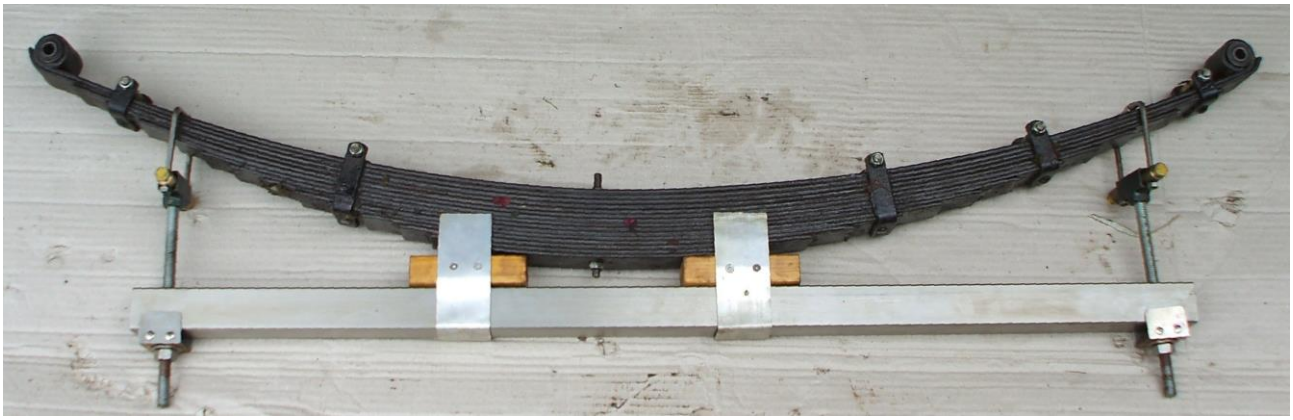
The continued saga of Roadster Rear Springs by Paul Alting van Geusau

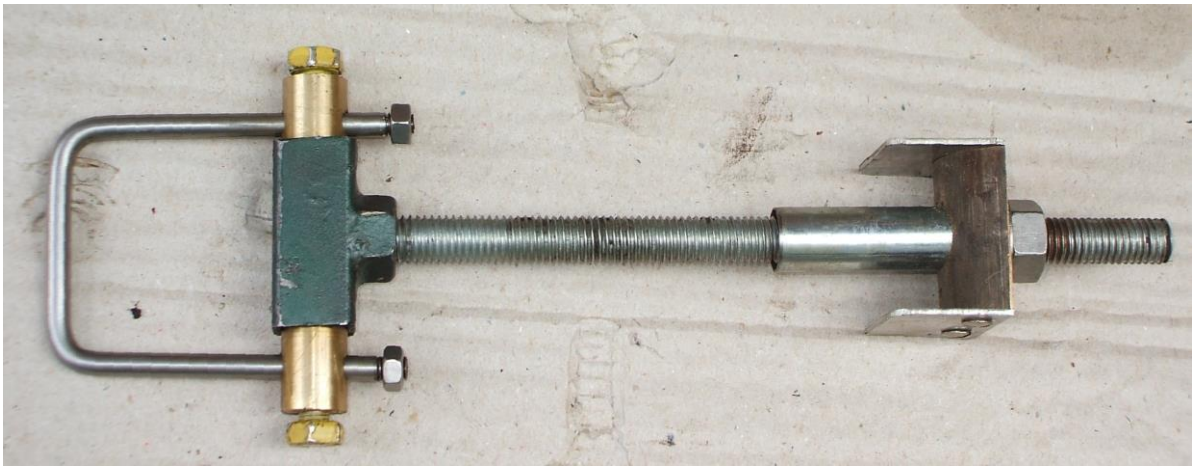
The rear spring change article by Ron Cromar and Roger Pearce also motivated me to do something about the more and more obvious sagging of my rear springs.
It was very nice indeed to have an article with detailed information and good pictures to start from but having already gone through the procedure when restoring my Roadster, I remember experiencing the same difficulties as Ron and Roger when trying to line-up the lugs and spring bushes when inserting the pins. Also the feedback remarks in the July/August Review, although giving a further workable solution, do not make the job particularly easy, especially if there are no extra hands to rely on.

The spring straightener tool
The David Riley spring straightener concept, also used as a basis for Ron Cromar's nicely made tool, is in principle suitable for the job. Starting from this concept, improvements so as to provide simpler adjustment, improved access to the spring U-bolts fixing points and stability under load, were my goal.
The modifications I made will be clear from the following pictures. Because of using a square tube of a width slightly smaller than the width of the springs and single tensioning screws going through holes in the tube as well as providing supporting blocks having walls between which the spring is kept in place, the spring straightener is fully stabilised in the transverse direction of the straightened spring while allowing free access to all mounting points, including the nuts for the U-bolts. Adjustment is improved by fastening only a single nut on threaded bars, pulling centrally under each end of the spring. Because swivelling movement of the threaded bars must be allowed - this is necessary because the spring gets longer during straightening - some further adaptations were made (see pictures).

The spring straightener fixed to a rear spring (not Roadster)



Below is a detailed picture of one of the U-bolts that pull on the spring as depicted above. The U-bolt is mounted in a round bar (brass) that can swivel in a square tube to which the threaded bar is fixed. The U-bolt length is adjustable and can be fixed with the yellow screws. The bottom end-piece is made from a round bar, cut into halves so as to provide a cylindrical surface for rolling on the surface of the square tube. A tube is pressed into this half-piece and side plates are fixed to it for guiding this part of the pulling mechanism against the square (40x40x2mm) tube (Of course a simpler construction is possible but I wanted to use mine for a large range of different springs, like the asymmetrical spring shown above with the straightener).

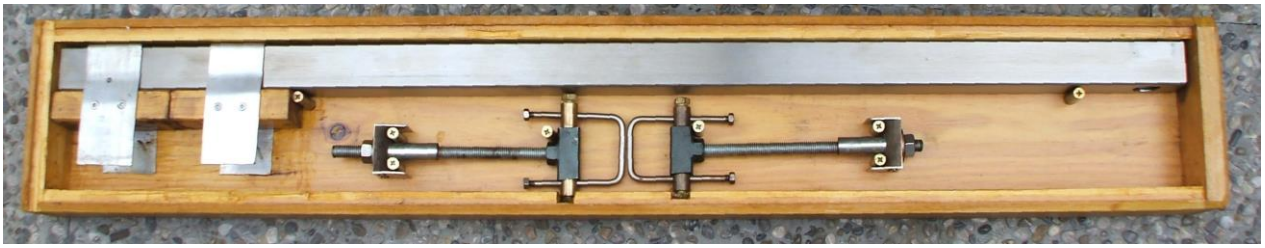


Refitting procedure

The straightener and spring are assembled to form a unit which is put in position under the car and is lifted by a small jack to abut the rear axle mounting plate. Now being held in place by the centre fixing pin, fastening or releasing
the nuts on the treaded bars of the spring straightener tool gives very accurate one-hand adjustment allowing easy lining-up of the front and rear spring-eyes and lugs for insertion of the pins. (What helps of course, in particular when inserting the long pins, is a slight chamfer at the leading edge, as hinted at by Ron and Roger). The nuts for the U-bolts are also put on after which the spring straightener tool can be taken off the spring. Final tightening-up of all the nuts should be done with the car standing on its wheels, as was also noticed by Ron and Roger.

The supporting wooden blocks for contacting the middle of the spring are slidable and can so be adjusted to leave enough room for access to the nuts for the U-bolts.

It will not come as a surprise that this spring straightener worked extremely well and allows safe manipulation without any help by a second person. It now has its own tool box and is available to Roadster owners in the Munich area who need to do their rear springs.



The springs

In the TRIUMPH service manual I found the remark that "resetting of road springs is rarely satisfactory, but where such resetting is unavoidable it should be carried out by a competent spring-maker. Where springs have settled, and an examination fails to disclose any damage or broken blades, it is usually preferable, in the absence of a replacement spring, to add an additional spring blade rather than to attempt to have the spring reset".
I assume that the specialists referred to by Ron and Roger are indeed experts in this field and that springs reset by them are again in an "as new" condition.
My experience with resetting springs is somewhat negative: sometimes the car becomes too high on its wheels or there is a difference in height between the left and right hand side of the car, or very soon the springs start sagging again (in my case). Therefore I was hesitant to have my springs reset a second time.

I just wanted the rear of my car slightly higher so that, when looking at the side of the car, the front and rear wheels had the same clearance in the wheel arch of the mudguards. Furthermore a somewhat more progressive spring action should be provided, so as to avoid that, with passengers in the dickey seats, the axle would too easily touch the bump stops. What could be done to achieve this and what alternatives were available to adjust the spring characteristic?

Having a look at the original drawing of the Roadster rear springs, as published in the October 2004 issue of the Roadster review, it was apparently initially foreseen to provide springs with 4 x .165in. (8Gauge) (top leaves of spring) combined with 10 x .148in. (9Gauge) thick leaves, adding up to a total package thickness of 2.14in. (53,6mm).
My car has 15 leaves of .165in. thickness with a package thickness of 2.25in. (56,4mm), and judging from the photos in Ron and Roger's article, their springs also appear to have .165in. leaves only (?).
However, I found reference in the 1948 - 1949 issue of Technical Service Data, of rear springs having 4 x .180in. (7G) combined with 11 x .165in. (8G) leaves for the 18T Roadster.
So apparently different sets of springs were used on the Roadsters and this may also be the explanation for the fact that some Roadster owners have difficulties with sagged springs while others have not encountered such problems.

According to the information in the Technical Service Data, the 18T saloons had rear springs of the same overall length as those of the Roadster however with 13 leaves two of .180in. and 11 of .165in. thickness.
Looking further at cars with similar width rear springs as the Roadster I found that the 1950's Renown had longer springs but also a combination of different thickness leaves (6 x .180in. with 9 x .165in.). The same length of springs was used on the Standard Vanguard 1948 having 12 leaves of .180in.

Considering these combinations it occurred to me that replacing a number of my .165in. leaves by .180in. leaves would allow fine tuning of both the spring characteristic and car height although finding the optimal would probably require much trial and error.
Long ago I obtained a spare set of Roadster springs (as the seller told me…), which proved to be 1948 Standard Vanguard springs (because they had 12 leaves of .180in. thickness!). Useless as a replacement so why not use 7 of those .180in. leaves for replacing 7 x .165in. leaves of similar length in my Triumph rear spring package? The total package thickness would increase a bit but my U-bolts were long enough to accept the new rear spring package. Moreover the thicker leaves were long enough to be cut in accordance with the length of the leaves to be replaced.

And see there, the result was just what I had hoped for. Have a look at the picture yourself! Also the progressivity was improved without the springs becoming too hard. Everything's perfect now at the first go!!
Since the springs leaves are all used leaves and have thus settled there, is hardly a risk that sagging will take place.

I understand that not all Triumph Roadster owners have spare springs available for such an exercise and if you are happy with your springs leave them as they are. Hopefully the above considerations are useful to those members of the club that look for alternatives when repairing their springs with a view of adapting the characteristic to their specific needs.

As a matter of interest the drawing published in the October 2004 Review shows a front transverse spring with 3x 8G and 16x 9G (19 total) leaves. The 1948 – 1949 Technical Service Data mentions 2x 8G and 15x 9G (17 total) leaves. This appears to be another hint that production cars had different springs than the ones originally envisaged.