Garden Railway Specialists

Owners Handbook

Peckett Locomotive

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OPERATING INSTRUCTIONS

IMPORTANT: Please ensure to read these instructions carefully before operating your locomotive.

The following items are required for running your locomotive and are not included with this model:

Fuel Butane Gas - See "Filling the gas tank"

Lubricating Oil ISO 460- See "Lubrication"

Water See "Filling the Boiler"

Garden Railway Specialists Ltd. are able to supply both Fuel (product code G32) and ISO 460 Lubricating Oil (product codes either G34 or STO009).

We can also supply the following items if required:

Gas Adaptor - product code FG31

Water Filler Bottle - product code V11

SAFETY PRECAUTIONS

This is a working model steam locomotive and uses steam under pressure and highly flammable fuel. Please treat with respect and operate with reasonable care and attention.

It is intended for use out doors and must only be operated in a well ventilated area. It is not a toy and is unsuitable for use by young unsupervised children.

Whilst the locomotive is in use, hot gasses are exhausted up the chimney and excess steam frequently blows off through the safety valve even when stationary. Ensure that both operator and spectators do not bend over the model.

Follow the manufactuer's reommendations regarding the safe storage of Butane gas canisters.

Always have to hand either a fire extinguisher or wet cloth when operating your model.

RUNNING IN

All locomotives are tested before despatch but will require a minimum 1 hour of running in when new. This is to overcome any initial tightness etc.

ACCESS TO CONTROLS

Access to the controls is made by removing the cab roof which just lifts off, it is attached by magnets.

LOCO PARTS IDENTIFICATION

1. Gas Filler; 2. Lubricator; 3 Regulator, 4. Pressure Gauge; 5. Reverser; 6. Gas Control Valve; 7. Water Gauge

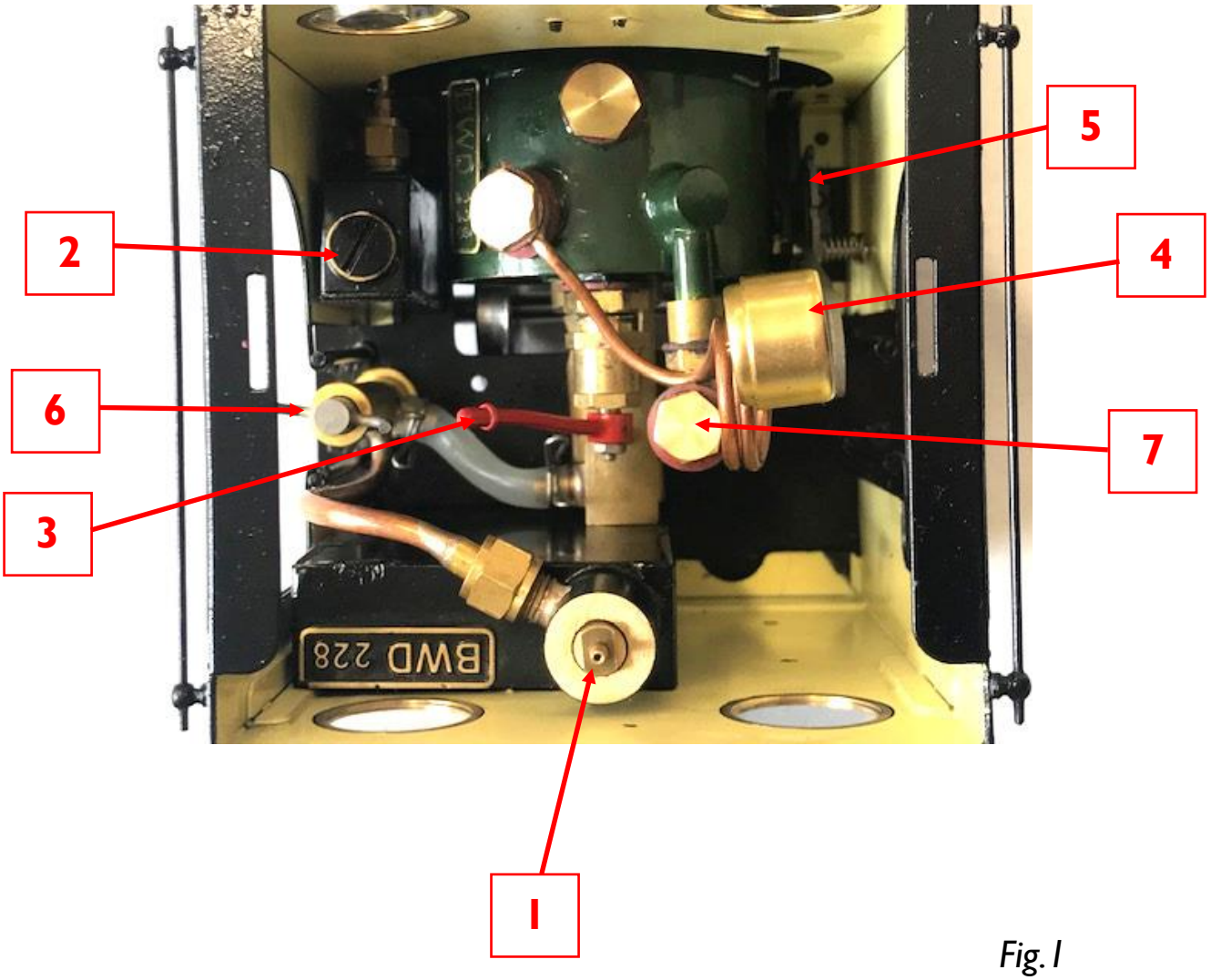


Fig. 1

OPERATION PREPARATION

It is important to perform the following operations before the locomotive is operated.

FILLING THE GAS TANK

The filling of the gas tank should be carried out in a well-ventilated area where there are no naked flames or other lighted locomotives near by. Ordinary Butane is the only recommended fuel. Do not use mixed gasses in this locomotive.

A special brass gas filler adapter is available from GRS if you do not already have one.

Before filling the gas tank, ensure the Gas Control Valve is closed by turning it clockwise. The filler valve for the gas tank is located at the rear of the cab (see Fig. 2 below).

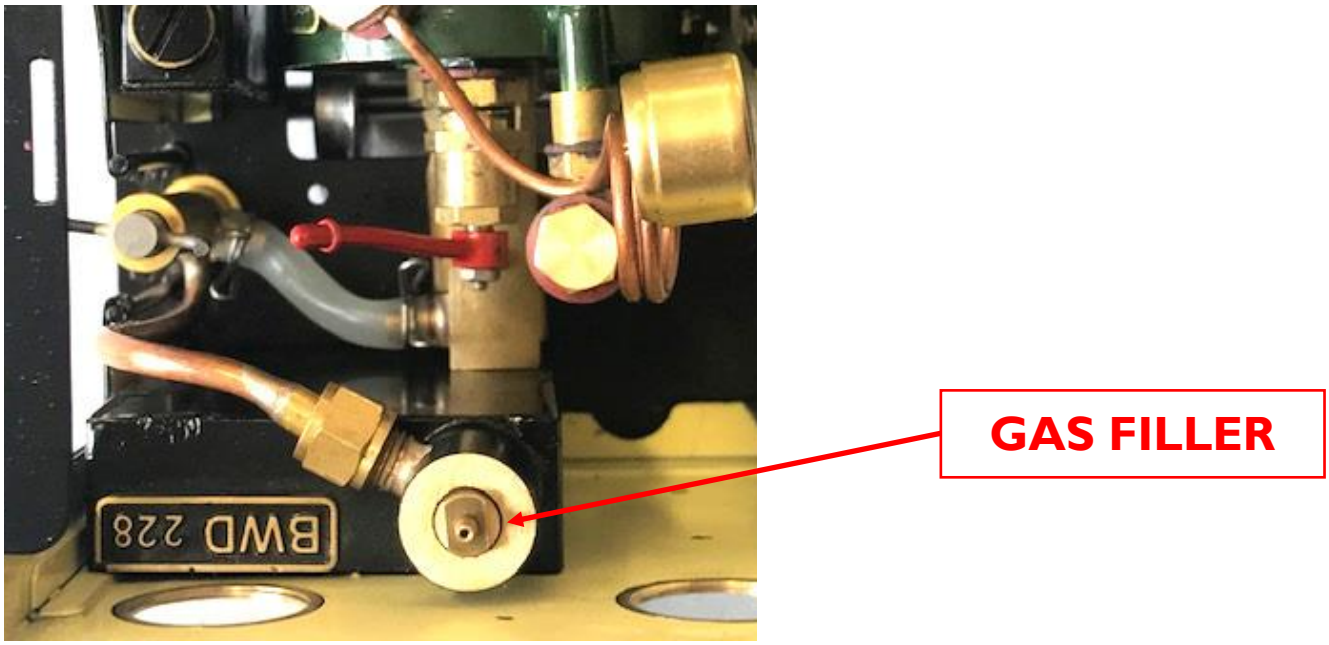


Fig.2

To fill, invert the gas canister and place the nozzle over the gas filler valve. The gas will be heard hissing as it enters the tank and a small amount will escape around the valve. After about 20 seconds liquid gas will emerge from the valve indicating that the tank is full. Remove the canister immediately.

LUBRICATION

Regular lubrication of all working parts is important and should be carried out before each operating session. External moving bearings and linkages can be lubricated with normal steam oil as used for the internal lubrication or if preferred, 20-50 motor oil can be used. It is important to ensure that moving parts are not allowed to run dry, but do not over oil as this can attract dirt and grit. Internal lubrication of the mechanical steam parts is done with 460 Traditional Steam Oil.

Internal lubrication is done by filling the lubricator as indicated in Fig. 1. Drain any water from the lubricator by removing the Phillips screw the bottom (see Fig. 3 below). Any water in the lubricator will run out through the drain screw. Tighten the drain screw and refill the steam oil to just below the steam pipe inside the lubricator. Fill slowly as the oil takes time to run down and may trap air bubbles. Replace the cap when full. Note that both the lubricator cap and drain screw are fitted with O rings so only need to be finger tight.

Ensure that only the specified steam oil is used in the lubricator and ordinary oil should not be used as damage may result.

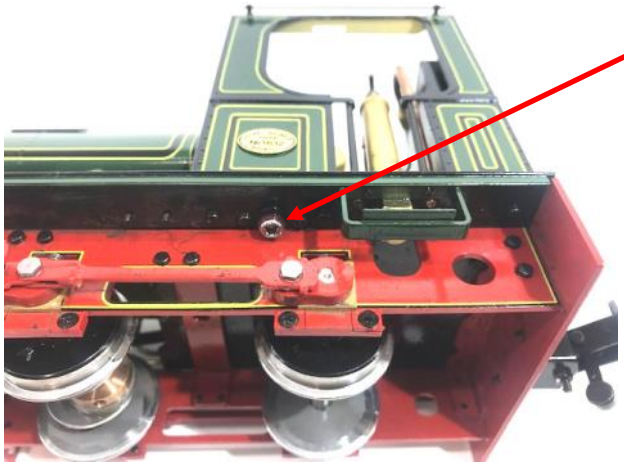


Fig.3

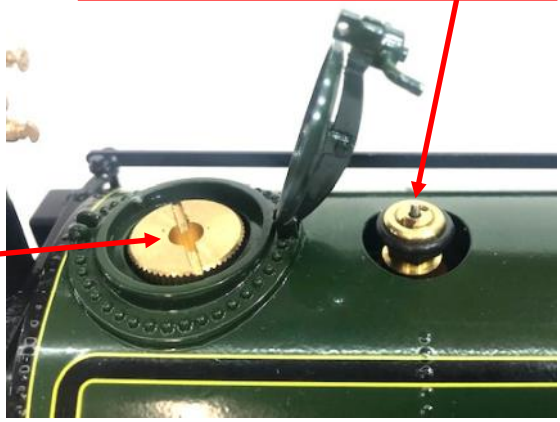


Fig.4

FILLING THE BOILER

The boiler is filled with water through the filler water filler plug on the top of the boiler as shown in Fig. 4. Open the filler dome and remove the plug by unscrewing the knurled body. Fill the boiler with distilled or purified water (Rain water or water from a dehumidifier can be also be used if adequately filtered). Do not use de-ionised water. Take care when removing the filler plug when the engine is hot. Use the water gauge when filling the boiler, this should be about 3/4 full when you light up and will rise as the water expands. If you do overfill the boiler, use a syringe to remove water until the correct level is achieved.

LIGHTING THE BURNER

Please familiarise yourself with safety precautions before lighting your locomotive as Butane gas is highly flammable. If the gas system does not operate correctly, shut if off immediately.

Move the locomotive to another area as Butane is heavier than air and small pockets of gas collect around the locomotive when filling the gas tank.

To light the burner, open the smokebox door and turn the gas control valve (shown in Fig. 1) slowly anti-clockwise about 4-5mm. There will be a hissing of gas and then light using a tapered lighter, inside the smoke box. (see Fig. 5). Turn back the gas control valve until a gentle burn is seen in the boiler NOT in the smokebox. The burner should be audible but not too loud.

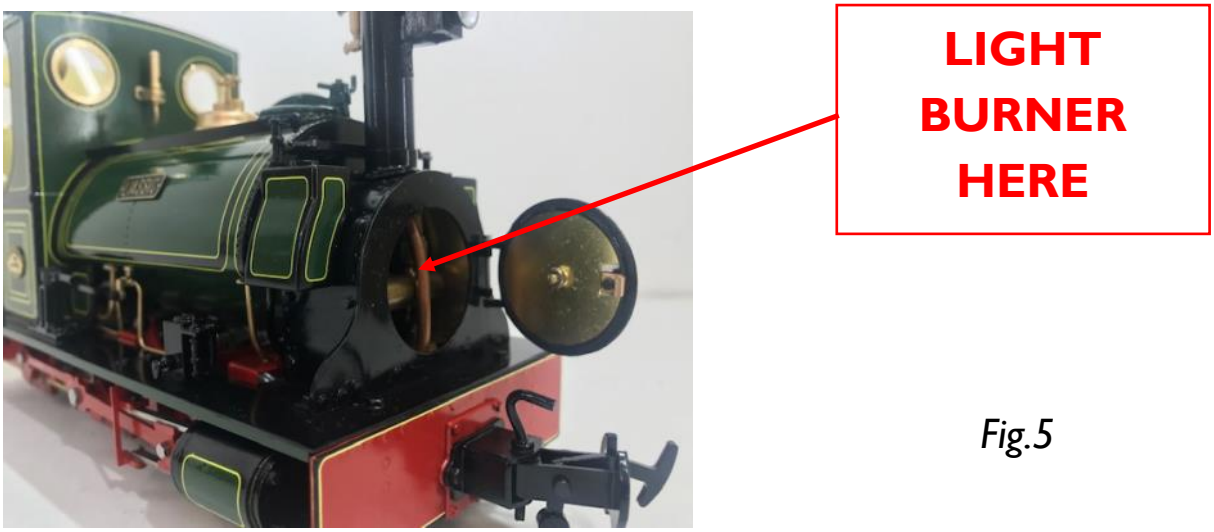


Fig.5

Ensure the gas control valve is opened slowly until the burner ignites. If it is opened too quickly it is possible that the flame may not travel back in the boiler flue but stay in the smokebox. If this happens, the flame will be visible in the smokebox. Turn off the gas immediately if this occurs or damage may result and then re-light.

When ignited successfully keep the burner on low for the first few minutes as the flame will be a little unstable and turning it up too much could cause it to go out. Close the smokebox door and wait until the locomotive comes into steam at about 40-60psi. This should take about 10-12 minutes.

RUNNING THE LOCOMOTIVE

When working pressure has been reached (40-60psi) the safety valve will start to blow off steam. This will start to lift at about 45psi, maximum pressure is 60psi. Ensure the steam generation is controlled by using the gas valve in the cab. If the safety valve blows off frequently during running then too much steam is being produced. Turn down the burner to decrease the amount of steam created. Ideally run the loco with the gas turned down so that the safely valve is just feathering at about 45psi and not at 60psi when it is blowing off hard. This should allow about 30 minutes of running on one gas tank.

If steam pressure is not maintained when running then the burner should be turned up. If the gas pressure through the burner is noticed to have increased turn the gas down. This occurs when the gas tank becomes warmer and so increases the gas pressure. This may be necessary to adjust several times during running.

Do not allow the water level to drop below 1/4 full and ideally should be topped up with the filler valve to keep it between 1/2 and 3/4 full. Ensure the boiler is not allowed to run dry, check the water glass shown in Fig.1. Ensure you allow the engine to cool before refilling with water. When the gas is used up, the steam pressure in the boiler will slowly drop and the locomotive will come to a halt. If the water is used up before the gas is fully used, turn the gas off immediately and the locomotive will carry on running.

DRIVING THE LOCOMOTIVE

There are three main controls situated in the cab to use during manual operation of your locomotive. These are all identified in Fig.1.

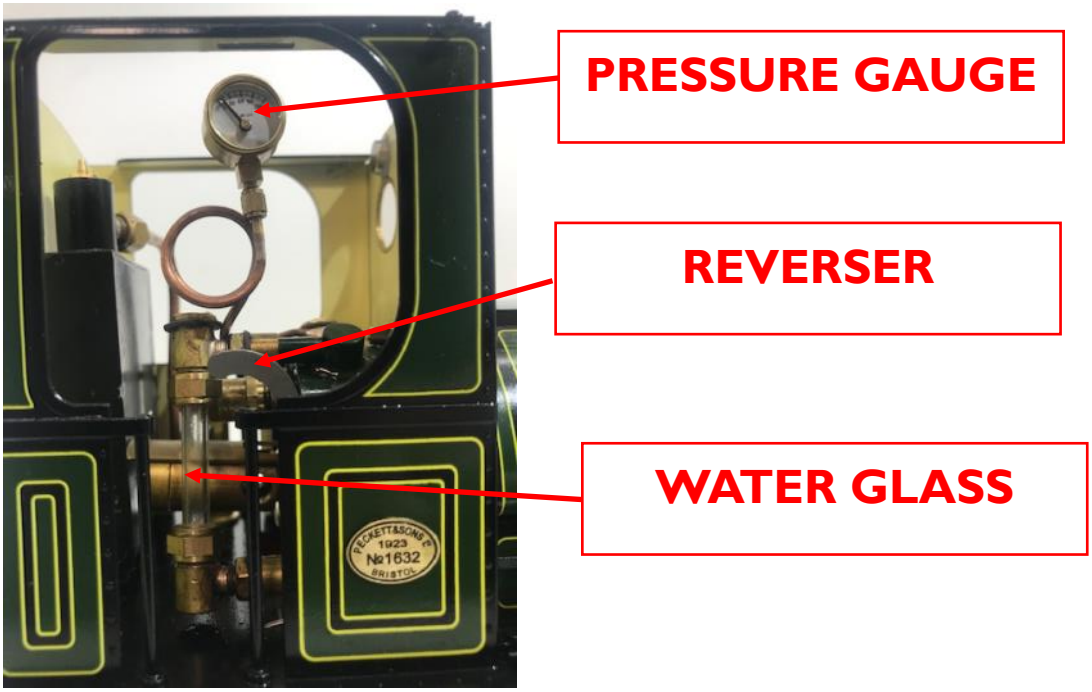
1. Gas Control Valve - Used to control steam as described earlier.

2. The Reverser - This is situated on the right hand side of the cab and is moved fully forward for running in the forward direction and fully back to run in reverse. It should be parked in the centre (mid gear) when the locomotive is stationary for any length of time. When in mid gear the locomotive will not move under steam power.

3. The Regulator - This is the main control valve and regulates the speed at which the locomotive will run. The regulator is moved anti-clockwise to open. Note the regulator gets hot in use.

Using the reverser lever, select the desired direction of travel and open the regulator a little. There will initially be a certain amount of water in the pipes which will exhaust through the chimney and the locomotive will move jerkily until this clears. Once the parts have warmed up the engine will move off steadily and the speed can be controlled through the use of the regulator.

In order to reverse the locomotive, close the regulator to bring to a halt, move the reverser over and open the regulator once again.



STORAGE WHEN NOT IN USE

At the end of an operating session get into the habit of cleaning your locomotive carefully with a clean soft cloth and oil accordingly.

- Check that the controls are closed and the valve gear is in mid gear.
- Do not leave fuel or water in the tank or boiler for long periods.
- Drain the oil from the lubricator drain screw.
- Do not store in places where the temperature may drop below freezing as water may still be present in the pipework.

It is advisable to periodically wash off traces of dirt and old oil from the moving parts with paraffin (not thinners). Leave to dry thoroughly over night before re-oiling. Ensure that clean oil is applied and allowed to penetrate fully into all moving parts before running your locomotive again. The locomotive can be pushed manually backwards and forwards to assist in distributing the oil fully.

PRESSURE VESSEL CARE AND MAINTENANCE

GAS TANK

The gas tank is used for the storage of LPG (liquefied pertroleum gas) in the form of butane. The tank is fitted with a self-venting filler valve which contains no serviceable parts. If the filler valve becomes defective in any way, it must be replaced with a new item. It is recommended that the gas tank has a thorough visual inspection every year by a competent person.

BOILER

The boiler is fitted with a safety valve to prevent the steam pressure rising above the maximum allowable working pressure. This is pre-set to open at between 45-60psi and must not be adjusted to increase this value. If the safety valve becomes defective in any way, it should be replaced or returned to GRS for service and calibration.

SERVICE AND PARTS

If you require service or parts for your locomotive please contact GRS who will be pleased to advise.

ENJOY YOUR LOCOMOTIVE!