driven with extreme caution and the fault corrected by a Rolls-Royce dealer without delay.

Because the front brakes contribute the major proportion of total braking effort, driving with them not functioning correctly represents an unacceptable risk. The loss of their System 2 is indicated by the BRAKE PRESSURE light coming on accompanied by the flashing of the STOP light (red). **The car must not be driven** in these circumstances.

Loss of both hydraulic systems would be shown by the simultaneous flashing of both lights.

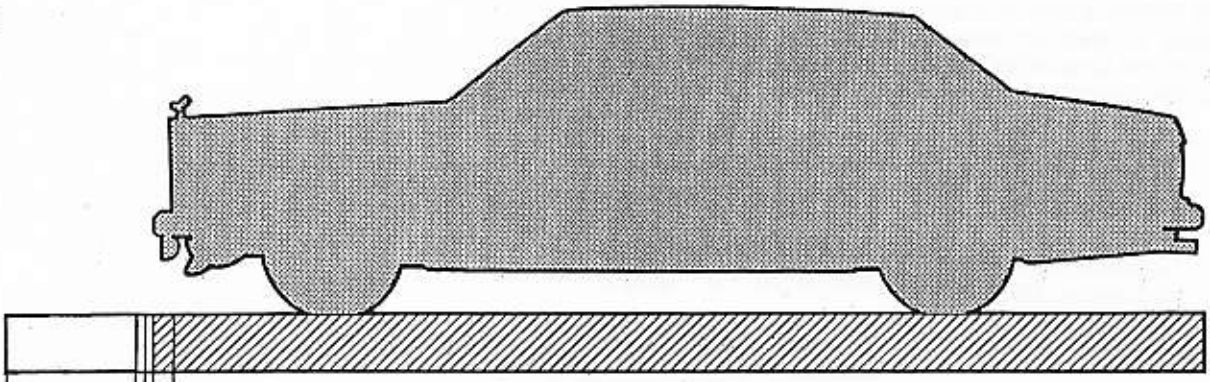
5

The PARK light (red) indicates that the parking brake is applied.

6

The seat belt reminder (red) remains on for about seven seconds after the last door has been closed.

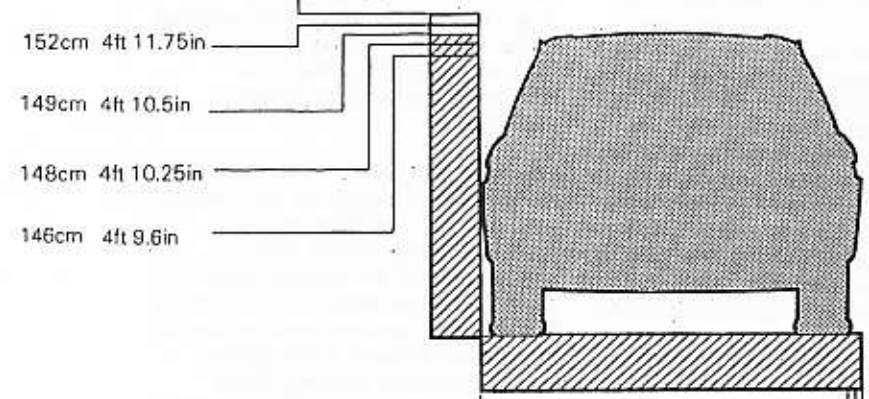
Length



Corniche IV, Continental	520cm 17ft 0.7in (+ 6cm, 2.4in for NAmer)
Silver Spirit II, Brooklands, Turbo R	527cm 17ft 3.5in (+ 1cm, 0.4in for NAmer)
Continental R	534cm 17ft 6.3in
Silver Spur II	537cm 17ft 7.5in (+ 1cm, 0.4in for NAmer)
Silver Spur II Touring Limousine	598cm 19ft 7.5in

Height

Silver Spur II Touring Limousine	154cm 5ft 0.5in
Corniche IV, Continental	152cm 4ft 11.75in
Silver Spirit II, Silver Spur II, Brooklands	149cm 4ft 10.5in
Turbo R	148cm 4ft 10.25in
Continental R	146cm 4ft 9.6in



Width

Corniche IV, Continental Silver Spirit II, Silver Spur II, Continental R	184cm 6ft 0.25in (+ 12cm, 4.7in for door mirrors)
	188cm 6ft 2in (+18cm, 7in for door mirrors)
Silver Spur II Touring Limousine Brooklands, Turbo R	189cm 6ft 2.25in (+ 12.1cm, 4.8in for door mirrors)

warning is repeated every time the wash-wipe control is used and also, as a reminder to fill up the reservoir, when the ignition is switched off at the end of the journey.

Amber. Displayed when the manual transmission modeis selected.

Turbocharged models only, amber. Displayed when the sport transmission mode is selected.

Priority 3 warnings are shown only if the condition exists at the time the ignition is switched on or off.

Amber. When two electrodes buried within the front brake pads are exposed by wear, this warning appears to show that replacement is due.

Red. Indicates a rear stop lamp bulb failure.

If the sequential warning panel is required to display more than one indication – if both front and rear foglamps are on, for example – each appears sequentially for four seconds and will continue to cycle in this way until cancelled. Similarly, if at the end of the journey indications of pad wear, rear stop lamp bulb failure and low washer fluid level needed to be presented, each item would appear for four seconds but the final one would stay on for eight. After that, the driver has sixty seconds in which to review the information by pressing the CANCEL button. In the unlikely event that more than one Priority 1 warning appeared, they too would cycle on a four second basis but could not be cancelled.

Other indications that might appear on the panel are:

Green plus a brief audible warning. A symbol seen if the driver's door is opened with the ignition off and the parking lights on. The symbol remains until the door is closed again or the lights are turned off. A reminder made all the more valuable by the fact that the panel lights, which might otherwise serve the same purpose, are turned off with the ignition to save draining the battery.

Green. Seen when the ignition is switched on as the relevant electronic systems check the operation of the ABS, engine management, transmission, automatic ride control and (if fitted) the air bag. Any fault would be indicated by the appropriate warning light.

Australia and North America only, green plus audible warning. A reminder to remove the key. Displayed if the driver's door is opened while the ignition key is still in place.

Two small arrows appear at the foot of the matrix if a warning is cancelled by the driver or is displaced by a Priority 1 warning. They act as a reminder that some attention or action is required later. A press of the CANCEL button will retrieve the information to which the arrows refer.

All new items of information presented on the sequential warning panel are accompanied by an electronically generated tone designed to attract the driver's attention.

Checking the panel – the whole panel is blank during the low voltage conditions prevailing while the engine is being started. Once cranking stops, all warning lights are shown for three seconds (a check on the two light sources) and the matrix panel goes through a red, green, amber sequence showing each colour for one second. Any existing fault will then be displayed.

The demonstration sequence – the menu of warnings and symbols covered by a particular sequential warning panel can be seen, in sequence, by pressing the CANCEL button for longer than one second while the ignition key is in the ACC position and the gear range selector lever is in Park.

Summary

- powerful – especially so in turbocharged form
- high low-speed torque
- responsive
- durable
- quiet
- very refined
- very efficient

Related Sales Directory sections

Controls

The Bentley difference

All models

* BENTLEY rocker covers

Turbo R, Continental R

* turbocharger with intercooler
* detail changes to engine to suit turbocharger installation and increased power output
* three silencer exhaust system with two outlets
* 50+% increase in power

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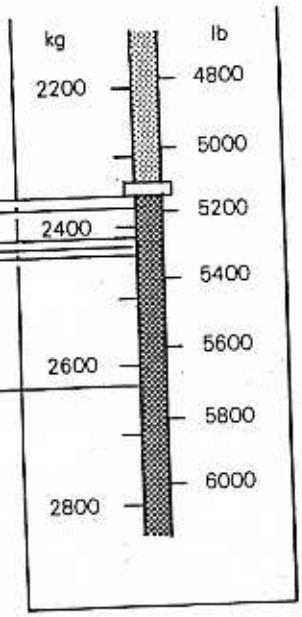
Weight

Unladen weight but including all liquids

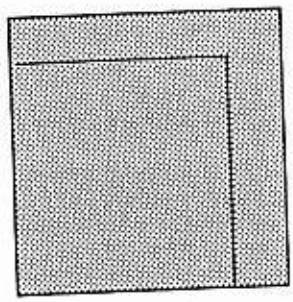
Silver Spirit II, Brooklands	2350kg 46.25cwt
Silver Spur II	2380kg 46.8cwt
Turbo R	2410kg 47.4cwt
Continental R	2420kg 47.7cwt
Corniche IV, Continental	2430kg 47.8cwt
Silver Spur II Touring Limousine	2640kg 52cwt



Boot capacity

Volumes calculated by use of the best possible combination of boxes representing typical items of luggage. The figures quoted do not represent the actual total volume of all space within the luggage compartment.

All saloon models, Continental R, Silver Spur II Touring Limousine	0.35cu.m 12.3cu.ft
Corniche IV, Continental	0.27cm.m 9.6cu.ft



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Ignition
Digital electronic with twin rotor distributor, and twin coils

Electronic ignition gives a very precisely timed 'fat' spark for the efficient ignition of the weaker mixture required for emission control and economy. The absence of a mechanical breaker reduces maintenance costs and keeps the engine in perfect tune.

The digital system offers even greater timing precision. Dual rotors take it in turns to fire the eight cylinders, the separation avoiding the 'flash-over' (and the risk of the spark going down the wrong lead) which could occur under extremes of ignition advance or retard if all eight distribution points were close together in a single cap.

Alternator
Type: 120 ampère at 13.5 volts

The large capacity alternator comfortably meets the demands of the car's comprehensive electrical services and is capable of rapidly restoring a battery after a period of discharge. It is positively driven by a flexible long life internally cogged belt. Typical attention to detail is shown by the alternator's built in cooling fan which has asymmetric blades for quietness.

Cooling system
Coolant: 50% water/anti-freeze mixture

A high concentration of anti-freeze is specified to prevent internal corrosion.

Cooling fans:

508mm (20in) diameter, seven-blade, viscous drive plastic fan supplemented by twin 250mm (9.8in), four bladed plastic fans driven by electric motors – all saloons and Continental R.

483mm (19in) diameter, seven-blade, viscous drive metal fan supplemented by twin electric fans – all convertibles

The viscous coupling drives the main fan permanently but limits it to a maximum speed of 1700rpm at which point drive slip prevents it from matching higher engine speeds. This feature reduces the power demanded by the fan and aids fuel consumption as well as noise reduction. Asymmetric blades are another noise suppression feature – they prevent any regular noise producing frequencies from becoming established.

The electric supplementary fans operate when the ignition is on if coolant temperature exceeds 105°C (221°F). They can also be energised by the automatic air conditioning system when extra refrigerant cooling capability is required.

A larger radiator with an aluminium matrix and plastic header tanks was introduced with the 20,000 series (from October 1986). The revised cooling system with air intakes in the air dam as well as the radiator grille ensures adequate cooling in the most arduous ambient conditions.

Lubrication
Type: gear type pump driven from crankshaft, full flow oil filter

Although designed to be quiet in operation, the oil pump is also mounted at the front of the engine to keep any noise away from the passenger compartment.

Exhaust system
Twin system, two silencers, single outlet – all cars except the Turbo R and Continental R.

Twin system, three silencers, dual outlet, turbocharger with waste-gate and electronic control – Turbo R and Continental R.

The exhaust system is made of stainless steel for maximum durability. Silencers (those at the front contain a catalytic converter on cars built for markets requiring the most stringent control of exhaust emissions, are designed to absorb different noise frequencies and are made of stainless steel lagged in insulating material and given a further outer covering of stainless steel – a form of construction giving a very long life. Carefully designed rubber mounts insulate the car interior from noise and vibration.

The system on turbocharged models works in a particularly demanding environment and the forward manifold sections are cast in heat resistant high strength material.

The exhaust systems are designed to give effective silencing, the least possible power loss and a very long service life.

Build and test
Rolls-Royce and Bentley engines are built to exacting standards. All rotating parts are balanced individually and then as sub-assemblies. Every engine is run on a test bed for 1½ hours, a period during which checks for leaks and other malfunctions are carried out. Then follows calibration, tuning and adjustment to ensure that emission standards are met. Every one-hundredth engine undergoes a full power test followed by a strip inspection, rebuild and further run-in.

Power and torque
The most recent major development, introduced with the 20,000 series (from October 1986), saw power output of the engine increased by 22%. The turbocharged unit is about 50% more powerful still.

These comparisons apart, it continues to be Rolls-Royce Motor Cars practice not to publish power or torque figures for motor car engines. 'Sufficient' remains the appropriate (and honest) response to queries on the subject.

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The engine which powers current Rolls-Royce and Bentley motor cars is the subject of continuous development. The engine unit has become progressively more powerful, more efficient and even more refined while meeting the most stringent emission standards enacted in major Rolls-Royce markets.

No change is introduced without the most thorough testing: many thousands of miles on the road and hours on the test bed (including a 400 hour test at full throttle completed on one engine which has to demonstrate minimal wear and no significant loss of performance) are included.

Silence, smoothness, driveability, a total lack of temperament and a very long life without major attention are hallmarks of a Rolls-Royce engine.

Basic features
Configuration: 90°V8
Cubic capacity: 6750cc (412cu.in)
Bore: 104.1mm (4.1in)
Stroke: 99.1mm (3.9in)

The V8 layout was chosen because it gives the most compact power unit which is in perfect primary balance – it is inherently smooth.

Originally, it was a 6230cc engine but the capacity was increased in 1970 to restore the power lost through the addition of exhaust emission control equipment. The Rolls-Royce Motor Cars approach to engine design is to achieve the desired power output through large capacity rather than high specific outputs (bhp per litre capacity). Thus Rolls-Royce engines are typically conservatively rated but offer high torque at low engine speeds (for good response and acceleration), low noise levels, and the durability that comes from a lightly stressed unit working well within its capability.

Compression ratio: 8.0:1

With the introduction of the Silver Spirit II, an 8.0:1 compression ratio became standard for all models in all markets. The latest engine brings a further 2% improvement in overall fuel economy as well as the ability to run on unleaded fuel without modification or loss of performance.

Valves:

two overhead valves per cylinder operated by a single camshaft located between the cylinder banks through hydraulic tappets.

The valve gear is very quiet mechanically as a result of careful design of gear drives, demanding build tolerances and the use of self-adjusting hydraulic tappets.

Structure: aluminium-silicon alloy

The use of aluminium saves weight. Design changes introduced with the 20,000 series (from October 1986), brought increased thickness cast iron cylinder liners (for greater stiffness in an engine producing substantially more power, and reduced oil consumption) and stiffening webs on the crankcase to reduce noise still further. The adoption of crossbolts for the three central main bearings in June 1988 (24513) made the crankcase stiffer still and the engine therefore even more refined.

Crankshaft:
chrome-molybdenum steel.

An extremely rigid shaft which is nitride hardened for long life. Each one is forged with a test piece added to the length: this is removed and subjected to chemical and metallurgical examination. The machined shaft is dynamically balanced to tight limits before other components are assembled to it – when the whole assembly is balanced again. There are five main bearings.

Fuel injection
The K-Motronic engine management system offers full electronic control of the engine regimes in starting, the post-start period, warm-up, acceleration and full load. It also has a diagnostic capability and a memory which stores fault information which a technician can gain access to during the course of routine servicing.

The benefits of fuel injection are: very efficient use of fuel leading to increased power, reduced fuel consumption and superior control of emissions.

Fuel grades
The latest engine development of the Silver Spirit II enables all cars, whether fitted with catalytic convertor exhaust emission control equipment or not, to give optimum performance on 95 octane unleaded fuel – in North America, this is shown as 91AKI (anti-knock index). The only exception are Australian specification cars which are tuned to run on 91 octane unleaded fuel.

In order to avoid damage to the catalytic convertor, all cars so equipped must run only on unleaded fuel and to prevent inadvertent filling up with leaded petrol their fillers are designed to accept only the small diameter nozzles which are standard on pumps dispensing unleaded fuel.

Turbocharging
The power developed by an engine is directly proportional to the mass of air it consumes.

By compressing intake air and so increasing its mass, the exhaust driven turbocharger of the Bentley Turbo R and Continental R produces a a very substantial increase in power compared with naturally aspirated variants of the engine.

The process of compression itself leads to the heating of air and so an intercooler (an air-to-air radiator mounted behind the right-hand air intake of the air dam) was added to the specification of the Turbo R in June 1988 (24519) to cool the compressed induction air and so add further to its density and mass. On cars without exhaust emission control equipment, this intercooling results in a 5.3% increase in power and a 3.8% increase in torque with consequent gains in already exhilarating performance. For cars with exhaust emission control, the effect is to restore the power which would be otherwise lost in meeting emission standards.

The advanced turbocharger control system ensures instant throttle response with no perceptible lag and a complete protection against 'knock' (or detonation), a feature which enables turbocharged engines to operate safely on unleaded fuel.

Because it will remain in production for a long time and be capable of giving many years of service to its owners, a Rolls-Royce motor car can never be enslaved to passing fashion. Thus the current Rolls-Royce and Bentley range is styled with a restrained elegance which is modern yet timeless. Practicality is a major feature of their design – the ease and dignity with which passengers can get in and out, the way luggage can be loaded without undue effort, the subtle features which make the accurate placing of a large car on the road something which comes naturally and almost unconsciously. At the same time the designers and engineers have given high priority to safety, function, performance in its widest sense, the need for distinctive identities for different models, and those aspects of tradition which are valued by those who own the best cars in the world.

Many of the features of the Rolls-Royce Silver Spirit II described in detail in this section are shared by all Rolls-Royce and Bentley models. The four-door saloons in particular have much in common.

1

The famous Rolls-Royce radiator shell is a registered design dating back to the very first Royce cars of 1904. It takes six hours for one man to make the shell by hand using techniques that have changed little in more than eighty years. On the back of each are stamped the initials of the craftsman who made it. The stainless steel plates are convex to create the illusion of flatness and, for the same reason, not a single edge or line is straight.

2

The mascot (the 'Spirit of Ecstasy') was designed by Charles Sykes in 1911. His commission resulted from the Rolls-Royce directors' concern about some of the unseemly devices which less sensitive owners were putting on their cars.

Rolls-Royce cars built for the UK, Europe and Australia have a retracting mechanism which causes the mascot to collapse into the top of the radiator shell under any load exceeding 7kg (15lb) applied from any direction. The device is easily reset.

For other markets, the mascot is mounted on a spring loaded chain which provides both flexibility and security.

Local legislation forbids the installation of a mascot on cars supplied to Switzerland and the Middle East – a chromium plated button is fitted instead. The mascot is supplied loose so that the owner may fit it if he wishes while travelling through other countries.

3

The bonnet is made of aluminium (for lightness) and carries extensive sound deadening material on its underside. It is forward hinged (a safety feature) and opens wide for excellent access to the engine compartment and all reservoirs.

The engine compartment is an impressive sight. The standard of finish is very high with glossy black enamel and grey natural metal dominating the scene. The reservoirs and other points requiring regular checking are mounted high up for easy access and various instructions and warning notices are prominently displayed. The underbonnet appearance is considered to be of such importance that the design and siting of any new or modified component has to be approved personally by the chief engineer before release for production.

4

A stainless steel deflector is fitted on either side of the windscreen. The two keep side windows and door mirrors clear by diverting rain water over the roof.

5

Nothing but laminated windscreens have ever been fitted to Rolls-Royce and Bentley motor cars. Current models have a 5.86mm thick screen made up asymmetrically of 3.0mm glass, a thicker than usual butyl layer of 0.76mm and a second glass layer of 2.1mm. The design is very resistant to chipping and will not shatter. It also is designed to ensure that any unrestrained passenger is confined to the security of the very strong passenger compartment – this is achieved by its penetration resistance and its bonding to the screen aperture.

Sundym glass, which reduces heat input from the sun, is the standard glass although clear glass is also available and, to conform with state legislation, is fitted as standard to Australian cars. Shaded Sundym screens are also available.

6

The introduction of a four (as opposed to two) jet windscreen washer system on the Silver Spirit II and its saloon derivatives is a typical example of the detail development work undertaken by Rolls-Royce Motor Cars engineers. By spreading a greater volume of water more evenly over the screen, overall effectiveness is further improved.

There is easy access to the 10 litre (17.6 pint, 21 US pint) reservoir in the engine compartment. The same reservoir also serves the headlamp washer system.

7

Matt black windscreen wipers prevent unwanted reflections from distracting the driver. They park against black rubber stops to protect the panel at the base of the screen. The wiper on the driver's side has a pantograph link which brings the blade into a vertical position as it rises thus ensuring that a maximum screen area in front of the driver is cleared. Both blades have small aerofoils which prevent lifting from the screen at high speeds and in cross-winds.

8

For long a feature of cars built for North American markets and more recently introduced to other areas, a discreet but visible label bearing the full VIN was made standard on all cars in mid-1992 (46001). Located inside the left hand side windscreen surround, the label is a security measure which discourages theft of the car.

9

Curved glass in the side windows contribute to the modern look but also have a practical benefit in

September 1992

Summary

- timeless elegance
- excellent visibility
- ease of entry and exit
- perfect fit of doors, bonnet and boot lid
- many safety features
- immaculate finish

Related Sales Directory sections

Air conditioning
Audio equipment
Body shell
Paint and interior trim
Radio telephone
Security
Wheels and tyres

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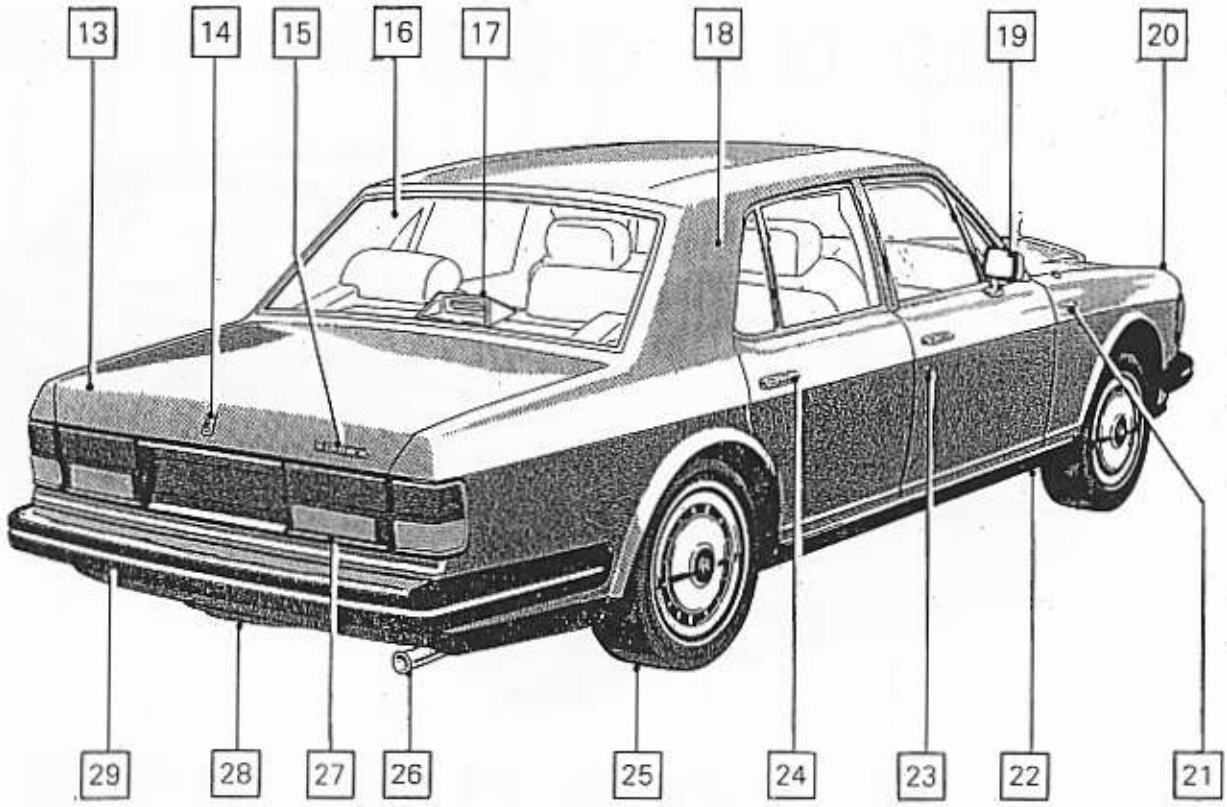


5mm laminated glass which embodies very fine, almost invisible, demister wires which are switched on automatically by the air conditioning system when necessary.

The chromium plated finisher is free of visible joints – a coachbuilding touch typical of a Rolls-Royce.

17

A high mounted stop lamp which can be easily seen by following drivers in a queue of traffic is standard on all saloon models except those built for certain European markets. In dense traffic, it is a major aid to safety.

18

The prominent quarters give a degree of privacy to rear seat passengers without impairing vision to the rear.

19

The external mirrors are adjusted electrically from within the car. Their settings can be entered together with the position of the driver's seat into the seat memory. To ensure continued effectiveness under adverse conditions, they are electrically heated whenever the air conditioning system commands rear window heating. With the exception of those specified for North America cars, the mirrors are slightly curved to give the maximum field of vision without excesive distortion. The stems are designed to break away safely under impact.

20

Subtly styled wing crowns aid the judgement of width and therefore contribute to the ease and pleasure of driving the car.

21

Side repeater flashers ensure maximum visibility for turn signals and hazard warning.

22

Jacking points are located at either end of each sill.

23

New locks introduced in December 1991 (44007) can be identified by a much less prominent outside escutcheon. They are designed for easy key entry and have integral weather shields. With 1099 different combinations used in production, the six-pin mechanism offers a high degree of security which is further enhanced by several specific design features.

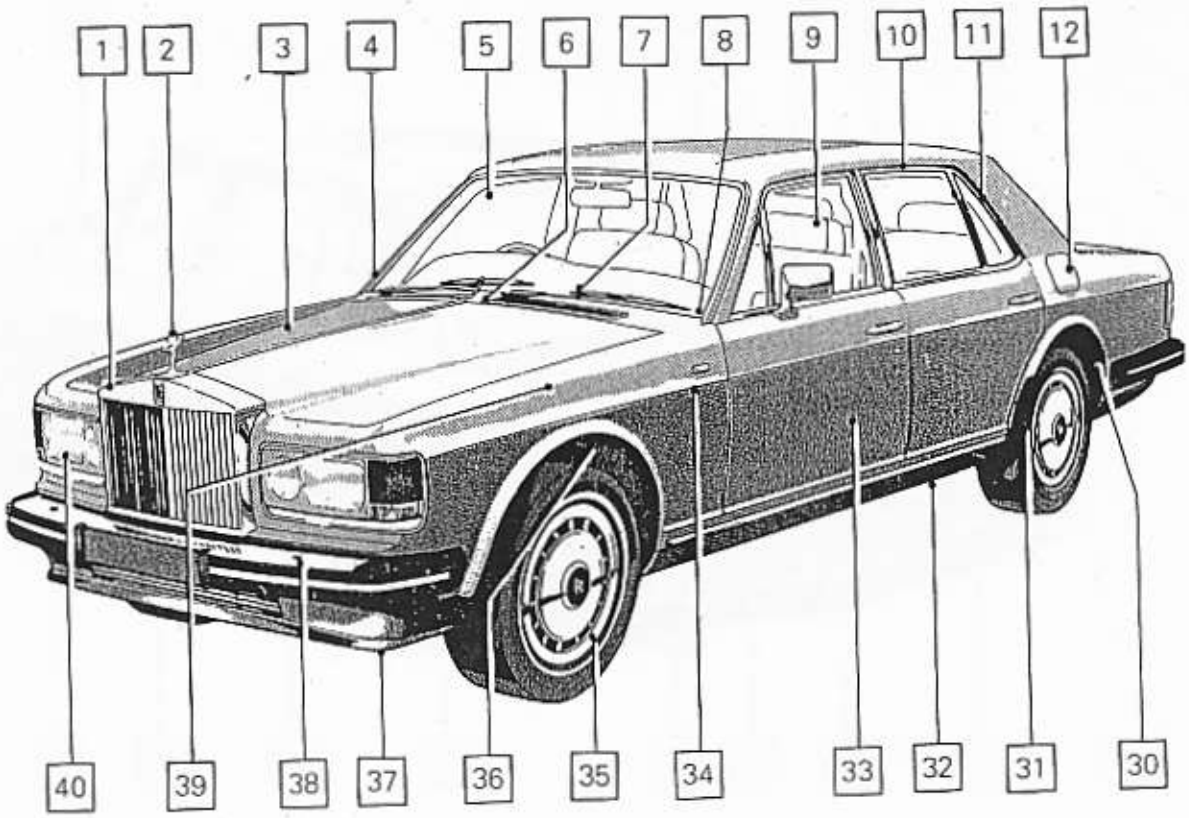
The doors can be locked or unlocked by use of either the master or (limited) ignition key. The new installation also permitted the arming of the alarm and the operation of the central locking system from the external lock.

24

Door handles have a smooth shape for pedestrian safety and are designed for effortless and natural operation. With the rear door child safety lock in position, the door can be opened only from the outside.

25

With the introduction of the Silver Spirit II, whitewall tyres became standard on all Rolls-Royce models. Black walled tyres are available as a no-cost option.



enabling more interior room to be achieved for the comfort of occupants. The electrically operated windows are wiped on both sides by the seals when lowered and small plastic 'nudgers' are fitted to ensure that they run true in their frames. Their size gives a light, airy interior.

10

Window frames are hand made in stainless steel.

11

A bright metal finisher to the door aperture, similar to that of the Silver Spur II, has been a styling feature of all Rolls-Royce and Bentley four-door saloons since June 1988 (24513). It is a detail innovation which enhances the appearance of the motor car.

12

The 108 litre (23.75 gallon; 28.5 US gallon) fuel tank is located in the safest place - behind the rear seat. The filler (which has a specially designed cap which cannot be overtightened) is located behind this flap where it is secure. The flap is released either electrically by a facia button or manually from within the luggage compartment.

13

The luggage compartment is large (0.35cu.m; 12.3cu.ft measured by boxes representing typical items of luggage) and fully trimmed with Wilton carpet to match the interior. The absence of a sill makes loading particularly easy and the siting of the spare wheel carrier nut close to the opening means that a puncture can be dealt with without disturbing the luggage.

The luggage compartment contains the compact disc changer, the battery (located for convenient checking and removal), a particularly comprehensive tool kit (which includes spare bulbs, a warning triangle and even a pair of protective gloves) neatly stowed above the fuel tank, a compartment housing a 500cc container of hydraulic system mineral oil for topping up the hydraulic systems if required, and, if fitted, the transceiver unit for the cellular telephone installation.

The luggage compartment also contains the battery master switch (not fitted to cars built for the West German market) and label warning against its use while the engine is running.

14

The luggage compartment lock is neatly concealed by a hinged marque badge which incorporates a magnet to prevent rattles. The luggage compartment is included in the central locking system and all four doors as well as the luggage compartment can be locked or unlocked from this luggage compartment lock. Only the master key can be used on the luggage compartment.

The luggage compartment release catch is concealed above the number plate recess.

15

A luggage compartment mounted badge with black lettering is a Silver Spirit II identification feature.

16

A large rear window provides excellent rearward visibility. It is a

All variants are steel braced, low profile radial ply tyres made to Rolls-Royce Motor Cars specifications. They offer high standards of roadholding, handling and durability.

26

A very efficient twin exhaust system merges into a single outlet on the right-hand side of the car. Stainless steel is used throughout the system to ensure long life.

27

The back of the car is dominated by an array of lamps. The stop lamps, reversing lamps and, when fitted, rear foglamps are mounted on the luggage compartment lid to enable a low loading height to be achieved. The lamps are large and easily seen.

28

The spare wheel is carried in a tray beneath the luggage compartment and is lowered from the edge of the boot area, without removal of luggage, by use of the wheel brace.

29

The wrap-round bumpers incorporate an aluminium beam which gives excellent protection. For North American markets, energy absorbing mounts enable impact speeds in excess of 4kph (2.5mph) to be sustained without damage to panels or any mechanical or electrical systems. They can also withstand corner impacts of up to 2.4kph (1.5mph).

30

Spacious wheel arches anticipate future tyre developments and provide ample space for the fitment of snow chains.

31

A neoprene shield on the forward part of the rear wheel arch protects the paintwork from stone damage.

32

Further protection from stone damage is given by coating the sills with an anti-chip material. This is subsequently painted matt black.

33

The aluminium door structure includes an anti-intrusion beam for the protection of passengers in the event of a side impact. Every door opens widely and the ease with which the car can be entered and left is further enhanced by the running boards revealed on opening. Robust two position door checks are effective in strong winds and on severe slopes. Burst proof door latches, which have a light, positive action keeping door closing loads to a minimum, keep the doors firmly shut in an accident – the doors then contribute their strength to energy absorption. Highly developed door seals keep wind noise at high speeds firmly under control.

34

The coach lines are painted on in a colour chosen by the customer. Various thick and thin line combinations are available.

35

165mm (6.5in) wide alloy wheels are a Silver Spirit II feature specified for all Rolls-Royce models. The 12.7mm (0.5in) extra width compared with the previous pressed steel wheel enables full advantage to be taken of modern low profile tyre technology and brings further improvements in handling.

The wheels are cast and machined to very precise standards and, apart from their handsome appearance, offer superior brake cooling as a result of better ventilation.

For security, two different keys (both stowed behind the forward panel of the luggage compartment) are needed to remove the central black plaque and then the wheel trim.

On the Silver Spirit II, an elegant stainless steel wheel trim is standard although, if preferred, the alternative trim with painted ring specified for the Silver Spur II and Corniche IV may be ordered at extra cost. All three models have a separate stainless steel rim embellisher.

36

Glass reinforced plastic undershields and a snow excluder closing the gap between undershield and bumper are fitted within the front wheel arch to protect components and provide a first line of defence against corrosion.

37

The primary purpose of the air dam is to reduce front end lift (particularly at high speed) and to counter the effects of side winds, all to the benefit of stability and handling and, therefore, safety. However, the air dam also plays an important part in directing the flow of cooling air required for efficient operation of cooling matrices for the engine coolant, the transmission, air conditioning system, power steering and engine oil.

The glass fibre reinforced polyurethane moulding is light and resistant to damage. A black paint finish is applied.

Cars built for North American markets, where entry angles on ramps are often quite steep, have an air dam which is about 2.5cm (1in) shallower than the standard.

38

A pressurised water headlamp washer system works in conjunction with the windscreen wash-wipe sequence when the headlamps are on and contributes to safety by maintaining maximum headlamp effectiveness. One jet is mounted on either side of the bumper except in the case of cars built for North America whose four separate headlamps are cleaned by individual jets mounted in the surround above them. Operation of the system produces a powerful jet of water at 3.5kgf/cm² (50lbf/in²) lasting 0.4 seconds.

39

Electronic control of the headlamps was introduced on all models in June 1988 (24513).

In addition to control of such functions as dim-dip (UK only), day-

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time running lights (Canada and Sweden only), and washer jet timing, the electronic unit also brings important benefits:

a) the security of a system which effectively ensures that total failure of the headlamps cannot occur. The circuits are so designed that it would require two separate faults to cause any one light to fail and therefore eight separate faults to lead to total loss of the headlamps.

b) for courtesy, particularly in respect of other road users, and convenience, the headlamps are always dipped when first switched on, even if they were on main beam when last switched off.

c) the headlamps are extinguished automatically when the ignition is turned off – a convenient feature which prevents the inadvertent draining of the battery.

d) to protect the battery from excessive demands, the headlamps are automatically extinguished while the engine starter motor is turning.

Ratings (in watts) are:

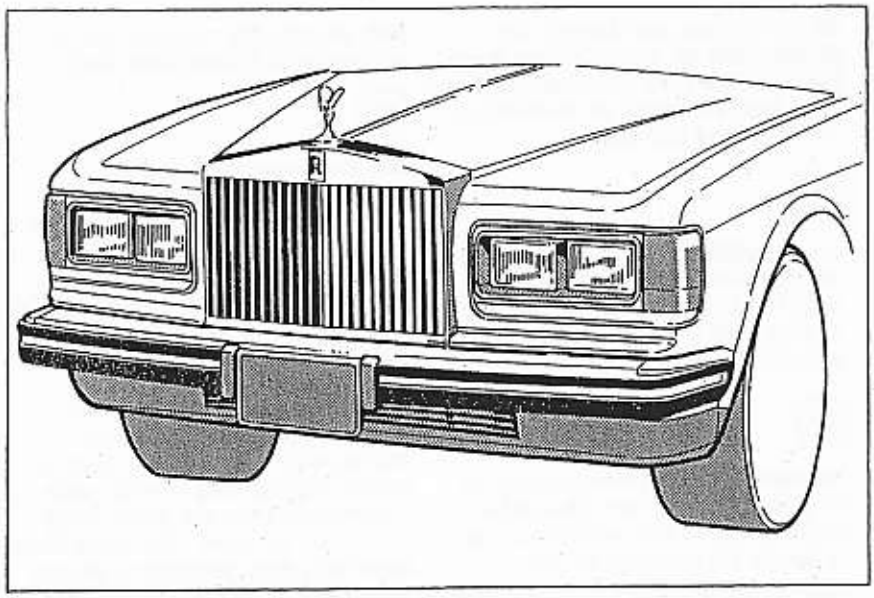
four headlamp system, United States – 55w inner, 45/40w outer

integral headlamp system – 55w inner, 60/55w outer

Wrap around parking and indicator lights form part of the headlamp unit.

40

Two types of headlamp may be specified. For the United States market, four separate halogen sealed beam units, of a standard type for which replacements are widely available, are used. Elsewhere, specially designed integral units with separate quartz halogen bulbs are fitted. These have a powerful dip beam which is asymmetric – it gives a sharp cut-off ahead to avoid discomfort to oncoming drivers and has a raised near-side beam to illuminate cyclists, pedestrians and hedgerows more effectively.



Four sealed beam headlamp system for United States specification cars. The mounting for square number plates will also be noted.

September 1992

Summary

- timeless elegance
- excellent visibility
- ease of entry and exit
- perfect fit of doors, bonnet, and luggage compartment lid
- many safety measures
- immaculate finish
- traditional radiator

The Bentley difference

Long wheelbase versions of the Brooklands and Turbo R are offered in all markets.

The Brooklands long wheelbase saloon has a painted roof as standard but, this exception apart, both Brooklands lwb and Turbo RL combine the distinctive features of the Silver Spur II with those of the Bentley saloons from which they are derived.

Related Sales Directory sections

Air conditioning
Audio equipment
Body shell
Exterior features – Silver Spirit II
Paint and interior trim
Radio telephone
Security
Wheels and tyres

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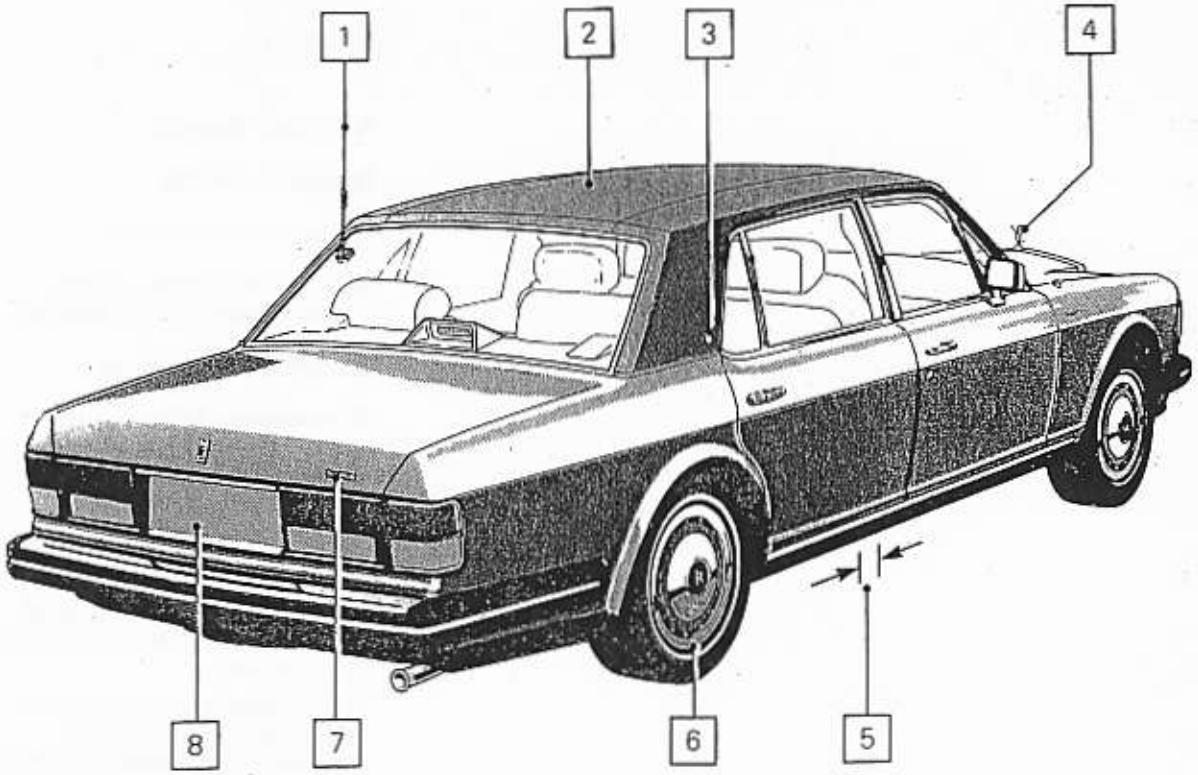

The Rolls-Royce Silver Spur II is built to meet the needs of those who are likely to travel, probably chauffeur driven, as frequently in the back seat as behind the wheel. Thus although the motor cars have a great deal in common with the models upon which they are based, the wheelbase is extended to increase rear compartment leg room still further. Such appointments as picnic tables, electrically adjustable rear seat, and a compartment in the central armrest are included in the standard specification.

External features distinguishing the long wheelbase saloon are summarised here.

1

A cellular telephone is a standard item of Silver Spur II equipment in those markets where the system is operational. The aerial is bonded to the rear window on North American cars and mounted on the roof of those built for the UK market.

2

An Everflex covered roof is a standard feature and there is a choice of twelve colours. A painted roof may be ordered if preferred.

3

A rear quarter marque badge adds distinction to the motor car.

4

The kneeling version of the Spirit of Ecstasy, a variation of the traditional Rolls-Royce mascot sculpted by Charles Sykes for the Phantom III and Wraith models of the nineteen thirties and subsequently specified for post-war Silver Wraith and Silver Dawns is supplied loose with Silver Spurs built for Middle Eastern markets. A rigid mounting prevents the kneeling mascot being offered elsewhere

5

The principal structural difference between the Silver Spur II and the Silver Spirit II is the 10cm (4in) longer wheelbase. The extension is incorporated when the body shell is built and necessitates the fitting of longer rear doors. The extra length comes behind the central BC post and is all to the benefit of the rear seat passengers.

6

The Mark II development of the Silver Spur is readily identified by the 6.5in (165mm) wide alloy wheels. The securely locked stainless steel wheel trims incorporate a separate steel ring which is painted to match the lower body colour and the fine lines of the coachwork. This design is shared by the Corniche IV.

If preferred, the Silver Spur II may be ordered with the Silver Spirit II wheel trim at no extra cost.

7

The Silver Spur II has a model identification badge on the luggage compartment lid.

8

An exclusive long wheelbase saloon feature is the stainless steel finisher to the number plate aperture.

September 1992

Summary

- handsome proportions
- ease of entry and exit
- perfect fit of doors, bonnet and boot lid
- many safety features
- immaculate finish
- coachbuilt pedigree strongly identified

Related Sales Director sections

Air conditioning
Appointments –
Rolls-Royce Silver Spur II
Touring Limousine
Audio equipment
Body shell
Exterior features –
Silver Spirit II, Silver Spur II
Radio telephone
Security
Wheels and tyres

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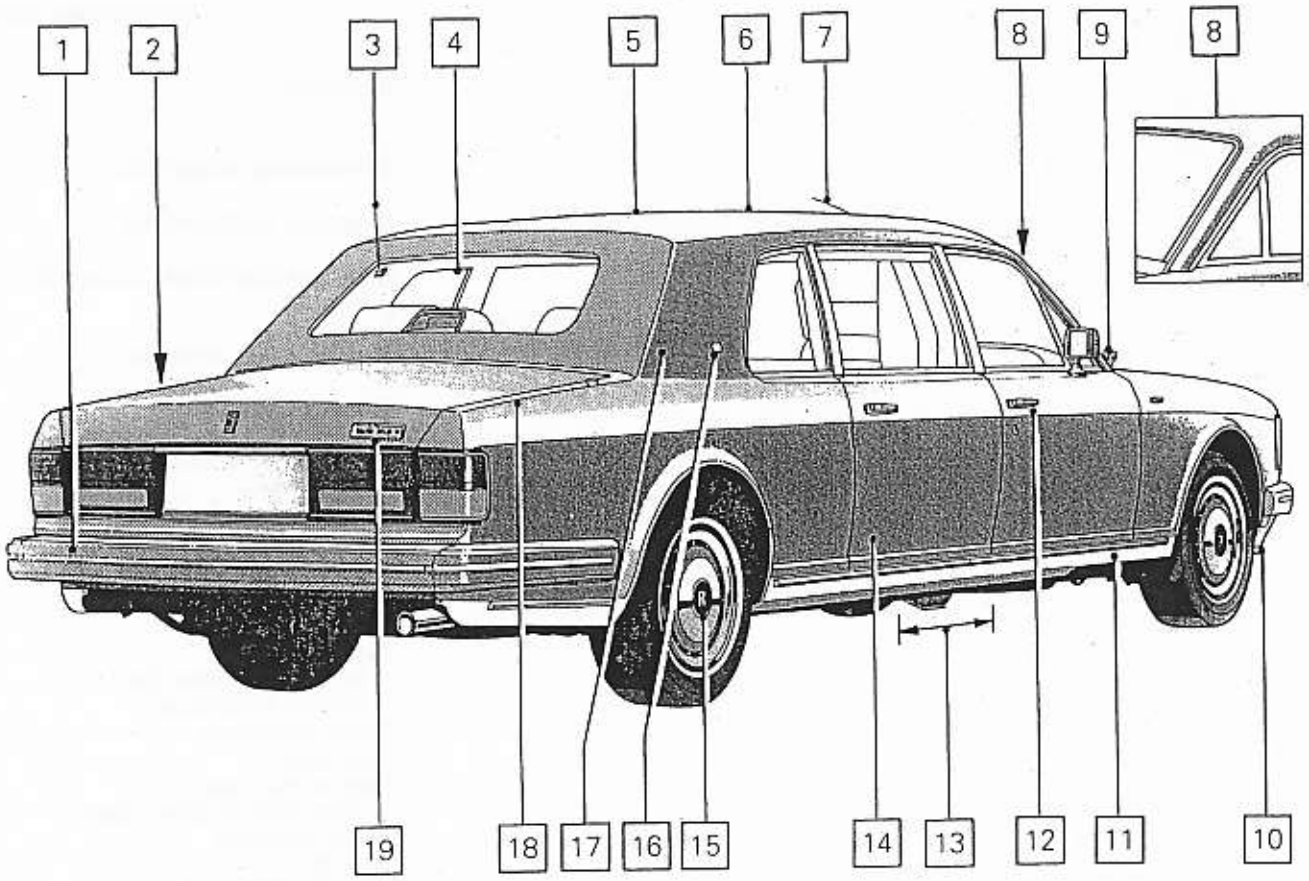

Because it is part of the nature of the requirement for a formal, chauffeur driven motor car that it should also be the best, limousines have always had a place in the Rolls-Royce range. Latterly, that place has been occupied by a series of Phantom models culminating in the Phantom VI but the Phantom, whose engineering and coachwork lineage can be readily traced back to pre-second world war Rolls-Royce practice, had become increasingly unsuitable for the kind of development that modern safety standards demand. As a result, Rolls-Royce Motor Cars engineers elected to design a new limousine based on the Silver Spur II. In doing so, they had the benefit of extensive experience with earlier Silver Spur limousines extended and appointed by an independent coachbuilder in a small scale production programme.

The Rolls-Royce Silver Spur II Touring Limousine with coachwork by Mulliner Park Ward was announced in September 1991. 2ft (610mm) longer than the standard Silver Spur II, the car dedicates all its extra length to a superbly appointed rear compartment offering luxurious comfort for two and an occasional seat for a third passenger.

The direct derivation from the Silver Spur II means that the Touring Limousine inherits many external features from this model and the Silver Spirit II. This section therefore concentrates on the differences.

1

The bumpers are painted to match the coachwork, a Mulliner Park Ward feature first seen on convertibles.

2

The refrigeration unit for the rear compartment drinks storage cabinet is mounted in the left hand side of the luggage compartment. It is one of several electrically powered features whose collective demands on capacity have led to a larger battery being fitted on the right hand side. Careful design and installation ensure that useable luggage volume is identical to that of the saloons.

3

A cellular telephone is standard in all markets where the system is operational. The aerial is bonded to the rear window.

4

A smaller rear window is a distinctive feature of the limousine. It affords greater privacy for rear compartment passengers while retaining an adequate rear view for the chauffeur.

5

A fixed moonroof brings light and a sense of space to an already roomy rear compartment. In the interests of safety, the panel is made of laminated Sundym glass. An internal electrically operated blind is controlled by an armrest switch in the rear compartment.

6

The limousine roof is 2in (51mm) higher than that of the saloons. The extra height contributes to the handsome proportions of the car and enables features like the moonroof

and associated blind to be installed without loss of internal headroom.

A painted roof is standard but an Everflex covering can be specified at extra cost.

7

The fixed aerial for the front compartment radio is mounted centrally on the windscreen header, a high position giving excellent reception while deterring vandals.

8

On the limousine, the windscreen pillar deflectors of the saloons are developed into a full length surround to the existing windscreen finisher. Made of chromium plated brass, its visual effect is to increase the depth of the screen and so compensate for the extra height of the roof. Careful shaping in the pillar area ensures that it remains fully effective in keeping side windows and mirrors clear of rain.

9

As with the Silver Spur II, a kneeling mascot is supplied loose with cars destined for Middle Eastern markets.

10

Air horns are included in the standard specification.

11

Stainless steel trim to the wheel arches, sills and rear valances adds to the distinguished appearance of the Touring Limousine. The pieces are hand fitted with great precision.

12

Triple fine lines to a colour of the customer's choice are a unique limousine feature. Alternatives available instead are:

single line - thin or thick

double line - thin/thin, thick/thick, thin/thick, thick/thin.

13

The Touring Limousine is essentially a Silver Spur II extended by 24in (610mm) with all the extra length being allocated to the rear compartment. The conversion is done by HJ Mulliner Coachworks in London once a standard Silver Spur II minus roof panel and rear doors, and at the brown primer paint stage, has been mounted on its running units - about half way through the assembly sequence at Crewe. Having been designated as a limousine from the outset, the body has already received some additional strengthening to suit its new role and the same degree of structural integrity applies to the zinc coated section welded into place once the half-completed car is cut aft of the central BC post. New rear quarter panels, roof and rear doors complete the transformation. The extended car is returned to Crewe where the new components receive full anti- corrosion treatment. Paint finish to the highest coachbuilt standards is applied in a paintshop established specifically for the limousine.

14

The new rear door is fabricated in aluminium. With a window frame lin (25mm) deeper than that of the Silver Spur II and a 38.5in (978mm) wide door aperture, ease of entry and exit is assured. The doors open to reveal a wide running board bearing the traditional coachbuilder's plate.

15

A special centre plaque identifies the limousine wheels and provides a further reminder of the motor car's coachbuilt heritage. The wheel trim painted ring bears three fine lines to match those on the coachwork.

16

A discreet rear quarter badge also emphasises the traditional coachbuilt character of the car. If preferred, it can be supplied loose.

17

Compared with the four-door saloon models, the rear quarter panels of the Touring Limousine are 4in (254mm) longer fore- and-aft. Combined with the six-light design, they give rear compartment passengers an ideal balance between privacy and visibility.

18

The retractable television receiving aerial is mounted on the right hand rear wing from where it extends when the set is switched on. As television reception quality is rarely satisfactory on the move, the installation is primarily intended for use when the car is stationary.

19

The luggage compartment badge, which can also be supplied loose if preferred, identifies the Touring Limousine and its coachbuilder.

September 1992

Summary

- timeless elegance
- ease of entry and exit
- absence of visible panel joins
- perfect fit of doors, bonnet and boot lid
- many safety features
- immaculate finish
- distinctive model identities

Related Sales Directory sections

Air conditioning
Audio equipment
Body shell
Exterior features - Silver Spirit II
Paint and interior trim
Radio telephone
Safety features
Security
Wheels and tyres

The Bentley difference

* polished Bentley radiator shell with painted shutters
* Bentley badging
* distinctive Bentley wheels
* black walled tyres

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Since their introduction as derivatives of the Rolls-Royce Silver Shadow, the Rolls-Royce and Bentley convertibles have been constantly developed so that their position as the **world's finest drophead coupés** has remained unchallenged. They have inherited, and in some cases pioneered, many technical advances brought to contemporary saloon models and combined them with the **traditional craftmanship** of hand-built Mulliner Park Ward coachwork.

The convertibles share a number of the external features of their saloon counterparts. Only the differences are described in this section.

1

The retractable mascot developed for the Silver Spirit became a convertible feature with the advent of the Corniche III (30001) in September 1989. It continues on all Corniche IV built for Australia, Japan, Europe and the UK. A spring loaded mascot is specified for North America. It is replaced by a chromium plated button and supplied loose on cars delivered to Switzerland and Middle Eastern countries.

2

The convertible body shell is **painstakingly assembled** on a Silver Spirit II floor pan at the London factory of HJ Mulliner Coachworks. Unlike its predecessors which went there only for initial painting and to be mounted on their running units, the Corniche IV is then fully assembled, trimmed, tested and finished at Crewe, a six month long process. **Traditional coachbuilding standards** are seen in the **perfection of fits** (the constant and precisely measured gaps around doors, bonnet and luggage compartment, for example) and the total absence of any visible panel joins.

3

The hood cover is made of hide to match that used in the car interior. When not in use, it can be stowed in its own bag in the luggage compartment.

4

A wing, as opposed to top deck, mounted fuel filler identifies the Corniche IV. It feeds a tank located in a **safe** position behind the rear seat. The tank capacity is the same as that of all other models.

5

The luggage compartment lid, like the doors and bonnet, is constructed from aluminium. It is held open by gas struts, a Corniche IV innovation taking up less space than the torsion bar mechanism formerly fitted and so enabling the new hood structure to be more easily accommodated.

6

A high mounted stop lamp is fitted to the top of the boot lid of convertibles built for North American, Australian and New Zealand markets.

7

A glass rear screen is a major feature of the Corniche IV. The principal benefit is that its **transparency does not deteriorate** gradually with age but it also presents the opportunity to specify a laminated construction with an almost invisible heating element like that of saloon models. Automatic switching by the air conditioning system's electronic control is also similar but the convertible screen is electrically isolated when the hood is lowered.

8

A completely new hood design has been developed for the Corniche IV. While retaining the multi-layer construction and power operation of the earlier hood, the new one brings four major advantages:

(a) **powered closing and clamping** with only minimal intervention by the driver

(b) 2in (51mm) **lower stowage** when down so **improving** both **rearward visibility** and **appearance**

(c) the glass rear screen

(d) **increased side glass area** for superior over-the-shoulder visibility when the hood is up.

The mechanism includes two electric motors in the header, four relays and thirteen micro switches as well as the familiar electrically powered hydraulic pump, all controlled by a boot mounted electronic control unit.

The hood takes 40 man-hours to fashion. It is carefully lined, filled, padded and tailored to give the car a smooth saloon-like profile. It is usually covered in fire-resistant Everflex and 12 colours are offered. A mohair type material available in four colours is an extra cost option.

On cars fitted with the radio controlled remote locking system, a wire buried within the hood acts as the receiving aerial.

9

The design of the upper screen rail combined with the high clamping loads applied by the powered closing system ensures **very effective sealing.** Wind noise control is therefore of a standard which makes the convertible a **very refined** motor car at any speed.

10

The Bentley Continental has a distinctive polished radiator shell with vanes painted to match the coachwork (the upper colour in a dual scheme). A green label badge is a feature of 1993 model year cars to mark the sixtieth anniversary of the first Rolls-Royce designed Bentley. Black badges will again become the norm from the start of the 1994 model year.

Polished vanes are available at extra cost.

11

Separate side marker lamps, which

Whitewall tyres are standard on the Rolls-Royce but black walled tyres can be specified if preferred.

28

The air dam, which aids high speed stability and reduces the effect of cross-winds, is fitted to all cars except those built for North America. It is painted to match the coachwork.

29

A powerful four headlamp system is specified for convertible models. All markets have round headlamps. For North America, they are quartz halogen sealed beam units rated at 50 watts for the inner lamps and 35/35 watts for the outers. Separate quartz halogen bulbs rated at 55 watts for the inner lamps and 60/55 watts for the outers are specified for all other markets.

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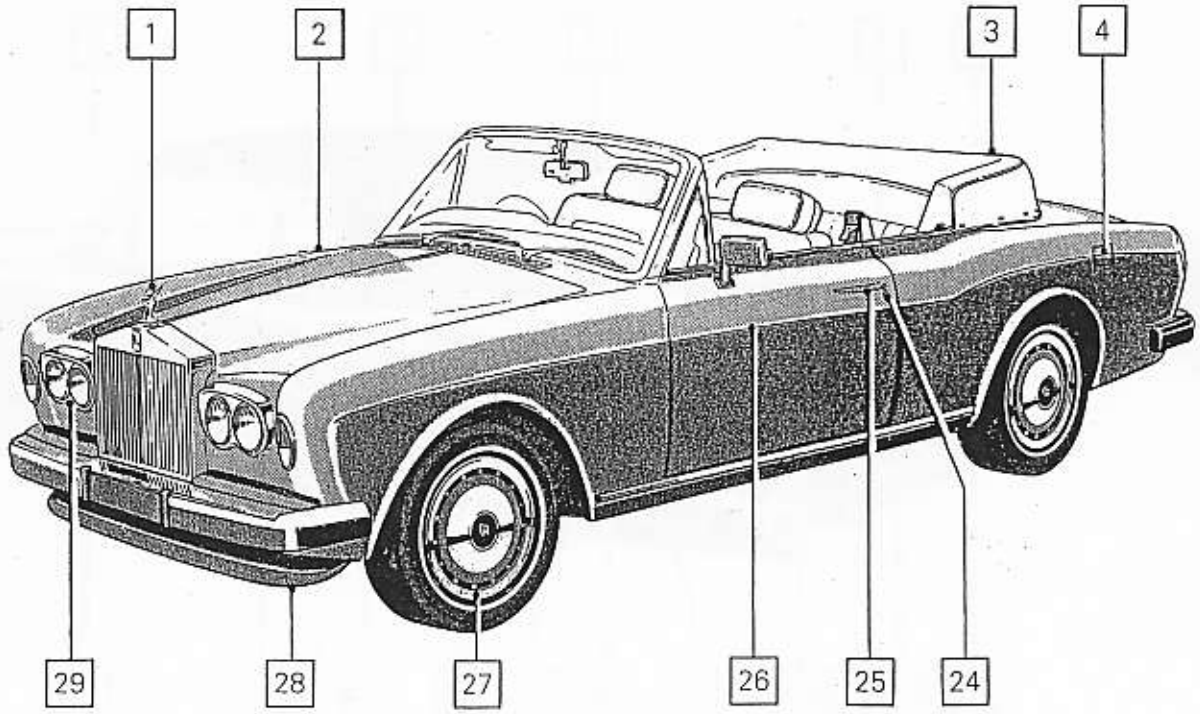


come on with parking lamps to make the car very visible at night to vehicles approaching it from the side, are fitted to convertibles built for the North American markets. There is one at the front and the back on each side.

12

Stainless steel wheel arch finishers, each one hand made and individually tailored to fit its arch perfectly, are a standard convertible feature.

13

The two electrically heated mirrors are in housings which are painted to match the colour of the coachwork. A polished metal finish may be specified for the Bentley Continental at extra cost.

14

The body shell is considerably strengthened underneath to compensate for absence of a roof in providing stiffness.

15

On the Corniche IV, the rear quarter windows are 1.5in (38mm) wider, a benefit to over-the-shoulder visibility when the hood is up. All four stainless steel framed windows can be lowered out of sight to produce a completely open car.

16

The Bentley Continental has 165mm (6.5in) wide alloy wheels. Black walled tyres are standard; whitewall tyres are available at extra cost.

17

Because of the way the Corniche IV hood is assembled off the car and then mounted within the hood well, a drainage arrangement has been devised to take water down between the hood and adjacent body panels. It is collected in a rubber bladder from which it drains to the underside of the car.

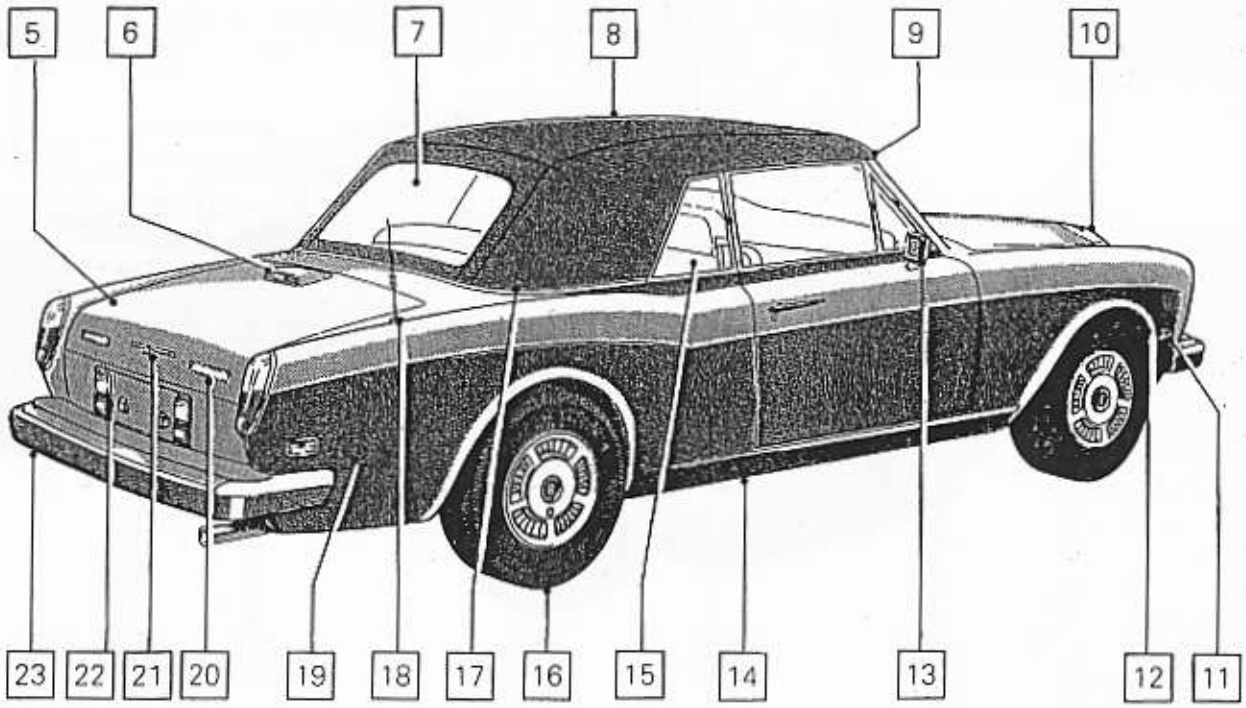
18

A cellular telephone is fitted as standard to cars built for the North American markets and is available as an option in other markets where the system exists. The aerial is mounted on the right-hand rear wing immediately above the luggage compartment located transceiver unit.

19

The mechanism for the power operated hood, a hydraulic pump driven by an electric motor, is housed behind a panel on the right-hand side of the luggage compartment where the reservoir fluid level can be easily checked. Compact design ensures that little luggage compartment volume is taken up by the unit.

The luggage compartment also contains the battery, a comprehensive tool kit, one 500cc container of spare hydraulic system mineral oil, and, if fitted, the transceiver unit for a cellular telephone. Careful packaging gives a



usable luggage compartment volume of 0.27cu.m (9.6cu.ft) for luggage.

20

Both the Corniche IV and Continental are identified by a model name badge on the luggage compartment lid. For the Continental, there is an additional BENTLEY marque badge on the left-hand side.

21

On convertibles, the boot lock (which can be operated only by the master key) is purely mechanical and cannot be used for the central locking system. A switch on the forward trim of the luggage compartment enables the doors to be locked or unlocked from the compartment. When operating the locking system in this way, the luggage compartment will also be locked when the lid is closed so care has to be taken to ensure keys are not left inside.

22

The reversing lights and rear fog lamps (additional stop lamps on North American cars) are mounted on either side of the lower rear panel. The number plate illumination lights are on the bumper valance of all cars except those built to North American specification. On these, the lights are on the rear panel to either side of the plate.

23

The bumpers of convertibles are painted to match the coachwork. They give the car a distinctive appearance.

All cars have bumper mounts. Those built for North America have gas filled units which provide an energy absorption capability meeting the standards for damage resistance at 2.5mph (4kph) - they add 60mm (2.4in) to the overall length of the car. For other markets, the mounts are rubber filled and give an impressive degree of protection against the effects of parking speed nudges.

24

The external locks on convertibles operate the central locking system but not the alarm. The alarm is armed and disarmed only by use of the remote control.

25

Several components such as the door handles are made of chromium plated brass.

26

Fine lines are painted freehand by a craftsman using an artist's fitch.

27

The Rolls-Royce alloy wheels were first introduced on the Corniche III (30001) in September 1989. The wheel trim with painted ring to match the coachwork is identical to that of the Silver Spur II and is locked for security. The Silver Spirit II wheel trim is offered as an alternative at no extra cost.

September 1992

Summary

- timeless elegance
- excellent visibility
- ease of entry and exit
- perfect fit of doors, bonnet, and boot lid
- many safety measures
- immaculate finish
- distinctive marque and model identities in keeping with sporting character

Related Sales Directory sections

Air conditioning
Audio equipment
Body shell
Exterior features – Silver Spirit II
Exterior features – Silver Spur II
Paint and interior trim
Radio telephone
Security
Wheels and tyres

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When it replaced the Eight and Mulsanne S in September 1992 (46004), the Bentley Brooklands continued the evolutionary development which has seen the Bentley four-door saloons acquire an increasingly distinctive appearance, a process given particular emphasis by a series of changes introduced in June 1988 (Eight 24513, Mulsanne S 24515, Turbo R 24519). Thus the Brooklands and the established Turbo R are distinguished by a number of exclusive styling features which combine to reflect a strong sporting character.

However, the two models, in both short and long wheelbase form, continue to have much in common with their Rolls-Royce counterparts. This section should therefore be read in conjunction with those describing the exterior features of the Rolls-Royce Silver Spirit II and Silver Spur II.

Badge colours
The Bentley 3½ litre was announced in August 1933. It was the first new model to be introduced following the acquisition of Bentley Motors by the then Rolls-Royce Limited two years earlier. It is to commemorate this Diamond Jubilee that every Bentley built during the 1993 model year is to be identified by badges enamelled in green, a colour associated with the legendary racing Bentleys of the late 1920s. The 1994 model year will see the practice of specifying red badges for turbocharged models and black for naturally aspirated cars resume. The Turbo R will therefore revert to red and the Brooklands, which was launched with green badges, will continue with black.

1

Powerful 7in (17.8cm) round headlamps were introduced on all Bentley saloons in June 1988 making them look characteristically purposeful. For most markets, they form a four headlamp lighting system with 60/55 watt outer units and 55 watt inner lamps, all with quartz halogen bulbs. But on United States and Japanese specification cars, the inner lights are separately switched 35 watt halogen sealed beam foglamps while the outers are 60/40 watt (United States) or 60/45 watt (Japan) headlamps, also halogen sealed beam.

2

The Bentley radiator shell is a mild steel pressing which receives a full range of treatment to prevent corrosion.

Both the Brooklands and the Turbo R have a shell painted to match the coachwork and, a mid-1992, innovation (Brooklands 46004 Turbo R 46003), stainless steel vanes with a distinctive satin finish produced by flash chromium plating an electrolytically etched surface. The etching and plating process has the additional advantage of further enhancing the resistance of the whole radiator assembly to the galvanic (electro-chemical) corrosion that can occur between different metals and lead to some discoloration where joins occur.

A chromium plated radiator shell with polished vanes may be specified at no extra cost if preferred.

3

The very effective headlamp washing system jets are mounted in pairs on the front bumper.

4

The absence of a polished strip down the centre of the bonnet is a Brookland feature shared with the Continental R.

5

All Bentley models have door mirror bodies painted to match the coachwork. A polished metal finish is offered as a no-cost alternative.

6

A BENTLEY marque badge is mounted on the left-hand side of the luggage compartment lid.

7

The winged Bentley badge on the boot lid is a feature introduced on all saloons in June 1988. The central B is hinged to cover the lock and provide weather protection. A magnetic catch prevents rattles.

8

Model identification is given by a badge mounted on the right-hand side of the boot lid.

9

The sills of the Turbo R were modified in June 1988 to give this very high performance model more individual styling. The zinc coated steel panels incorporated at the body assembly stage are deeper and discreetly flared. The absence of the polished metal trim strip found on other Rolls-Royce and Bentley saloons and the finish in body colour (the lower secondary colour in a standard dual scheme) completes the transformation.

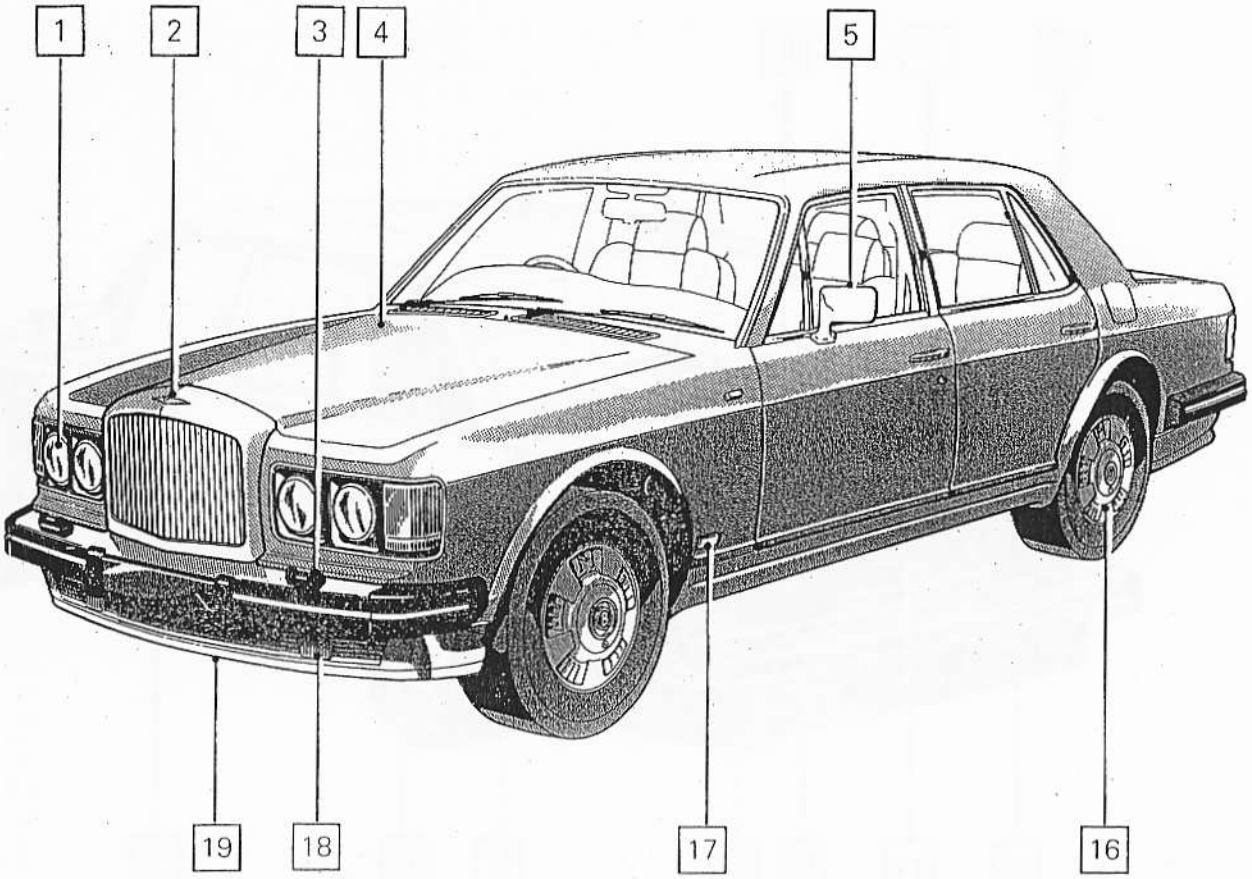
10

Once they became standard on the Eight in June 1988, all Bentley models have been equipped with distinctive alloy wheels. Those on the Turbo R have 7.5in (190mm) wide rims, 1in (25mm) wider than the Brooklands wheels. They are identified by a blind embossed B motif and, since mid-1992 (46003), have a brighter silver paint finish to match that of the Brooklands wheels.

The wheels are designed for easy cleaning and contribute to the sporting appearance of the Bentley range.

11

In order to match the particular demands imposed by its outstanding performance, the Turbo R is equipped with specially developed low profile Avon tyres. They are available only with black walls but whitewall tyres can be specified at extra cost for other Bentley models.



12

A dual exhaust outlet is another distinguishing feature of the Turbo R.

13

Bumper top plates painted to match the coachwork were once an exclusive Turbo R feature but they are also part of the Brooklands specification.

14

The rear number plate aperture of the Turbo R is painted in the body colour. It is finished in black on the other saloon models.

15

The extended rear skirt painted to match the coachwork was introduced as an exclusive Turbo R feature in June 1988. It is made of a sheet moulded compound (a glass fibre reinforced material pressed using a process which gives great mechanical strength and a high standard of finish suitable for the application of body paint) and has a wide hinged rear section which gives easy access to the spare wheel once the wheel has been lowered.

16

A new design was developed for the alloy wheels of the Brooklands. A notable styling element is the octagonal centre plaque (with the B motif on a green ground for 1993 and black thereafter) which recalls the wheel centre nut of the first Rolls-Royce designed Bentleys. Like those of all other models, the hub caps are locked in place to provide security against theft and a key is provided in the luggage compartment.

17

Badges on the front wheel arches are found only on Bentley four-door saloons. There are two variants: BENTLEY for the Brooklands and TURBO R.

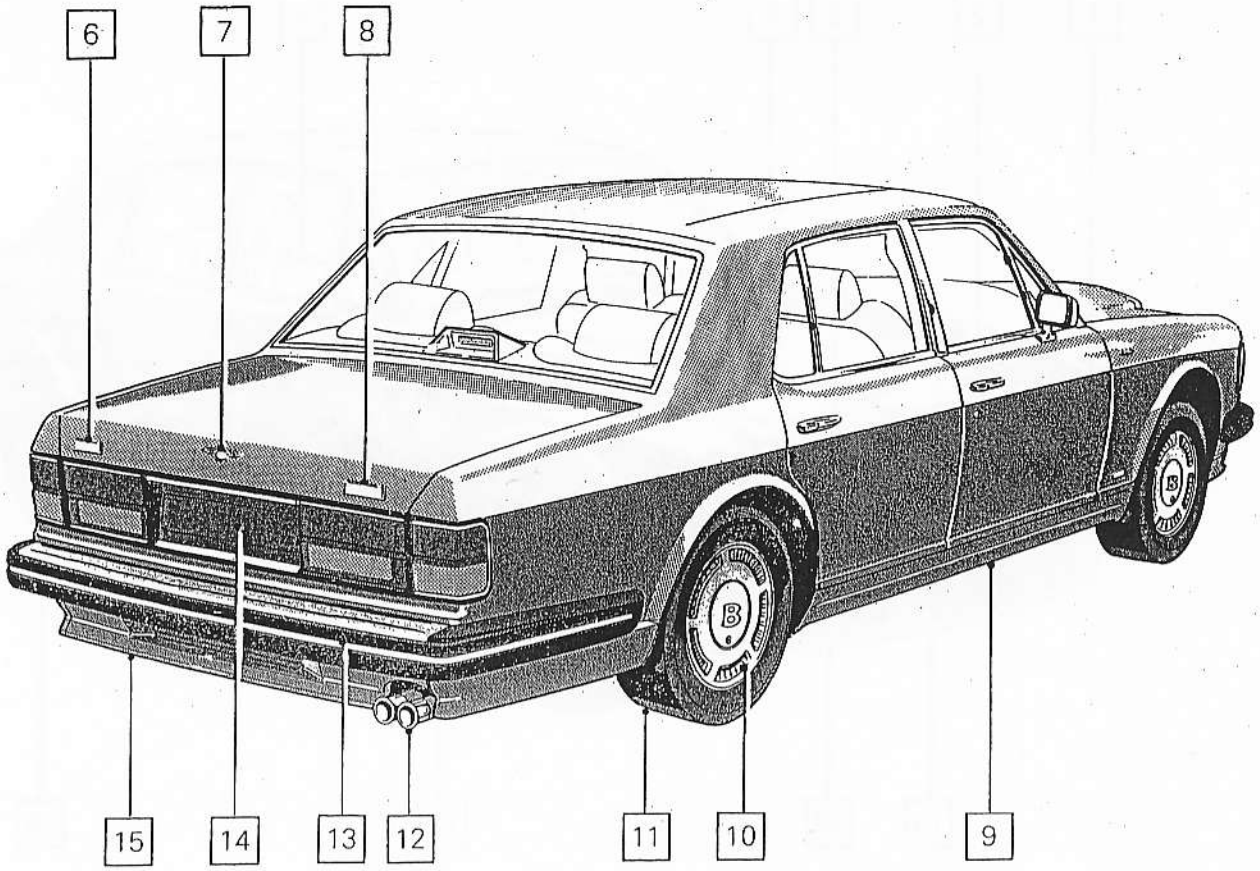
A car may be ordered without the badges, in which case they will be supplied loose.

18

Foglamps are a standard Brooklands feature except on cars destined for use in Singapore. They are mounted beneath the front bumper on all cars except those built for North American and Japanese markets where they are fitted in the inboard headlamp position.

19

Each of the two Bentley four-door



saloons has a different style of air dam:

Brooklands - black glass fibre reinforced polyurethane moulding with five full width louvres

Turbo R - a special air dam made of sheet moulded compound (the same material as that used for the rear skirt) painted to match the coachwork. This air dam is designed to match the other styling elements introduced on the Turbo R in June 1988. The right-hand air intake serves the intercooler of the turbocharged induction system.

September 1992

Summary

- timeless elegance
- excellent visibility
- ease of entry and exit
- perfect fit of doors, bonnet and boot lid
- many safety features
- immaculate finish
- an exclusive Bentley

Related Sales Director sections

Air conditioning
Appointments
Audio equipment
Body shell
Exterior features –
Bentley Brooklands and Turbo R
Radio telephone
Security
Wheels and tyres

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When announced in March 1991, the Continental R was the first exclusive new Bentley - one without a Rolls-Royce counterpart - to be introduced since the original Continental of 1952. Designed by British styling consultants John Heffernan and Ken Greenley in close co-operation with Rolls-Royce Motor Cars stylists, the Continental R inherits much of the character of its illustrious forebears and meets the same requirement for a very high performance, stylish and very individual full four-seat coupé in the authentic grand touring tradition.

Mechanically, the Continental R is based on the Turbo R.

1

The traditional Bentley radiator grille blends smoothly with the curvaceous surfaces of the Continental R body. In this application it is inclined back by 1°. A shell painted to match the coachwork and, from October 1992 (42501), etched vanes are standard with no alternative offered. A red label badge is also standard but all 1993 model year examples are identified by green badges to mark the Diamond Jubilee of the first Rolls-Royce designed Bentley, the $3^1/_2$ litre of 1933.

2

Unusually in the light of established Rolls-Royce practice, the bonnet (as well as the doors and boot lid) is fabricated in steel rather than aluminium, a suitably light gauge being specified to make the weight comparable. Steel was chosen for its strength and the relative ease with which complex panel shapes could be achieved consistently. Gas struts aid opening and keep the bonnet secure when open.

3

The body shell has been developed using the latest computer aid techniques. It is a very stiff structure - 30% stiffer in bend and 6% stiffer in torsion than the already strong saloon body - with consequential benefits in handling and secondary safety. All exterior panels are zinc coated on the inside, an innovation making the comprehensive Rolls-Royce anti-corrosion measures even more effective.

The body is constructed on a Turbo R floor pan by Park Sheet Metal in Coventry, England. Modern pressing technology ensures very precise fits and a high standard of finish for the subtle curvatures of sculpted panels. In keeping with time-honoured coachbuilding practice, there are no visible panel joins.

The Continental R is built at Rolls-Royce Motor Cars' Crewe factory and each one takes three months to complete.

4

Large, wide opening doors make entry and exit easy, not least to and from the rear seats. Their design breaks new ground for Rolls-Royce Motor Cars in the following ways:

(a) fabrication is in steel, zinc coated on interior surfaces, for strength and consistent panel quality

(b) they extend upwards into the roof cantrail area to give the maximum possible height for the door aperture, a benefit to ease of access

(c) there is no separate window frame. The door is a very rigid unitary structure - the outer skin is a single panel - designed to maintain effective sealing, and therefore negligible wind noise, at high speed. Skilful styling and the use of bright stainless steel trim create the light appearance of the classic polished window frame.

Side intrusion beams are embodied within the doors so adding to the protection given to passengers by a body designed to meet and exceed all projected safety standards.

5

Glazing is almost flush to give not only a modern appearance but also reductions in aerodynamic drag and aerodynamic noise. Tinted Sundym glass, toughened in the doors, laminated elsewhere, is standard.

6

The effectiveness of the automatic air conditioning system made it possible to specify fixed rear quarter windows.

7

The fuel filler is mounted in the rear quarter and feeds the same 108 litre (23.75 gallon, 28.5 US gallon) tank as is fitted to other saloons.

8

The lip on the steel luggage compartment lid is an integral aerodynamic spoiler. Extensive wind-tunnel work during the development of the Continental R led to painstaking and simultaneous evolution of the shape of this lid, the sills and the front air dam to yield a motor car with low drag - and therefore superior performance and economy - and impressive stability at speed, particularly in cross-winds.

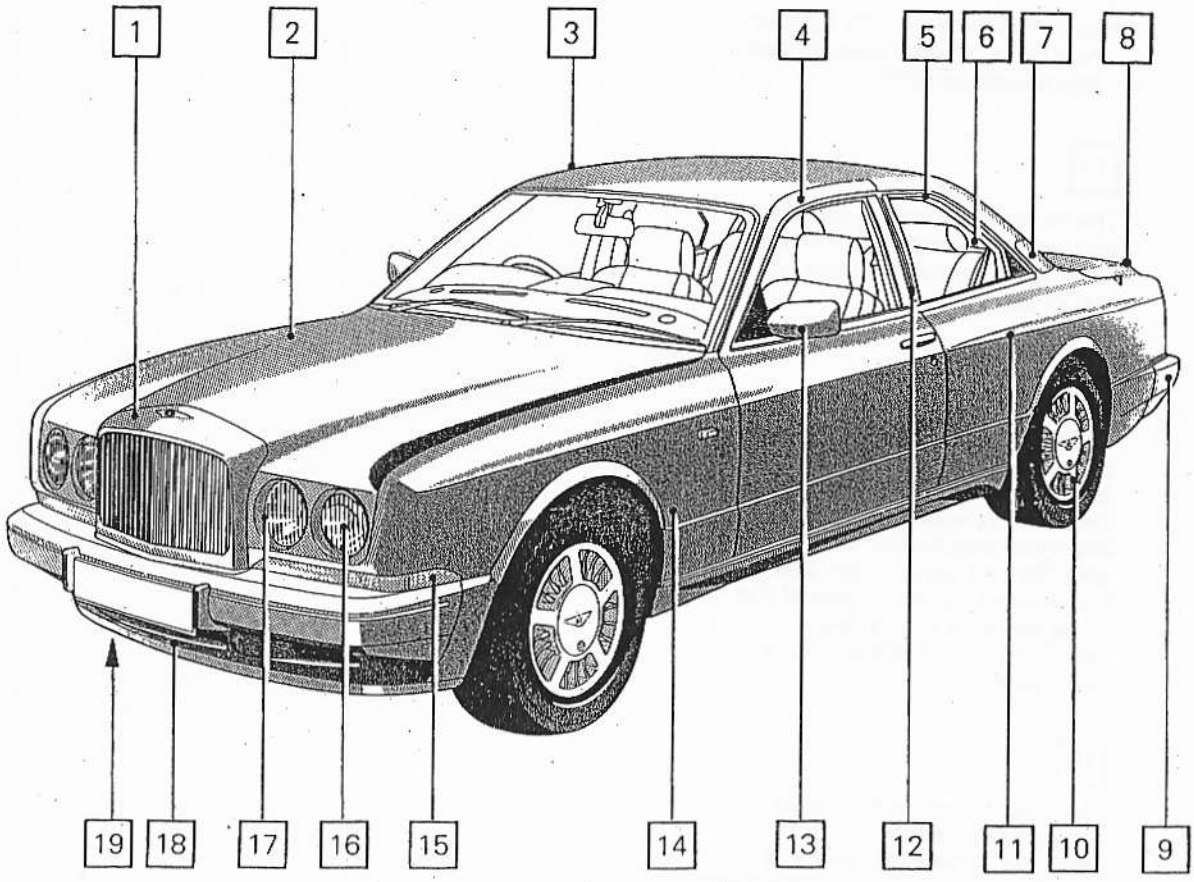
The lid opens down to bumper level to make loading easy. Opening is aided by gas struts, the Continental R being the first Rolls-Royce or Bentley application for these compact devices.

9

The rear bumper, again for the first time on a Rolls-Royce or Bentley, is fully integrated into the styling. It uses the same basic beam and mounts as other models but is covered with energy absorbing foam and has a polyurea skin painted to match the coachwork. The skin is capable of regaining its shape after superficial deformation and the bumper as a whole offers a high standard of protection. Energy absorbing mounts are specified for cars delivered to North American markets to meet specific 5mph (8kph) impact requirements.

10

16in (406mm) diameter alloy wheels



are 1in (25mm) larger than those of other models although, once the low profile tyres are fitted, the rolling radius is the same. The ZR rated tyres are safe for use at sustained speeds in excess of 150mph (240kph) and make a major contribution to the excellent handling.

The Continental R wheel differs in appearance from other Bentley wheels by having only three intermediate spokes between each of the five primary spokes instead of five and by the blind embossed winged B symbol at the centre.

11

The highlights reflected from the pure sculpted shape of the car give a visual effect which makes fine lines unnecessary. However, a customer may specify a single fine line if he or she wishes.

12

A substantial BC post contributes to the structural integrity of the body and gives valuable roll-over protection to passengers. Looked at from outside, its size is disguised by masks within the window frames on either side. A glass reinforced plastic panel on the door (the glass moves over it) and a similar aluminium component on the rear quarter light are trimmed in black Everflex. In conjunction with the stainless steel window trims, they create the visual effect of an attractively light, almost pillar-less, appearance.

13

The door mirrors and their mounting on the forward part of the window area are unique to the Continental R.

14

The front wings are bolted on, so simplifying and reducing the cost of replacement in the event of damage.

15

A neat amber strip at the base of the front wings is a styling feature. It houses the direction indicators on all cars, side lamps on Japanese market cars, and both side and side marker lights on North American cars.

16

7in (178mm) round headlamps are a Bentley feature inherited by the Continental R. However, they are Hella units (other Bentley saloons are fitted with Cibié lights) whose flatter lenses were found to be better suited from the point of view of both appearance within the recessed mounts and washer efficiency. The installation varies with markets:

all except North America and Japan - 60/55 watt outer, 55 watt inner, quartz halogen bulbs, side lamps in outer unit

North America - 60/35 watt halogen sealed beam outer, 20 watt halogen sealed beam foglamp inner

Japan - 60/55 watt quartz halogen bulb outer, 20 watt halogen sealed beam foglamp inner.

17

The headlamp washer jets, one per unit, are neatly concealed within the recesses. Operation is identical to that of the saloons.

18

The front bumper is, like the rear, fully integrated into the styling and is painted to match the coachwork. The air dam, which makes an important contribution to the **stability** and **secure high speed handling** of the car, is part of the same polyurea skin, energy absorbing foam and aluminium beam assembly.

19

Cars built for use in European markets are equipped with a 'recovery connection' eye. It is stowed with the tools in the luggage compartment and, after the removal of a blanking plug, can be screwed into a threaded point beneath the bumper. It is intended only for recovery purposes, winching onto a trailer for example, and must not be used for prolonged towing. At the rear, a permanent point is provided close to the spare wheel retaining hook on the left hand side of the bumper.

September 1992

Summary

- fine materials
- superb craftsmanship
- immaculate finish
- durable
- very wide choice
- the best coachbuilding traditions maintained

Related Sales Directory sections

Body shell
Exterior features – Silver Spirit II
Exterior features – Silver Spur II
Exterior features – Rolls-Royce Silver Spur II Touring Limousine
Exterior features – Bentley Brooklands and Turbo R
Exterior features – Rolls-Royce Corniche IV and Bentley Continental
Exterior features – Bentley Continental R
Steering
Wheels and tyres

The Bentley difference

Brooklands

* fluted door trim pads
* Wilton carpet overmats
* rugs available at extra charge

Turbo R and Continental R

* burr walnut veneer without inlay
* specially designed seating front and rear

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Paint

*Twenty colours are offered in the standard paint range. This **extensive choice** is widened still further by seven non- standard colours which can be specified at extra cost, and by the special formulations which can be prepared to meet a specific requirement. The additional cost of a special colour reflects the testing which has to be undertaken by Rolls-Royce Motor Cars and the paint supplier before it can be approved for use.

*Dual colour schemes represent another way in which a customer may specify a motor car which reflects his or her personal tastes. They are available on all except the Continental R.

Dual colour schemes applied to four-door saloons and the Touring Limousine come in either a standard or roof only layout. Only one scheme is available for convertibles.

*Following the successful introduction of the system on convertibles in January 1990, the most modern 'two-pack' paint technology was brought to all cars in mid-1991. The polyurethane formulation includes a separate chemical hardener and the two components combine to provide:

(a) much **greater resistance to mechanical damage and chipping** as a result of its flexibility

(b) much **improved chemical resistance** - to such hazards as bird droppings

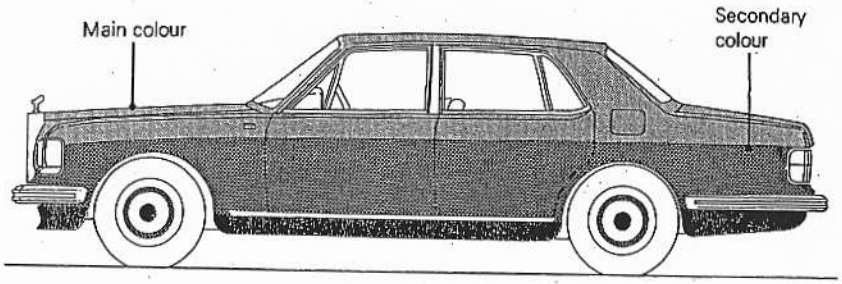
(c) **superior durability** and resistance to weathering

(d) **superior gloss**

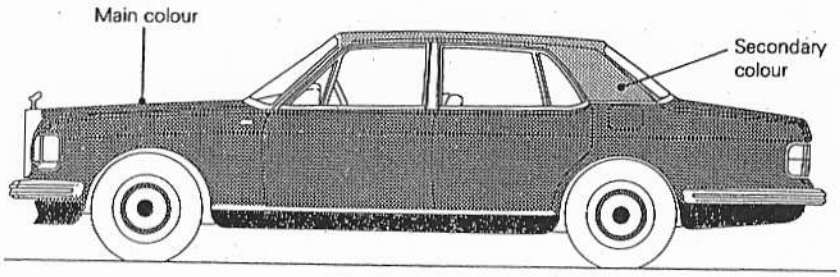
(e) **reduced maintenance**

Metallic colours, of which there are twelve in the standard range and a further six in the non-standard, comprise a colour base coat and a top coat of two-pack clear polyurethane lacquer.

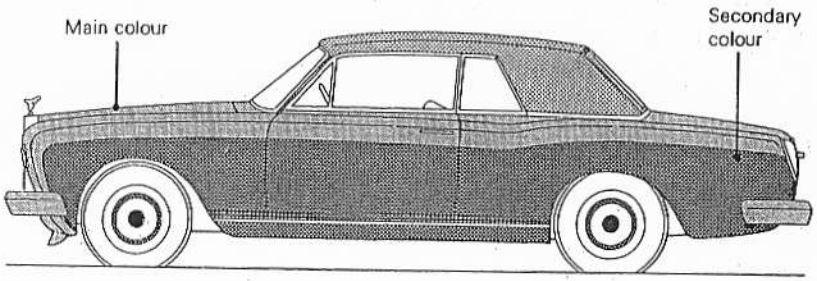
*The wheel trims of the Silver Spur II, the Corniche IV and the Touring Limousine incorporate a painted ring which is normally finished in the lower body colour and then decorated with fine lines matching those of the coachwork.



Four-door saloon dual paint schemes – standard layout (above) and roof only (below)



Convertible dual paint scheme



*The main body colour or, if applicable, the secondary colour of a standard dual scheme is specified for:

(a) the door mirror bodies of the Corniche IV and all Bentley models

(b) the bumpers of convertibles, the Continental R and the Touring Limousine

(c) the bumper top plates of the Brooklands

(d) the bumper top plates, air dam, sills, rear skirt and rear number plate aperture of the Turbo R

(e) the radiator shell of the Brooklands, Turbo R and Continental R

(f) the radiator vanes of the Continental.

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*No paint is approved for production until it has completed successfully an exhaustive test programme.

Test panels are subject to long term (at least 12 months) weathering tests at Crewe and sub-tropical stations in Florida and Australia.

In parallel, the effects of ultra-violet light, extremes of heat and cold, and salt water spray are accelerated and studied in the laboratory.

Production batches of paint are individually tested to **ensure that established quality standards are maintained.**

*Fine lines maintain an old coachbuilding tradition. They are painted by hand (freehand with an artist's fitch on convertibles and the Touring Limousine) in a colour chosen by the customer from the 47 available.

Lines are specified for various models as follows:

Four-door saloons

Standard	double lines	thin/thick
Options	single line	thin or thick
	double lines	thin/thin, thick/thick, thick/thin
	no fine lines	

Convertibles

Standard	double lines	thin/thin
Options	single line	thin or thick
	no fine lines	

Touring Limousine

Standard	triple lines	thin/thin/thin
Options	single line	thin or thick
	double lines	thin/thick, thin/thin, thick/thick, thick/thin
	no fine lines	

Continental R

Standard	no fine lines	~

Matching lines are applied to the wheel trims of the Silver Spur II, Corniche IV and Touring Limousine.

*Of the three to six months required to build a Rolls-Royce or Bentley, no fewer than six weeks are taken up by various paint processes. It is this painstaking work which leads to the immaculate finish of the best car in the world.

Roof coverings

*When roof coverings are specified, Everflex, a flexible and very durable plastic material, is the standard although a mohair type cloth is offered for convertibles at extra cost.

*An Everflex covered roof is part of the standard specification of the Silver Spur II and available at extra cost for other four-door saloons except the Touring Limousine. There is a choice of twelve colours.

*A special fire-resistant Everflex, also available in twelve colours, is specified for convertibles. The mohair cloth alternative is offered in four colours.

Carpet

*High quality Wilton carpet bound in hide is used. Ten colours are available.

*Rugs (lambswool) are standard in all models except the Brooklands.

At extra cost, rugs may be specified also for the luggage compartment of all cars except convertibles.

*Interior quality carpet is fitted to the luggage compartment of all models. It is also used for Brooklands and Continental R overmats.

Wood

*The use of wood is another coachbuilding tradition maintained by Rolls-Royce Motor Cars. Different veneers are used to distinguish marques and models and with variations in facia layout help to give a distinctive character to each.

Burr walnut with crossbanding and a boxwood inlay is a feature of all Rolls-Royce models and the Bentley Continental. It is applied to the facia and other items of wooden trim.

Burr walnut is also standard on the Bentley saloons but there is no inlay and crossbanding is confined to the door waistrails.

*Burr walnut veneers are specially selected and bought annually in California.

*With burr walnut, customers may indicate a preference for light, medium or dark veneer, a heavily patterned one or something relatively plain.

*Burr walnut and other burr veneers are mirror-imaged around the car from a centre line in the middle of the facia.

*A customer may deviate from the standard for a particular model, in some cases without incurring extra cost. Alternatives to walnut include bird's eye maple, mahogany, burr elm, black lacquer and straight grained walnut.

*All wooden fittings are finished in a highly polished hard polyester resin material which **keeps them in first class condition** even in the hottest climates.

*Wooden items damaged in service can be skilfully repaired with veneers matching the original as closely as possible.

Facia trim

*Hide is used to trim the facia, usually in the same colour as the upholstery although, if this is light, **Rolls-Royce Motor Cars STRONGLY RECOMMEND the use of a dark colour for the top roll to minimise hazardous reflections in the windscreen.**

*Twin stitching along the 'nose peak' of the top roll is a detail identifying cars built after mid-1992 (46001).

Trim

*Unless a customer requests an alternative, the **finest top grain hide** is used for all interior trim. This is a superb natural material with a **very long life** if properly maintained.

*An average of 11 hides - about 49 sq.m (528 sq.ft) - are required to trim a car, more for the Touring Limousine.

*19 colours are offered in the standard range for all models except the Continental R for which there are 15.

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Piping

* The individuality of a particular motor can be emphasised by the use of contrasting hide piping on seat trim.

Roof headlining

* Marvelon in eight colours is offered for four-door saloons in all markets except North America where cloth, available in three colours, is standard.
* Hide or cloth is available for four-door saloons at extra cost - in North America the only alternative to cloth is hide.
* A special lightweight cloth is specified for convertible headlinings. It is available in seven colours.
* Either hide or cloth may be ordered for a Continental R.

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*Twin stitching along the 'nose peak' of the top roll is a detail identifying cars built after mid-1992 (46001).

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*Unless a customer requests an alternative, the finest top grain hide is used for all interior trim. This is a superb natural material with a very long life if properly maintained.

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*19 colours are offered in the standard range for all models except the Continental R for which there are 15.

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September 1992

Summary

- high quality equipment
- convenient 'hands-off' mode
- automatic muting of audio equipment
- fully engineered installation
- voice activation option at extra cost

Related Sales Directory sections

Appointments
Appointments – Rolls-Royce Silver Spur II Touring Limousine
Controls
Exterior features – Rolls-Royce Silver Spur II
Exterior features – Rolls-Royce Silver Spur II Touring Limousine
Exterior features – Rolls-Royce Corniche IV, and Bentley Continental
Exterior features – Bentley Continental R

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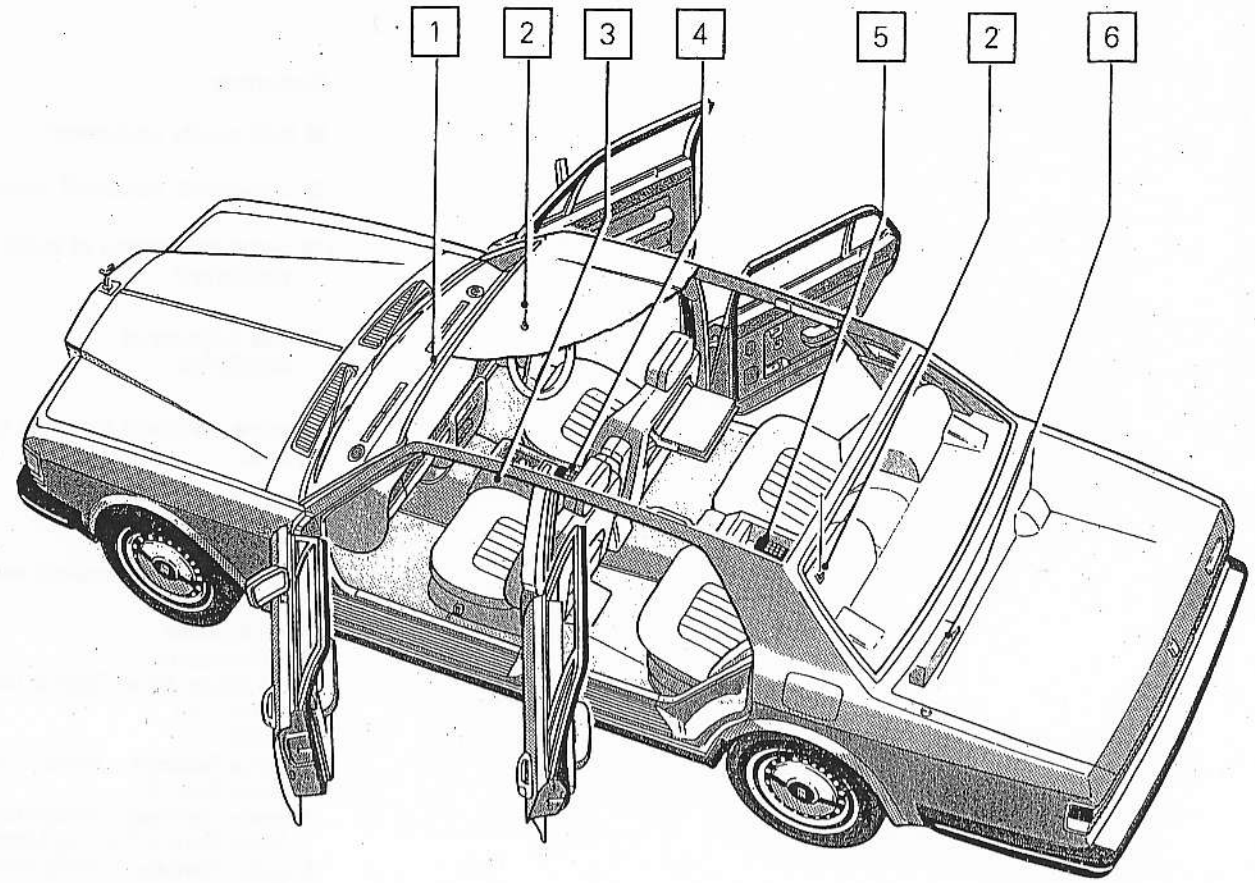
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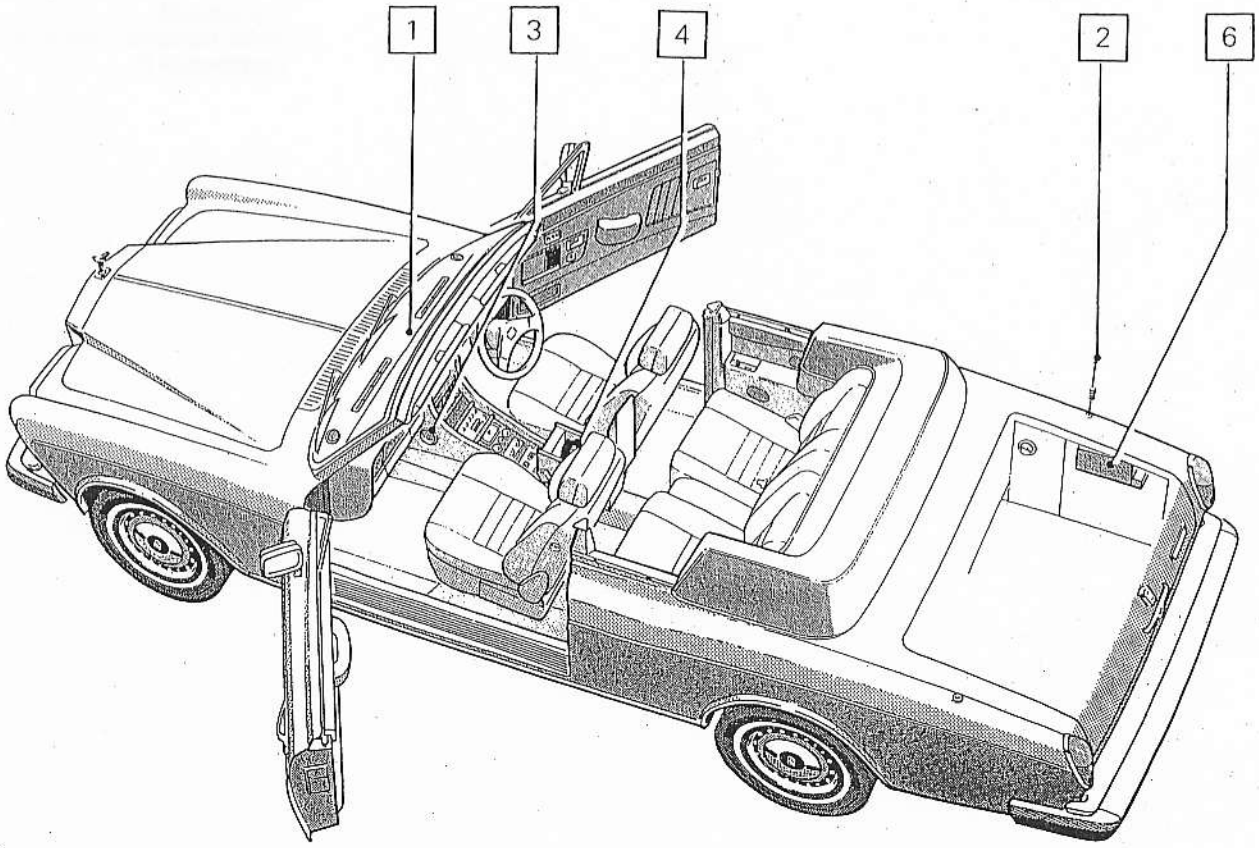
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Radio telephone

September 1992

Summary

- high quality equipment
- convenient 'hands-off' mode
- automatic muting of audio equipment
- fully engineered installation
- voice activation option at extra cost

Related Sales Directory sections

Appointments
Appointments –
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Exterior features – Rolls-Royce Silver Spur II
Exterior features – Rolls-Royce Silver Spur II Touring Limousine
Exterior features – Rolls-Royce Corniche IV, and Bentley Continental
Exterior features – Bentley Continental R

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A radio telephone is included in the standard specification of the Rolls-Royce Silver Spur II, the Silver Spur II Touring Limousine and the Continental R built for use in the UK and North America – the principal markets where the system is operating. The feature is also standard on the North American specification Corniche IV and Bentley Continental. The installation is available for all other models at extra cost in the UK and North America.

In those countries where other radio telephone systems are used, installation has to be carried out locally but provision for the stowage of the handset on saloons can be made by ordering opening front armrests at extra cost.

1

Microphone
A 'hands-off' mode for use while driving is an important feature of the Rolls-Royce telephone installation. The microphone shares the same top roll aperture as the upper system ACU temperature sensor.

2

Aerial
Three aerial mountings are used. On saloons, the unit is mounted on the roof for the UK and bonded to the rear window for North America. For convertibles, a right-hand rear wing location is specified. The rear window location is used on all Touring Limousines.

3

Loudspeaker
A single loudspeaker for the 'hands-off' mode is mounted centrally within the centre console. An aperture on either side allows it to be heard by both driver and passenger.

4

Handset – front
The handset is stowed in the inboard folding armrest on the front passenger's seat of saloons and the box type centre armrest of convertibles and the Continental R – accessible to and convenient for use by both driver and passenger. The handset operates with the ignition in the ACC and RUN positions.

5

Handset – rear
Because the owner of a Silver Spur II is likely to travel frequently as a chauffeur driven rear seat passenger, the facility to transfer the telephone handset from the front to the rear seat centre armrest is provided. The same feature is incorporated when a radio telephone installation is ordered for other saloon models. It cannot, however, be offered if the optional bench seat is specified.

A second handset may be ordered for the rear compartment at extra cost if preferred.

6

Transceiver unit
The combined transmitter-receiver unit is mounted in the luggage compartment. For security, it is locked into place on its mounting bracket but can be easily removed. It is, in fact, capable of use as the basis for a portable personal telephone but this additional facility is not offered by Rolls-Royce Motor Cars. Disconnection from the 12v power supply does not affect the data stored in the telephone memory.

Automatic muting
The radio telephone equipment fitted by Rolls-Royce Motor Cars from mid-1992 (46001) automatically silences the car's audio unit when a call is initiated or received. For the duration of the call, a cassette or CD is held in pause so that no content is missed. The muting feature not only adds to the convenience of telephone use but also , by relieving the driver of a necessary action, contributes to safety.

Voice activation
A voice activated telephone system enabling one or two people to call up to twenty regularly used numbers by means of voice command (a further aid to both convenience and safety) is available at extra charge in place of the standard factory fitted equipment.

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Safety features

September 1992

Summary

- comprehensive safety features to complement built-in safety engineering of overall design
- all international requirements met and, in many cases, exceeded
- safety a major design objective

Related Sales Directory sections

Appointments
Body shell
Controls
Driver's information panel
Exterior features – Silver Spirit II
Exterior features – Corniche IV Continental
Seating
Steering

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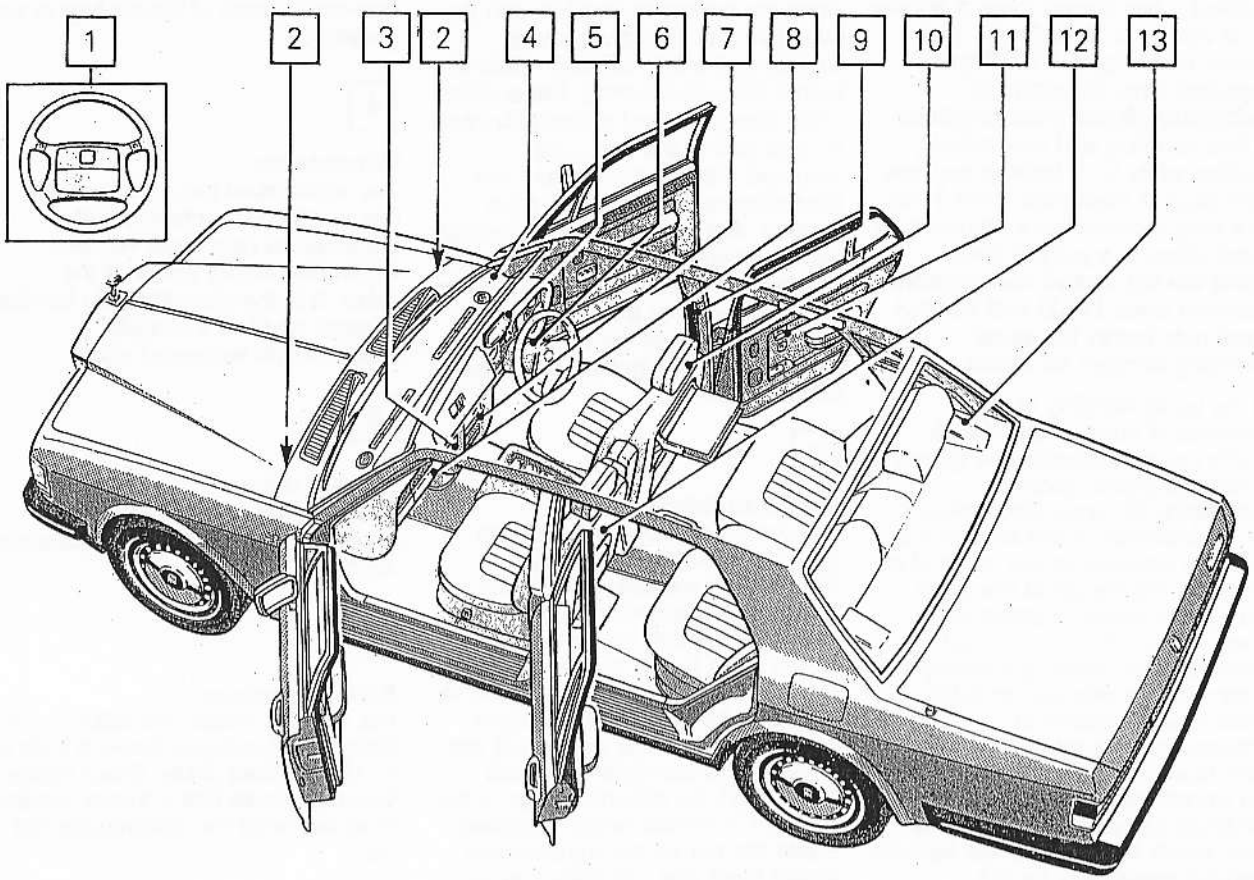
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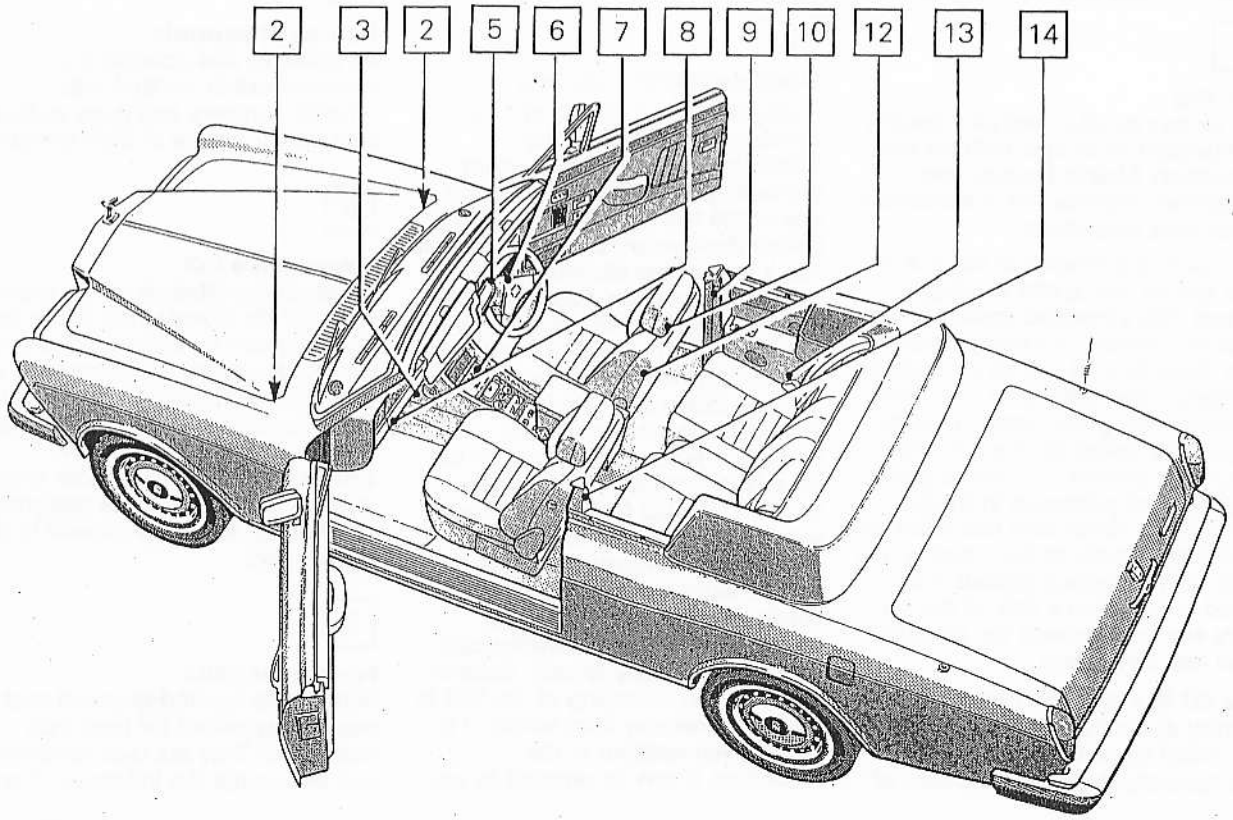
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Primary safety – the avoidance of an accident – has always been a priority in the design of Rolls-Royce and Bentley motor cars. Rolls-Royce engineers have, for example, traditionally placed great emphasis on fine handling and roadholding qualities while their braking systems, duplicated or triplicated since 1946, have long represented a standard by which others are judged. Even details like the heated rear window (standard since 1952) and handed wheel nuts betray the same overriding concern for safety.

As the understanding of the dynamics of accidents and their effects upon occupants has grown, so has the priority given to engineering for secondary safety – the minimisation of the injuries that might be incurred as the result of an accident. The design of the body structure to absorb a great deal of energy in frontal, side and rear collisions while keeping passengers safely within a very strong cabin which is also capable of withstanding substantial roll-over loads is a fundamental feature. Of no less importance is the design of individual components, especially those inside the car, and the features provided specifically for the protection of occupants. It is these which are the subject of this section.

1

Air bag
An air bag passive restraint system is standard on all cars built for North American, Middle Eastern and European markets and is available at extra cost elsewhere.

The air bag is housed in the hub of the special four spoke steering wheel. This advanced passive restraint system was introduced on the Silver Spirit II and its derivatives in September 1989 after a 4½ year development programme. It meets legislation calling for the provision of a suitable passive restraint to give a high level of protection in frontal impact to a driver who has taken no active step (such as the wearing of a seat belt) to protect himself. It is fitted to the driver's side of the car only and supplements the standard seat belt installation.

The 60 litre nylon bag starts to deploy about 30 milliseconds after the initial impact. It bursts through the specially designed front face of the steering wheel hub (it breaks along the central styling line and the two elements then pivot about hinges) and is fully inflated within a further 30 milli-seconds. The sodium azide charge is fired electrically once at least one of the two wing mounted inertia switches and the third diagnostic unit switch have 'agreed' that the level of deceleration being experienced has reached the appropriate threshold level. A built-in capacitor ensures that deployment can still take place for up to twenty minutes after the ignition has been switched off.

2

Inertia switches
The inertia switches which form part of the air bag triggering mechanism are mounted on the front wing valances, one on each side. If a collision from straight ahead or up to 30° to either side leads to decelerations equivalent to at least a 15mph (24kph) impact into a solid wall, the switch will trip – whether it is the right or left will depend on the circumstances of the collision. A similar switch mounted inside the car on the transmission tunnel must also trip before air bag deployment can take place.

3

Diagnostic unit – air bag
A diagnostic unit for the air bag system is mounted on the transmission tunnel. Apart from containing an inertia switch which is one of the two that must be tripped before deployment can take place, it has a continuous electronic monitoring function. Every time the engine is started, the unit checks the integrity of all the system circuits (to ensure reliability in use, they have discrete looms and connectors shared by no other electrical system), a process indicated on the driver's information panel by the words SYSTEMS CHECK. Any fault would be announced by the appearance of words AIR BAG in red. Because monitoring is continuous, the warning could appear at any time if a malfunction develops. If it does appear, there is a simultaneous recording of the fact in the unit's memory from which, if it hasn't been rectified in the meantime, it can be recalled in any investigation arising from the alleged non-deployment of the air bag in an accident.

4

Windscreen
The windscreen has an important role in safety by ensuring that an unrestrained passenger remains within the relative safety of the cabin. It is therefore securely bonded in place and has a virtually impenetrable laminated glass.

5

Interior mirror
The electrochromic mirror has a protective surround and break-away stem.

6

Steering column
The steering wheel and column are designed to collapse forward if hit by an unrestrained driver. Other design features ensure that a frontal impact does not force the column into the car.

7

Recessed controls
All switches and controls are recessed within padded rolls. Smooth contours and large surface areas are a feature of their design.

8

Lower knee roll
Although contributing to the overall safety of the driver's side of the front compartment by virtue of its shape and construction, the lower knee roll was essentially an item of trim. With the introduction of the Silver Spirit II, it has become a box section structure with a considerable energy absorbing capability. It is designed to minimise any injury caused to the driver's legs.

9

Front seat belts
Retractable lap-and-diagonal seat belts are specified for front seat occupants. They are dual sensitive and lock under the influence of both

vehicle deceleration and the rate at which they are pulled from their reels.

Particular attention has been paid to making the belts easy to wear and comfortable to use. Thus the webbing on the majority of cars is impregnated with a special low friction substance which significantly reduces the drag loads on the torso and enhances both feel and comfort. The exceptions are the Continental R, which has an inherently low friction installation, and all cars built for the Middle East and Australia. For these a form of webbing specially woven to meet demanding high temperature stretch standards is specified. The weaving technique for both types of webbing is designed to make the edges round rather than uncomfortably sharp.

Front seat occupants should always wear the standard seat belts.

10

Head restraints
Vertically adjustable head restraints are fitted to the front seats of all cars except for those built to Australian specifications – local legislation there calls for fixed restraints. Their primary purpose is to prevent whiplash neck injuries of the kind that can result from rear impacts.

11

Interior door latches
Flush interior door latches operate a burst-proof door catch mechanism. In an accident, the doors are designed to remain firmly closed so confining passengers to the very strong protective cabin.

12

Energy absorbing seat backs
In an accident, rear seat passengers are vulnerable to injury as a result of being thrown forward against the front seats. Protection in current Rolls-Royce and Bentley models comes from the large surface area of the seat backs and the use of a panel of energy absorbing material in the construction of the seat.

Rear seat occupants should always wear the standard seat belts.

13

Rear seat belts
The outer rear seats are equipped with dual sensitive retractable lap-and-diagonal belts. A Silver Spirit II feature is the provision of pockets to enable the buckles for these and the retractable lap belt of the central seat position to be stowed neatly and flush with the seat.

Because the standard rear seat of the Silver Spur II and Touring Limousine has an electric reclining mechanism and a 100mm (4in) fore-and-aft movement, the rear seat belt buckles are fitted with small reels of webbing (which are not visible) to enable the movement to be accommodated.

Lap-and-diagonal rear seat belts are a Corniche IV feature. Convertibles are certified as four seat models and are not fitted with a central belt at the rear.

14

Seat belt mounting pillar
A small pillar on convertibles raises the front seat belt anchorage point so making the belt easier to use and more comfortable to wear.

Seating

September 1992

Summary

- very high standards of comfort
- trimmed in the finest materials
- power operation
- electric heating
- adjustable lumbar support
- easy access to rear of two door models

Related Sales Directory sections

Appointments
Appointments – Rolls-Royce Silver Spur II Touring Limousine
Controls
Safety features

The Bentley difference

Turbo R and Continental R
* sports style seating

Brooklands
* sports style seating available at extra charge

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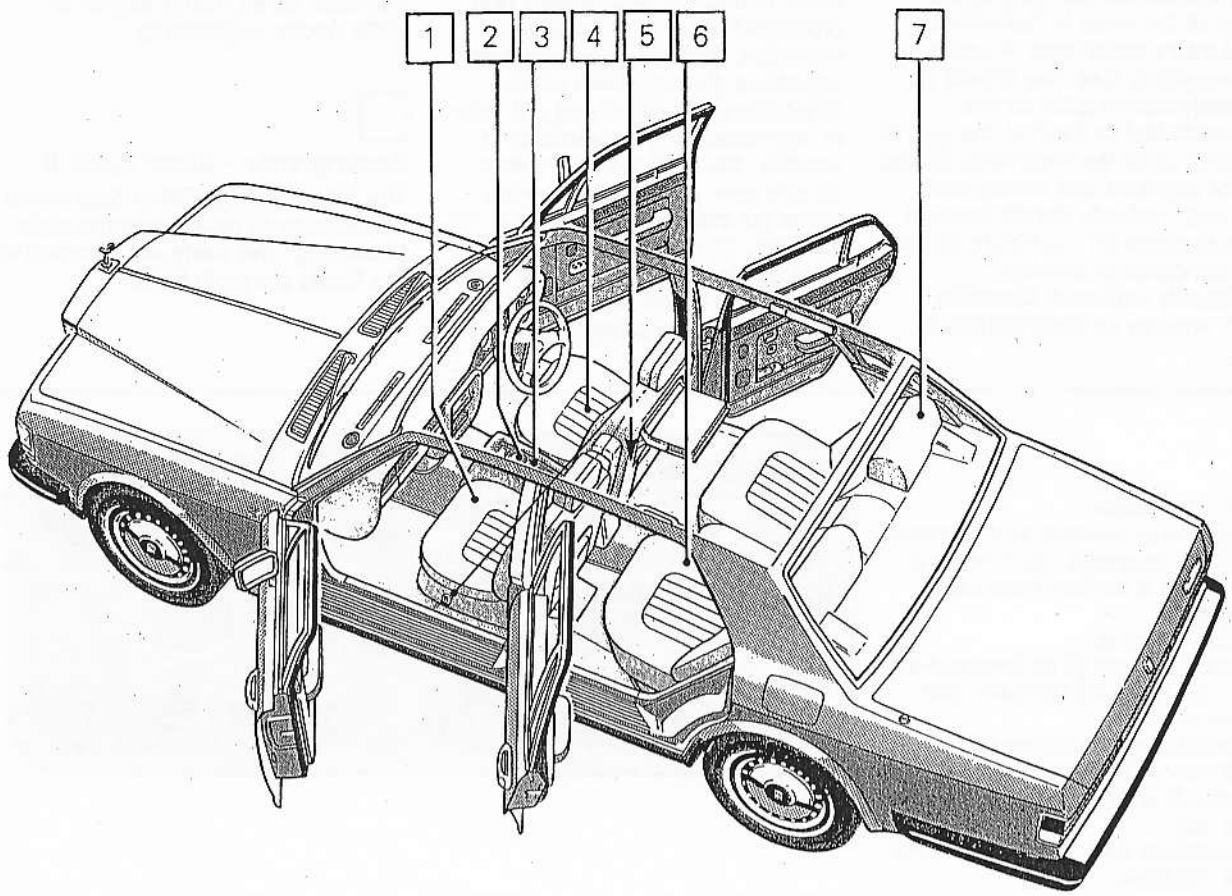
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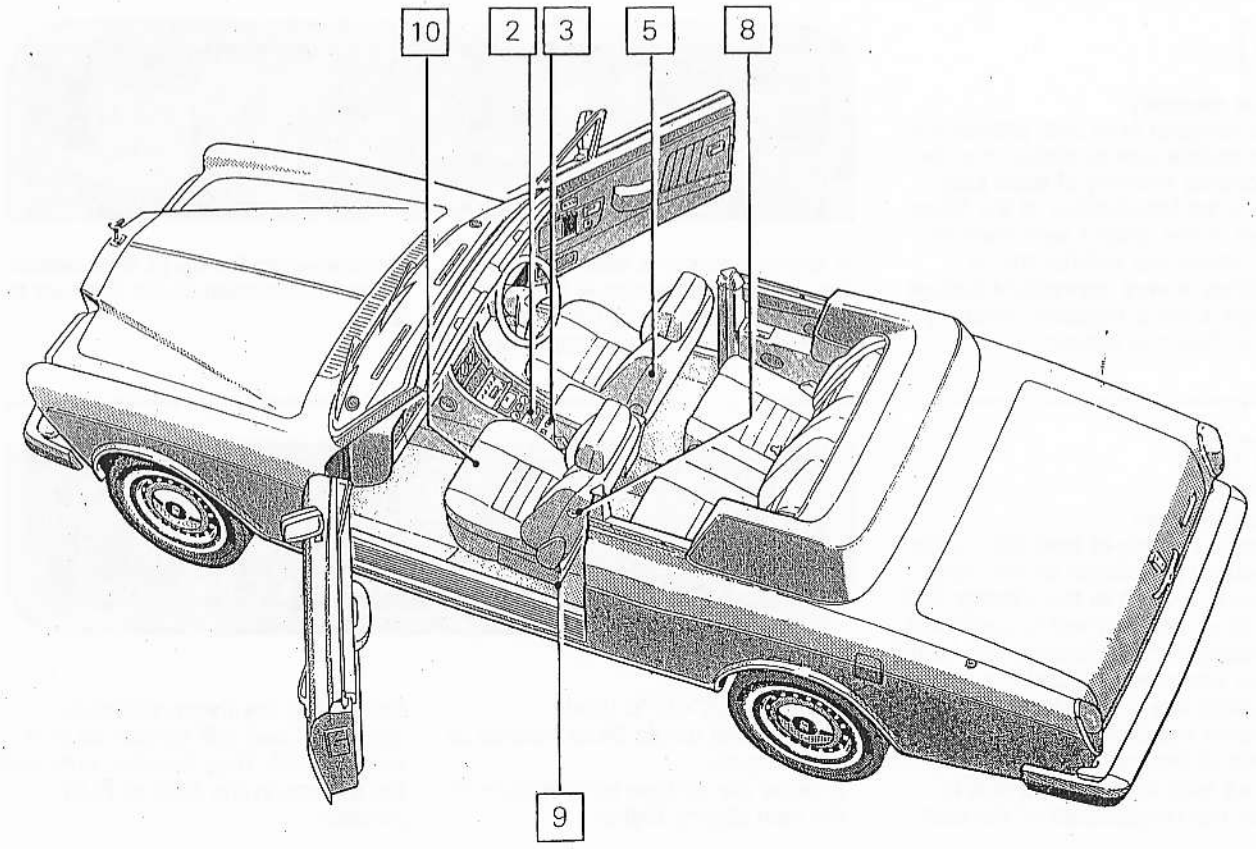
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Seating

Many considerations go into the design of the seats in Rolls-Royce and Bentley motor cars. A major requirement is that they should be extremely comfortable so that occupants feel as fresh at the end of a journey as at the beginning. Shape, interior structure and spring rates that must perfectly match those of the suspension all contribute to the high standards of comfort consistently achieved. Durability which ensures no deterioration in either comfort or appearance over prolonged periods of use is also important. And there are practical objectives: the ease with which passengers can get in and out, ease of adjustment, the accessibility of controls, the relationship between driver's seat, pedals and steering wheel (as important for safety as for comfort), and the ease with which an open door can be reached and closed from inside the car. All receive the same painstaking attention as any other aspect of Rolls-Royce engineering.

1

Seating style – Silver Spirit II

The Silver Spirit II, Silver Spur II and Brooklands all have the same style of seating. The seats are trimmed in the finest top grain hide.

2

Power operation

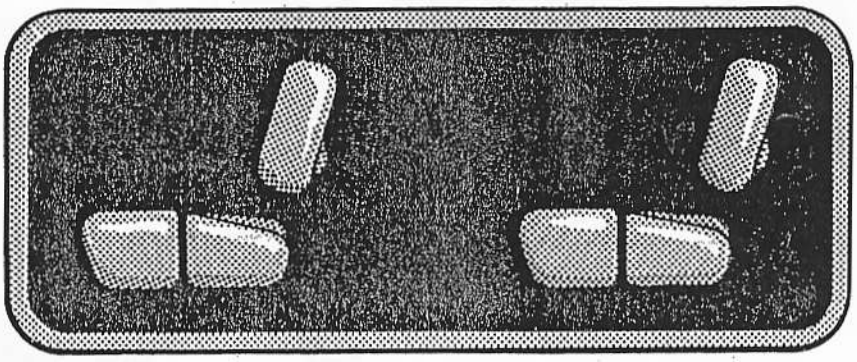
Diagrammatic controls and generous electrically powered travel make it easy to find a perfect front seat position.

Available travel is:

saloons: 152 mm (6 in) fore-and-aft, 44 mm (1.75 in) vertically both front and rear

convertibles and Continental R: 108 mm (4.25 in) fore-and-aft, 41mm (1.6 in) vertically both front and rear.

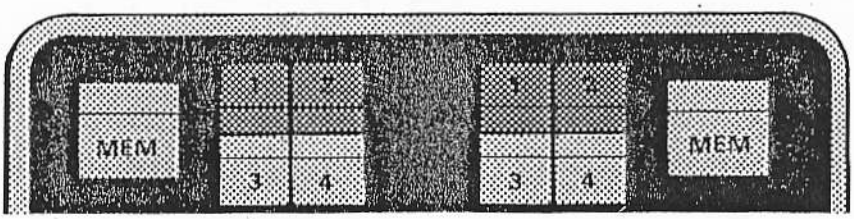
The switches also control the angle of the backrest.



3

Seat memory

The personal front seat positions of four people can be stored into the electronic memory of each seat. Since the introduction of the Silver Spirit II, the driver's seat memory also stores the exterior mirror position, a very convenient feature where a car is regularly driven by more than one person.



A stored position is taken up when the appropriate button is held down while the ignition is in the ACC or RUN position. The car battery can be disconnected for up to four weeks before information in the memory is lost.

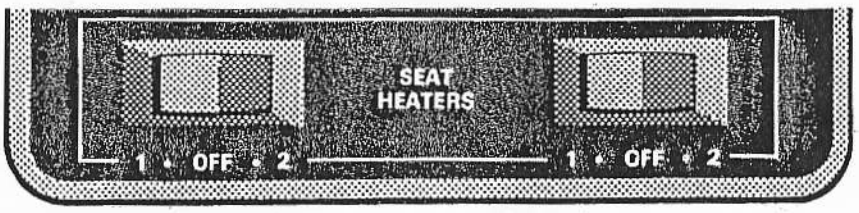
4

Seat heaters

Electric heating of both front seats is a feature introduced on the Silver Spirit II. It adds to the already high levels of comfort and is particularly valuable in cool climates. The heater pads sewn into the cushion and backrest are controlled by the centre console mounted switches. Two levels of heating are offered:

1 will take out the initial chill to raise the temperature of the seat surface to 33°–37°C (body temperature) within three minutes of switching on.

2 takes the surface temperature of the seat slightly higher.



Both levels are thermostatically controlled and will remain on until switched off. They function only with the ignition in the ACC or RUN position.

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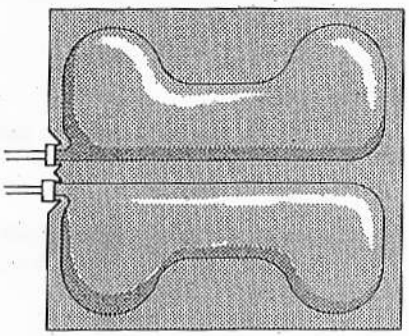
5

Variable lumbar support
With the replacement on the Corniche IV of the mechanical lumbar support device fitted to convertibles since January 1979, the front seats of all models have the electrically operated arrangement first introduced on the Silver Spirit II. It is also specified for the rear seats of the Touring Limousine.



Lumbar support is based on a rubber bag containing two kidney shaped enclosures. The volume of these can be varied by pumping in or releasing air. The two level design is unique to Rolls-Royce Motor Cars and by giving anatomically correct support for the lumbar region adds to the overall comfort of the seat. The air volume in each enclosure is individually controlled by a switch which moved one way operates the electric pump and the other way energises the solenoid of the air release valve. To prevent electrical damage, the pump motor is cut automatically when maximum inflation has been achieved. The two switches are mounted on the side of the seat valance.

6

Reclining rear seat
An electric recline mechanism is a standard feature of the Silver Spur II and Touring Limousine rear seat. Each half of the seat has its own motor controlled by a switch mounted on the forward face of the centre cushion. Fore-and-aft movement is over a 100mm (4 in) range and special features ensure that the seat belt installation can accommodate this.

The reclining system can be fitted only to individual rear seats in the standard style. It is not available with the bench type seat which is an option on the Silver Spur II (as well as all other saloons).

7

Headrests
Fixed rear seat headrests are a feature of all saloons and offered at extra charge for convertibles. They contribute to the overall comfort of the rear seat.

8

Backrest release switch
To aid entry and exit to and from the rear, the front seats of two-door cars are designed to motor forwards to the full extent of their travel when the backrest is pivoted forwards.

On convertibles, the action depends upon the ignition key being in the ACC position - in either the LOCK or RUN position, the backrest will be released but the seat motor will not be energised. To release the backrest, this two-way switch is moved forward. As soon as the backrest is then tipped forward itself, seat movement begins and can be stopped at any time by returning the backrest to the upright position.

In the interests of safety - an automatically motoring seat could hurt the legs or feet of someone not fully settled into a rear seat - manual control is required to return the seat to its original position. Once the backrest is restored to the upright position, and with the ignition key still in ACC, any one of three switches can be used: this backrest release control (the seat moves backwards as long as it is pressed rearwards), the seat adjustment switch or the relevant seat memory button.

The Continental R has a similar provision but the backrest release switch on this model is energised only when a door is open - both switches when the driver's door is open, the passenger's seat switch only when it is the passenger's door.

The seat motoring feature was first introduced on the Continental R and was then adopted for convertibles with the advent of the Corniche IV.

9

Manual backrest release
A small lever mounted close to the floor enables the front seat backrests of two-door models to be released manually if, for example, electrical power is cut off.

10

Sports style seating
Sports style seating complementing the high performance character of the car is a standard feature of the Bentley Turbo R and Continental R. The seats of the two convertible models are very similar in appearance.

Security

September 1992

Summary

- unique locks with 1099 combinations used in production
- electronic alarm system standard
- positive locking of transmission when ignition key removed
- comprehensive anti-theft provisions

Related Sales Directory sections

Appointments
Controls
Exterior features – Silver Spirit II
Exterior features – Rolls-Royce Corniche IV and Bentley Continental
Transmission
Wheels and Tyres

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The value and desirability of Rolls-Royce and Bentley motor cars is such that their designers and coachbuilders have always sought to provide the best possible security against theft. The locks, for example, have long been comparable with those used for the protection of property rather than motor industry norms and the electric transmission lock, first seen on the Silver Shadow of 1965, remains a unique Rolls-Royce feature. Although confined to certain markets where the radio frequency used was available, the Rolls-Royce Motor Cars designed remote control alarm and locking system of the Silver Spirit II represented another major advance. The advent of an infra-red alternative to radio control plus a completely new central locking system, including new locks, in December 1991 (44007) brought the **convenience** of remote control and the **benefits of comprehensive alarm protection** to all markets. In mid-1992 (46001), the addition of ultrasonic cabin protection for all saloons stengthened the **reassurance** that comes from knowing that a very valuable investment is **exceptionally well protected.**

16

1

Mascot alarm
The Rolls-Royce mascot can be embraced by the alarm system at modest extra cost. The option extends to those countries where the mascot is supplied loose as owners may choose to visit areas where its installation is permitted. With the necessary switch and wiring fitted, any interference with the mascot will sound the alarm siren for 30 seconds and immobilise the car subject, of course, to the system being armed.

2

Alarm siren
The electronic siren for the alarm system is mounted inside the front wheel arch. Once the system has been armed, the alarm will sound stridently for 30 seconds before automatically resetting. At the same time, the starter is rendered inoperative and remains so until the system is disarmed by the remote control or a key.

3

VIN label
Because it adds substantially to the difficulties of changing the identity of a stolen car, a visible Vehicle Identification Number is a **valuable theft deterrent.** For long a feature of cars built for the North American markets and subsequently introduced in other countries, a discreet label showing the full 17 digit VIN is now embodied within the left hand windscreen surround of all cars (46001, mid-1992).

4

External locks
A new six-pin lock design, exclusive to Rolls-Royce and Bentley, was introduced in December 1991 (44001). Compared with the five-pin design it replaced, the new installation offers an **even higher degree of security.** The lock integrity is estimated to be ten **times superior,** 1099 different combinations are used in production instead of 1000, and there are many innovations designed to resist picking and frustrate more drastic approaches to illicit entry.

Two plastic headed (rounded for safety) keys are provided. The master, identified by a marque badge, covers all locks and the ignition. The plain key is limited to doors and ignition only and might be used, for example, when the car is left with a parking attendant. The keys are made of polished nickel silver giving **greater long term durability** than the earlier chromium plated key. The profile has been carefully developed to ensure **easy entry** and **smooth action.**

The external locks can be used to operate the central locking system and, on all models except the convertibles, the alarm. From mid-1992 (46001), locking is accompanied by one or more electronically generated bleeps to indicate the level of protection set (see 5 below).

Bleeps are also heard during unlocking. Two 1 second signals are the norm, ten 0.25 second bleeps indicate that the alarm has been triggered while the car was unattended.

For **convenience,** the interior lights are switched on automatically when the car is unlocked by key or remote control.

In unlocking, a brief movement of less than 0.5 second unlocks the door concerned, a more extended movement unlocks all doors and, if the BOOT UNLOCK switch in the glove box is set to AUTO, the luggage compartment.

5

Glove box
The glove box can be locked and unlocked only by use of the master key and therefore provides **safe stowage** for more valuable items not least on those occasions when the car is left with someone else.

The box also secures the settings of three switches, two of which (the third is the CLOCK adjustment control) have locking and alarm system functions:
A switch controlling the setting of the alarm system.

FULL ALARM
II
I

OFF

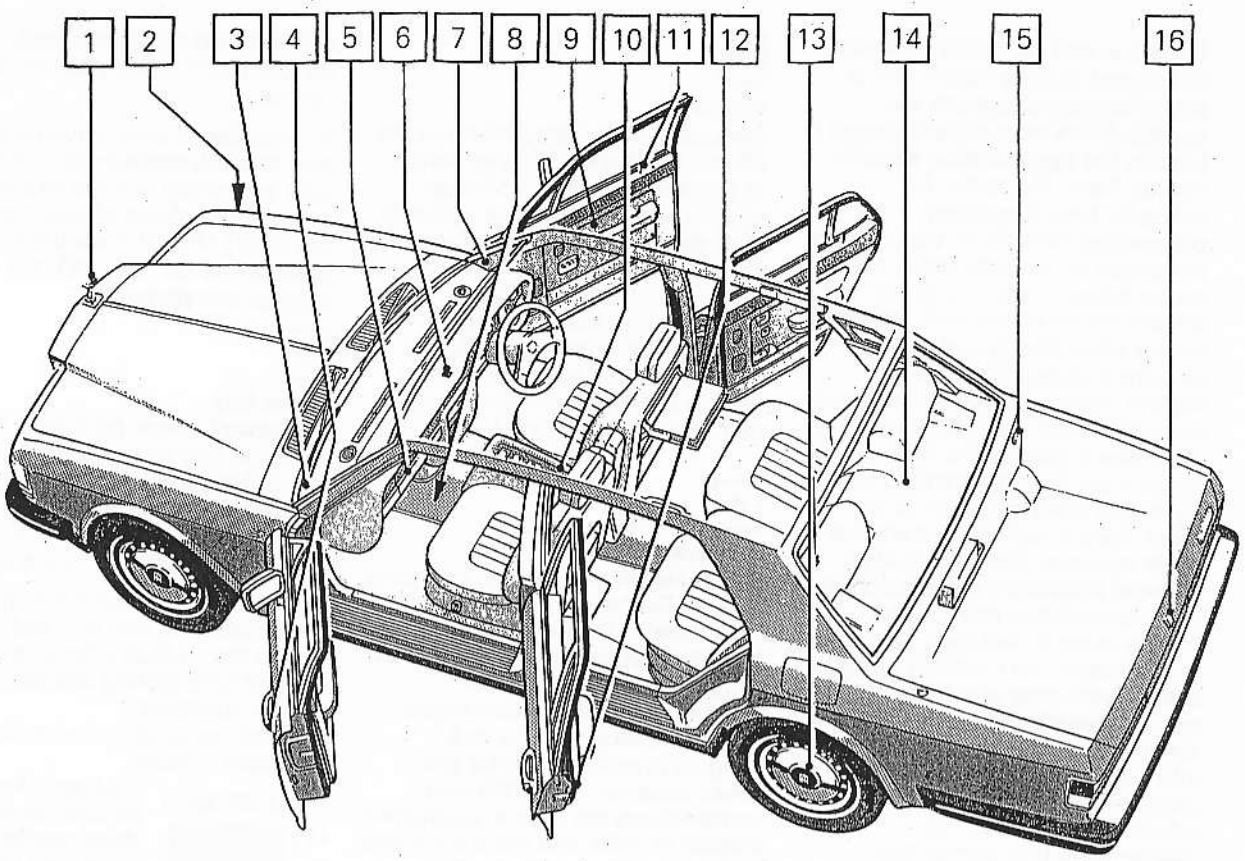
That specified for **saloon models** has three positions governing the degree of protection set. The number of bleeps sounding when the car is locked by either the key or remote control acts as a reminder of the setting as well as giving an audible indication that setting to the desired level has been accomplished.

OFF isolates the alarm and gives central locking for doors and boot only. The setting is indicated by one 1.5 second bleep.

I (two 0.5 second bleeps) - central locking + alarm system arming for doors, bonnet and boot lid. It is the intermediate setting that might be used if, for instance, a dog was to be left in the car.

II (three 0.3 second bleeps) - central locking + alarm + ultrasonic cabin protection (see 7 below).

Four bleeps would act as a warning that the integrity of a setting was in some way compromised by, say, a door being open or a boot lid not being fully closed. In this circumstance, when perhaps the boot is open while doors are locked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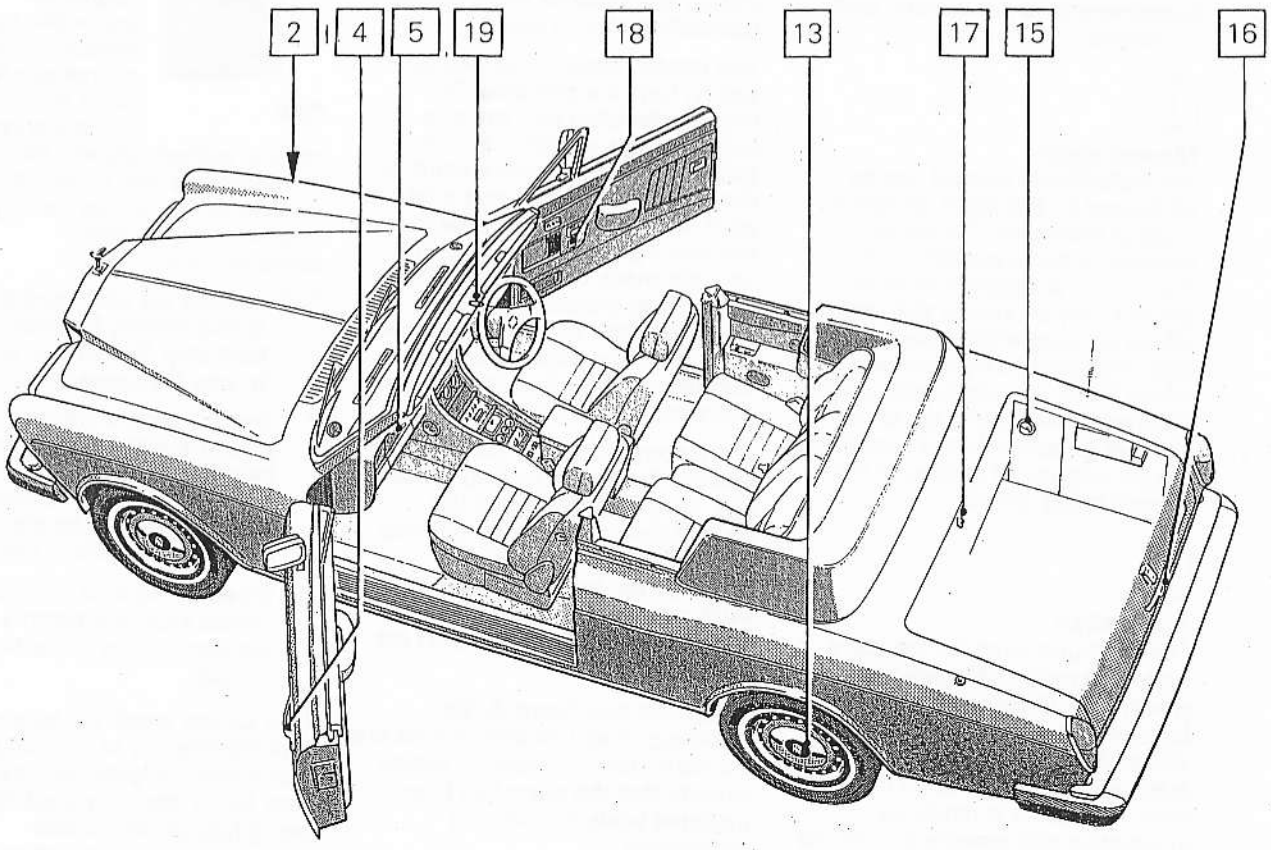
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capable of operating and protecting the car when the battery is disconnected or flat. The remote control key has a replaceable battery.

15

Battery master switch
Although intended primarily as an aid for service technicians, the battery master switch is also a useful extra anti-theft measure. It is mounted in the luggage compartment of all cars except those supplied to Germany and enables the main power supply to be cut off from major circuits (but not every one) such as those feeding the starter motor and switchbox. It should not be used while the engine is running.

The alarm system with its own independent power source is not affected by use of the master switch and nor are those items with memories - seats, radios and radio telephones.

16

Boot lock
On saloons, the boot lock is included in the central locking system and may be used to lock or unlock all doors. It is neatly concealed behind a hinged marque badge which incorporates a magnet to prevent rattles.

On convertibles, the lock is not part of the central locking operating arrangements.

In both cases, only the master key can be used.

17

Luggage compartment switch
A two-way switch on the forward trim panel of the luggage compartment of convertibles provides a means of locking and unlocking the doors from the boot. When used for locking, the boot lid lock will also be set and will take effect when the lid is closed. The switch does not arm or disarm the alarm.

18

Central locking system - convertibles
On convertibles, the switches for the central locking system are mounted low on each door to make them relatively inaccessible to outside interference especially on those occasions when the hood is down and all windows up.

19

Infra-red receiver
Infra-red operation of the remote control locking system is specified for the following areas:

Australia	Korea	South Africa
China	Middle East	Taiwan
Europe	New Zealand	
Hong Kong	Nigeria	

The receiver is mounted above the rear view mirror and it is to this point that the remote control key should be aimed. The maximum operational range is 4 metres (12ft).

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during a picnic, protection is still established. But if the ultrasonic level was set with a door or window open care would have to be taken to ensure that some external disturbance did not trigger the alarm.

The switch fitted to all cars up until mid-1992 continues to be specified for convertibles. The system on the Corniche IV and Continental differs by not including the ultrasonic cabin protection arrangement and by having arming of the alarm by remote control only. When the glove box switch is set to ISOLATE, the control operates only the central locking system (one bleep). If it is set to ALARM, the alarm is armed or disarmed as well (two bleeps).

2 The BOOT UNLOCK switch enables the boot to be unlocked by either the KEY only or AUTOmatically through the central locking system. The boot will always be locked when the central locking system is operated.

6

Alarm indicator
A red light emitting diode set in the centre of the grille covering the top roll air conditioning sensor flashes continuously when the alarm is armed. An indicator for the owner and a warning to felons.

7

Ultrasonic cabin protection
Formerly a special feature available at extra charge, an ultrasonic cabin protection system became part of the standard specification of all saloon models in mid-1992 (46001).

Two small plated grilles in the header panel above the windscreen are the only visible clues to the installation. Through one is transmitted inaudible very high frequency sound generated by an electronic control unit mounted at the foot of the steering column. The other acts as a receiver. When switched on, the system establishes a sound field within the saloon and notes its characteristics. Any subsequent variation, the result perhaps of some sort of movement, is registered as a disturbance and triggers the alarm.

8

Transmission lock
A very effective anti-theft measure used on all models since the adoption of electric gear range selection for the Silver Shadow in 1965 is the automatic movement of the actuator into the positively locked Park position, regardless of the position of the selector lever, when the ignition key is removed. A tamper proof linkage introduced in December 1991 (44001) between gearbox and actuator adds further to the integrity of the anti-theft provision.

The lock is also a safety feature and is unique to Rolls-Royce and Bentley motor cars.

9

Central locking system
A motorised locking system replaced the earlier solenoid operated locks in December 1991 (40001) bringing a more compact installation, lower weight, greater power with a reduced current consumption, and even greater reliability. There is a motor in each door and it is encapsulated in sound absorbing material and rubber mounted to ensure very quiet and refined operation.

A switch on the door provides internal control for the system. It can be used to lock all doors and luggage compartment and to unlock the doors only or, if the glove box BOOT UNLOCK switch is set to AUTO, the doors and boot.

10

Centre stowage bin
The roll top stowage bin specified for Rolls-Royce saloons, the Turbo R and the rear console of the Continental R can be locked by use of the master key. It therefore provides a secure place for valuable items.

11

Sill button
The sill button is a feature of all four-door saloons and the Touring Limousine. It has a smooth slippery shape to deter thieves and provides a mechanical means of locking or unlocking that particular door as well as a visual indication that a central locking command has been completed. If the button is used to lock a front door when leaving the car, the outside button has to be pressed as the door is closed. If it is not, the action will be cancelled and the button will rise. Locking of the rear doors can be accomplished by simply pressing the button and shutting the door.

Control	Models	Me
Sill button	Four door cars only	Me
Interior door switch	All cars – front doors	Ele
Luggage boot switch	Convertibles	Ele
Limited key	All cars	Ele
Master key	All except convertibles	Ele
	Convertibles	Ele Me
Remote control	All within relevant markets	Infr
	All within relevant markets	Rac

* for the alarm system to function, the al

capable of operating and protecting the car when the battery is disconnected or flat. The remote control key has a replaceable battery.

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Hong Kong	Nigeria	

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12

Child-proof locks
The rear doors of saloons are fitted with child-proof locks. A small lever on the door can be set to make the door latch inoperable from the inside even if the sill button is in its raised unlocked position. It is an important safety feature.

13

Wheel security
The alloy wheels specified for all Rolls-Royce and Bentley models are fitted with locked hub caps. The keys are stowed in the luggage compartment.

14

Remote control aerial
A remote control locking and alarm system based on the earlier Silver Spirit II design became standard on all cars for the 1992 model year. The radio operated variant is specified for:

315MHz	North America
418MHz	Brunei Japan Malaysia Singapore United Kingdom

The receiving aerial is a wire under the parcel shelf in saloons and embedded in the hood of convertibles. The remote control key has a limited range of about 6 metres (20ft) to avoid inadvertent operation over longer distances. To operate the system, the key is merely aimed in the direction of the car. Variations in signal pulsing produce more than 13000 different key 'combinations'.

The remote control provides the only means of arming or disarming the alarm system on convertibles. It cannot be done by use of either mechanical key and any attempt to unlock a convertible with a key once the system has been set will trigger the alarm.

The remote control system has its own automatically recharged 12V power supply and is therefore

	Locking			Unlocking			
					Scope		
Method	**Operation**	**Scope**	**Alarm set***	**Operation**	**Switch position**	**Effect**	**Alarm disarmed**
Mechanical	press	That door only	No	lift	Either	That door only	No
Electrical	press	All doors and boot	No	press	KEY AUTO	All doors All doors and boot	No
Electrical	press	Both doors and boot when shut	No	press	Either	Both doors	No
Electrical	doors only	All doors and boot	Yes – all except convertibles	0.5 sec – 0.5 sec +	Either KEY AUTO	That door only All doors All doors and boot	Yes – all except convertibles
Electrical	doors boot	All doors and boot All doors and boot	Yes Yes	0.5 sec – 0.5 sec + 0.5 sec – 0.5 sec +	Either KEY AUTO Either Either	That door only All doors All doors and boot Boot only All doors and boot	Yes Yes
Electrical Mechanical	doors boot	All doors and boot Boot only	No No	0.5 sec – 0.5 sec +	Either KEY AUTO Either	That door only All doors All doors and boot Boot only	No No
Infra-red	Press button – aim towards receiver	All doors and boot	Yes	Press button – aim towards receiver	KEY AUTO	All doors All doors and boot	Yes
Radio wave	Press button – aim towards car	All doors and boot	Yes	Press button – aim towards car	KEY AUTO	All doors All doors and boot	Yes

he alarm switch in the glove box must be set to **I** or **II** position (saloons) or ALARM (convertibles).

September 1992

Summary

- very positive
- very responsive
- power assistance standard
- light but with good 'feel'
- mechanism has several passive safety features
- careful attention to noise suppression

Related Sales Directory sections

Controls
Safety features

The Bentley difference

* a distinctive sporting steering wheel except where airbag specified
* Turbo R and Continental R – even greater priority given to direct and positive feel
* air bag wheel available only in black with no colour rim option

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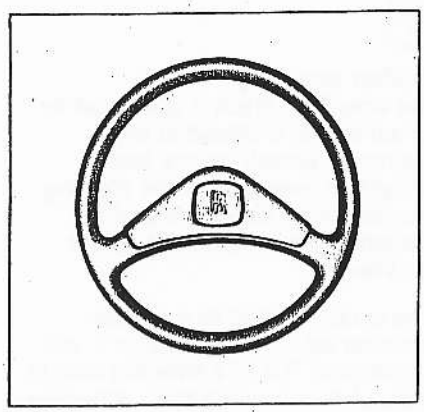
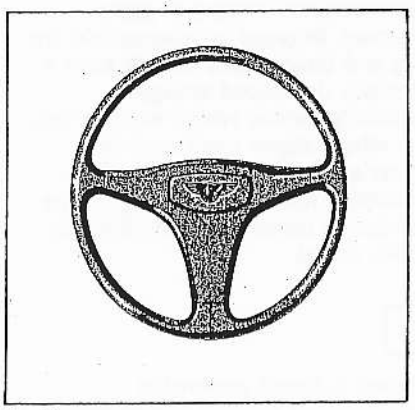
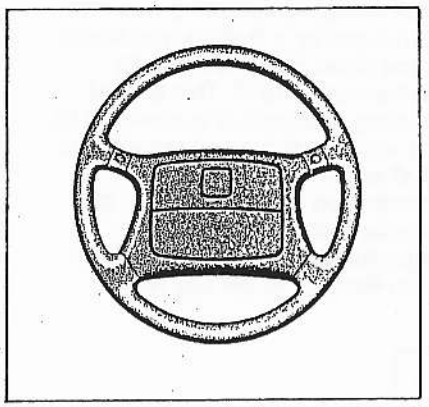


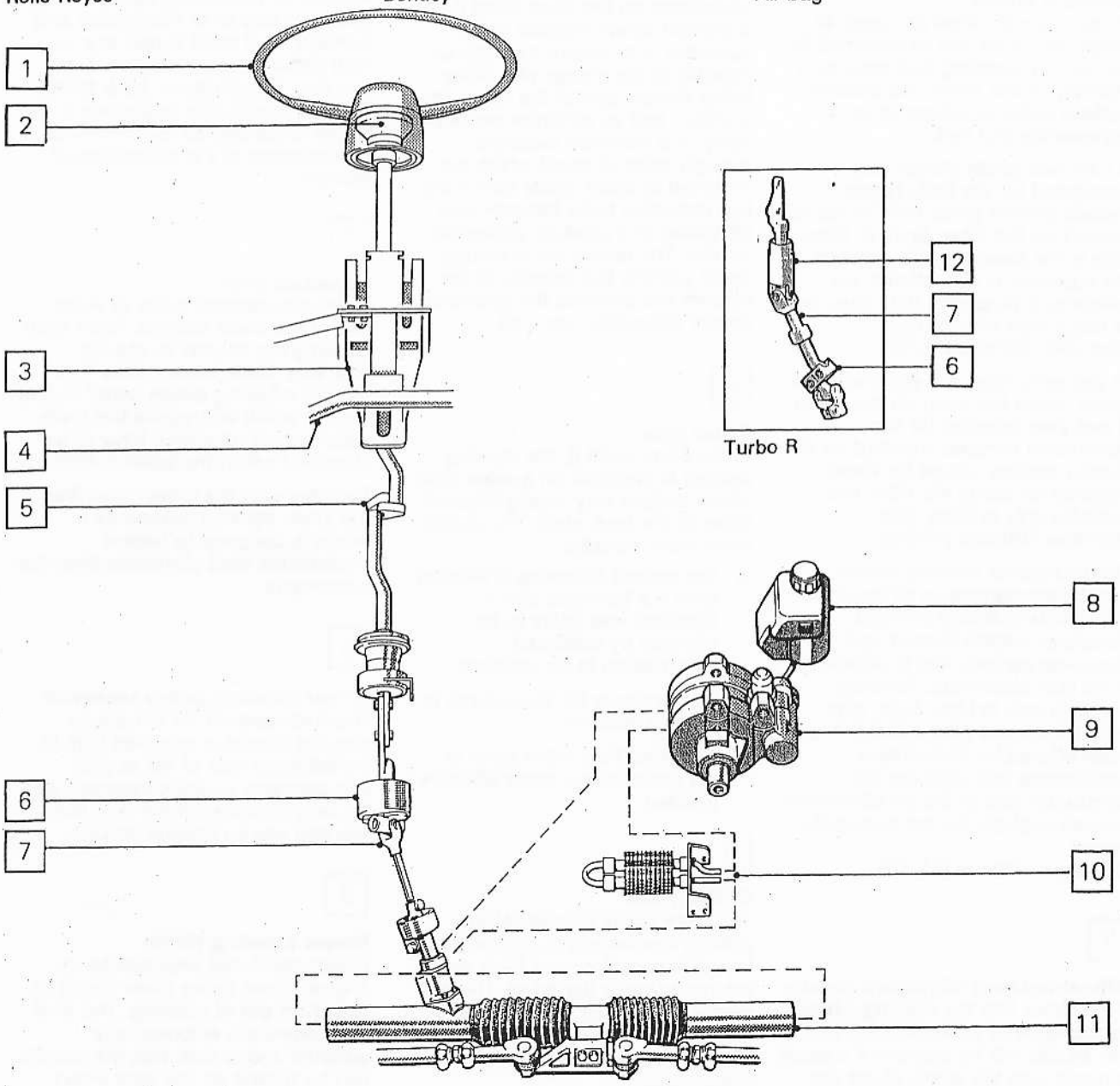
Rolls-Royce



Bentley



Air bag



Turbo R

Rack and pinion steering was first introduced on a Rolls-Royce model in the Silver Shadow II and its derivatives of 1977. This type of steering mechanism is accepted as the most positive and responsive of all and it makes a major contribution to the precision of handling and therefore the enjoyment of driving the current Rolls-Royce and Bentley range.

1

Steering wheel
Three types of wheel are used, all elegantly styled and all designed for comfort in handling and maximum visibility of the main instruments. Surface padding enhances both appearance and feel.

A new two spoke design was introduced for the Rolls-Royce models (except those built for the US market) on the Silver Spirit II. Black hide is the standard trim although the customer is also offered tan, parchment, magnolia, dark blue, red or beige hide at extra cost.
Diameter: 395mm (15.6in).

At the same time, the sporting three spoke wheel first seen on the Turbo R and then adopted for the Continental became standard on all Bentley models except for those destined for use in the USA. It is available only in black hide.
Diameter: 396mm (15.6in).

The four-spoke steering wheel which incorporates an air bag in its hub is now standard in North American, Middle Eastern and European markets and is offered at extra cost elsewhere. Formerly available only in black hide, with effect from mid-1992 (46001) it has been offered for Rolls-Royce applications only with the rim trimmed in one of the six alternative colours available for the two-spoke wheel.
Diameter: 400mm (15.75in).

2

Wheel-to-chest alignment feature
If the driver hits the steering wheel as the result of an accident, his or her injuries will be reduced if contact is made with the whole of the rim circumference instead of just a segment. In order to achieve this, the two and three spoke wheels have a specially developed energy absorbing device which ensures that the wheel aligns itself with the driver's chest under impact. The protective role of the air bag makes the device unnecessary on the four spoke wheel.

3

Upper column assembly
A new upper column design was introduced on the Silver Spirit II. An important safety function of the assembly is to absorb as much as possible of the energy of a driver being thrown against the wheel in an accident and so minimise the level of injury. It is therefore mounted through strips of metal which are designed to shear under load - the bolt mounting holes become very elongated in a carefully controlled fashion. The resistance of tearing metal governs the collapse of the column and provides the degree of energy absorption required.

4

Cross tube
In the Silver Spirit II, the steering column is mounted on a cross tube which bridges very strong structual areas of the body shell. The design offers three benefits:

a) the column mounting is isolated from the bulkhead and is therefore less likely to be affected by bulkhead deformation in an accident

b) any tendency for the column to shake is reduced

c) vibrations from other parts of the structure are more effectively isolated.

5

Column link
The other safety function of the column assembly is to ensure that a frontal impact does not force the column towards the driver. This link simply disengages when a force is applied to the lower column so leaving the upper column undisturbed.

6

Rubber coupling
This coupling, which is protected by a heat shield, is placed in the column to absorb noises and vibrations generated in the steering mechanism or sub-frame and so prevent their transmission to the car interior.

The coupling fitted to the lower steering column of the Turbo R and Continental R is of a different design and, while still acting as an effective isolator of noise and vibration, gives the degree of directness and positive feel most suited to a very high performance motor car. This coupling, introduced in June 1988 (24519), is also able to operate in the higher under-bonnet temperatures characteristic of the turbocharged models.

7

Universal joint
There are universal joints at either end of the lower column. Apart from allowing the column to change direction, these joints ensure that, there is a folding action under frontal impact which will reduce the loads which would otherwise have to be absorbed within the column itself.

Together with the rubber coupling, the lower steering column as a whole is designed to isolate undesirable road vibrations from the passengers.

8

Power steering pump reservoir
The fluid reservoir for the power steering system is mounted high in the left-hand side of the engine compartment, a very convenient site for easy checking of the fluid level. The cap has an integral dipstick.

9

Power steering pump
Power assistance provided by an engine driven pump takes much of the effort out of steering. The level of assistance is automatically adjusted and is such that the wheels can be turned on the spot when

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stationary while a high degree of 'feel' remains in normal driving.

The pump is driven through two plain belts ensuring the highest standard of reliability. However, should the system develop a fault or the engine cease to function, the car may still be steered manually.

10

Fluid cooler
A cooler is incorporated in the steering hydraulic circuit and is mounted behind the air dam.

11

Steering mechanism
An unusual feature of the rack and pinion mechanism is the centre offtake (most installations conventionally attach the track rods to either end of the rack) which has two advantages:

a) it ensures the correct suspension and steering geometry in relation to the wide spread front wishbones

b) it distributes bearing loads much more evenly so reducing wear and extending life.

Each end of the rack acts as a hydraulic piston for the power assistance system. The mechanism gives:

a) very positive and direct control

b) improved handling in cross winds and on cambers.

Modifications to the design of the rack and pinion in June 1988 (24513) brought further improvements to feel and, by providing automatic adjustment for the slight wear that takes place over long periods of service, a very long life without deterioration in performance.

The degree of assistance given by the system is governed by a torsion bar valve arrangement at the base of the steering column. On all Bentley models, this torsion bar is stiffer with the result that effort applied at the steering wheel rim to achieve a given steering input is increased by 50% compared with the Rolls-Royce equivalent. The effect is to give a more sporty feel especially at high speed.

Overall steering ratio is 17.5:1; there are 3.25 turns lock-to-lock.

The turning circles, excellent for large cars, are:

Rolls-Royce Silver Spirit II and Corniche IV – 12.05m (39.5ft)

Rolls-Royce Silver Spur II – 12.5m (41ft)

Bentley Brooklands, Turbo R, Continental and Continental R – 12.16m (39.9ft)

Rolls-Royce Silver Spur II Touring Limousine – 15.33m (50.3ft)

12

Plunge joint
The upper universal joint of the Turbo R and Continental R lower steering column has an integral plunge joint which accommodates up to 13mm (0.5in) movement of the front sub-frame. In other models, this function is performed by the rubber coupling.

September 1992

Summary

- independent all round
- high standard of handling
- large wheel movements give excellent ride
- controlled fore-and-aft compliance
- understeer for stability
- careful attention to noise suppression
- automatic ride height control
- emphasis on handling for Bentley saloons

Related Sales Directory sections

Braking system
Controls

The Bentley difference

Brooklands, Turbo R and Continental R

* handling to satisfy the sporting driver through:

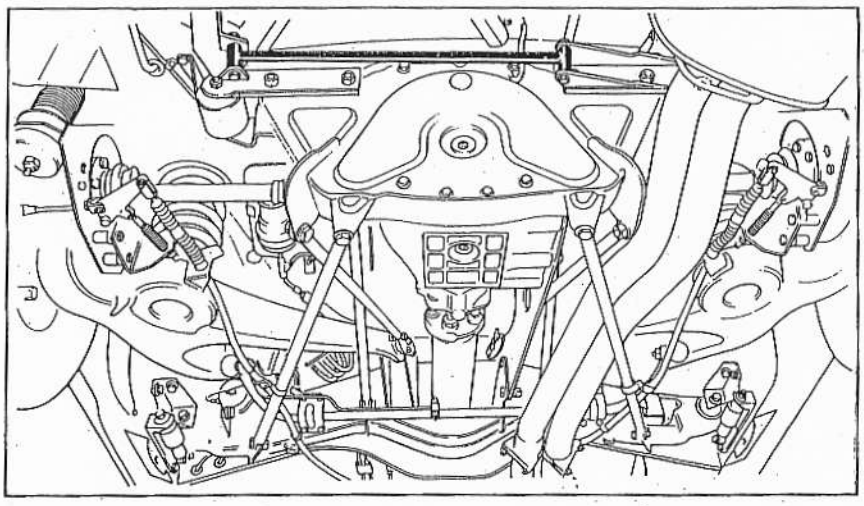
* bias towards handling in automatic ride control system by more frequent use of firmer damper settings
* increased anti-roll bar stiffness
* firm sub-frame mounts
* 13mm (0.5in) wider track

Turbo R and Continental R only

* a Panhard rod controls the lateral movement of the rear sub-frame and so maintains handling precision at very high speed. The rod is bolted to the rear axle cross-member at one end and the luggage floor cross-member at the other (illustration left).

Continental R

* automatic selection of firm damper setting in Sport transmission mode.



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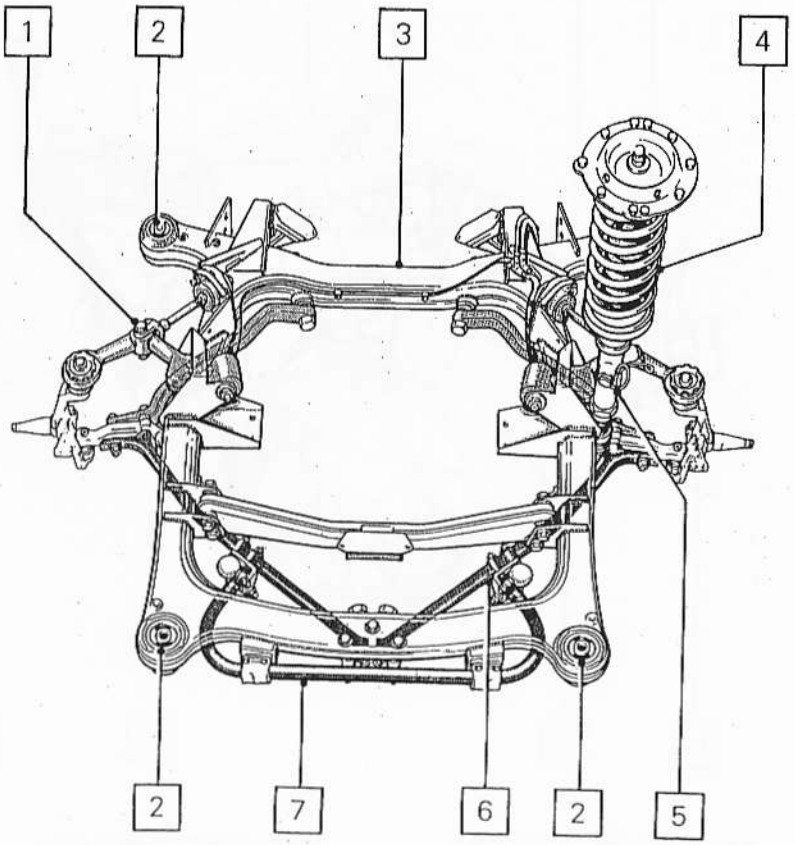
The suspension of all current Rolls-Royce and Bentley models is an evolutionary development of the all-independent layout. It is a complete system in which geometry, springs, dampers, sub-frame mounts and tyres all work in harmony to give superb ride comfort, responsive handling, excellent road holding and an almost total elimination of road noise. It embodies a number of advanced features of which one of the most significant is the electronically controlled automatic ride control (ARC) introduced on the Silver Spirit II after a four year long development programme. ARC automatically and almost instantly adapts the suspension to give the best possible balance between ride and handling qualities for the prevailing road and driving conditions. It was adopted for convertibles with the advent of the Corniche IV.

Subtle variations in suspension specification endow Bentley saloons with handling which perfectly suits their sporting character.



1

Upper suspension lever
The lever forms the topmost element of the wishbone type front suspension. It has substantial rubber mounts which play an important part in the control of fore-and-aft (compliant) movements of the wheel. Front suspension geometry is designed to provide:

a) anti-dive properties for stable braking

b) high cornering power

c) excellent steering response

d) well controlled roll

e) maximum tyre life

2

Front sub-frame mount
The front sub-frame is mounted through rubber mounts having different characteristics in each of their three axes. For the Rolls-Royce Silver Spirit II and Silver Spur II, slightly softer mounts are specified for the ultimate in noise suppression and ride quality.

3

Front sub-frame
The front sub-frame is made up of steel pressings. Like its counterpart at the rear, it receives very comprehensive anti-corrosion treatment comprising a phosphate dip, acid etch spraying, a dip primer and a top coat of black enamel which is baked on. The inside of the box-sections is sprayed with a vapour phase inhibitor.

The front sub-frame carries all the major mechanical units effectively isolating them from the car interior.

4

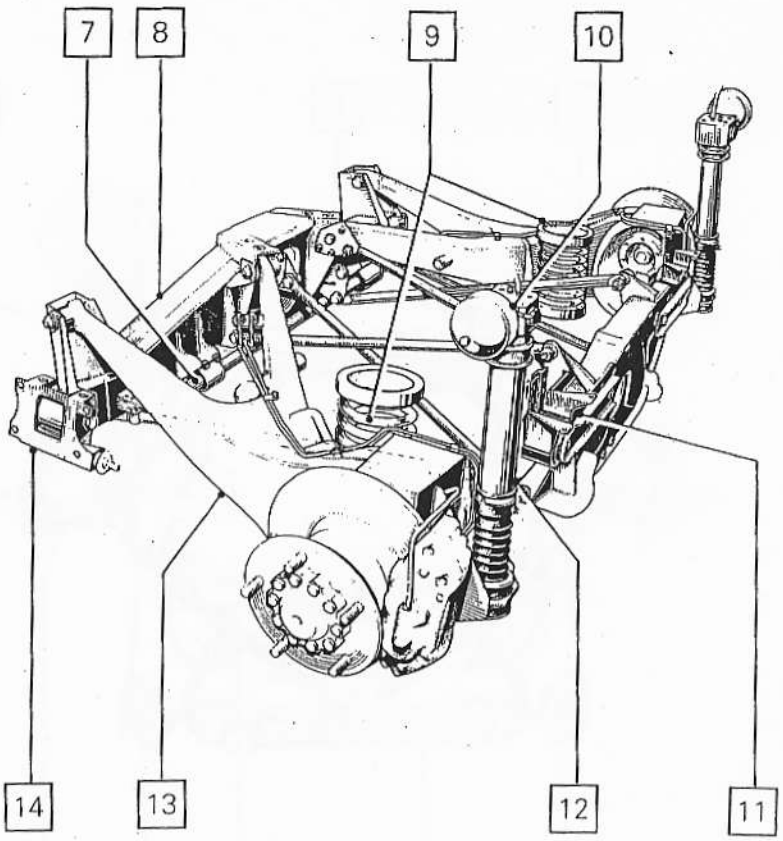
Front spring
Coil springs are the primary suspension medium and those at the front are mounted concentrically with their hydraulic dampers. Spring rates are identical for all models.

5

Front damper
The front dampers form part of the ARC system. They are so constructed that, like the complementary struts at the rear, they can provide three distinct levels of damping: comfort, normal and firm. The valves controlling the comfort and normal settings are solenoid operated with the result that any electrical malfunction (which would be indicated on the driver's information panel) leading to what is effectively solenoid failure will always leave the dampers in their basic firm configuration - a fail safe feature as the motor car is then in the condition offering the greatest handling stability.

Simultaneous operation of all four sets of solenoid valves is controlled by an electronic control unit (ECU) mounted within the car on the passenger's side of the scuttle. The ECU constantly monitors road conditions, the actions of the driver and various movements of the car by means of continuous information received from seven sources:

three accelerometers within the ECU measuring respectively lateral (cornering), vertical (road surface) and longitudinal (braking and acceleration) forces



a steering column mounted transducer recording the driver's steering demands

the speedometer

the stop lamp switch

the throttle idle switch

The micro-processor compares this information with programmed threshold values for solenoid switching and, if one or more are crossed, instructs (via a separate power ECU mounted behind the fuseboard) the selection of the stiffer or softer damper setting. Continuous monitoring and a one hundredth of a second response time make the process imperceptible to the car's occupants.

ARC is a very advanced system bringing major benefits:

a) the suspension is instantly adapted to give the best possible balance between ride and handling for the prevailing circumstances

b) the wide range of stiffness provided by three damper settings ensures excellence of ride combined with very responsive handling

c) passenger comfort is significantly improved - the comfort setting is softer than any that could be specified previously

d) safety in rapid manoeuvring is enhanced.

The micro-processor software is slightly different for Bentley saloons and has solenoid switching thresholds adjusted to maintain stiffer damping settings for longer so contributing to the emphasis on handling which is a feature of the marque. This philosophy is taken furthest on the Continental R where selection of the Sport transmission mode will automatically switch the dampers to their firm setting.

6

Lower wishbone
Widely spaced lower wishbones provide great stability. Front track is the same as the rear: 1537mm (60.5in) for Rolls-Royce models and 1549mm (61.0in) for Bentleys, the difference being due to a slight variation in wheel design.

7

Anti-roll bars
Anti-roll bars are fitted to both front and rear suspension. Stiffer bars are specified for Bentley saloons.

8

Rear sub-frame
Pressed steel front and rear cross-members are bolted together through six tie-bars to form a single rigid sub-frame. The rear cross-member is filled with a mixture of zirconium silicate (a damping medium) and foam to eliminate any transmission of noise from the rear axle. Road noise is effectively suppressed by the high mass (and therefore the high inertia) of the sub-frame as a whole.

9

Rear coil spring
The short rear springs are mounted beneath luggage compartment floor level and permit the use of a large capacity fuel tank in a very safe location behind the rear seat.

10

Gas spring
Gas springs are an important element in the rear suspension. Each forms the upper part of a suspension strut and is charged with nitrogen at 15.5kgf/cm² (235lbf/in²). The volume contained within the sphere and its polyurethane diaphragm varies with load because gas is compressible. Variation in volume brings variation in 'springiness': a full load compresses the gas and it acts like a stiff spring, a light load leads to an expansion of volume and a softening of the spring. Supplementing the normal road springs in this way, the gas springs enable the suspension system to adjust itself automatically to load and so maintain a constant excellence of ride regardless of the number of passengers or weight of luggage carried.

11

Rear sub-frame mount
The rear sub-frame is mounted to the body through four rubber mounts of advanced design. Their major axis

is horizontal and fore-and-aft but they have different characteristics in each plane: longitudinally soft for correct suspension compliance through movement of the whole sub-frame, vertically soft to assist in giving an excellent secondary ride (the ability to absorb small wheel movements arising from road surface irregularities), and laterally stiff for the best handling.

All the models have the same grade of rear mount but the forward pair on the Rolls-Royce Silver Spirit II and Silver Spur II are slightly softer for the best noise suppression and ride quality. Harder forward mounts contribute to the overall body stiffness of convertibles and the handling response of Bentley Saloons.

12

Suspension strut
The struts fitted to the rear suspension have two functions:

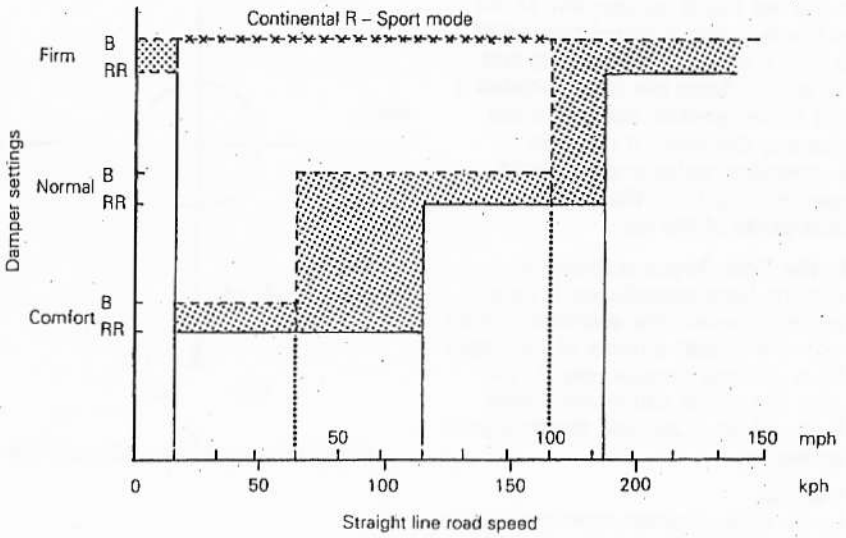
a) each contains a piston and valves and therefore acts as a damper which is part of the ARC system. As with the front dampers, the basic characteristic is firm but solenoid operated valves in the gas spring adapter at the top of the strut are controlled by the ECU to give the comfort and normal alternatives.

b) they are a part of System 1 powered hydraulic circuit and so form the basis of the levelling system. A height control valve mounted on the rear cross-member of the sub-frame is linked by a small torsion bar to the anti-roll bar. Any change in load which is likely to affect ride height affects the attitude of the anti-roll bar and is immediately sensed through the torsion bar by the valve, which in turn either admits high pressure fluid to the strut to 'jack up' the car and restore the correct height or releases fluid back to the reservoir to reduce ride height. A 7-15 second delay is built into the system to avoid any conflict with normal suspension movements.

Apart from giving constant ride and handling characteristics regardless of load, the levelling system also brings the advantage of consistently correct headlamp aiming.

Automatic ride control – Rolls-Royce and Bentley damper settings compared

NB The Bentley Continental uses Rolls-Royce settings



The position of the strut has been carefully considered. Because it is mounted downstream of the wheel the damper vertical movement will always be greater. The result is superior wheel control and a high standard of primary ride (that experienced over undulations).

Soft rubber bushes at the base of each strut absorb small wheel movements to give a very good secondary ride quality.

13

Trailing arm
The geometry of the trailing arm rear suspension keeps the wheels close to the vertical during cornering. As a result, the tyre tread stays flat on the road with benefits in terms of:

a) grip
b) cornering power
c) water clearance on wet surfaces
d) reduced tyre wear

The rear track dimension is 1537mm (60.5in) for Rolls-Royce models, 1549mm (61.0in) for Bentley models.

14

Rear sub-frame damper
A short hydraulic damper is fitted at each front mount position to cut out the unwanted natural shake frequency of the sub-frame. Another aid to refinement.

Wheel movements

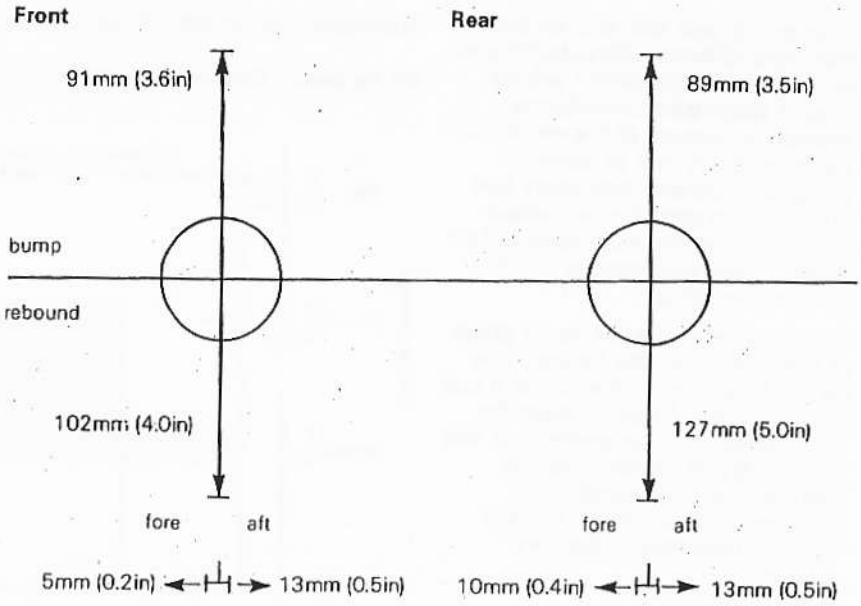
Compliant

Fore-and-aft compliance is the ability of a suspension system to absorb loads fed into it horizontally as, for example, when a wheel negotiates a bump. If undesirable steering and handling effects are to be avoided it has to be carefully controlled but, properly designed, it reduces suspension noise and prevents road shocks from disturbing the occupants of the car.

In the Rolls-Royce suspension system, front compliance is mostly achieved within the suspension itself with the rubber mounts of the upper lever playing a major role. At the rear, the whole sub-frame moves fore-and-aft to provide the horizontal springing.

Vertical

Large vertical wheel movements give the suspension great suppleness and provide the basis of the first class ride.



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Summary

- smooth and refined torque convertor transmission
- unique electric gear range selector
- comprehensive attention to noise suppression
- very relaxed cruising capability
- transmission positively locked when ignition key removed

Related Sales Directory sections

Controls
Security

The Bentley difference

All saloons

* gear range selector mounted on centre console

Turbo R

* higher overall gearing

Turbo R and Continental R

* Sport mode for greater response at high speeds
* higher change points

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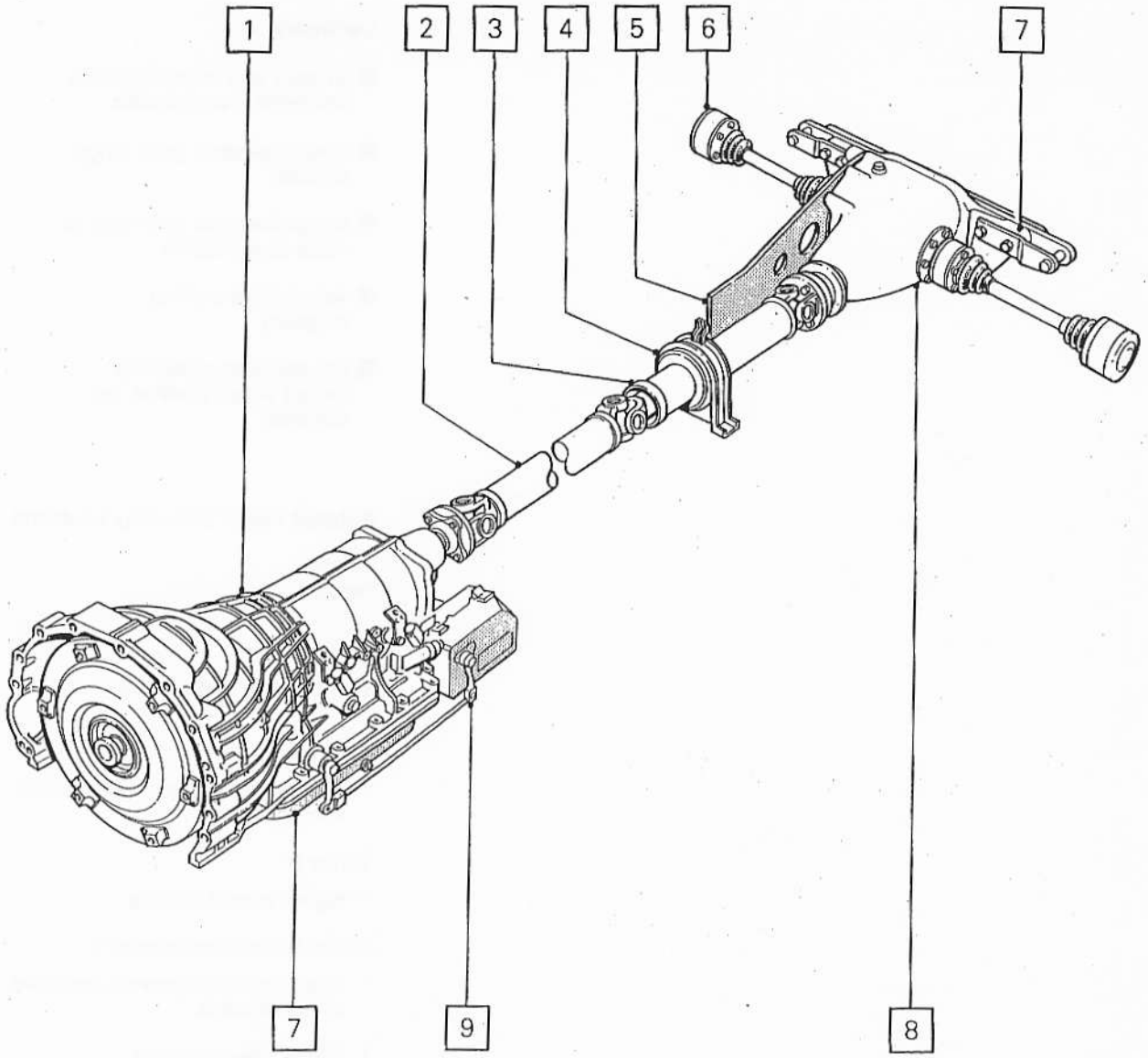


Effortless performance, efficiency, simplicity of control, absolute silence and great refinement are the design objectives for the Rolls-Royce transmission system. To achieve them, a fine automatic gearbox (automatic transmissions were first offered on Rolls-Royce and Bentley cars in 1952 and became standard in 1954) is coupled to a high geared final drive unit designed and built to exacting standards by Rolls-Royce Motor Cars. An advanced electronically controlled four-speed transmission was introduced in December 1991 (44001) and led to a number of other changes to a drive-line which incorporates several refinements aimed at eliminating noise and vibration.

1

Gearbox

The gearbox is a highly developed, very refined and extremely smooth four-speed torque converter transmission. The top gear is a geared-up overdrive ratio (third gear is the direct drive) and this combines with a lock-up clutch, which avoids the effects of torque converter slip, and a higher final drive ratio to give **significant gains in fuel economy**, particularly at cruising speeds.

The gearbox is electronically controlled. An electronic control unit mounted beneath the driver's knee roll constantly monitors and processes information on speed, throttle position, transmission fluid temperature, engine speed, gearbox input and output speeds and brake operation to determine the precise moment at which to operate a clutch or change a ratio.

Electronic control also permits a greater degree of flexibility in operation. Gear change points, for example, are programmed to suit the performance characteristics of a particular model. In addition, the driver is provided with a switch (marked, appropriately, with a snowflake symbol) to select a **Manual** mode in which first gear is locked out and the gearbox progresses as quickly as

possible to the highest ratio available within the selected range - an aid to safety in slippery driving conditions. On turbocharged cars, an additional switch (marked with an S) selects Sport, a third mode programmed to give upward changes at higher speeds and so make the gearbox more responsive to the demands of the sporting driver. On the Continental R, selection of this mode also switches the automatic ride control system into its firmest setting. Whether Manual or Sport is selected, the gearbox automatically reverts to normal mode whenever the ignition is switched off.

A third benefit of electronic control is a diagnostic capability. The electronic control unit constantly compares actual with programmed performance and any discrepancy is interpreted as a fault and noted in a memory. Later interrogation enables a service technician to diagnose any malfunction very rapidly.

Ratios:

first	2.48:1
second	1.48:1
third	1.00:1
top	0.75:1
reverse	2.08:1

2

Propeller shaft
The introduction of the shorter four-speed gearbox has led to the adoption of a two-piece propeller shaft with three universal joints. The two halves of the shaft are, like all rotating components, carefully balanced to close limits after assembly to ensure vibration free operation.

3

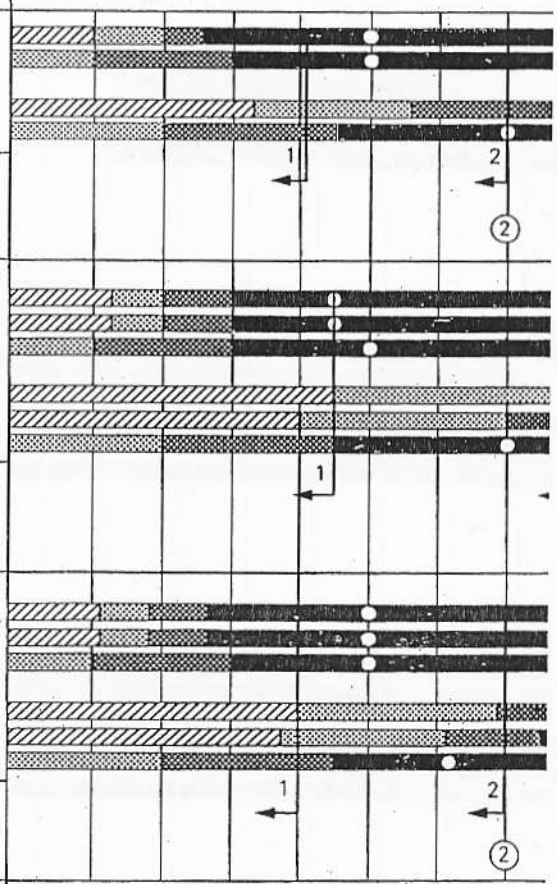
Splined coupling
A splined coupling in the rear portion of the propeller shaft enables changes in drive-line length arising from suspension, sub-frame and engine movements to be accommodated.

4

Central bearing
A central support bearing was introduced with the two-piece shaft and contributes to the overall refinement of the drive- line. It is mounted on the front cross-member

Four-speed automatic gearbox – ratio change points

Models	Condition	Mode	Gearchange speeds
Silver Spirit II Silver Spur II Corniche IV Touring Limousine Brooklands Continental	Minimum throttle	Normal (*) Manual	
	Full throttle	Normal (*) Manual	
	Maximum kick-down speed		
	Maximum speed – manually selected gear range		
Turbo R	Minimum throttle	(S) Sport Normal (*) Manual	
	Full throttle	(S) Sport Normal (*) Manual	
	Maximum kick-down speed		
	Maximum speed – manually selected gear range		
Continental R	Minimum throttle	(S) Sport Normal (*) Manual	
	Full throttle	(S) Sport Normal (*) Manual	
	Maximum kick-down speed		
	Maximum speed – manually selected gear range		
Road speed		kph mph	0 50 100 0 10 20 30 40 50 60 70



KEY: First gear Second gear Third gear Top gear O Lock-up

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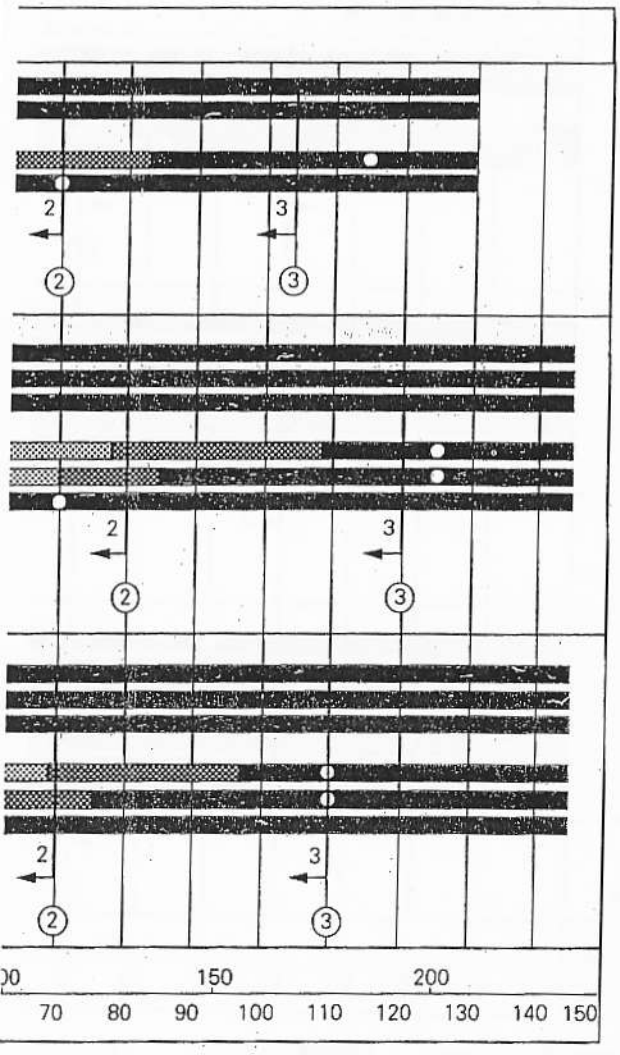
of the rear sub-frame. As the sub-frame is isolated from the body shell by rubber mounts, the location ensures that no noise or vibration is transmitted into the body structure. A ball race supports the rear portion of the shaft.

5

Torque arm
A solid aluminium arm rigidly bolted to the forward cross-member of the rear sub-frame controls the twisting action of the final drive unit which is a natural result of the turning forces applied through the propeller shaft.



Lock-up clutch engagement speed

6

Constant velocity joints
Löbro constant velocity joints fitted at both ends of each drive shaft contribute to the impressive level of drive-line refinement by eliminating any roughness, especially that which might occur when suspension movements bring large angular displacements of the shaft. Those specified for the Turbo R and Continental R, are 17% bigger in order to handle the greater power and torque of the turbo charged engine.

7

Cross-member
The cross-member carrying the final drive unit is an integral part of the rear sub-frame being rigidly attached to the forward cross-member by six tie-rods. The whole sub-frame is attached to the body structure through four horizontal rubber mounts. The rearmost cross-member is filled with foam over aluminium oxide grains to damp out noise generated within the final drive unit.

8

Final drive unit
The final drive unit is rigidly mounted on the rear sub-frame. The differential housed inside it is built and tested by Rolls-Royce Motor Cars with extreme care to ensure silent operation.

Engine power and torque are such that high final drive ratios can be specified for relaxed and refined high speed cruising without sacrificing overall acceleration.

A 3.07:1 final drive ratio giving 35mph (56.3kph) per 1000rpm in top gear is specified for all cars except the Turbo R which has a higher 2.69:1 ratio giving 40mph (64.4kph) per 1000rpm.

9

Gearbox actuator
The electric gearbox actuator is built by Rolls-Royce Motor Cars and is a feature unique to Rolls-Royce and Bentley cars. The driver's gear range selector lever is actually an electric switch and the work of selection is done by the actuator. The advantages are:

a) a very light and precise control
b) no noise path from the gearbox to the interior of the car
c) a readily engineered anti-theft provision (removal of the ignition key automatically engages the parking pawl regardless of the position of the lever).

The latest actuator design brings the electric motor within the aluminium casing and is both smaller and lighter than before. A tamper proof linkage between actuator and gearbox makes it even more difficult to by-pass the anti-theft provision.

Since its introduction in the 1965 Silver Shadow, the unit has established very high standards of reliability.

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Summary

- tight quality control to ensure roundness
- tyres developed in conjunction with Rolls-Royce Motor Cars and made to demanding specifications
- priority given to handling, steering response, road holding, quietness and durability
- handed wheel nuts
- 165mm (6.5in) wide alloy wheels with locked hub caps and safety hump

Related Sales Directory sections

Exterior features – Silver Spirit II
Exterior features – Silver Spur II
Exterior features – Silver Spur II Touring Limousine
Exterior featuers – Bentley Brooklands and Turbo R
Exterior features – Rolls-Royce Corniche IV and Bentley Continental
Paint and interior trim
Security

The Bentley difference

All models

* distinctive wheel styling
* black walled tyres

Brooklands

* unique wheel design with octagonal centre motif

Continental

* enamelled badge to hub cap

Turbo R

* 190mm (7.5in) wide alloy wheels with locked caps, safety hump in well and embossed badge
* VR rated low profile tyres – no whitewall variant
* higher tyre pressures specified

Continental R

* 406mm (16in) diameter wheels with embossed winged B
* ZR rated low profile tyres – no whitewall variant

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Wheels

Because wheels and tyres can be a source of vibration and harshness, Rolls-Royce Motor Cars insist on the highest possible specifications for both.

The wheels are spigot mounted – a very accurate method which minimises any eccentricity and out-of-balance forces.

The fixing studs have handed threads on either side of the car so that the motion of the wheels tends to keep the nut securely tightened. The fixing nuts are made of brass, a metal which does not corrode.

Five types of wheel are to be found in the current Rolls-Royce and Bentley range.

6½JK x 15 alloy
Rim diameter: 381mm (15in)
Rim width: 165mm (6.5in)
Application: Rolls-Royce models

With the introduction of the Silver Spirit II, new alloy wheels replaced the pressed steel wheels previously specified. An additional 12.7mm (0.5in) rim width enables full advantage to be taken of modern tyre technology to further improve handling. The wheels also enhance the appearance of the car.

The wheels are cast in an aluminium-silicon-magnesium alloy of great strength, and then machined to very tight tolerances – to ensure perfect roundness and balance.

Notable features are:

a) a safety hump within the well to reduce the likelihood of a tyre becoming detached following a sudden deflation

b) typically comprehensive treatment against corrosion – primer, paint and a protective top coat of lacquer

c) a wheel trim which is locked in place for anti-theft security

d) better ventilation for more effective brake cooling.

The Silver Spirit II wheel trim is made of stainless steel and has a central black plaque. That of the Silver Spur II and Corniche IV is of a different design and incorporates a separate steel ring (zinc-cobalt plated to prevent corrosion) which is painted to match the lower body colour and then decorated with matching fine lines. A stainless steel rim embellisher is fitted in both cases.

The Silver Spirit II wheel trim can be specified for other Rolls-Royce models at no extra cost but there is an additional charge if the Silver Spur II trim is ordered for a Silver Spirit II.

6½JK x 15 alloy
Rim diameter: 381mm (15in)
Rim width: 165mm (6.5in)
Application: Bentley Brooklands

Alloy wheels have been a standard feature of all Bentley models since June 1988 having been first introduced on the Turbo R. Technically, they are similar to those now specified for the Rolls-Royce range but have

(a) distinctive sporty styling
(b) a 6.4mm (0.25in) outward offset of the rim relative to the hub to give a 12.7mm (0.5in) wider track – a benefit to handling.

A specially designed wheel is specified for the Brooklands. The centre plaque has an octagonal form reminiscent of the wheel centre nuts fitted to the first Rolls-Royce designed Bentleys. It is to commemorate the sixtieth anniversary of the first 3½ litre models that all 1993 model year Brooklands have a green ground to the silver B on the centre motif. It will be black thereafter. The wheel also has a brighter silver finish which has been adopted for all Bentley wheels.

6½JK x 15 alloy
Rim diameter: 381mm (15in)
Rim width: 165mm (6.5in)
Application: Continental

The cap has an enamelled B symbol.

7½ J x 16 alloy
Rim diameter: 406mm (16in)
Rim width: 191mm (7.5in)
Application: Bentley Continental R

In order to maintain the same rolling radius as other models, the specification of low profile tyres for the Continental R has necessitated a wheel diameter 1in (25mm) larger. The wheel also differs slightly in appearance having only three intermediate spokes between each of the five primary spokes instead of five. The blind embossed winged B motif is also unique to the Continental R.

Tyres

The steel-based, low-profile radial ply tyres are specially developed for Rolls-Royce and Bentley cars by Rolls-Royce Motor Cars engineers working in conjunction with the tyre manufacturers. Production tyres are made to stringent specifications. The standards demanded are high – the tyres must:

a) be round

b) provide excellent grip in both wet and dry conditions

c) give the best possible handling and steering response

d) be quiet

e) have a long life

f) be capable of sustained cruising at high speed at an all-up weight of 2850+kg (2.8+ tons)

g) give a comfortable ride.

Whitewall tyres are standard on all Rolls-Royce models with black walled tyres offered as a no cost alternative. Black walled tyres are standard equipment on Bentley models but whitewall versions can be fitted at extra cost to all except the Turbo R and Continental R for which none is available.

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Rolls-Royce and Bentley tyre equipment

Maker	Type	Size	Models	Markets
Avon	RR Turbospeed	255/60ZR16	Continental R	all
		CR27 255/65VR15	Turbo R	all
	RR Turbosteel 70*	235/70VR15	not Turbo R or Continental R	all except N. America
Goodyear	NCT*	HR70 235/70HR15	not Turbo R or Continental R	N. America
	NCT	HR70 235/70VR15	not Turbo R or Continental R	all except N. America

* indicates availability in whitewall form.

Pressures

In order to maintain the designed handling characteristics and to minimise tyre wear, it is important that tyre pressures are regularly checked when the tyres are cold and the front-rear pressure differential is reserved. Full details of recommended pressures for various operating conditions are given in the respective handbooks and the tyre information label on the motor car.

Normal pressures are:

Model	Condition	Front	Rear
Silver Spirit II, Silver Spur II	up to 180km/h (110mph)	1.7 bar 24lbf/in²	1.9 bar 28lbf/in²
- Australian specifications	up to 140km/h	170 kPa 24lbf/in²	190 kPa 28lbf/in²
Rolls-Royce Silver Spur II Touring Limousine	up to 180kph (110mph)	2.1bar 30lbf/in²	2.3bar 33lbf/in²
Corniche IV	up to 180km/h (110mph)	1.7 bar 24lbf/in²	1.9 bar 28lbf/in²
Brooklands	up to 180km/h (110mph)	1.7 bar 24lbf/in²	2.1 bar 30lbf/in²
- Australian specifications	up to 140km/h	170 kPa 24lbf/in²	210 kPa 30lbf/in²
Turbo R and Continental R	up to 210km/h (130mph) with 4 passengers + 22kg (50lb)	2.1 bar 30lbf/in²	2.6 bar 37lbf/in²
- Australian specifications	up to 210km/h	210 kPa 30lbf/in²	260 kPa 37lbf/in²
Continental	up to 180km/h (110mph)	1.7 bar 24lbf/in²	2.1 bar 30lbf/in²

Winter tyres

Five types of winter tyre are approved for use in arduous climatic conditions. They should be fitted to either all four wheels or the rear wheels only. Their speed limitations should be observed; in every case, 120kph (77mph) is the maximum speed permitted if studs are fitted.

Maker	Type	Size	Maximum speed
Dunlop	Weathermaster SP44TTL	205-15	153km/h (95mph)
Firestone	Town & Country Snowbiter	P225/75-R15	120km/h (75mph)
Goodrich	MS Trailmaker	P225/75-R15	120km/h (75mph)
Goodyear	MS All Winter Radial	HR70-15	137km/h (85mph)
Michelin	XMS	HR78-15	160km/h (100mph)

Snow chains

Snow chains can be fitted to either standard or winter tyres but convertibles have insufficient wheel arch clearance to enable them to be put on standard tyres at the rear. Fitting chains to a convertible will require the prior fitment of 205-15 size tyres.

Approved chains are:

Gruppe 351
Pewag Austro S/A77S
Rud Kantenspur 06-237
Rud Kantenspur 07-745
Rud Super Griefsteg S8143
Thiele Nordland Eifelspur
Union S2 3081
Union S2 3082

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