



# **The Talbot Manual**

## **Technical Resource**

### **Chassis**

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# How to Reset Andre Shock Absorbers

## INSTRUCTIONS TO SERVICE AGENTS

The following table shows the correct initial Shock Absorber tension for the various types and different weights of cars:—

Type.	Approx. Weight of Car.	Initial Tension.
502/2 ...	... up to 20 cwt.	... 20 lbs.
506/2 ...	... over 20 cwt.	... 25 lbs.
502M/2 Multiplex ...	... over 30 cwt.	... 20 lbs.
506M/2 Multiplex ...	... over 40 cwt.	... 25 lbs.
220 ...	... ..	... 28 lbs.

To reset and adjust, clamp one arm of the Shock Absorber in a vice and test the tension with a spring scale attached to the outer end of the other arm.

If the tension registered is different from that shown in the above table, turn the adjusting nut in the direction necessary to secure the required tension—to the right to increase, to the left to decrease. Mark the ring or outer-edge of the Shock Absorber opposite the pointer. Turn the adjusting nut to the left until the dial is free, counting the number of revolutions—complete turns—in doing so, and then move the dial so its zero (0) is opposite the mark previously made on the outer ring. See that the spider spring is in its place and tighten the adjusting nut, giving the wrench the same number of turns as before, but in the opposite direction. The pointer should be at the zero (0) mark when the requisite tension is obtained.

This gives the original adjustment at which the Shock Absorbers were set at the factory.—Re-attach the Shock Absorbers to the car and move the indicator to the adjustment which was found to give the best results or re-adjust according to the instructions above.

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# GENERAL INSTRUCTIONS FOR THE INSTALLATION AND ADJUSTMENT OF

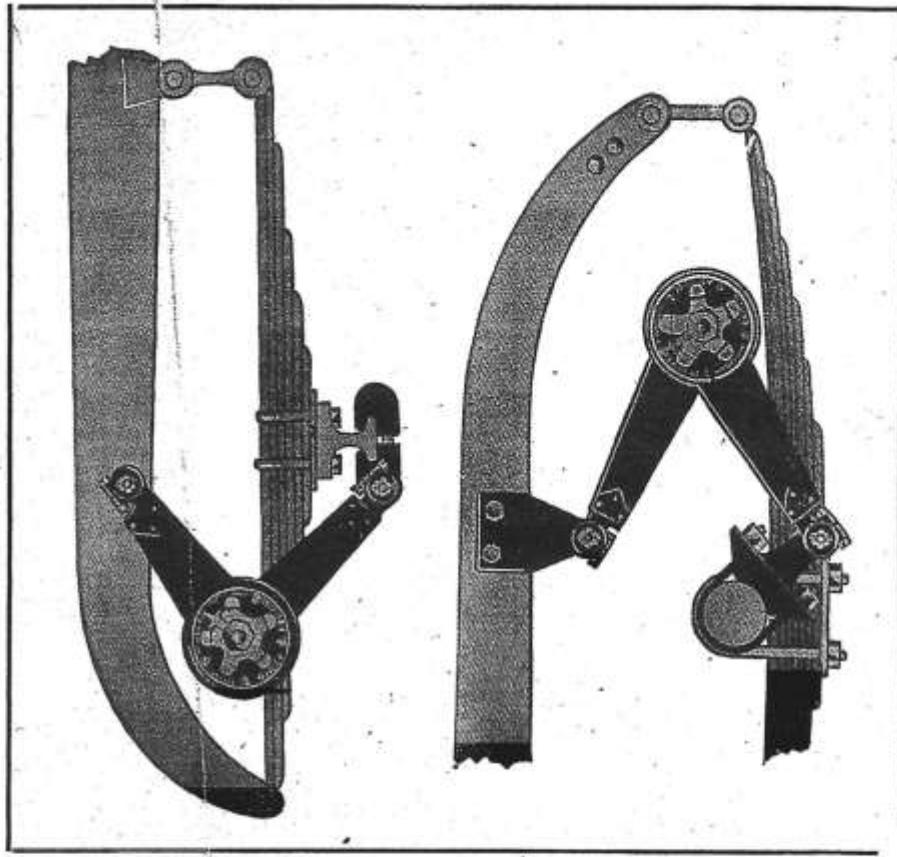


Illustration showing one method of fitting Andre Shock Absorbers, using standard Universal Brackets.

## How to Install Andre Shock Absorbers

STANDARD TYPES 502/2, 506/2, 502M/2, 506M/2.

To obtain satisfactory results the Shock Absorbers must be carefully and properly fitted to the chassis. Study the blue print and special instructions supplied with every equipment. Place one Shock Absorber in position and secure lower bracket, then locate chassis bracket. Mark off the position of the bolt-holes on the frame, and drill and bolt bracket into place. The double arm is attached to the axle and the single arm to the chassis. In the case of the M. or Multiplex types, the reference would be the double and triple arms in their respective positions. The opening of the absorber arms should be approximately as shown on the blue print which should be always less than a right angle.

### SINGLE ARM TYPE.

The special Single Arm models are designed for use on a number of cars to which the standard types cannot be easily applied. They are attached either direct or by means of a fixing plate to the chassis frame, and the single arm is connected to the front or rear axle by means of special link and axle brackets supplied. The arm and link is provided with "SILENTBLOC" bearings exactly similar to the standard models.

### THE "SILENTBLOC" BEARING.

The famous "SILENTBLOC" Articulating Bearing is used in all Andre Shock Absorbers, and consists of an inner and outer steel sleeve, the space being filled with a special rubber material which is stretched in position and is therefore always under sufficient tension to prevent any movement taking place between the rubber and the outer and inner sleeves. The movement necessary to allow the Shock Absorbers to function takes place in the material itself without friction or slipping, therefore there is no wear, no lubrication or attention required, and further the elastic nature of the material also allows for the absorption of lateral strain and for the two parts to flex in relation to each other.

The "SILENTBLOC" bearing has been adopted after extensive and exhaustive tests under all conditions of service, and represents a most important advance in the adaption of Shock Absorbers to motor cars as it not only provides a perfect type of flexible coupling, but also eliminates all wear and consequent rattle so common with other models used.

It is important to note that the Andre Shock Absorber is the only one to which SILENTBLOCS are fitted.

## How to Adjust Andre Shock Absorbers

### FITTING INSTRUCTIONS.

The illustration shows exactly how the "SILENTBLOC" Coupling at the end of the arms of the Shock Absorbers is to be fitted to the bracket pins. The centre tube is mounted on the chassis pin and locked in position by means of a special cone nut which registers in the chamfer provided at the end of the central tube.

### SPECIAL NOTE.

The cone nut must not be tightened until both arms of the Shock Absorbers are in position on the chassis, so that the "SILENTBLOC" Joint is in the neutral position and any movement of the arms either up or down, will, therefore, flex the elastic material each way from the neutral position.

### ADJUSTMENT.

Each Shock Absorber is set to a certain initial tension before it leaves the factory (see schedule). No change in this adjustment should be made until the car has been driven about 100 miles on good and bad roads.

Carefully note the riding qualities of the car. If the spring action seems too free, increase the frictional resistance of each Shock Absorber by turning the centre adjusting nut to the right or clockwise by not more than one graduation at a time.

If the spring action seems too retarded and feels stiff, reduce the frictional resistance again by turning the adjusting nut to the left or counter-clockwise. Careful adjustment in this manner will produce an ideal condition. The springs will still have the required amount of flexibility for easy riding, but spring vibration will be reduced to a minimum, and violent rebound effectively eliminated.

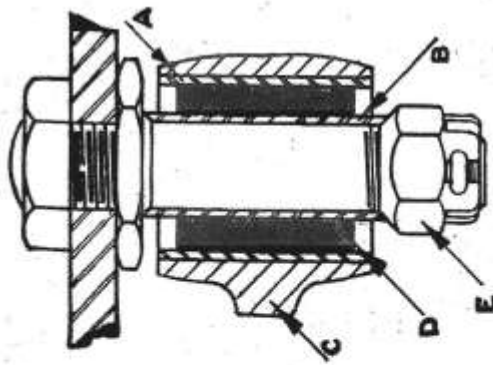
Re-adjustment may only become necessary after several thousand miles of car travel, and should be made only when the spring movement seems too free and then the indicator should be moved not more than one-half of a graduation at a time.

It should be noted that the full benefit of the Shock Absorbers will not be felt when the car is travelling at low speeds, as under these conditions the spring movement is very limited, but as the speed increases their effect becomes more pronounced, especially over bad roads when the spring action is most severe.

Testing should therefore be carried out at comparatively high average touring speeds and adjustments made to suit these conditions.

### IMPORTANT.

The frictional resistance required to effectively control the action of the springs is comparatively small, and care should be taken not to increase the pressure, when adjusting, more than is absolutely necessary to obtain the desired results. The initial Factory setting of the Shock Absorbers is approximately correct under normal conditions, but fast Sports Cars and for Track Racing a considerable increase in pressure may be required.



A—STEEL LINER. B—STEEL BUSH  
C—EXTENSION D—ELASTIC BUSH  
E—CHAMFER CASTILE NUT



# Shock Absorbers need Attention

**A** CERTAIN amount of information on these units will be very useful, as often they are not always thoroughly understood, and while their general principle may be known to most mechanics, rather more detail is necessary. The servicing can be split up under the following headings:—

- (1) Recuperation and Pumping.
- (2) Leaks.
- (3) Adjustment.
- (4) Cotters.
- (5) Loose Reacting Blocks

and it is intended to deal with them in that order. The illustrations provided

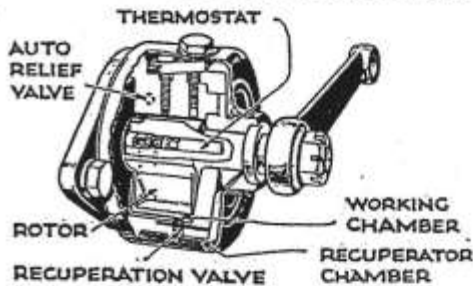


Fig. 1

here should be followed, as reference to them will be made from time to time.

## (1) Recuperation and Pumping

Provided that the supply chamber or reservoir is filled with fluid to the correct level through the filler plug, the actual recuperation of the working chamber (Fig. 1) is automatic, the fluid being lifted through the valve at the bottom of the working chamber by the pumping action of the rotor when there is any shortage in it.

Provided the shock absorbers have not developed a leak, ordinary recuperation consists of refilling the supply chamber to a point just below the filler plug. It is most important to leave an air space in the top of the chamber, otherwise there is no room for the air to escape from the working chamber into the supply chamber. To obtain this air space we suggest that the shock absorber is filled and then a small quantity of fluid is drawn off by means of a syringe.

## Special Testing Clamp

If the shock absorber shows evidence of a leak, it becomes essential to remove it from the vehicle. It should then be secured to the special clamp shown in Fig. 5, so that it can be tested. Shock absorbers should not be held in vices, as this will possibly distort the fixing flanges. When the unit is clamped, it will probably be found that the rotor arm moves with practically no resistance over a portion of its total traverse, this being on account of the fact that there is air as well as fluid in the working chamber. If air has been present for

## 1. Recuperating and Adjusting Luvax

some time it will have become thoroughly mixed with the fluid, which will then be in an emulsified state. If there is any suspicion of this it must be expelled immediately, as the unit cannot correctly function under such conditions. After a little experience, the existence of fluid in this condition can be felt by the springy feel of the rotor arm.

### Examine for Aeration

The next step should be to examine the fluid in the working chamber. To do this, remove the adjusting screw and move the rotor arm slowly. This will force a sample of the fluid across the top of the adjusting screw hole, and if this appears to be frothy and aerated, the working chamber must be completely emptied by turning the shock absorber so that the fluid filling hole points downwards. This has the effect of draining oil from the body, which should afterwards be flushed with petrol, and the unit returned to the vertical position. It will then be necessary to recuperate the shock absorber.

Force into the working chamber as much Luvax Shock Absorber fluid as possible, with a syringe, through the adjusting screw hole, then replace the adjusting screw. There will then still be a small amount of air in the working chamber, which can be felt by the free movement of the arm. To complete the operation, fluid should be poured into the supply chamber, and the rotor arm moved backwards and forwards until all free movement has disappeared. While doing this, the rotor arm must not be forced beyond the point where fluid resistance is felt, as this will tend to cause emulsification again.

When the working chamber is filled with fluid, the supply chamber can be topped up in the manner described

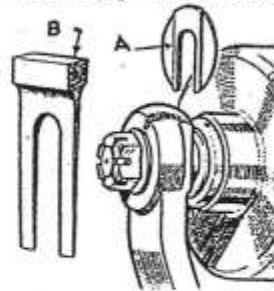


Fig. 2

earlier, remembering to leave the prescribed air space. **Pumping.**—When the filler plug is removed and the shock absorber is working, no movement of the fluid in the supply chamber should be visible. Movement, however, indicates that fluid is pumping from the working chamber into the supply chamber.

This may be due to a number of different factors which cannot be dealt with in an ordinary service station. It is, however, possible that unsuitable fluid has been used, which has caused clogging of the valves, in which case the working chamber should be emptied as described earlier, flushed out with petrol (see the following paragraph), and filled again with fresh fluid.

### Flushing the Shock Absorber

The correct way to carry this out is to pour petrol in the working and supply chambers, and then work the rotor arm. Having done this as much of the petrol is emptied away as possible, and the remainder removed by either the use of compressed air or leaving the unit for a short time with the filler plug and adjusting screws removed.

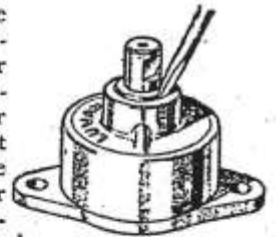


Fig. 3

## (2) Leaks

An examination of the diagrams given will show the "C" ring gland which is used on all except the very latest type of shock absorbers. This gland is "C" shaped in section, and it will be noticed that the thin edge lies along the shaft and acts in a similar manner as the leather seal on the piston of a tyre pump.

An essential feature of this type of packing ring, is that the gland is supplied with fluid from the supply chamber, as it keeps the edge of the ring in a supple condition and causes it to cling to the shaft. There should, therefore, always be a certain amount of fluid just behind the ring. In fitting new glands it is advisable to soak them in warm oil so that the gland is softened before it is fitted.

### Useful Gland Tools

From the above it will be realised that the thin edge is of extreme importance in this type of gland; therefore care must be taken in storage, etc., that the edge is not damaged. As a matter of fact, the leakages which are experienced with the type of gland in question are found to occur at the other end of the "C," and when the gland is tightened it is at the latter point that the tightening of the gland cap cures the leak.

Should it be necessary to tighten the gland, it is recommended that the tools shown in Fig. 2 should be used. The portion of the tool A should be placed over the gland cap on the shock absorber, then the wedge B is driven in between

(Continued on next page)

# Leakages in Shock Absorbers

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A and the rotor arm, which naturally tends to force the gland down. In view of the time which is saved in carrying out the adjustment with proper tools, it would be well worth while making up these simple parts. If it is found necessary to renew the gland the metal cap may be levered out with a chisel, i.e., the chisel is driven up the side of the cap, which is then levered off as shown in Fig. 3. It will, of course, be necessary to remove the arm to do this, and a new cap will be required.

With regard to gland leaks, a rubber gland is now fitted, in which the shaft does not actually move, i.e., the movement is absorbed in the elasticity of the rubber on the same principle as the

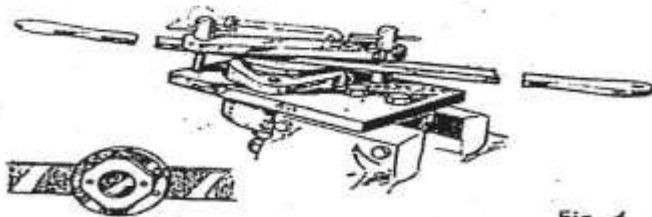


Fig. 4

tight rubber bushes used in the links. This new gland is not interchangeable with the old type.

The other points where leakages might occur are at the metal cup forming the outside of the supply chamber on the original types, where it was secured to the fixing flange by set screws. A cork washer is fitted at this point, and if it is found that the set screws are already fully tightened it will be necessary to replace the cork washer, using "Hermitite" to ensure a good sealing. On the latest type, it will be found that the supply chamber is a fixture on the back plate, and thus leaks cannot occur at the same point as that just described. Leaks may, however, occur on the other side of the fixing flange. The base plug is screwed in at this point, and if the shock absorber is held in the jig shown in Fig. 4 the base plate can be tightened with the special spanner illustrated. If the leak cannot be overcome by this method it will be necessary to return the unit to a Lucas depot for repair.

It should be pointed out that it is not wise to attempt to remove the base plates of these units, as this is a rather difficult operation to carry out without special apparatus, and also no real advantages are gained by so doing.

## (3) Adjustment

For the average service station the following methods of adjusting shock absorbers will be found most satisfactory,

but if any difficulty is experienced in obtaining accurate synchronisation of units by this method, they should be returned to a Lucas depot to be timed.

(1) Check the action of the unit, which must be progressive, i.e., the resistance must increase proportionately to the speed of the arm movement.

(2) Make sure that the unit is free from air.

(3) Ascertain that its operation is not impaired by gummy oil. This can be achieved by moving the rotor arm vigorously for a few moments.

(4) Use a rotor arm of reasonable length; a suitable one can be made between 18 inches and 2 feet long.

(5) Two or three tests should be taken to obtain an average.

Keep a master shock absorber, known to be correctly adjusted, firmly anchored in some suitable position, so that its resistance can easily be compared by feel with the rotor arm on the unit to be adjusted. If a small range of master shock absorbers is obtained, namely, one set at 8, one at 10, and one at 12 seconds, practically any setting can be arrived at by any fitter with a little experience.

## (4) Cotters

On certain types of shock absorbers the arm is secured by a cotter. Should these cotters work loose without damaging the shafts, replacement cotters can be obtained which are left oversize, and thus the arm can be satisfactorily refitted to the shaft.

If the flat on the shaft itself is worn by the presence of a loose cotter, this difficulty can be overcome by changing over the shock absorber from one side of the car with that from the other, so that the cotter can then be used in the cotter slot in the shaft, which has not previously been used, and is therefore in a new condition.

## (5) Loose Reacting Blocks

On some of the types with screwed bases, when the shock absorber is being recuperated, it will be observed that the adjusting screw moves slightly as the arm

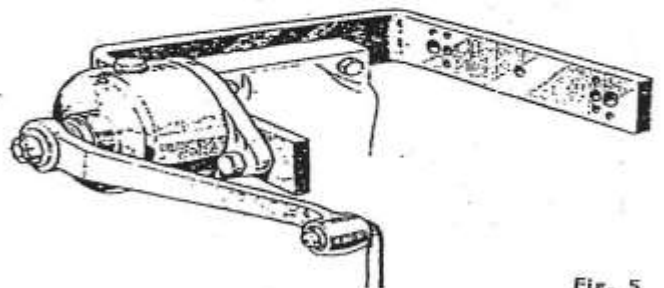


Fig. 5

is moved. This indicates that the reaction block is loose, and this difficulty can be overcome by tightening the large base plate in the same manner as if a leak had occurred.

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# Notes