

## Section H2

## Front shock dampers, road springs, and damper ball joints

### Introduction

The shock dampers are of the sealed unit type and no servicing is required. In the event of a damper becoming faulty, it should be discarded and a new damper fitted.

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

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

### Front road spring and damper - To remove

1. Drive the car onto a ramp; apply the parking brake and chock the rear wheels.
2. Fit the support plate halves of the road spring retention tool (RH 8809), around the lower section of the damper.

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

### Warning

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

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

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

Using extractor tool (RH 8100) release the ball pin taper from the triangle levers. Leave the taper loosely in position to support the damper.

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

Place the complete assembly into spring compression tool (RH 7909). Fit and secure the top plate of the tool to retain the spring (see Fig. H10).

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

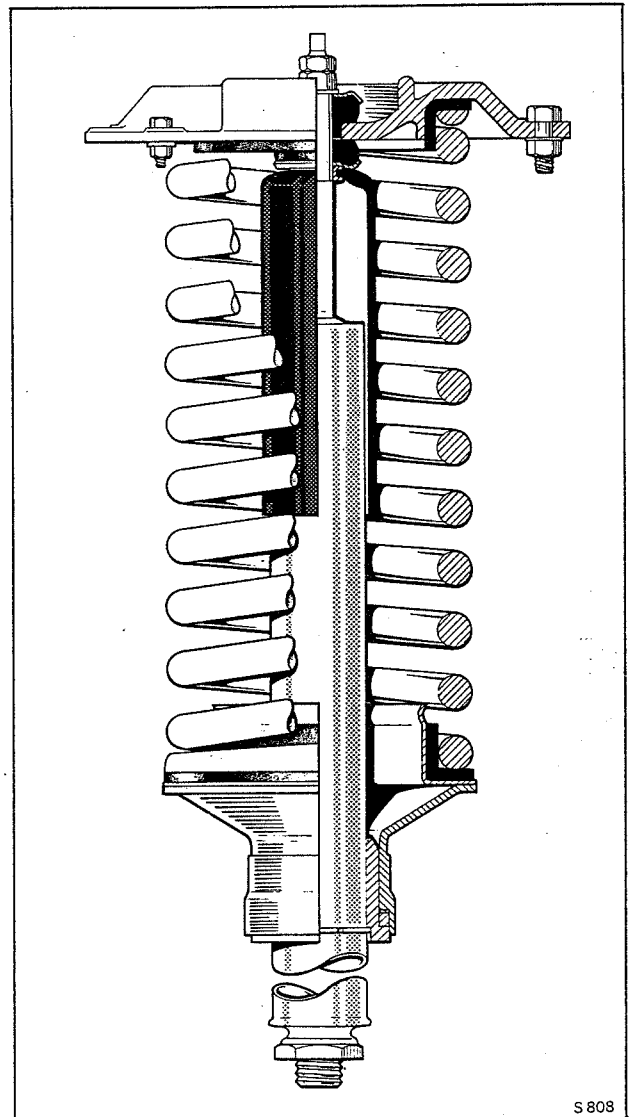


Fig. H8 Front shock damper and road spring arrangement

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

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

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

10. Examine all the components for serviceability and renew as necessary.

## H2 - 2

**Front road spring and damper - To fit**

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

1. Ensure that all the components are in a serviceable condition. Renew any components that are faulty.
2. Remove the protective cover from the damper stem.
3. Smear the bore of the spring support collar with grease. Locate the collar onto the damper and fit the protective cover, mounting washer, and rubber to the top of the damper stem.
4. Place the road spring and its associated components (see Fig. H10) into spring compression tool (RH 7909). Compress the spring to the measurement taken on removal.
5. Insert the damper into the spring assembly.

Ensure that all the components are correctly located, then fit the top rubber mount, distance piece, cup washer and plain washer onto the damper stem. Fit and torque tighten the retaining nut and lock-nut.

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

**Note**

Always fit the thinnest collets to the top of those selected (see Fig. H9). The original thickness of collets should be used if the original spring is fitted.

For spring poundage information refer to Page H2-3.

7. Fit the spring retention tool (RH 8809) to the spring assembly to retain the spring in its compressed

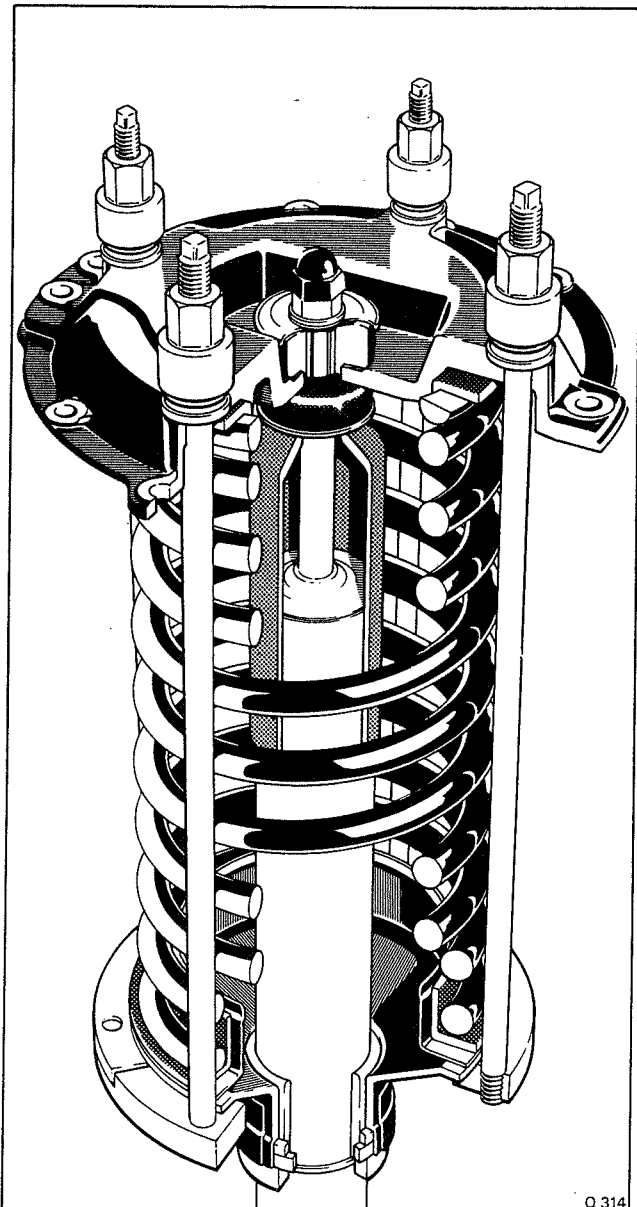


Fig. H9 Spring retaining tool in position

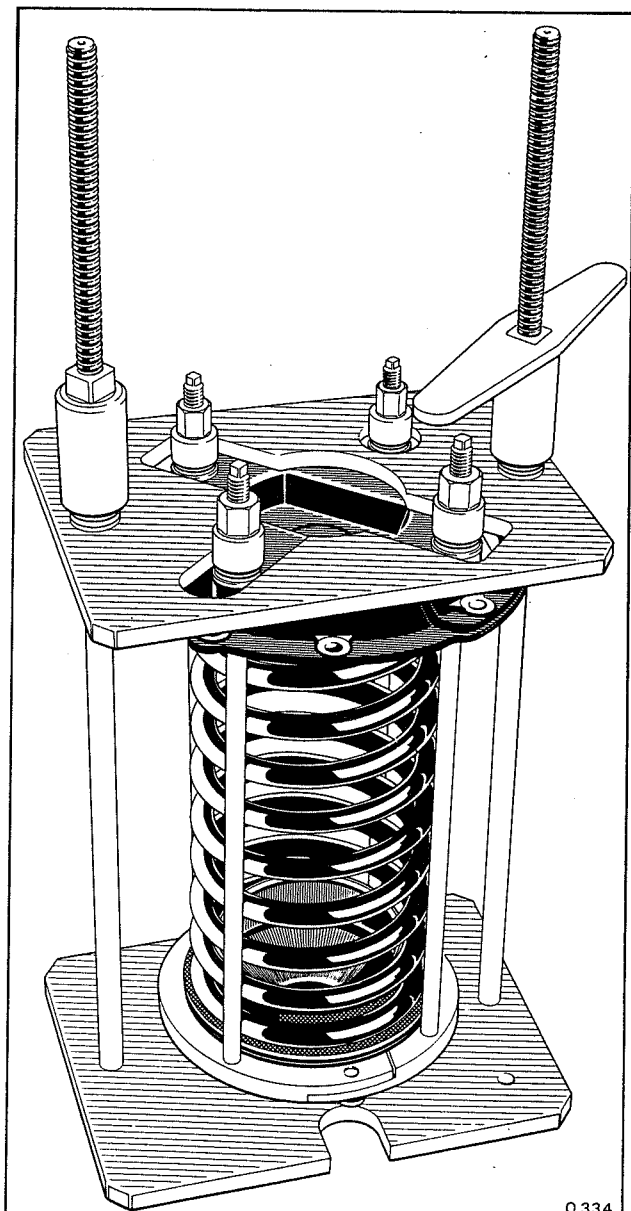


Fig. H10 Spring compression tool

Front spring loading chart	Cars other than those conforming to a North American specification		Cars conforming to a North American specification	
	kgf	lbf	kgf	lbf
Silver Shadow II and Bentley T2	822	1835	846	1865
Silver Wraith II	846	1865	878	1935
Corniche Saloon	822	1835	846	1865
Corniche Convertible	862	1900	878	1935
Camargue	862	1900	878	1935

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

**Note**

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

condition. Remove compression tool (RH 7909).

8. Fit the ball joint assembly to the damper.
9. Carefully lower the spring and damper assembly into the body.
10. Locate the damper ball joint taper into the triangle levers. Fit and torque tighten the castellated nut and insert a new split pin.
11. Bolt the upper spring plate to the body.
12. Carefully release and then remove the spring retention tool. Ensure that the collets are correctly entered into the spring support plate during removal.
13. Remove all jacks and support blocks.
14. After fitting the spring and damper assembly, remove the car from the ramp and drive it back and forth to allow the assembly to settle.
15. If the road spring has been renewed, check the car standing height as described in Section H5.

**Damper ball joint - To remove**

1. Carry out Operations 1 to 3 inclusive of Front road spring and damper - To remove.
2. Remove the split pin, castellated nut, and washer securing the ball joint.
3. Using extractor tool (RH 8100) release the ball joint taper from the triangle levers.
4. Raise the front of the car until the ball joint taper clears the ball pin carrier. Remove the ball joint from the damper.

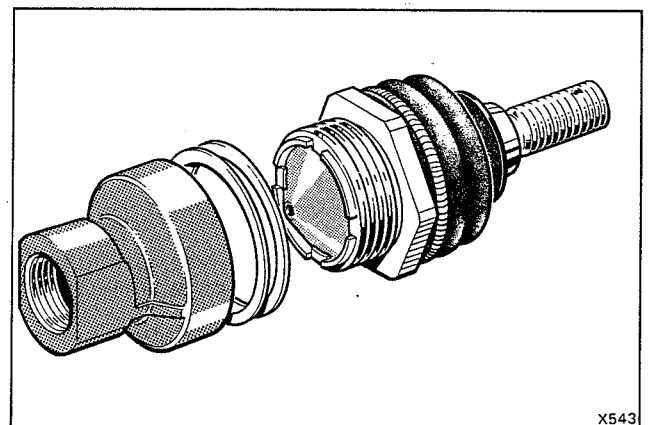
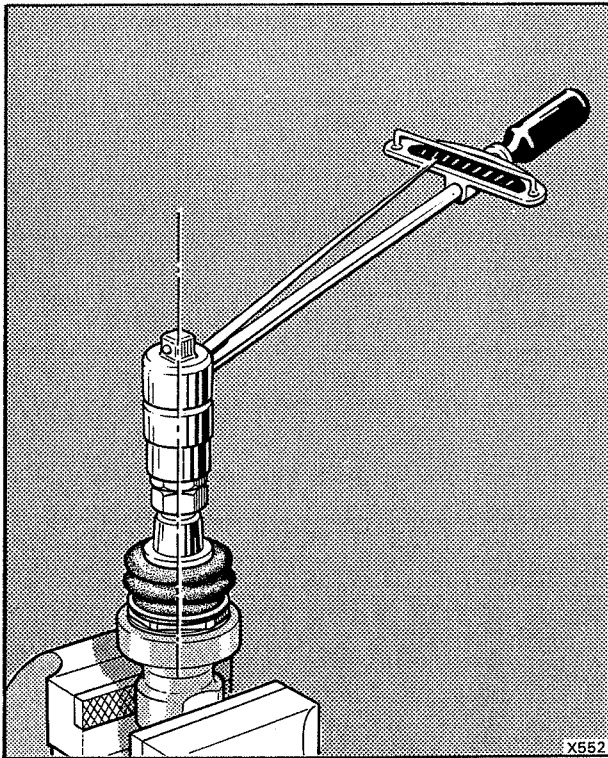


Fig. H11 Damper ball pin assembly

5. Unscrew the ball pin assembly from its housing taking care not to damage the protective rubber boot. Collect the pre-load adjustment shims (see Fig. H11).
6. Examine the ball joint for wear. Pre-load shims should not be removed to take up wear. Always fit a new ball pin assembly.

**Damper ball joint - To assemble and fit**

1. Ensure the components are in a serviceable condition.



**Fig. H12** Checking the ball joint pre-load

2. Hold the ball joint housing in a vice. Screw the new ball joint assembly into the housing without fitting the pre-load shims. Fit and lock together two nuts onto the ball pin (see Fig. H12).
3. Carefully tighten the ball joint into the housing until a torque of between 0,35 kgf. m. and 0,69 kgf. m. (30 lbf. in. and 60 lbf. in.) is required to rotate the ball pin. This torque figure should be measured after the ball pin has been rotated through four complete revolutions and with the ball pin in its vertical position.
4. Measure the gap between the ball joint face and the housing face.
5. Remove the ball joint from the housing and fit shims equivalent to the gap previously measured, onto the ball joint.
6. Fit the ball joint and shims to the housing and torque tighten the assembly to the figure quoted in Chapter P.
7. Check that the torque required to rotate the ball pin is within the limit given in Operation 3. If necessary make adjustments by increasing or decreasing the shim thickness to obtain the correct torque reading.
8. Fit and torque tighten the ball joint assembly onto the damper.
9. Secure the ball joint to the triangle levers and complete the operations by reversing the removal procedure.