

Instruction Manual



**SOUTHERN PACIFIC
S12 0-6-0 LIVE STEAM**



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 **ACCUCRAFT TRAINS**
MUSEUM QUALITY BRASS MODELS



The 0-6-0's were used all over the Southern Pacific system as yard switchers. Their short wheel base allowed them to go around very tight curves on city street trackage and in industrial areas. Our S-12's are painted in different colors which were done by the back shop on several of the terminal switchers around the SP system. Blue, Green and Grey boiler jackets were applied to different locomotives and chrome plating was used on cylinder head covers along with raised lettering and numbers.

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.



Technical Specifications

Feature: Butane fuel, single flue gas fired copper boiler. Safety valve, throttle, pressure gauge, D-valve with fully operational Walschaerts valve gear controlled from cab

Scale: 1:32 Scale, 45 mm Gauge
Minimum Radius: 30.11 inch (76.5mm)
Weight: 11.9 lbs (4 kg)

Locomotive Information:
Length: 12.91 inches (328 mm)
Width: 3.82 inches (97 mm)
Height: 5.31 inches (135 mm)

Tender Information:
Length: 10.79 inches (274 mm)
Width: 3.62 inches (92 mm)
Height: 4.88 inches (124 mm)

Caution!

This model is an accurate replica of the original locomotive. It has sharp and moving parts. The locomotive drive rods are stainless steel with sharp edges.

AT ANY TIME, OPERATORS MUST NOT BECOME IN CONTACT WITH THE MODEL WHILE IT IS POWERED. UNDER NO CIRCUMSTANCES SHALL ACCUCRAFT TRAINS BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING IN REGARD TO ANY ACCUCRAFT PRODUCT.



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 leaks. Tightened if required.

PREPARATION FOR RUNNING:

Always service the engine in the following order; 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 turret. It is advisable to support the loco under the gas tanks while filling, to prevent the engine from tipping over. You will know when the gas 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 valve vertical when filling the gas tank.

To fill 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 filler cap. Fill-up the lubricator with steam oil to about ¼ inch below the top. Leave the filler cap off for the present, so that any trapped air can escape. Remember to refit the cap after you have filled the boiler.

To fill the boiler: remove the filler cap. Fill the boiler completely- ideally using distilled water, using the large syringe provided. When the boiler is full of water, pull out 20 ml of water using the large syringe. This will allow space in the top of the boiler for steam to build. Replace the boiler filler cap. (Filler caps should be firm finger tight). They are sealed with a trapped “O” ring and, therefore should not be over-tightened.



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 not enough of the flame will “pop back”; it will either fail to ignite 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 stabilized 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.

RUNNING:

When the engine has raised to about 45 psi, you are now 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 the condensate has been ejected.

DO NOT stand over the chimney as ejected boiling water/steam can 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 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; it is recommended 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 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 the 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 or open flame). When 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.

POSITON OF FILLERS AND DRAINS, ETC.:

The gas tank is in the front nearside corner of the cab, the gas-filling valve is on the top of the gas tank turret.

The gas control valve is attached to this turret, and can be operated through the nearside cab doorway.

The lubricator drain is directly beneath the lubricator. To drain, un-screw the drain valve turn about ½ a turn.

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 water. The main steam regulator valve is the wheel valve on the rear of the boiler-filling turret.

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



GENERAL HINTS:

As with operating all machinery, whether it is a 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 screws and motion bolts are firm. Do not over-tighten, as it will strip threads and shear bolts. When filling the lubricator, always use high temperature superheat steam oil, suitable for locos fitted with super heaters; this is available from garden railway product retailers. **FAILURE TO USE THE CORRECT GRADE OF OIL CAN LEAD TO BLOCKED STEAM PIPES, AND WILL INVALIDATE THE GAURANTEE.**

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

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 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 locomotives should always be ready for the next run (or to be shown to an admiring friend). It is advisable to store the loco 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. Using the 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 wire, this will damage the jet hole. Replace the jet in the holder, ideally