

TECHNICAL TIPS

LEAF SPRINGS

These notes apply to even the early post war cars as they still had leaf springs at the rear. Until the advent of the 25/30 Wraith and the Phantom III all Rolls-Royce and Bentley cars had leaf springs at both front and rear. The main leaves were made with solid forged eyes and were machined and ground all over. From approximately 1929 onwards, the leaves were cadmium plated to give corrosion protection. All this was enclosed in leather gaiters made by Wefco. The gaiters kept lubricant in and dirt out. With the passage of time and wear and tear the springs grow tired and lose their 'set' becoming lower and flatter. Worse still the ends of the lower leaves rub grooves into the underside of the upper leaves. The spring then ceases to act as a spring and becomes virtually a rigid bar. The gaiters crack and the stitching gives at the corners letting water and road dirt in. Shackle pins and bushes wear and get sloppy allowing for poor axle location and consequent bad handling and steering.

Dealing with springs is a dirty heavy job but makes a difference to the ride of the car. Always do things equally on both sides of the car – not just one spring without the other. The springs should be removed from the car and totally stripped by clamping them firmly in a large vice and removing the centre bolt and guide clamps. Even tired springs still can pack a punch so be careful to release the vice slowly. Mark the order at each leaf and which end is at the front (or rear). Clean and degrease the leaves and then examine their condition. If any leaves are broken, new ones will have to be made to pattern by a specialist firm, (Jonas Woodhead, Dunston can do this work.) Use a hand held grinder with approximately 4" dia. x $\frac{5}{8}$ " wide wheel to grind out and blend the wear grooves on the underside of the leaves at each end. These are stress raisers as well as stops for the sliding of the lower leaves, so this is a most important operation. Prior to taking the springs off the car you should have noted if the car looked low or had a lean to one side. If so the springs should be heat treated and reset to maker figures (obtainable from the RREC at The Hunt House) by Woodhead of Dunston.

Thoroughly clean the leaves to remove all grit etc., and re-assemble the spring in the vice using very liberal amounts of graphite grease on all surfaces. You will probably need to order new gaiters from Wefco, still in business at Bristol, they should have all the sizes for Rolls-Royce cars but if not they will send you a measurements form to fill in. If the shackle pins and bushes are worn then order new ones. The bushes must either be pressed out in a hydraulic press or be drawn out with a big, long, bolt and nut, with spacer tubes, washers etc. When fitting new bushes they may need to be reamed to suit the pin after they have been fitted. Do not forget to drill the oil holes. Any side play between the shackles and spring eyes must be taken up by fitting brass washers, which must be machined in a lathe to the appropriate thickness.

Post War cars with leaf springs at the rear have just the same wear problems with the leaves but the shackle pins and bushes are threaded and made from hardened steel. Eventually even these can wear, particularly if short of oil. Always check that the one shot chassis lubrication system is working as it should.

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