LMS 8F Overhaul

This document was written by Geoff King and was originally published by The Colchester Society of Model and Experimental Engineers in July 2008

I have just recently completed the first mechanical overhaul of my 3'/2" gauge LMS 8F after 12 years of running. During this time it has been steamed a total of 82 times and has covered almost 500 miles without any major work being done to the locomotive. Nearly all the mileage has been done with PTFE Flouroscint self-expanding valve spools to my own design fitted in the cylinders. Due to rusting problems in the cast iron valve sleeve bores the sleeves have now been changed to a bronze material. The new valve sleeves now fitted are also to my own design, using a large number of small holes [40 in numbers] drilled in the sleeve as ports. This is to help the soft PTFE to move smoothly over the openings without any risk of jamming. The holes are 1/16" in diameter and have a port area which is greater than that of the normally square holes used by many designers.

After tidying up a little of the scoring caused by the rust in the old sleeves the piston valves have been put back into use. It was thought that the piston valve PTFE parts would be "self-healing" and re-bed to a steam tight fit in the new bores. The pictures show the new valve sleeves and the old piston valves before they were refitted into the cylinders.

The other parts of the loco were examined for wear, mainly in the motion work moving parts. The worst wear was to be found in the knuckle joints in the coupling rods, where it was severe. They were bronze bushes with silver steel pins. These were replaced with hardened silver steel bushes and hardened pins throughout, Just why the knuckle joints were so badly worn is difficult to understand, as these joints are not expected to have much movement, except when the loco is run on bad track. Not a problem at the Colchester track.

Also showing excessive wear were the bushes and pins in the coupling rods. These were also bronze bushed the same as the knuckle joints. They have been re-bushed with cast iron bushes which I hope will be harder wearing than bronze. Just why these bushes should have worn is difficult to understand. When the new close-fitting bushes were back in place the wheels spun round normally, which proves that the quartering was not the reason for the wear. I am told that cast iron bushes were used in the side rods of locomotives during the war to save on bronze, but I can find no information as to whether this was successful or otherwise. Any ideas as to the reason for wearing of coupling rod bushes would be welcomed.

There was one other heavy wearing area on the 8F. This was the pin and bush in the little end of the con rod. This was as expected, as this is a very hard-working joint on any loco. A new hardened pin and cast-iron bush has now been fitted in the con rod and I shall see if this is an improvement in due course. Finally, whilst the boiler was off the loco it was given a treatment with a dose of kettle descaler. There was NO sign of any reaction to the descaler at all and the boiler was considered to be completely clear of all traces of lime scale. This proves that our use of 7 rainwater at the Colchester club site is the best practice to prevent boilers scaling up. I always blow down my boilers after a run to purge out any sludge from the boiler. As there is no such thing as

totally clean water this must be the only correct way to run your locomotive It is little known that rainwater acts as a scrubbing brush as it falls, removing dust floating in the air which would find its way into our boilers if we do not purge it out after a run.