Correcting Wear in Lathe Saddles

by R. A. Ganderton

IN HIS SERIES on "A First Affaire With a Lathe", Derek Beck mentioned in passing the wear that had occurred in the saddle of his Myford lathe and that one day he would get round to giving some thought to correcting it.

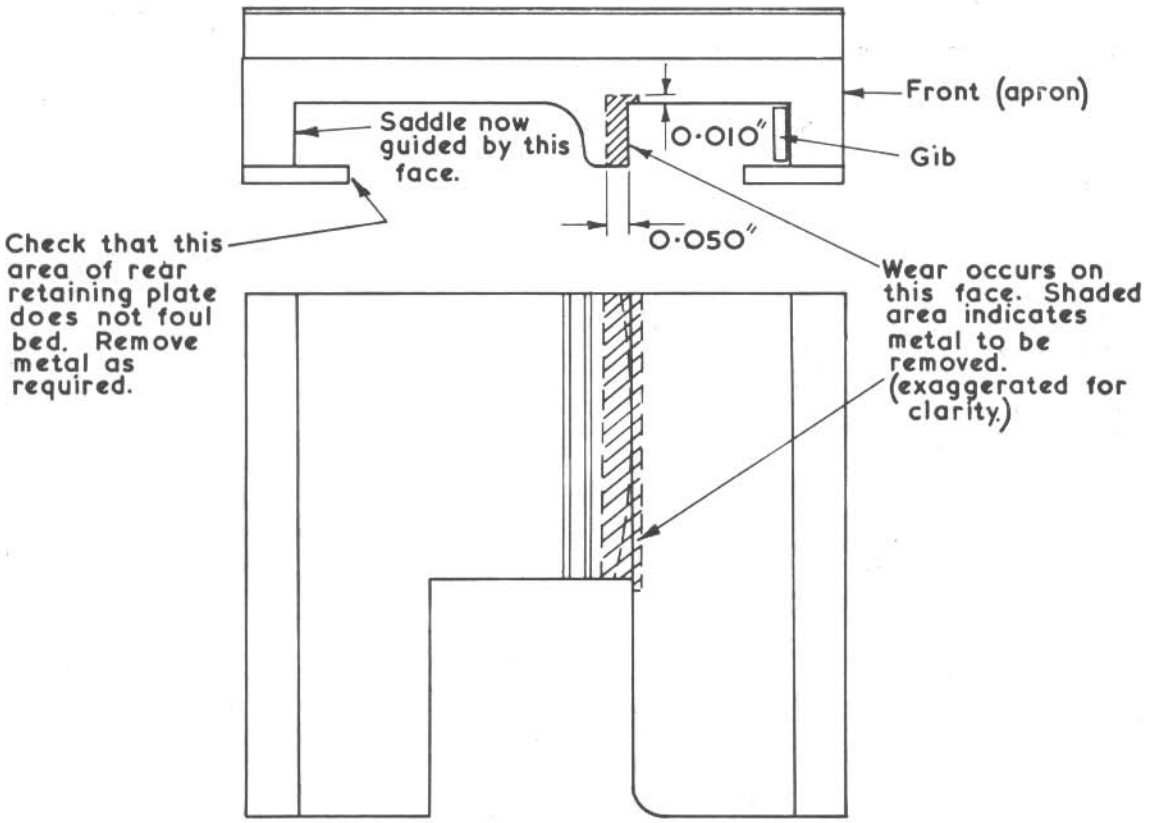
Mr. Radford also suffered from the same wear problem and did manage to solve his by a rather complicated, and also to my way of thinking, suspect, manner.

When two years ago I managed to purchase a secondhand Super 7B one of the first problems that arose was the looseness of the saddle near the headstock coupled with tightness at the other end of the bed. I at first put this down to bed wear and even went as far as to get a quote from Myford for a bed regrind.

However, before committing myself to this drastic step I decided to perform some measurements on the bed to see exactly what degree of wear had occurred. Using a 2 in. micrometer I found that the maximum wear on the vertical shears of the bed was only a matter of less than one thou. and that the wear on the top surfaces was of the same order. Obviously this was not the cause of the variation in tightness and also was not large enough to be the cause of the errors I was getting in facing and in parallel turning.

I then remembered that Mr. Radford had had similar troubles and the appropriate issue of "M.E." was consulted. My wear measured by Mr. Radford's method was identical to his and some thought was given to performing the same operation on my machine.

However, I felt that it was unnecessarily complicated and that in any case how can the saddle bear on two parallel surfaces at the same time? No, a simpler method had to be found.



View of underside of saddle

Why not just use the back face of the saddle against the rear shear of the bed? The saddle was removed and the wear was immediately apparent. The short inside face of the saddle was worn in a curved manner and this not only was allowing the saddle to rotate slightly but also meant that when the gib was adjusted for no slack at the headstock end, the saddle was tight at the tailstock end. Also the rear inside face of the saddle was obviously machined and was not doing anything! The only doubt was what effect moving the saddle over towards the front of the machine would have on the apron fixing.

I decided that the apron could be modified if necessary to accommodate the 0.035 in. of movement needed to bring the rear face of the saddle into contact with the rear shear of the bed. In the event this proved to be unnecessary as there was enough slack in the bolt holes to accommodate it.

A look at the saddle indicated that the easiest way to perform the operation was to mill away the worn face completely. The saddle was placed, inverted, on the vertical mill and held in the machine vice (in my case a Dore vice) by the vees of the cross-slide guides. With a small end mill the worn face was cut back for a distance of about 0.050 in., allowing about 0.015 in. running clearance. The horizontal face was also relieved slightly as shown in the diagram so that the newly machined part did not touch the bed.

The machine was reassembled carefully and properly adjusted and a trial cut taken over the faceplate. The result was exactly as it should be—very slightly convex by about 0.001 in. over the full diameter of the faceplate.

Since then I have successfully performed the same operation on two other Super 7s with the same satisfying results. Confirmation of the soundness of my modification came when, on visiting the Myford stand at this year's Model Engineer Exhibition, I found that Myford themselves now make the Super 7 this way!

The milling operation is easy if one has access to a vertical mill—mine is a Centec 2A universal mill—but unfortunately it cannot be carried out using the lathe itself. If one has a friend with a Super 7 or ML7 it could possibly be carried out on his lathe. One advantage is that no great accuracy is required, merely that one removes completely the offending chunk of the saddle.

One further point is that the retaining plate for the felt wiper on the front end of the saddle must be cut away to clear the inside front shear of the bed. It is not necessary to cut the felt wiper however, just the metal retainer. Also the rear horizontal retaining plate may need reducing in width to clear the bed casting.

My lathe, and the other two, now face and turn accurately and the saddle moves along the bed easily from one end to the other, with the added advantage that the saddle and tailstock now use different guide surfaces, helping to cut down future wear.