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OPERATING INSTRUCTIONS

L & B “LYN”

SAFETY FIRST

All our locomotives are safe to run, and will give many hours of pleasure, providing the following safety procedures are followed: -

- 1. Please read the instructions thoroughly before running for the first time.**
- 2. Always do a complete refill of gas, oil and water. Never refill just the gas to prolong the run.**
- 3. Never let the engine run out of water.**
- 4. When refilling the gas, do not have any naked flame present, and NO SMOKING!**
- 5. Do not pick up the engine by the bodywork, chimney or boiler, especially when hot.**
- 6. Only pick up the engine by the buffer beams and, when hot, use old gloves or a cloth.**
- 7. Do not stand over the chimney. Ejected boiling water or steam may cause serious injury.**
- 8. Do not open the smoke box door while the engine is alight.**

General Hints

As with all operating machinery, whether model or full size, wear will occur. In the model steam locomotive much can be done to help prolong its life and decrease the amount of time required in the workshop for servicing.

Keep the engine as clean as possible, and the motion free from dirt and garden debris. The valve gear, axles and crank pins should be oiled sparingly with light oil, e.g. "3-in -1 Oil". Over-oiling attracts dirt and grit, which will increase wear.

Regularly check that all screws and motion bolts are firm. Do not over-tighten, as this strips threads and shears bolts. **When filling the lubricator, always use a high temperature steam oil; this is available from our retailers. FAILURE TO USE THE CORRECT GRADE OF OIL CAN LEAD TO BLOCKED STEAM PIPES, AND WILL INVALIDATE THE GUARANTEE.**

When running your engine avoid excessive speed and acceleration, both will cause premature wear in the valve gear. Prototypically, narrow gauge locomotives ran at a speed of between 10 and 20 m.p.h., and never exceeded 25 m.p.h.

Positions of Fillers and Drains etc.

The cab roof lifts up then tilts over sideways to give access to all fillers.

The gas inlet valve is in the rear near side corner of the cab, at the top of the gas tank turret. The gas control valve is attached to this turret, and can be operated through the nearside cab window.

The lubricator is in the offside rear of the cab, just to the rear of the doorway and reverse lever. The filler cap has a "T" bar in it to aid removal. There is an extension tool supplied which fits over the 'T' bar, to aid in the removal of the lubricator cap. The lubricator drain is directly beneath the lubricator. To drain, un-screw the drain valve through about ½ a turn. There is a small 'T' bar tool supplied which has a 1.5mm dia hole in the end to assist the turning of the drain valves.

The boiler water filler is on top of the steam turret on the boiler in the middle of the cab. Undo the knurled cap to fill with water. The main steam regulator valve is the wheel valve on the rear of the boiler-filling turret.

The water level check valve is under the footplate, just in front of the nearside cab step. To open the valve, turn the lever through about one turn using the ‘T’ bar tool supplied.

The direction control is the lever in the offside cab window. To operate pull gently outwards and move to the desired direction, push forwards to go forward and backwards to go in reverse. The control is “gated”, and will therefore hold itself in the full forward or reverse position.

Preparation for Running

Always service the engine in the following order; first gas, oil then water.

To fill the gas tank: invert the gas can and apply the nipple to the gas inlet valve on the top of the tank turret. It is advisable to support the loco under the gas tank whilst filling, to prevent the engine tipping over. You will know when the tank is full; gas will blow back from the inlet valve in a strong jet. A small amount of gas and air will escape during filling, but the difference between this and when the tank is full is always clear. Always keep the gas can vertical when filling the gas tank.

Filling the lubricator: as you will read in the instructions for the end of the run, the lubricator should be empty of oil and water with the valve left in the open position. Now close the valve and remove the lubricator filler cap. Fill up the lubricator with steam oil to about $\frac{1}{4}$ of an inch below the top. Leave the filler cap off for the present, so that any trapped air can escape. It can be refitted after you have filled up the boiler.

To fill the boiler: remove the filler cap and also open the water level check valve. Leave the check valve open whilst raising steam. Fill up the boiler completely – ideally use filtered rainwater or distilled water using the large syringe provided. Replace the boiler filler cap, check that the lubricator does not need topping up, and then replace its filler cap also. Filler caps should be firm finger tight. They are sealed with a trapped ‘O’ ring and, therefore, do not need over-tightening.

Lighting Up

Open the smoke box door; just pull it open by the door handle. Light your lighter/match etc. and gently open the gas control valve until a gentle hiss is heard in the burner. Apply your light into the smoke box and the flame should 'pop' down the fire tube and ignite the burner inside the fire tube. If the gas valve is opened too much the flame will not pop back; it will either fail to ignite, will roar in flame out of the smoke box, or there will be a ball of flame around the front of the engine, which will then blow the whole fire out (after giving the driver a fright)! When the fire sound has stabilised, after about 30 seconds the gas can be turned up until a healthy roar is heard. The smoke box door may be shut after about two minutes. Now leave the locomotive to raise steam. When pressure starts to rise, water will be seen running out of the water level check valve. When the water reaches its correct level steam will be seen coming out in place of the water. Now screw shut the check valve and let the locomotive raise at least 40 p.s.i.

Running

When the engine has raised about 40 psi, you are ready to start running. It is advisable to run the engine in reverse first; it clears the condensed water from the cylinders best this way. Before commencing your first run of the day, it is advisable to put a cloth loosely over the chimney for a few minutes, as condensed water will be ejected from the chimney. This is quite normal; the motion of the engine will be jerky until all condensate has been ejected. **DO NOT stand over the chimney as ejected boiling water/steam could cause serious scalding.**

Place the direction lever into the reverse position, and then open the main steam valve. The engine should start to move off in the reverse direction.

When starting from cold it will be jerky, this is normal, as it has to clear the condensate from the system. The more the main steam valve is opened, the faster the engine will go; our advice is to start slowly and learn the road with your engine

After a minute or so, remove the cloth and continue running. In running it is correct practice to balance the boiler pressure against the load being pulled and the track conditions. With a light load and level track the pressure may need to be only 25-30 p.s.i. therefore, turn the gas control

down to keep this pressure. When running a heavy train with steep gradients, increase the pressure by turning up the gas. The ideal running pressure can be learnt by experience and is one of the pleasures of running a live steam engine. There is no need to have the safety valve constantly blowing off (it is what its name implies – a safety vent for excess steam pressure). In all our designs, the gas has been programmed to run out just before the water, thus it is important not to refill with gas alone in order to lengthen the run by a few minutes. When the gas runs out a complete gas, oil and water service must be done (remember GOW, also remember to shut the gas regulator before refilling, and **DO NOT** refill with gas near any other live steam loco). When the locomotive slows as the pressure falls at the end of a run, stop the engine. Gently open the lubricator valve and blow out any condensed water. If you intend to continue running, close the drain when you see oil coming out of it and carry out a general refill. If it is the last run of the day, leave the lubricator drain valve open and blow the lubricator completely clean.

End of Run

As previously mentioned, the locomotive will slow (due to pressure dropping) when the fire has gone out, stop at a convenient place and open the lubricator drain valve. Blow out all condensed water and the remaining oil. Leave the drain valve open and allow all the remaining steam to blow out. The locomotive should be allowed to cool. When cool, clean the engine, check the motion and oil if necessary. The locomotive should always be put away in a clean condition as it attracts less dust and is always ready for the next run (or to be shown to an admiring friend). Always leave the lubricator drain valve and the water level check valve open so that the boiler will not be strained if subject to any temperature change. It is advisable to store the locomotive where any residual drips of oil or water do not matter.

Blocked Gas Jets

If the gas jet becomes blocked with particles of dirt within the gas, the jet will have to be removed and cleaned. With a spanner or pliers carefully undo the pipe union on the gas control valve. Remove the pipe and jet holder assembly from the burner. Holding the jet holder gently in a vice, unscrew the jet. To clear, place the jet nozzle against the inverted gas can

nozzle and clear the jet with a blast of gas. Under no circumstances use a pricker wire, this will damage the jet hole. Replace the jet in the holder, ideally using a thread sealant sparingly on the threads. Ensure it is tightened up firmly. Replace the assembly into the burner and re-connect the pipe to the control valve. Ensure this is done up tightly, test **CAREFULLY** with a flame and the gas “just on”, for gas leaks. Tighten if required.

Gauge Changing

All “Lyn” locomotives are supplied set to 45mm gauge, but a “gauge change” kit is supplied with each engine. This will allow you to run on either 32mm or 45mm gauge track. All wheels are insulated as standard. To change the gauge, lay the engine gently on its side, on a thick cloth, loosen all the grub screws in the boss on the back of the wheels using the Allen key provided. The axles are dimpled for each gauge, so you do not have to measure for the right gauge. Slide the wheels to the gauge required and tighten up the grub screws. **These should be checked as a routine at the start of each running session.**

Tools Provided

A small set of tools have been supplied with this model to make servicing and checking the tightness of bolts easier. Some of these are self explanatory but others may look a little strange and need some explanation.

The small ‘T’ bar tool with a hole in the end is to assist with handling the lubricator drain valve. Place the end with the hole in it over the pin in the needle valve and use it as a Tommy bar to turn the valve, it saves getting burnt fingers or using a pair of pliers.

The long handled ‘T’ bar tool is to help remove the lubricator cap. The shaped slots in the end help to hold the cap by its ‘T’ bar when you have un-threaded it and want to lift it up out of the cab. Similarly it holds the cap as you lower it into the cab and onto the lubricator for refitting.

The hex Allan key is to unscrew the grub screws in the wheels for re-gauging.

The long aluminium coloured round right angle bent rods have 2mm and 3mm A/F hex nut holders at the long ends to help with any service work you may wish to do.

'Lyn' Radio Control Instructions.

Some 'Lyn' locos have the added benefit of Radio Control for speed and direction. It uses a twin channel system linked to the reversing valve, and the steam regulator. The loco is fitted with rechargeable batteries and the transmitter is fitted with dry batteries. The switch for the locomotive radio control is on the underside of the left hand side tank, forwards is for 'off' and backwards is for 'on'.

Service the loco in the normal way and allow raise pressure to at least 50psi. Now switch on the transmitter and then the loco. Always do this in this sequence, never the loco first, just in case someone is on your frequency and the engine rushes off out of control.

Individually, check the movement of the system on the loco by moving either of the sticks, the left hand stick upwards to open the regulator, or the right hand stick, up or down for direction. As long as you have kept both loco and transmitter with good batteries there will be no problems. Now move the right hand stick in the desired direction of travel, upwards for forwards and downwards for reverse, and gently move the left hand stick upwards to open the regulator; the loco will move off in the required direction. It may be jerky to start with because of condensed water in the cylinders from the last run, as explained in the normal instructions. This is OK, the easiest way to get rid of this is to run the loco backwards and forwards for a few yards until it is clear. The more you move the left hand stick upwards, the faster the loco will go. To slow down move the stick back downwards. To change direction, shut the regulator, the left hand stick, and move the direction stick, the right hand stick, fully in the opposite direction and then open the regulator again to the desired speed. The direction stick must always be fully up for forwards or fully down for backwards. There is a centring spring that acts as an emergency stop should you encounter any problems such as a derailment. Just take your finger off the stick and it will self centre and the loco will immediately stop.

Carry on running the loco until the gas runs out, and if you wish to carry on running refill as described in the instructions. When not running, or refilling the engine, it is best to first switch off the loco then the transmitter, this will save the batteries.

To recharge the batteries in the loco, plug in the charger supplied to a 240 volt mains socket. To connect to the batteries in the loco you will find a flying lead in the cab of the engine; plug the lead from the charger into the socket on the flying lead. Always charge the loco for at least 12 to 14 hours. The batteries in the loco will only charge when these items are switched off.

We recommend a complete 15 hour charge for the loco before first use from new.

When changing the batteries of the transmitter we always recommend using Alkaline type for there longer life.

As with all comprehensive models, we strongly recommend a full demonstration (by our agents) before purchase, enabling you to get the best out of your model right from the start.

HAPPY STEAMING!