

Instruction Manual



Mason Bogie 2-6-6T Electric & Live Steam

Mason Bogie 2-6-6T Electric



Prototype Information

The name William Mason is synonymous with the 'Mason Bogie' - the most famous, yet least successful innovation of the Mason Works. Their artistry and architecture became the crowning achievement of the Mason Works and it is perhaps for that reason that these otherwise obscure but beautiful locomotives are remembered. The flexible Bogie Locomotive concept was not from William Mason, but came from the Scottish engineer, Robert Fairlie during the late 1860s. The Mason Bogie became the primary type of loco to be outshopped from the Mason works through the 1870s and early 1880s.

William Mason founded his locomotive works at Taunton, Massachusetts in 1852 after leaving a career in building textile machinery. Between 1853 and 1883 Mason built some of the most stunningly beautiful locomotives in the US, completing 700 by the year of his death. He was innovative, and rarely took accepted design philosophies at face value. Above all he believed his locomotives should be beautiful, and there is no doubt his were the most beautiful and refined machines of their time. His drive to remove undesirable clutter from the clean lines of a locomotive brought about many innovations in locomotive architecture. He was the first to use horizontal cylinders on the long framed locomotives such as the 4-4-0. To avoid the ungainly, asymmetric appearance of counterweighted wheels, he used the hollow cast iron spokes, and pouring lead into the voids to counterweight. Perhaps Mason's most famous contribution was the adoption of the Walschaerts valve gear, the first in the US, used on one of his Mason Bogies in 1874. With Mason's entry into locomotive design came some notable changes to the locomotive form and decoration, which became a virtual architectural standard in locomotive design by the 1870s. This was the period of Industrial artistry, where buildings as well as machinery were highly appointed and coordination of form, colour and



decoration was paramount. During the 1800s America was in the grip of yet another Classical revival period, influencing architectural form, machinery and locomotive design. Classical form had a direct effect on the human psyche; the grand porticos and colonnades had long been associated with officialdom, power and stature, and with the growth of the railroads through the 1800s, these classical devices were again used to evoke feelings of power, stability and pride in the railroad.

Mason translated classical concepts into locomotive Architecture. The most notable element to come from the Mason works in the mid 1850s was the development of the 'ringed' or 'fluted' dome. This became one of the most recognized elements of US locomotive design, with almost all US builders adopting their own version by the 1870s. The fluted dome itself was essentially inspired by classical column elements, from the base and head of columns from the Doric order. Other architectural features also adorned US locomotives, including cabs with arched windows set to classical proportion and steam chests corniced in classical form.

The South Park Masons are probably the most well known of all Mason Bogie locomotives built. The line would own the 2nd largest fleet of Bogie locos at 23 built between 1878 and 1880. The largest fleet of Mason locomotives however was managed by the Boston Revere, Beach & Lynn RR in Massachusetts.

The Bogie Locomotive concept slowly faded after Mason's death in 1883. While the Mason Bogie is little more than a decorative footnote in the history of locomotive design, the concepts did not die with it. In the years that followed, the virtues that Mason considered mandatory in locomotive design resurfaced in the Meyer locomotive, Garratt locomotive, the articulated Mallet locomotives and today virtually every electric and diesel locomotive is a twin truck design carrying the entire weight of the locomotive and ensuring that all of its weight including fuel loads contributes to operational efficiency.

Upon the passing of William Mason in 1883, friend and locomotive authority, M.N. Forney, wrote: "He was a wonderfully ingenious man and combined with his ingenuity a high order of artistic sense, so that his work was always most exquisitely designed. It might be said of his locomotives that they are melodies cast and wrought in metal."

David Fletcher



Lubrication

Lubricants: always use quality lubricants!

Light oil such as Labelle #108 or Wahl Clipper Oil. Heavy lubricant such as Labelle #102 heavy gear oil or Labelle grease.

Prepare the engine for lubrication by placing the model gently on the work surface. To protect the locomotive finish, place the engine on a piece of foam sheet or soft towel. The engine should be placed on its side. Be careful to keep the lubricant off of the painted surfaces, as this can leave a shiny appearance on the area it touches.

1. First lube the bearings on the driver journals with a small amount of light lube oil. The oil is easily applied with a wood tooth pick.

2. Next lube the CRANK SHAFT JOURNALS, MAIN ROD BEARINGS AND CROSSHEAD with light machine oil.

3. THE MAIN GEAR BOX IS FULLY LUBRICATED AT THE FACTORY. NO LUBRICATION IS NECESSARY WHEN YOU RECEIVE YOUR MODEL.

To lube the main gear box, remove the cover of the gear box carefully (make sure you familiarize yourself with the position of all parts). Place the screws in a small container to prevent losing them. Grease the gearing and shaft bearings generously. Replace the cover exactly the way it was when you started.

It is a good idea to wipe off all excess light oil when you complete the lubrication process.

You have now completed the lubrication of your Accucraft "Consolidation".

THIS LUBRICATION SHOULD BE REPEATED AFTER EVERY 25 HOURS OF OPERATION!

After following the recommended lubrication procedures, your "Mason Bogie" is ready to provide many years of enjoyment and reliable operation. We recommend that you use a D.C power supply with a capacity of 2.5 amps or larger and 24 volts.

Always pick your model up by grasping it under the frame on both ends. It is a very heavy model so make sure that you grasp it firmly.



Sound Installation

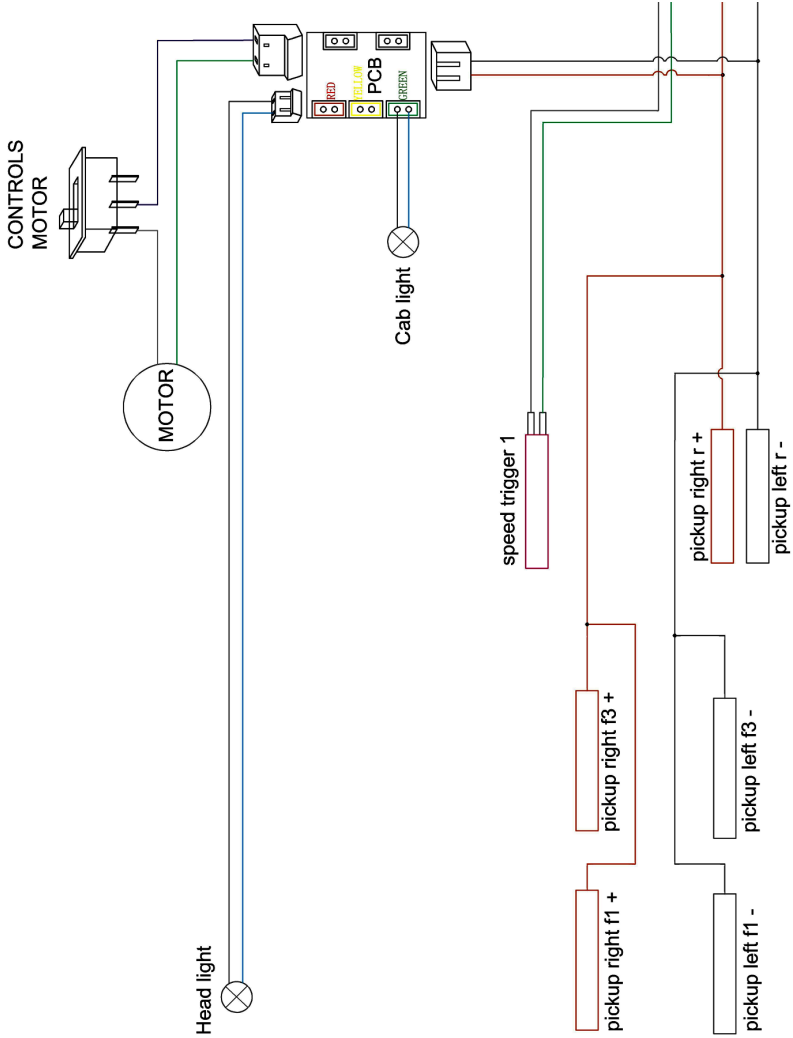
Phoenix and Sierra provide sound units for this model. Please contact them for installation directions. ***Sound Installation (not included)***

General maintenance

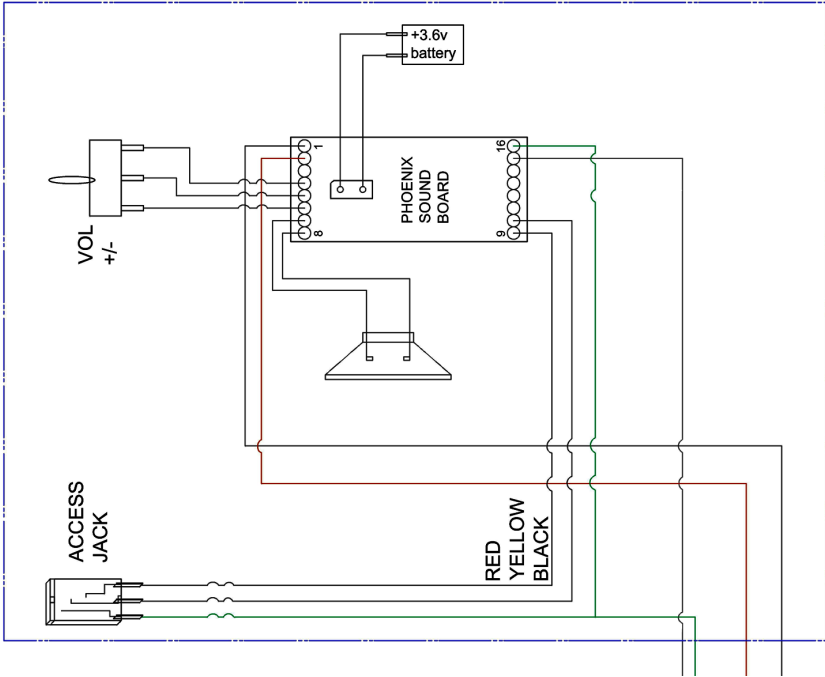
Clean the exterior surfaces of your locomotive with a clean, soft and lint free cloth.

The following parts are packaged separately

- M2 hex head screws
- 3 mm hex head screw driver
- Whistle pull cord



Locomotive Side



Tender Side



**Mason Bogie 2-6-6T
Live Steam**

Preparing the engine

A steam-locomotive engineer goes through a lighting-up ritual every time the engine is to be run. It is good to follow the same routine each time so that nothing is overlooked.

1. Oil all external moving parts, including wheel bearings, of the engine with a high grade, lightweight machine oil like 3-in-1.

2. Place the engine the track.

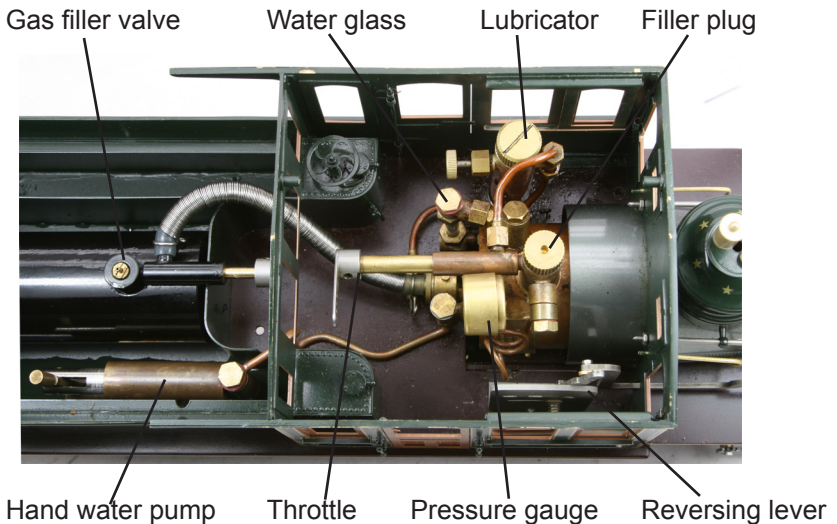
3. The adjustable lubricator located in the cab ensures the cylinders and valves are properly lubricated inside. As the steam passes through it, a small amount will condense into water. This water will sink to the bot-

tom of the lubricator, forcing a similar quantity of oil into the steam line and thus to the cylinders.

Remove the lubricator cap and draw out any water from previous run with a syringe. Use only proper steam cylinder oil. Fill the lubricator, but leave a small air space between the oil and the cap.

4. Unscrew the filler plug and fill the boiler to the top with water then pull out 30 ml with large syringe. Use only distilled water in your engine's boiler. Tap water contains minerals that will leach out and ultimately affect the performance of the engine.

5. Finally, add fuel. Your Mason burns butane gas. The gas tank is located





in the rear bunker beneath the rear deck. Remove the rear deck. Butane gas can be purchased at the grocery store or at a tobacconist's as cigarette-lighter refills. These come with a nipple suitable for the filler valve on the Mason's gas tank. (Butane can also be purchased in larger containers at camping-supply stores, but these cans will require a special adapter for filling the engine's tank.) Simply press the nozzle of the butane canister hard onto the filler valve atop the tank, making sure that the control valve is closed. You will hear the gas transferring and will see a little gas bleeding out of the valve. When the tank is full, the gas will begin to splutter and much more gas will escape the valve. When the gas tank is full you are ready to fire up the engine. Add 1" to 2" of water to the rear tank. This will keep the tank warm and the gas pressure up!

Firing up

Make sure the throttle is closed. The engine's burner resides at the back of the flue inside the boiler. Open the hinged smokebox door at the front of the engine and you'll be able to see the flue. To light up, strike a match and hold it at the open smokebox door while simultaneously opening the gas valve in the tender very slowly until the gas ignites. You should hear the gas coming into the burner. Opening the valve too wide or too fast may blow

out the flame or cause the fire to burn in the smokebox.

The fire should flash back into the back of the flue with a quiet "pop". If it wants to burn in the smokebox or in the forward part of the flue, slowly close the gas valve until it flashes back to the burner. Don't let the fire burn in the smokebox - your engine will not run as it should and may be damaged. The fire should burn under the burner in a crescent-shaped flame, which should be clearly visible through the smokebox door. The flame should be bright blue and should burn steadily. If it sputters or looks yellow or green, adjust the gas valve accordingly. The object is to run the burner at the lowest setting possible to operate the engine, thereby increasing the efficiency of the engine and the duration of the run. You'll get the hang of this with practice.

After another four or five minutes, pressure on the pressure gauge should read about 20psi (pounds per square inch) or so. The safety valve is set at 60psi. When the pressure on the gauge reaches 40psi, the engine can be run.

Running

Open the cab roof for access to the controls. Move the reversing lever at the right side of the cab to the forward

position. With the engine on the track, and without a train, open the throttle. Because the cylinders are cold, the hot steam entering them will condense into water and be exhausted through the stack. The engine may need to be pushed a little to overcome the steam condensing into water in the cold cylinders. After a few moments, it should take off on its own, moving away smoothly.

Once the engine is running smoothly, a train can be coupled on and the run can proceed. Since all of the locomotive's functions are controlled from the cab, it can be driven like a full-size engine, meaning that you'll have to stay with the engine through the run if you want to change its speed or direction. If you have a suitable track, the engine can be left to run on its own at a steady speed. Keep your eye on the water glass. When the water level drops, add water by pumping the hand pumper.

Gas Control Valve



Hand water pump

Shutting down

To shut the engine down, simply close the gas valve and allow the engine to run off any residual steam. At the end of the run, open the blowdown valve and leave it open. This will relieve the boiler of what little pressure remains and prevent a vacuum from forming inside the boiler that could draw lubricating oil into the boiler if the throttle valve is not fully closed.

After a day's operation in the garden you'll probably find that your engine has a coating of oil all over it. This is steam-cylinder oil that has been exhausted from the stack. A simple wipe down with a dry cloth is all that's necessary to restore the engine to pristine condition. This is best done while the engine is still hot. Wipe any grit and excess oil from the wheels and running gear.

The boiler can be drained of water, or not, as you will. Leaving water in the boiler will not harm it. The lubricator can also be drained and refilled with steam oil in preparation for the next run.

Cold-Weather Running

The weather can dramatically affect the performance of your locomotive. Cold and wind can decrease efficiency to a disappointing level. Butane gas



becomes liquid at 32°F and will not work. As it approaches 32°, its pressure (and effectiveness) diminishes.

The compartment in the rear tank in which the gas tank resides can be filled with warm water in cooler weather. This will warm the gas in the tank and keep its pressure up, which will cause the engine to operate in a much more lively manner, much as it does in warm weather. If the water in the tank cools, just replace it with warmer water. Empty the tender at the end of the day's run. Note: the temperature of the fuel-supply-can must always be higher than that of the engine's gas tank. If you have warmed the engine's gas tank and the supply can is cooler, gas will not transfer. Never put boiling hot water in the tender around the fuel tank.

Notes on Radio Control

Although the Mason was designed as a manually controlled locomotive, there is no reason why radio control (R/C) cannot be fitted, with some ingenuity. A two channel radio is all that's necessary, one for the throttle and one for the reversing lever. The gas valve should always be controlled manually. The reversing lever will have to be modified so that it does not lock in position, but it must still have stops at either end of its throw for proper positioning of the reversing valve.



Safety

For your safety, there are certain rules that should be observed, as follows:

1. The safety valve is under the steam dome (the dome nearest the cab). It has been set at the factory to release at 60 pounds per square inch of pressure. Never tamper with the safety valve.

2. The firing system has been designed to use butane gas only. Never use any other gas (including propane or butane/propane mix), as the storage pressures can reach unsafe levels.

3. Always refuel the engine away from other working live-steam locomotives. The fuel filling system allows a small amount of the gas to bleed off as the fuel tank is being filled. A passing engine can ignite this bleed-off gas, causing a potentially hazardous situation.

4. When lighting up, light your match first, then turn on the gas.

5. A steam engine gets hot. Be careful. The following parts are packaged separately

- M3 hex head screws
- 3 mm hex head screw driver
- 5 ml syringe – steam oil
- 50 ml syringe - water

Technical Specifications

Live Steam

Scale/Gauge: 1/20.3, 45 mm Gauge

Length: 22.4 in. (569 mm)

Width: 4.5 in. (118 mm)

Height: 7.5 in. (190 mm)

Minimum Radius: 48 ins. 0.76 M

*Be sure to leave at least 3" clearance (measured from the inner rail) to allow for overhang.

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 COME 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.

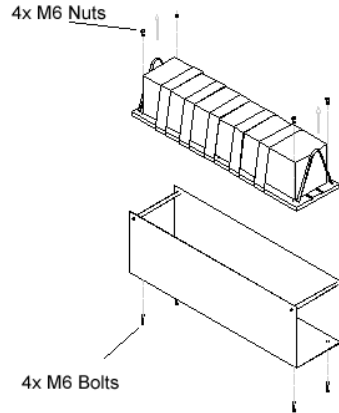
Accucraft Trains locomotives are fine scale brass models with small parts. To provide maximum protection from shipping damage, we carefully pack the models in metal cases. We ship via UPS with insurance coverage to its full value. Please contact UPS if package is damaged.

Each locomotive is packed under UPS guideline for shipping. We do not warrant any damage resulted from re-packaging by any party other than Accucraft Trains.

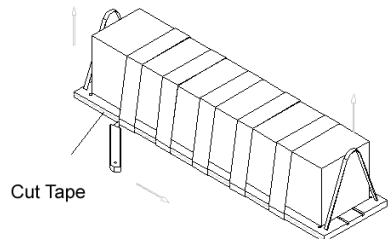
Please read following directions before unpacking your locomotive.

1. Lift the metal case from the cardboard box.

2. The locomotive is firmly taped to a 1/2" wood board which is then fastened to the metal case with 4 M6 bolts. Bolts must be removed before lifting the locomotive with wood board from the metal case.



3. Place taped locomotive on a flat surface. Carefully cut the tape along the wood board side surface. Be sure to cut both sides of the wood board. Slowly lift the tape from the locomotive. Be very careful with small parts. Tape cannot be re-used to re-pack the model. Use new packing tape if necessary.



ACCUCRAFT TRAINS PARTS & ACCESSORIES ORDER FORM

QTY	SKU	DESCRIPTION	EACH	AMOUNT
	AP-29201	Syringe, Metal, 1/pkg	\$27.00	
	AP-21151	Pressure Gauge 80psi, 1/pkg	\$76.00	
	AP-29204	Gas Adaptor of Fuel Extender, 1/pkg	\$6.00	
	AP-28203	Steam Oil, 200ml/6.7fl oz, 1/pkg	\$5.00	
	AP-24141	Control Lever for Throttle and Gas Valve, 1/pkg	\$6.00	
	AP-21766	Goodall Valve, 1/pkg	\$15.00	
	AP-21767	Goodall Valve Pump Bottle, 1/pkg	\$15.00	
	AP-21768	Goodall Valve and Pump Bottle, 1 set/pkg	\$25.00	

SUBTOTAL	
CA RESIDENTS ADD 9.75% SALES TAX	
Shipping First Item	\$5.35
Additional Items Add \$0.50 for each	
TOTAL	

PRINT ONLY

NAME: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP: _____

PHONE: _____

E-MAIL: _____

METHOD OF PAYMENT

CHECK
 VISA®
 MASTER CARD®

Name of Cardholder: _____

Credit Card Number

Expiration Date

CVV number

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SIGNATURE: _____

Date: _____

Make Check Payable to: **ACCUCRAFT TRAINS**

Please complete this order form and mail with your payment to the following address:

**ACCUCRAFT TRAINS
33268 CENTRAL AVE.
UNION CITY, CA 94587**

For more information, please visit www.accucraftestore.com





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