ACCUCRAFT UK LTD
PO Box 394, Hereford
Herefordshire. HR1 9QN
Tel: 01981 241380
www.accucraft.uk.com

OPERATING INSTRUCTIONS AND OWNER LOG BOOK

GREAT WESTERN RAILWAY 43XX 2-6-0 (1:32 SCALE)

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 lubricators, always use a high temperature steam oil (460 grade is recommended); this is available from other retailers. **Failure to use the correct grade of oil may invalidate the guarantee.**

When running your engine avoid excessive speed and acceleration, both will cause premature wear in the valve gear.

Positions of Fillers and Drains etc.

The cab roof slides backwards, giving access to the cab controls and various filling points.

The gas inlet valve is on top of the gas tank, set in a water bath in the tender – you will need a gas adapter to fill this. The gas control valve is the 'brake stand' on the footplate of the tender.

The lubricator is accessed via the bung on the footplate in front of the smokebox. Always leave an air space to allow steam to condense. Condensed water will need removed using the small syringe and tube supplied with the model.

The boiler water filler is on the manifold on top of the firebox in the cab. The Goodall valve will allow the boiler to be topped up while in steam. The main steam regulator valve is the handle on the rear of this manifold.

The direction control is the lever inside the offside of the cab. To operate release the sprung clutch and move to the desired direction. The control is gated and will therefore hold itself in the chosen gear.

The water gauge glass is on the nearside of the boiler.

Preparation for Running

The 43XX is fitted with a Goodall valve, this allows the driver to keep the model in steam for longer periods of time. The locomotive should be coupled to its tender, depress the button on the tender footplate and feed the locomotive drawbar into the slot in the tender's front plate then release the pin to lock it. The flexible gas supply pipe can now be pushed into the burner holder. Always service the engine in the following order; first gas, oil then water.

To fill the gas tank: Remove the dummy coal load, make sure the gas valve is closed then invert the gas can and apply the nipple to the gas inlet valve on the top of the tank turret. 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. Always keep the gas can vertical when filling the gas tank. We recommend that Butane gas is used whenever possible, but the gas tank is manufactured to accept the extra pressures generated by Butane/Propane mix gases, and the burner system will also perform using this gas. The water bath can now be filled with warm (hand hot, no more than 55º C.) water, do not do this before filling the gas tank or you may not be able to get a complete fill. It may not be necessary to use warm water in hot weather but it will be needed in cold conditions.

Filling the lubricator*:* as you will read in the instructions for the end of the run, the lubricator should be left empty of oil and water. Fill up the lubricator with steam oil to about ¼ 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 fill the boiler to about ¾ full leaving room for expansion and a steam space, 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 should not be over-tightened.

Note – the cab spectacles are fitted with a protective film on the inside – remove this before running the locomotive for the first time.

Lighting Up

Ensure that the regulator is closed and that the lubricator cap has been replaced. Open the smoke box door, it is fitted with a magnetic catch. 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 gently. Do not turn the gas up high as the flame could damage the paint on the smoke box door. The smoke box door may be shut after about two minutes. Now leave the locomotive to raise steam. As the pressure starts to rise this will be registered on the pressure gauge - let the locomotive raise at least 50 p.s.i.

Running

When the engine has raised about 50 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 condensation 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. 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. With a heavy train or steep gradients, increase the pressure by turning up the gas.

The ideal 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 valves constantly blowing off. The aim should be to maintain half a glass of water but running conditions may affect this (being fitted with a Goodall valve, the boiler should be topped up during a run), thus it should not be necessary to refill with gas in order to lengthen the run. 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. If it is the last run of the day, make sure you suck out any remaining condensate in the lubricator.

End of Run

As previously mentioned, the locomotive will slow (due to pressure dropping) when the fire has gone out. The locomotive should be allowed to cool. When cool, empty the tender water bath, suck out any condensate from the lubricator and replace its cap, 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 boiler filler valve open so that the boiler

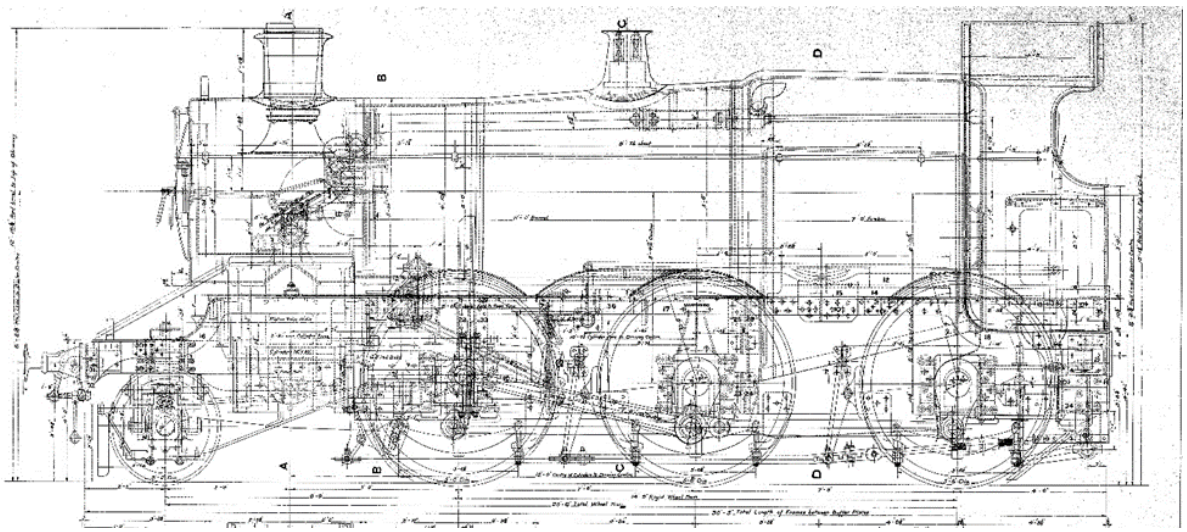
will not be strained if subject to any temperature change. It is advisable to store the locomotive where any residual drips of oil or water do not matter.

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. The locomotive has been provided with working cab-back doors and these will facilitate burner removal – make sure they are unlatched before attempting to open them! Slide back 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** for gas leaks, first with a 50/50 mixture of washing up liquid and water, and then if no bubbles are showing, with a flame and the gas "just on". Tighten if required.

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!***



A Bit of History

The engines were a product of Churchward's Swindon standardisation policy, owing their origin to the 'family' of locomotives he developed at the turn of the century. In 1906 Churchward fitted a more powerful Standard No. 4 boiler to his successful ‘3100’ Class 2-6-2T to create the ‘3150’ Class. These were successful locomotives but their 65-ton weight and 2,000-gallon water capacity tended to restrict them to suburban passenger traffic. In 1909 Harry Holcroft obtained permission for a working trip to Canada and was much impressed with the small-wheeled 'Moguls' in use there. Churchward was looking forward to the replacement of several of his predecessor’s 4-4-0 classes on secondary duties and, knowing of Holcroft's interest in the type, instructed him to "Get me out a 2-6-0 with 5' 8" wheels, outside cylinders, the No. 4 boiler and bring in all the standard details you can." Using off-the-shelf parts such as the cab and outside cylinders of the 'Saint' class, the wheels of the ‘31XX’ 2-6-2T, the No. 4 boiler - in its superheated form - and a 3500-gallon tender, little additional design work was required.

The class was built in batches from 1911 until 1923; Collett adding further examples, with a side-window cab, between 1925 and 1932. In total 342 of these useful mixed traffic locomotives were built; they were at home with passenger trains at 60mph and with moderately heavy goods trains. Like any long-lived design, numerous details differed between batches including cab length, outside steam-pipes, ballast weights, experimental oil-firing apparatus, and Collett’s fitting of screw reverse. The class served all over the Great Western and operated to destinations as diverse as Tonbridge, Andover and Liverpool. Eleven examples from the ‘53XX’ series were sent to France to serve with the Railways Operating Division [ROD] during WW1. During the 1930s class members were withdrawn and their wheels and motion parts used to create the 'Manors' and 'Granges', a process interrupted by WW2 after which British Railways started to scrap the entire class. The last examples were withdrawn in 1964, but luckily two survived, No. 5322 (one of the ROD examples), now at Didcot Railway Centre, and Collett No. 9303 at the Severn Valley Railway.

HINTS ON GAS FIRING CONTROL

CONTROLLING THE GAS FIRING OF YOUR LOCO MUST BE DONE WITH CARE AND ATTENTION. TURNING THE FIRE UP TOO MUCH CAN CAUSE GREAT DAMAGE TO YOUR MODEL SUCH AS BURNING OFF THE PAINT, MELTING THE INSULATION OFF THE WHEELS, AND CARBONIZING THE STEAM OIL IN THE SUPERHEATER WHICH BLOCKS IT. NONE OF THE ABOVE DAMAGE WILL BE COVERED BY WARRANTY AS IT IS ATRIBUTED TO OPERATOR ERROR.

AT ACCUCRAFT WE GIVE YOU THE ABILITY TO RAISE A GOOD HEAD OF STEAM BUT IT IS UP TO THE OPERATOR TO CONTROL THE GAS FLOW SO THE FIRE DOES NOT ROAR OUT OF CONTROL AND BURN IN THE SMOKE BOX. IT IS VERY MUCH LIKE THE ACCELERATOR OF YOUR CAR, HOW YOU USE IT IS UP TO THE USER, DRIVE SENSIBLY AND YOU WILL NOT HAVE AN ACCIDENT; PUT YOUR FOOT DOWN AND YOU WILL PROBABLY END UP IN THE HEDGE. HARDLY THE CAR OR THE MANUFACTUER'S FAULT!

NEVER LEAVE THE LOCO UNATTENDED WHEN RAISING PRESSURE, AS THE HEAT INCREASES THE PRESSURE IN THE GAS TANK ALSO RISES AND YOU WILL HAVE TO TURN THE GAS DOWN. IF THE GAS CONTROL VALVE SPINDLE IS A BIT STICKY IT COULD NEED LUBRICATION WITH STEAM OIL. WHEN YOU UNSCREW THE NEEDLE VALVE TO OIL IT ALWAYS DO IT WHEN THE GAS TANK IS EMPTY.

KEEP THE ORIGINAL PACKAGING!

WE WISH TO ADVISE YOU THAT IT IS IMPERATIVE THAT ALL ORIGINAL LOCOMOTIVE PACKAGING, BOTH OUTER AND INNER BOXES AND ANY OTHER TYPES SUCH AS SHAPED POLYSTYRENE, SHOULD BE RETAINED. SHOULD YOU NEED TO RETURN YOUR MODEL FOR ANY REASON, EITHER FOR SERVICE OR WARRANTY WORK, IT MUST BE SECURELY PACKED IN ITS ORIGINAL PACKAGING SO AS TO PREVENT DAMAGE IN TRANSIT. IF THE MODEL IS PACKED IN ANY OTHER WAY WE CANNOT BE HELD LIABLE FOR ANY DAMAGE CAUSED BY IMPROPER PACKING. ALL ITEMS COVERED BY OUR TWO-YEAR WARRANTY WILL BE COVERED BUT ANY PARTS AND LABOUR ATTRIBUTED TO RECTIFYING DAMAGE CAUSED BY IMPROPER PACKING WILL BE CHARGED FOR.

GUARANTEE

Accucraft UK Ltd will remedy any defect or malfunction occurring with this product during a two-year guarantee period from date of purchase. This guarantee does not extend to malfunctions or defects caused by damage or unreasonable use, including the failure to provide the correct types of lubrication and water or by not controlling the gas correctly. The guarantee registration card should be returned to us.

If a claim is to be made within the two-year guarantee period, in the first instance, return both the product and packaging to your dealer. In the event of your problem not being able to be fixed by your dealer, they will contact us for advice. If necessary we will arrange for it to be returned to our service department for repair.

This guarantee is quoted in addition to all legal rights of the purchaser under the Sale of Goods Act and shall expire two years from the date of purchase. Under no circumstances shall Accucraft UK Ltd be responsible for any consequential damages arising in regard to any Accucraft UK Ltd product.

CARE OF YOUR LOCOMOTIVE

- **Proper lubrication is most important but must not be overdone.**
- **Care should be taken when removing the loco from its packaging, as any levering action using projecting parts (e.g. buffers) may result in damage.**
- **Check with your dealer that these locomotives wheel standards are compatible with your track system. Ensure that your track is in good condition and well maintained.**
- **Keep the engine free of dust and dirt. Debris such as earth and gravel in the motion will lead to premature wear and failure.**
- **Always use steam oil in the lubricator, never ordinary household oil.**
- **Never light the burner without water in the boiler.**
- **Always control the gas correctly and do not have the fire too high so it goes into the smoke box and damages materials, paint, or wheel insulation.**

SAFETY

- **Always use this product in a well-ventilated area. Never get directly above the chimney, boiling water can sometimes be ejected from it.**
- **When in steam, and for some time afterwards the engine will be very hot. HANDLE WITH CARE.**
- **This model has many small parts and should be handled with care. It is not suitable for children under the age of 14 years old.**

ACCUCRAFT UK LTD, PO BOX 394, HEREFORD, HEREFORDSHIRE. HR1 9QN.

LOCOMOTIVE LOG BOOK

Loco Serial No: ……..... Boiler Serial No: ……

Gas Tank Serial No: ……..

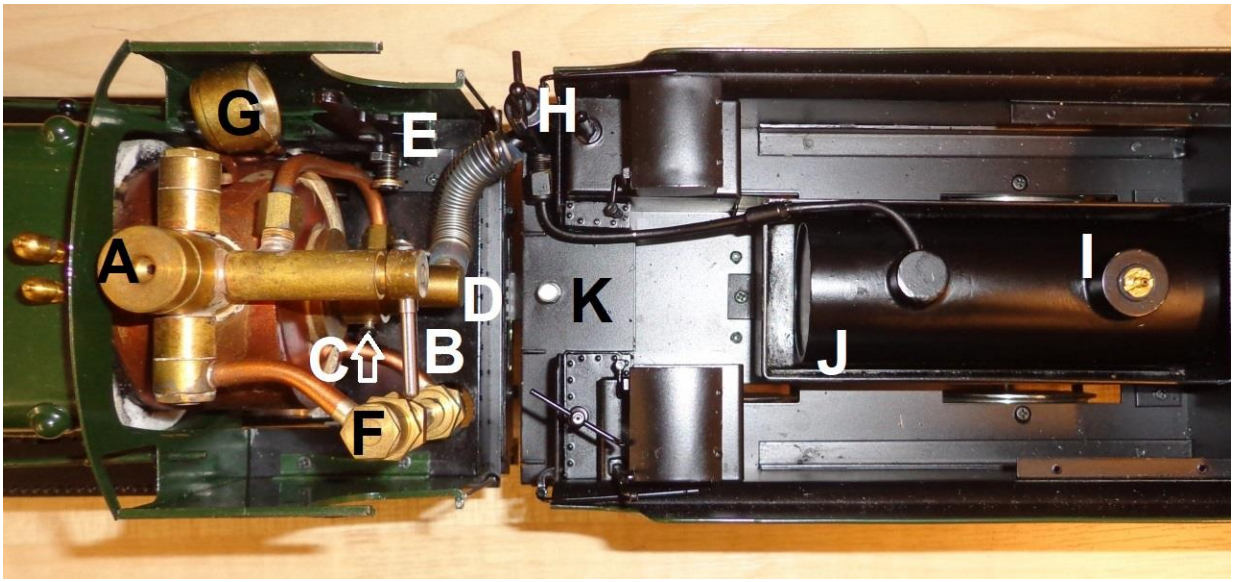
First Registered Owner: ……

Date Purchased: …….

Second Registered Owner: ……

Date Purchased: …….

Cab Controls:



A: Water filler (Goodall valve)

B: Steam regulator

C: Burner air collar

D: Burner jet

E: Reverse lever

F: Water gauge

G: Pressure gauge

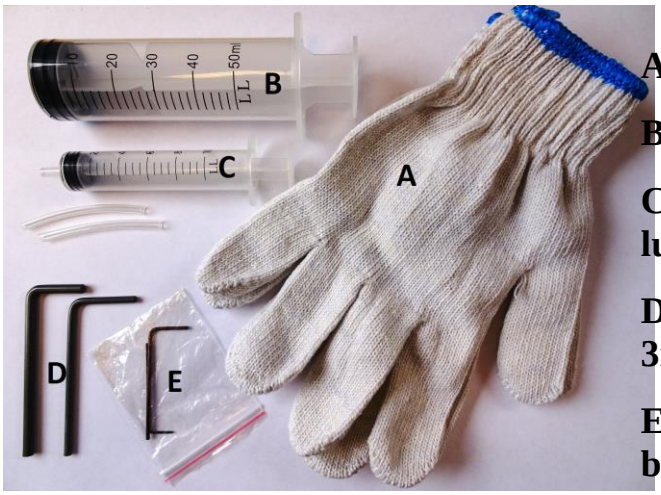
H: Gas control valve

I: Gas filler valve

J: Water bath

K: Tender coupling pin

Accessories Illustrated.



A. Protective gloves

B. Boiler filling syringe

C. Small syringe and tubes for lubricator draining

D. Hex nut spinners for 2mm and 3mm hex bolts

E. Allen keys and spare nuts and bolt