Modell Ost

Miniature Lokomotive u. Wagen Bau. England

www.modellost.co.uk info@modellost.co.uk +44 (0)1308 897 911

# BUILD NOTE

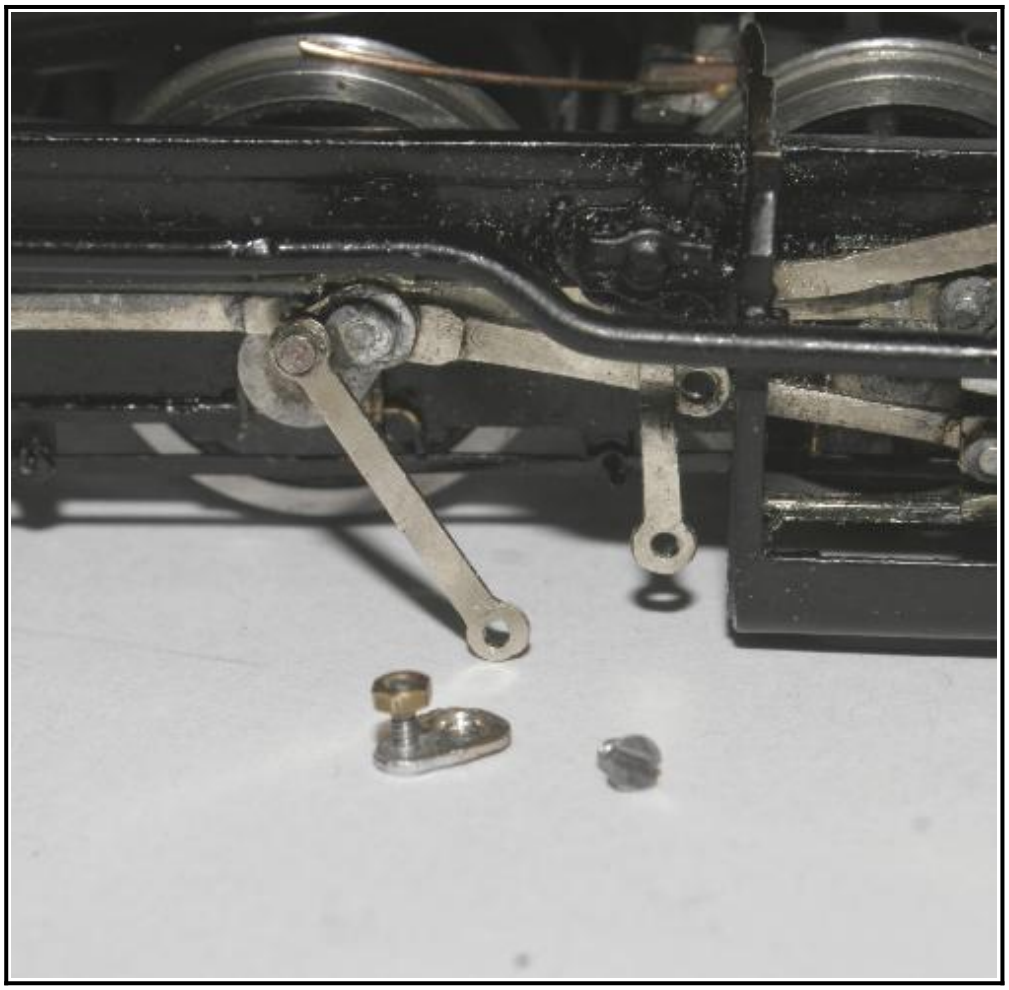
## Valve Gear Rebuild of Alan Gibson L and B Manning Wardle 2-6-2 in On14 1/43 scale

*The Alan Gibson model of the Lynton and Barnstaple 2-6-2 locomotives in 7mm has achieved something of a mythical status amongst UK 7mm scale NG modellers. Almost everyone has heard of the kit, but few seem to have seen one in the flesh. Apparently, only about 50 of these kits were ever produced initially. Designed by Roy Link, they could be built for both 16.5mm gauge and to the 'true' 14mm gauge in British 0 scale.*


*The Gibson 7mm L and B 2-6-2, finished in Southern livery.*

The problem with this particular model was its Joy valve gear. Or more accurately, that the pin securing the eccentric rod and vibrating lever to the correcting link had come adrift, jamming up the motion in the process. On closer examination, the aforementioned pin was a 14 BA screw, put in from behind the coupling rod, and then soldered over on the outside to secure it in place, with the rest of the motion then built up on top of that. The technique relies on interposing bits of paper between the various components that are then torn away afterwards, to both provide running clearance, and also to prevent the solder from creeping along the pivot and siezing everything solid.

As I wanted to disturb as little as possible of what was already there, I decided that given that there was still enough meat left in the coupling rod eye for a 12 BA thread, to replace the soldered in correcting link pin with a shouldered screw, set to sit flush with the surface of the correcting link. The shouldered screw was turned up on the little lathe, but I freely admit came out 'just right' very much more by accident rather than any skill on my part.

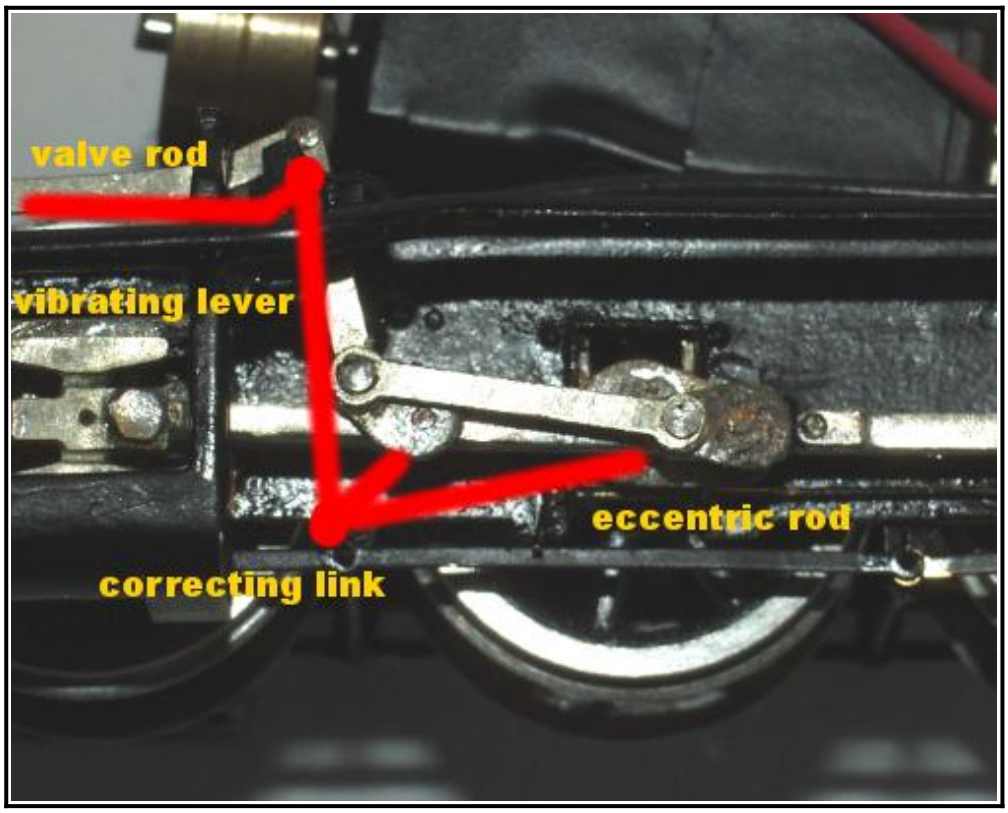


*Parts laid out preparatory to assembly - first attempt. The correcting link now also has a 14 BA screw soldered in from behind to replace the (second) riveted pin that formerly held the vibrating lever and eccentric rod.*

It is not a very elegant solution, as there is still a little too much 'wobble' around the countersunk screw head for my liking. In the process, the riveted pin securing the vibrating lever and eccentric rod managed to come out - which in hindsight made the job a little easier than it might have been - and had to be replaced with a 14 BA screw soldered in from the rear.

Using a screw meant that the rods and levers could be secured using a 14 BA nut, rather than a soldered on collar. I now use a Loctite 'lock and seal' compound for jobs like this, applied with the end of a pin to the inside of the nut. Getting such small nuts on can be a bit fraught, so I now pick them up first in the end of a pin vice, which is then twirled between the fingers to start the nut on its thread.

All went well until I ran the chassis on its side as a final check before refitting the body, when the original problem of the Joy gear jamming itself up against the motion plate manifested itself again several times. Being a bit of a doubting Thomas, I did check on the other - untouched - side, just to see whether I had missed something. But no, sure enough, it proved possible to replicate the same bind on the LH side of the engine, although there is more 'stick-tion' here, which seemed to be stopping the valve gear from moving too far out of kilter.




*Here's the problem. This is  the LH side, which I have not touched. The lines in red indicate the correct position of the Joy gear. Gear has been artificially moved to its 'foul' position. Note how the correcting link has swung 'upwards' around its connecting rod pivot , taking the eccentric link, vibrating lever (the vertical rod in the picture) all up with it.*

*This seemed only to take place if the model was held upside down or on its side, and if the various links unfortunately all happen to have stopped at the 'sweet spot' where gravity caused the swing to take place - which is of course in the 'downwards' direction. ('Upwards' in the image above - still with me? Good...)*

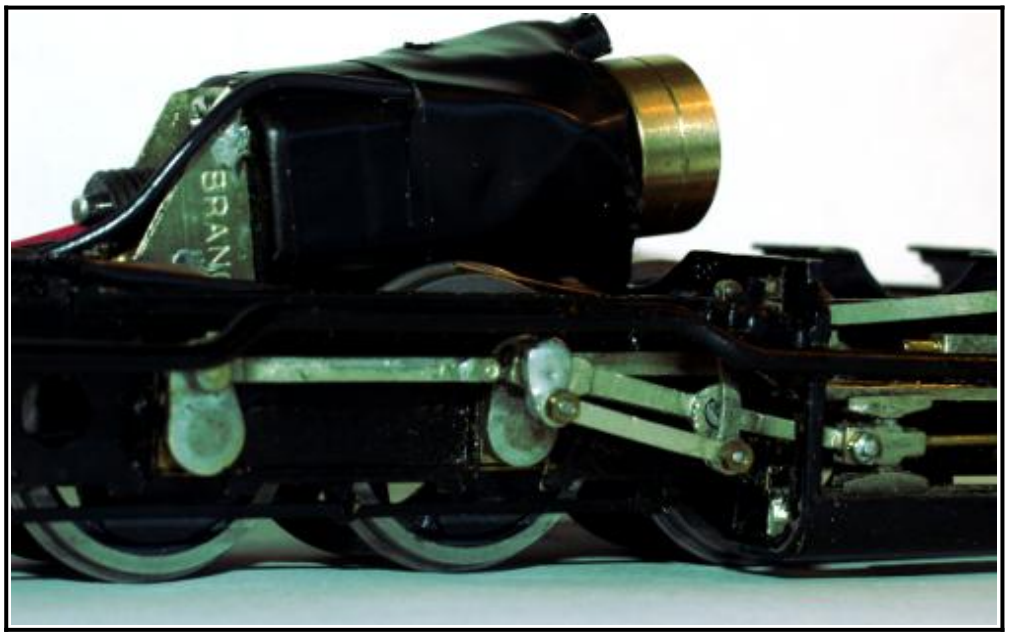
To cap it all, further investigation revealed that the eccentric crank on the driving wheel axle flycrank had started to shift on the RH crankpin. Thinking that the builder had used a 12 BA screw set in from the rear of the flycrank, and fearing the worst, I carefully unscrewed the eccentric anti-clockwise, all the while 'feeling' for any sign that the solder on the back face of the crank might be letting go rather than that on the eccentric. However, I needn't have worried, as it the event it turned out to be just a simple pin.

So, make up - another - eccentric crank, this time from 1mm thick brass plate, with the face filed down to give a raised area for the eccentric rod eye to sit upon, clear of any stray solder, drilled 1mm for the pin bore, and then drilled and tapped for a 14 BA screw  in like manner as when dealing with the correcting link. Yes I know, it is certainly not Good Practice to have screw threads as bearing shafts...but needs must when the Devil drives, and when the 'ole starts to get smaller than 0.80 of a millimeter, he's driving exceedingly hard in my book! By the way, I drill and tap small components like these  whilst they are 'on the bar' as it were, leaving the final shaping and cutting off until last. One, they are easier to hold, and two, if you do the 'mission-critical stuff early on, there is less time lost if things go pear shaped and you need to start all over.

Anyway, an hour or so later, everything was ready for the soldering iron, and the new return crank popped on. After having put the two 14 BA nuts on for the eccentric rod, I moved the wheels through a couple of complete revolutions by hand backwards and forwards to check that everything was still OK - with the chassis in its normal running orientation - though because of the 'braking effect' of the current pick-ups, checking for binding had to be done by 'wiggling' each link stage by stage with a pair of tweezers.

Incidentally, I did experiment by making up a shorter eccentric rod - you can't go longer, as the correcting link is already 'all-straight' with the return crank when it is about to 'flip' upwards - but as I did not want to reduce the length by more than 1mm or so, all this did was just take out some of the slack. Besides, I could see that by starting to alter the gear's geometry like this, problems might then occur with the piston rod fouling the top of the slidebars and valve guide.

All told, the correcting link had to come off and go back on again I think at least four or five times before the motion could be got to turn freely enough for my liking. So start to finish, there is probably something like seven to nine hours worth of work in a seemingly simple job like this. And that does not include making good with the paintbrush after either.



*New return crank, modified correcting link, 14 BA nuts secured with Loctite, all assembled on the model and awaiting return to the client.*

And there's now even a short clip of the model running now up on YouTube **HERE**
As per the image below…..