

## L.M.S. 6 wheel 3000 gallon Milk Tank Wagon

Ref. 7073

### Historical Notes

Before the advent of motorways and modern lorries the only way to carry perishable goods was by rail. Milk was one such item and all four railways companies carried large quantities from country areas to the large cities, thousands of gallons every day were transported by rail. Early vehicles were on four wheel chassis with either 2000 or 3000 gallon tanks – although the 3000 gallon was the more common. However, in 1931 a new LMS 6 wheel chassis was introduced which proved to be very successful and by 1937 all the earlier 4 wheel vehicles had been re built on a six wheel chassis.

LMS diagram 1994 was first used in 1931 and became effectively the LMS standard diagram and was used for various lots until 1947. Unusually, the dairy owned the tank whilst the railway owned the chassis and as the tank was within a few inches a standard size it meant that the chassis whether built by the LMS/GWR or LNER was built to the same basic dimensions. The Southern also had six wheel milk tank wagons but as we have not seen any of the GAs of the chassis we cannot comment On any of the SR vehicles.

The early batches up to and including lot 881 were built with an outer cover packed a couple of inches away from the main tank and this cover had "air scoops" at each end to force air between the outer cover and the tank for cooling when the vehicle was in motion. However no vehicle after 1935 was so fitted and earlier vehicles gradually had the secondary covers removed, although there were some still fitted after the 2nd World War (see MRJ No. 105 page 239). The reason for the removal was said to be the difficulty in cleaning the spilt milk from between the cover and the tank with the result that the smell was distinctive to say the least.

### Livery

The dairies liked to use the tanks as a form of advertising and were painted various attractive colours such as the Royal Blue of Express Dairies or the Red of Nestle. We shall be introducing a range of transfers for these vehicles, which will contain the livery detail for the particular dairy. The chassis was usually painted black although there was at least one exception namely Express Dairy which had the solebars and everything above painted Royal Blue to match the tank. Other dairies may well have adopted a similar style and if anyone has any information on the subject we would like to hear from you.



## Assembly Notes

- 1 Cut out the underframe (Prt 3) carefully. A curved blade will fit into the small spaces easier than a straight blade or alternatively use a fine piercing saw.
- 2 Carefully clean any flash from the ends of the underframe so that the Headstocks (Bufferbeams prts 6&7) fit over the underframe ends correctly. There are "V" marks on the back of the headstocks these point to the top of the underframe at the same time clean out the coupling slots. Repeat the procedure with the solebars (prts 4&5) again note that there are "V" marks on the back.
- 3 The microstrip as detailed in Fig 2 can be fitted now although it will be necessary to remove small sections later to fit various parts of the brake gear, leave the two pieces where the drawbars fit as it will be easier to fit the lost wax cast drawbar cradle if you are able to partially lift the cradle out of frames.
- 4 Blacken the Drawbars and the Drawbar Cradle. A good blackening solution is a solution of Ammonia with copper carbonate dissolved in it. Hang the components in the solution for about 10 minutes until they have turned a dark brown colour. **WARNING** Ammonia is a highly noxious substance, it should be mixed and used outside and kept in a closed plastic container with a lid at all times, wear protective glasses and avoid breathing the fumes. When blackened wash the components in cold running water and dry. Fit the drawbars and cradle as per Figure 6. There are two lengths of drawbar hook, first take the longer of the two and fit through the Headstock making sure that the hook is the correct way up before you start, gently compress the coupling spring and spring it into the long end pocket of the drawbar cradle, now place the cradle between the centre pair of chassis beams and slide the drawbar through the spring (It is a good idea to fasten the chassis down with masking tape whilst performing this operation) compress the spring with tweezers with one hand and then bend the two legs at the ends of the drawbar at right angles to each other, now release the spring and fit the short drawbar into the cradle from the other end, the cradle spring will need to be compressed slightly until the two tails are inside the cradle and then bend the ends out again at right angles to each other and release the cradle. The two drawbars should now be in light tension between the Headstocks. You can now fit the microstrip across the two chassis cross-members locking the drawbars into place.
- 5 Now fit the axleguards (Prt 18) on one side, they locate on the spigots at the rear of the solebars and leave to set, next fit the brass cup bearings and then slip the wheelsets into the axleguards at the same time fit the opposite side axleguard, the web on the outer diagonal chassis member will need a small amount removing from it to clear the wheel flange. When the axleguards have set firmly adjust the brass bearing cups so that the wheelsets are central across the chassis, there should be NO sideplay of the wheels, lock the bearings into the axleguards with a dab of Loctite.
- 6 The brake shoes & Hangers (Prt 17) should now be fitted note that the shoes are handed and the rear of the shoe should be sliced away to match the profile of the tyre. It will also be necessary to slice away the flanges on the "U" channel where the hangers fit. The prototypes were also cut away in the same place! Make sure the pull beam-ends will fit through the holes in the brake shoes before fitting.
- 7 Before removing the various etchings from the fret it is a good idea to clean the small holes out with a 0.5mm/no 76/020" drill. Fit the pull beams through the shoes and then remove the etched brackets (Prt 43). Use a small square file to file out the etched crease line to form a 45 mitre edge and then fold the legs over to form a right angle, bend the legs as in fig 4. The

pull beam fulcrum is etched in 2 pieces, fold over carefully OUT of the crease so that the two halves come together with a gap in between this enables the ends of the pull beams to fit in the gap, at the same time fit the assembly in between the legs of the support brackets and push a short piece of 020" brass wire through all the various parts, when satisfied that everything fits correctly and lines up put a small dab of Loctite on to the assembly. Repeat the process at the other end and then trim the ends of the 020" brass wire flush with the supporting brackets. Cut out the "V" hangers (Prt nos. 40/41/42) and bend the two outer hangers to the diagram. The "V" hangers should be fitted so that they are joggled inwards, locate the two outer ones so that they locate on the lugs on the inside of the solebars and "Loctite" in place, cut the 1/16" dia brass tube off to length and thread the various linkages onto the rod including the centre "V" hanger, you will need to cut a slot in the channel web for the "V" hanger to fit into the "U" channel and again "Loctite" in place. Refer to fig 5 and link up the various brackets with the 020" brass wire supplied. This completes the most difficult part of the underframe, start fitting the remainder of the parts as detailed in Fig 5. When you have folded up the brake levers it is a good idea to run a small fillet of solder into the creases to strengthen the levers.

- 8 The chassis is now ready to have the etched splash plates fitted (prts 32/33) followed by the tank support packing pieces. Figure 7 shows six of the small packing pieces, this is the main variation that occurred over the years when these vehicles were being built so it is important to decide what period and which Lot you are building. The kit includes both types of packing pieces. It should be mentioned that the LMS re-numbered these vehicles in 1932/33 and blocks of numbers were allocated to each dairy.
- 9 The first lots had the four small packing pieces under the tanks as per photo 1. Sometime in their lives they had the extra pair of packing pieces added at the ends of the tanks, when is not recorded, but it may well have been in BR days, see photo no 2 of the same vehicle photographed at Appleby in June 1962. By 1933 four large packing pieces were being used and continued throughout the remainder of the build period of this diagram refer to photo 3. The other alterations were to the "sun shields", originally the shields had small reinforcing fillets at the ends but these were no longer fitted by Lot 881 built 1935, see photo no 4. Some time during 1935 the "sun shields" were dispensed with for all new built vehicles see photo of "independent Milk Supplies" on livery notes of Lot 874. The only other alteration appeared during the war years when "new build" tanks had tank top footboards fitted to the tanks, some earlier tanks had them fitted in BR days.
- 10 We are grateful for the help and use of photographs kindly loaned to us by David Jenkinson, Bob Essery and Peter Tatlow. in addition there are two books that will prove useful to the builder: - LMS Standard Coaching Stock part 1 published by OPC. Railways in Profile series No 4 published by Cheona Publications.

## **Tank Sun Shield Fitting Instructions**

- 1 Cut out cover and trim.
- 2 Using the tank section as a template drill cover using No.75 (0.55mm) drill, open out holes as necessary.
- 3 Tank filler fits through cover.
- 4 Use 0.015" x 0.052" microstrip to stand off cover.
- 5 Fit to completed tank.



**Photo 1**

L.M.S No. 1999 (Later 44179) as built to D1994 in 1932.

**Photo 2**

M44179 Lot 656, as photo 1 but photographed at Appleby in June 1962.



**Photo 3**

Lot 705 in 1933 of which Nos 44190-3 (left to right) are seen here.

**Photo 4**

No. 44198 of Lot 881 built in 1935.



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**Additional Note**

The couplings supplied with this kit are of the 3-link variety. The coupling hook has a small slot designed for a screw link type if the builder wishes to fit this type. The slot is too narrow for 3 link type to slide through the slot and as on the prototype it is necessary to file a "flat" onto the centre of one of the arms of the links so that the flat end section simms down through the slot and then rotate the link to the normal hanging position.