



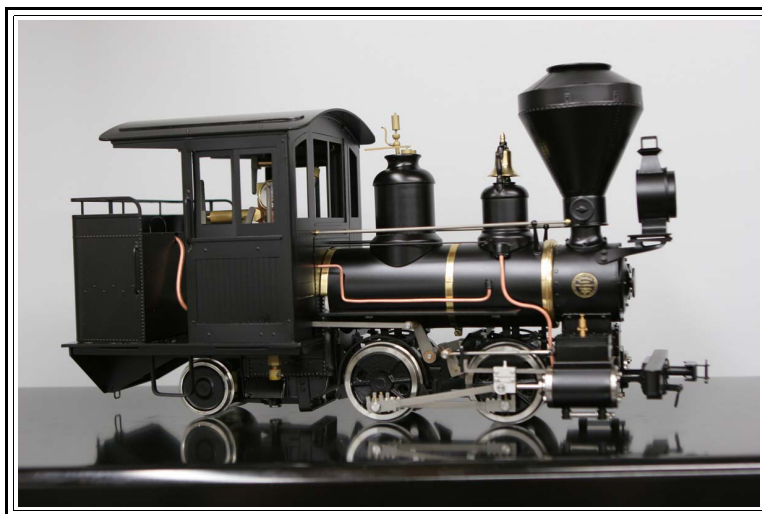
ACCUCRAFT TRAINS

MUSEUM QUALITY BRASS MODELS



Accucraft Fairymead 0-4-2

AL87-810 7/8ths Fairymead Green
AL87-812 7/8ths Fairymead Black



Instruction Manual 0-4-2 Fairymead

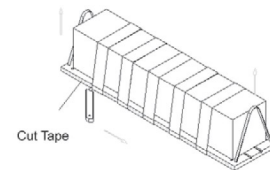


Note: Please read the entire manual prior to operation

Unpacking and Assembly

Remove inner box from the shipping carton, lift open and remove locomotive in its cocoon from the box. Set aside the small parts box for later use.

Place the board on a hard surface and using a razor knife cut along the board edge. Carefully pull off the tape and plastic from the locomotive. Discard all tape and plastic.



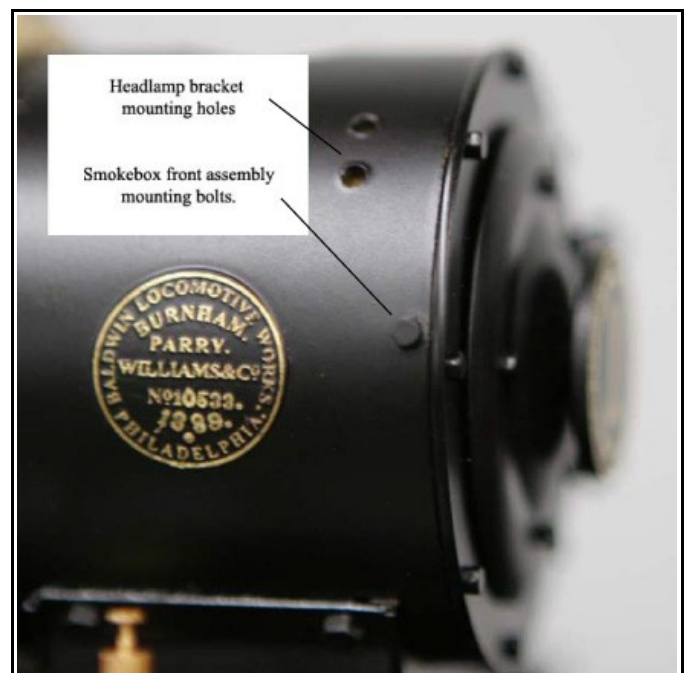
You will notice that the headlamp and stack were not shipped installed to avoid damage in transit. In the next steps we will install these on the locomotive.

Open the small parts box and remove the tools, lamp and stack as you will now need a M2 and M3 nut driver to install the headlamp. You will also need a small pair of needle nose pliers (not included) to tighten the smokestack.

Using the M2 nutdriver remove the 2 bolts on each side retaining the smoke box front, Be careful not to damage the finish.

Set the screws aside and gently pull the front off with your fingers through the opened door.

Next remove the brass deflector and insulation wrapping the inside smokebox.

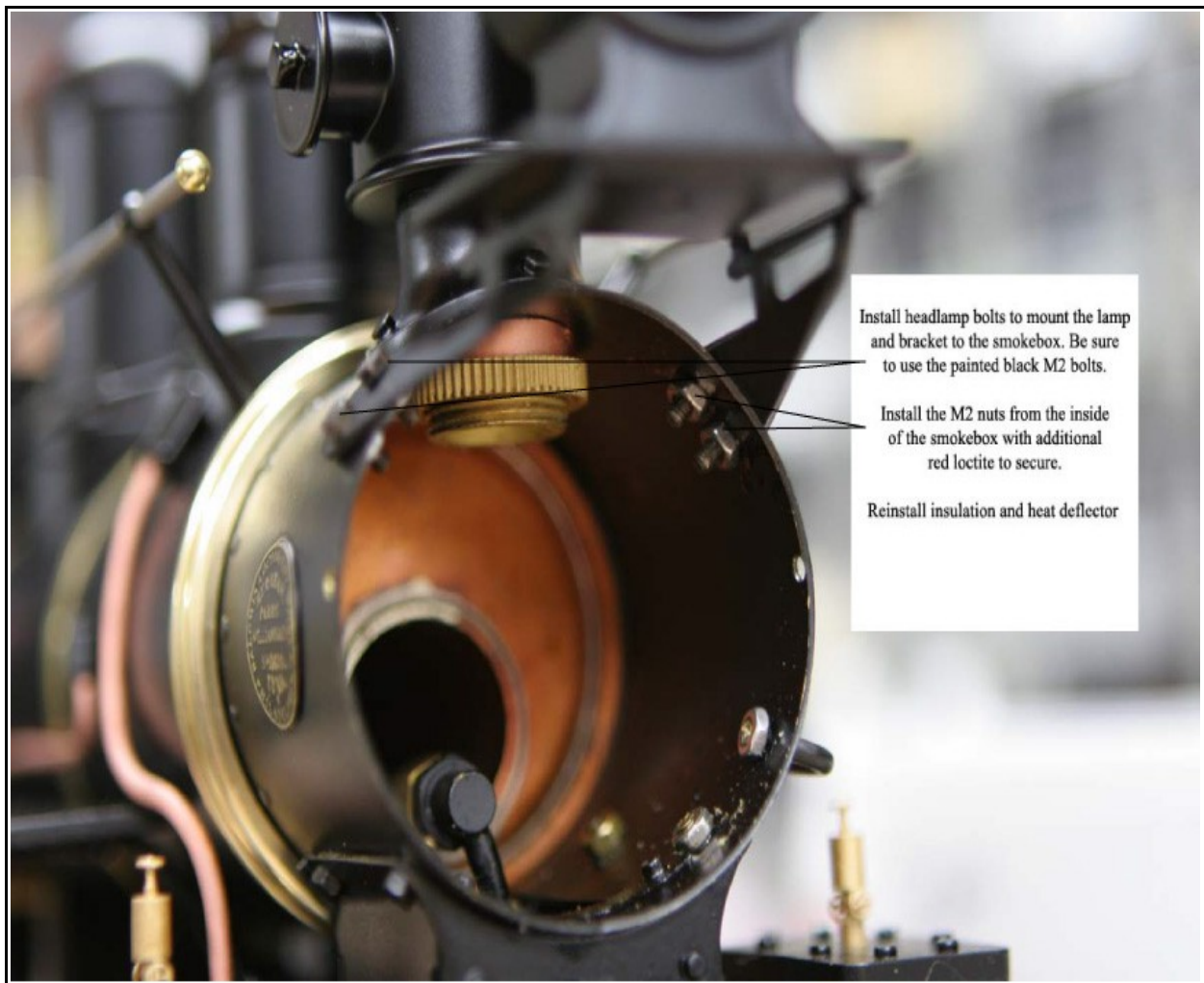


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The smokestack will be installed next, remove the nut and curved washer from the stack and insert the stack and base through the opening in the smokebox. Support the stack at all times and insert the curved washer then the nut. Keep constant pressure on the washer as when turning the nut it can become misaligned. Snug the nut by hand and if necessary to fully tighten use a small pair of needle nose pliers.

Next you will install the headlamp. Using the supplied painted M2 bolts start one bolt per side to support the lamp then install the remaining bolts. Tighten snugly and install the supplied nuts from the inside of the smokebox. Red loctite is advised to use on the nuts to secure.



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Reinstall the insulation and brass heat shield inside the smokebox.

Install the chuff pipe through the stack from the top down to the exhaust T that is between the cylinders. Using your finger inside the smokebox tighten it just finger tight. At this point the parts are installed and the front can be reinstalled, starting from the lower edge align the front with the smokebox and gently press the front until it bottoms out on the smokebox. Reinstall the two small bolts to secure the front. The lamp may be angled up and will need to be aligned after the front is reinstalled. Using your fingers lightly bend the lamp into position to adjust the bracket.

Install the faux safeties and whistle stop the steam dome. The whistle sits closest to the cab wall.

General Information

Operating a live steam model is different than a electrically powered version. It is a hands on interactive model. Never leave any working engines unattended once the burner is lit or if the locomotive under way. Always know where and how the locomotive is operating including the boiler water levels.

- Always read and understand the manual prior to operation for the first time
- Always maintain the lubrication on the motion parts and lubricator as it is designed for extended run times. The lubricator will last for about 45-60mins
- Never let the engine run completely out of water – if the locomotive suddenly stops and there is still pressure or if the glass is empty shut down the burner.
DO NOT ADD WATER TO A HOT EMPTY BOILER
- When filing the gas tank keep away from any open flame or passing by locomotives, especially Alcohol fired locomotives.
- Do not carry the locomotive by any bodywork, always carry by the front and rear buffers.
- Never stand or look directly over the chimney as hot water or oil can eject at any time.
- Use caution when opening the smokebox door when a engine is hot or burner is lit.
- Never touch any running gear while in operation as they can cause injury.
- Never allow children to operate without adult supervision.

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General maintenance

As with all operating machinery; model or full size, wear will occur. Much can be done to prevent and prolong the life of both.

Keep the engine as clean as possible and the motion free of dirt and garden debris. When running on a garden track always clean after each day of running to keep sand and dirt from damaging the parts.

Routinely check for loose bolts/nuts and tighten as necessary. Do not over tighten, these are small model bolts and can shear or strip easily. Use of blue loctite is advised on any loose bolt.

To clean fill a spray bottle with hot water and a liquid dish detergent. Spray onto the cool locomotive. It cuts the grease and oils used to lubricate. It also cleans the dirt and sand from the small parts and motion points. Use a 2" soft bristle paint brush to wipe the loco down and get into all the confined spaces. Using hot water rinse off the locomotive keeping the water away from any R/C gear or electronics that may have been installed. Allow to dry thoroughly then lubricate as usual and store.

Using harsh cleaners may damage the paint.

Lubrication should be done prior to each run. All motion points require a light oil designed for our steam trains. Green Velvet PBJ220 is designed just for that. It is designed to stick and not run, just a little is required on each point with a needle applicator. Do not flood parts with oil as that will just attract dirt and run all over and eventually onto the rails.

Steam oil should be a light weight ISO460 Steam Oil for our low pressures. Using a heavier oil or non steam oil will void the warranty.

When filling the in-cab lubricator only fill to the bottom of the pipe that runs through the lubricator. Overfilling will cause a excess of oil when starting out. Also use a drop of steam oil on the cylinder crossheads, piston rods and valve rods as the rods all enter the cylinders and are exposed to the high temperatures of the steam. This will keep the O-Ring seals well lubricated and extend the life. To drain the lubricator use a syringe or the lower drain valve under the cab.

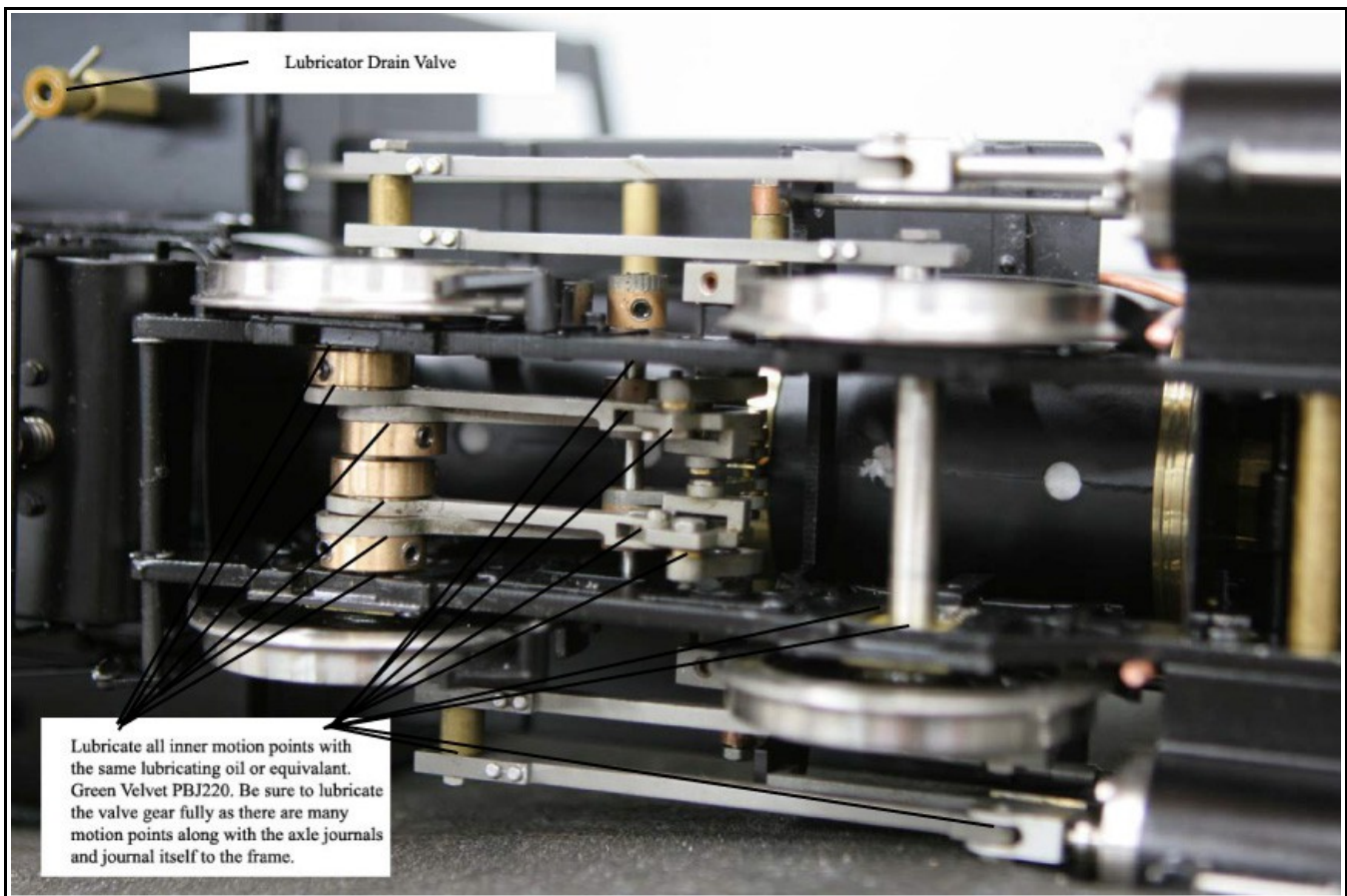
Lubrication points for Steam Oil

Displacement lubricator
Piston rods
Valve rods
Crosshead Guides

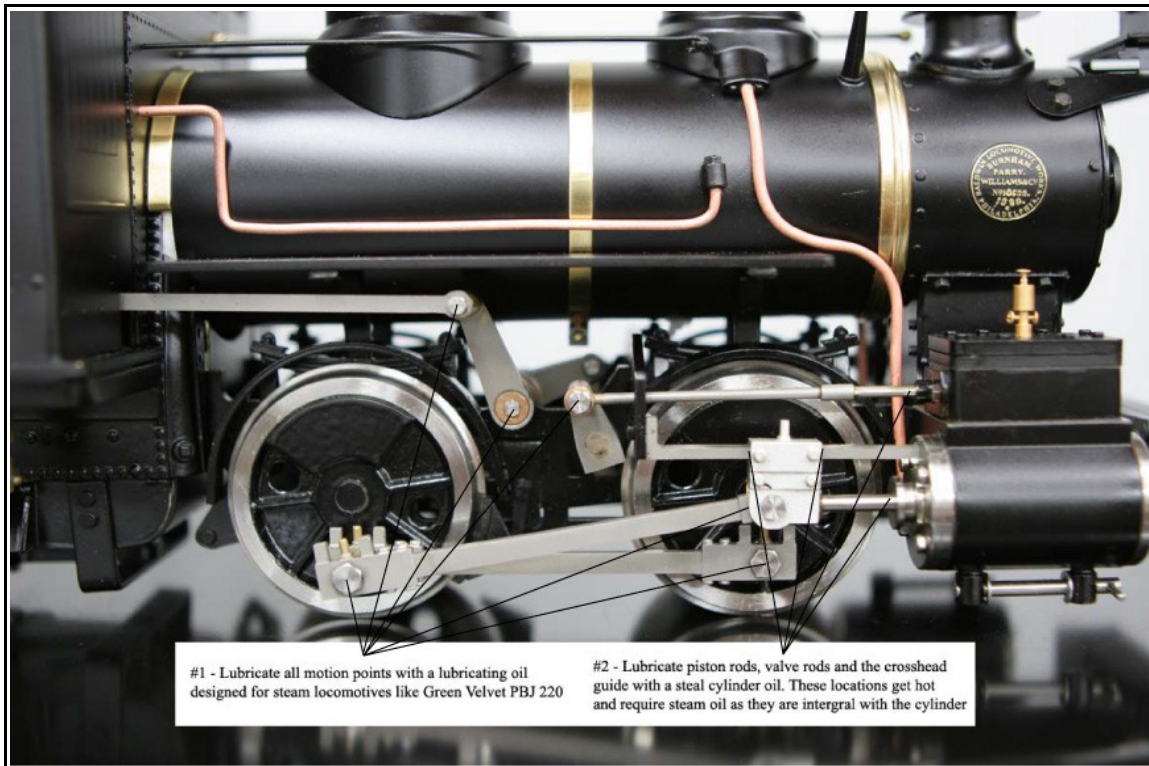


Lubrication points for lubricating oil

All valve gear linkages and pins or pivot points
Valve gear eccentrics
Main and connecting rod pins/bolts
Journal box to axle
Journal box to frame
Trailing truck pivots
Trailing truck journal to axle



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Preparation to Running

Always service the engine fully for each run. Gas, Oil and Water

1. To fill the gas tank, remove the roof and set aside for ease of access to the cab. Invert gas can onto filler valve and support the locomotive whilst filling to prevent the loco from tilting. Be aware of your surroundings and other running locomotives as Butane creates a puddle of gas that is invisible when filling. Gas will squirt out of the valve when full, at that time remove the can. Open the smokebox door to vent gas. Open the gas valve, DO NOT LIGHT but listen for the gas through the jet, you should hear a smooth gas sound.

If there is any sputtering or squirting of gas allow it to pass until it is smooth. Shut the gas valve The gas tank is now ready and full. Bleeding off the tank allows the liquid in the tank above the valve to vent so lighting is easier and large fires are avoided.

2. Lubricate each motion point with a lubrication oil as discussed previously. Drain and fill the displacement lubricator in the cab until the oil is just below the steam pipe on the side of the lubricator. Use a ISO460 oil only. Use a syringe or dispensing type bottle.

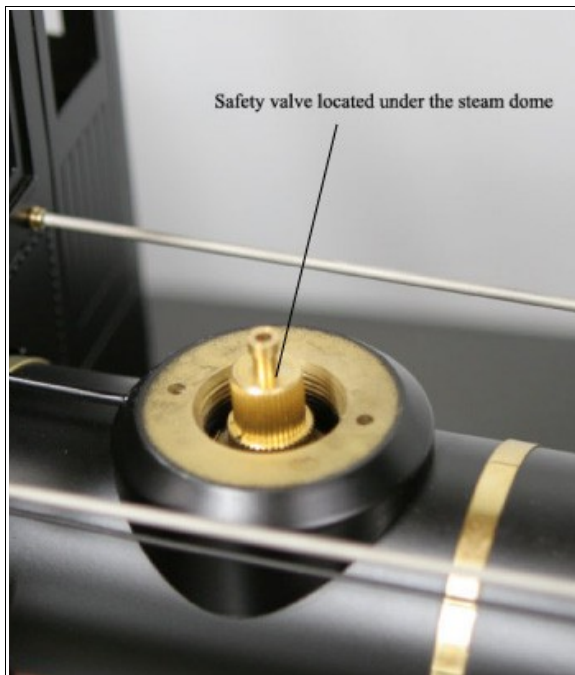
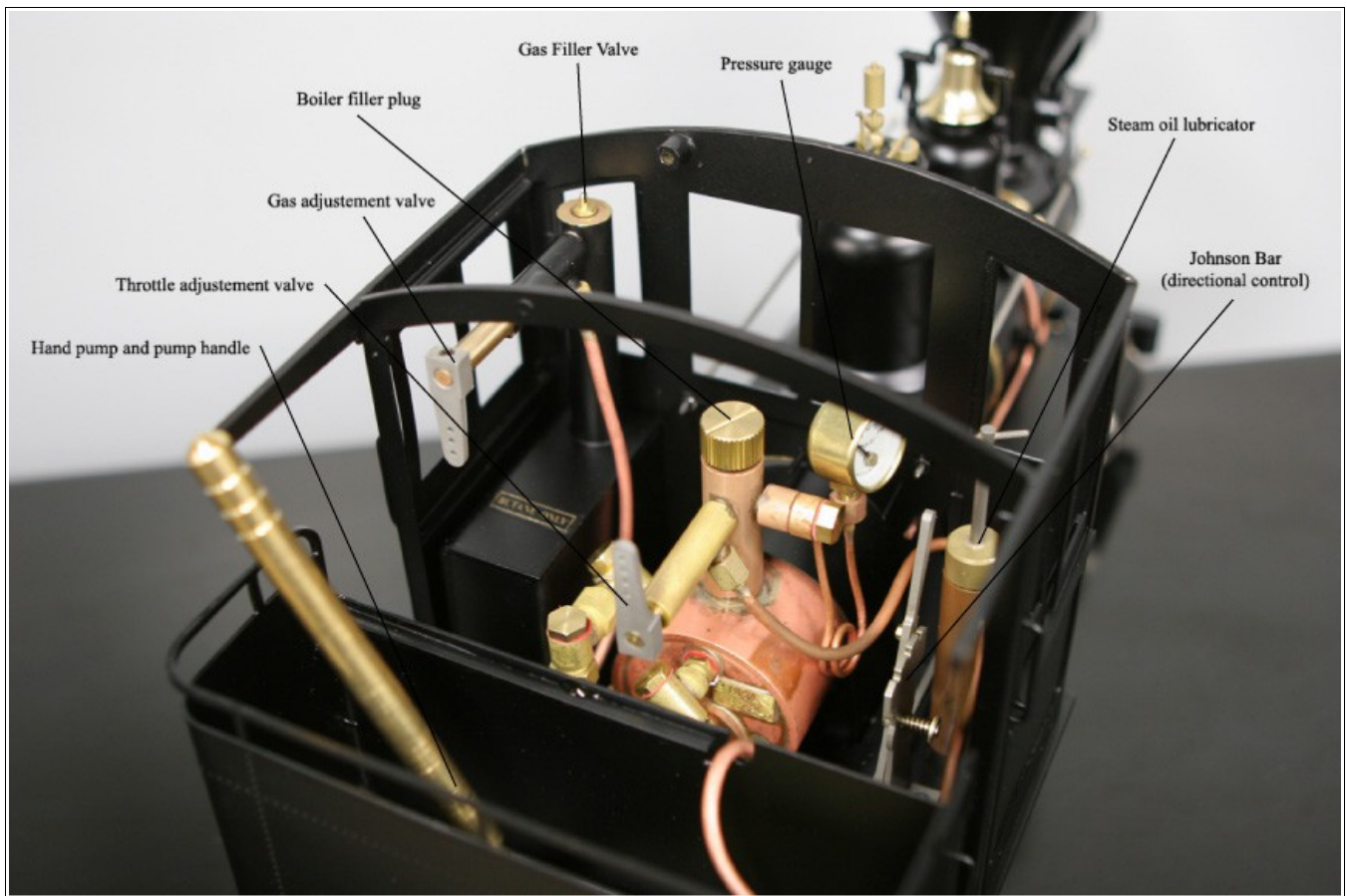
3. To fill the boiler remove the filler cap atop the boiler and fill with distilled water only, 150ml from empty. Alternatively you can use the hand pump to full the boiler to $\frac{3}{4}$ full glass. Leaving a space will allow the steam to build and water to expand allowing for easier starts when cold. You can maintain the water level using the hand pump during operation. Reinstall the boiler filler do not over tighten as damage to the O-ring will happen.

Lighting up

Be sure the throttle is closed and the Johnson bar is in neutral. Open the smokebox door and slightly open the gas valve, using a stick lighter bring the flame to the smokebox door. The burner should light and pop back into the flue. Be sure the fire is not in the smokebox. Check the flame and make sure it is a strong blue flame, if yellow or green adjust the air collar on the burner flange in the cab.

Once up to pressure 50-60psi the safety should lift and you are ready to run and clear the cylinders. Reverse works best for this as the boiler surges water away from the throttle takeoff. The locomotive has operating cylinder drain cocks, they can be opened by turning the lever to the down position. Be careful as it may interfere with switch stands. Water and oil will eject from the chimney, a cloth or towel will help deflect and keep the loco clean. Once the cylinders are warm and cleared of condensate you are ready to set the locomotive off onto the main line.





Safety Valve mounted under steam dome. Preset for 60psi



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The locomotive comes equipped with link & pin couplers, attach one link to the rear coupler from the first car and secure with the supplied pin.

Adjust the burner level to suit the running conditions and keep as low as possible while maintaining the needed steam supply. Excessive blowing of the safety is wasting fuel and water and shortens the run time. Maintain the boiler level using the hand pump. Never allow the water level to get below the top of the burner as that exposes the flue from water inside.

Be aware this is a large and heavy locomotive. Use caution for the first time on less than perfect track work as it is top heavy and can derail with speed or tighter curves. Also check clearances for height and width.

End of run

When the fire goes out, stop at a convenient place off the mainline to shut down and drain or to refill for continued running. If shutting down close the gas and throttle valves, open the lubricator drain valve and release the oil/water into a rag or paper towel. Do not open the lubricator until you know the pressure is at 0 on the gauge and has cooled. The locomotive will be hot at first.

Drain the water from the tank housing the hand pump using the supplied syringe. Once cooled the locomotive should be wiped down with a cotton cloth. Check the running gear for dirt. If seen, clean as described earlier otherwise wipe and apply oil.

Always store in a temperature controlled environment unless completely draining of water as freezing temperature will shatter the sight glass.

The locomotive may drip oil or water during storage so keep a cloth or towel underneath.

Fairymead – The Baldwin Plantation Locomotive Down Under.

By David Fletcher.



Arther, Horace and Ernest Young, with their father, arrived in Australia from New Zealand in 1878 and began their sugar cane business the following year at Fairymead, in Bundaberg Queensland. Initially sharing capability with a nearby mill, the Young brothers opened their own mill in 1884. Cane transport from the fields to the mill was initially horse-drawn, however the expansion of the Queensland railway network in the late 1880s meant the Fairymead Mill would be within a few miles of a mainline railway. The brothers had already considered upgrading their mechanisation and transport with a view to building a second mill some 13 miles to the north. A small steam railway would connect the two Mills. This became unnecessary with the construction of the new 42” gauge government railway, but the locomotive ordered from the Baldwin Locomotive Works in late 1889 would provide the necessary motive power to connect the Fairymead Mill to the main line. The little 2’ gauge Locomotive moved over the 42” gauge connection via dual gauge track.

The order placed with the Baldwin Locomotive Works by A, H & E Young dated to 7th September 1889, with the locomotive delivered in early 1890. The locomotive was the Mill’s #1 locomotive, and was named ‘Fairymead’ after the mill’s location.

The locomotive was a 6-8 1/3C class, (which is a Baldwin classification translating to a 6 wheeled locomotive, with 7" diameter cylinder, a single truck to the rear and 2 coupled wheels = 0-4-2 type with 7" cylinders).

The Fairymead Mill was clearly satisfied with the tiny locomotive, for in 1907 a second locomotive was ordered to the same design, with the specifications noting the design to be identical except for modern appliance. A real oddity occurred in 1925 when the Mill ordered a 3rd and final locomotive of the class to be imported, again being of identical design with modern appliances. The 3 engines, each built 18 years apart, were identical in design with the exception of cosmetic differences and modernisation of some components. For example the original Fairymead #1 of 1889 sported a classic wood burning Radley Hunter Stack, typical of that period, while the 1925 locomotive sported the modern equivalent, the Rushton Stack.

The three engines would serve the Mill through to 1957 where Fairymead #2 and #3 engines were scrapped. The much used 1889 original however was saved by the Mill engineer for sentimental reasons. In the 1960s the little engine was placed in a sea-side park at Bargara and slowly succumbed to the sea air and neglect.



The three Fairymead Baldwins, the well worn 1889 'Fairymead' in the front and the new 1925 #3 in the rear. Photo, Bill Cunningham, from Lyn Unsworth Collection .

Having survived through to the 1970s and the heritage railway movement, the locomotive was again rescued and moved to The Museum of Historic Engines at Goulburn, NSW for restoration. A rationalisation of equipment and restoration efforts at the museum enabled the locomotive to move into private ownership in 1977, with the new owner, Graeme Belbin, determined to complete the restoration and bring the locomotive back to working order. With the assistance of the NSW Rail Transport Museum Workshop at Thirlmere, who did the majority of the rebuild work including boiler work and assembly, the restoration was completed in 1993. With only a selection of historical photographs of the Fairymead in service, photographs of other similar plantation engines in the US in particular Hawaii and a handful of parts drawings from the Mill, Graeme and the team set about researching and rebuilding the engine as far as was practical to original design and working condition. Today Fairymead is steamed regularly at the privately owned Lake Macquarie Light Railway north of Sydney.

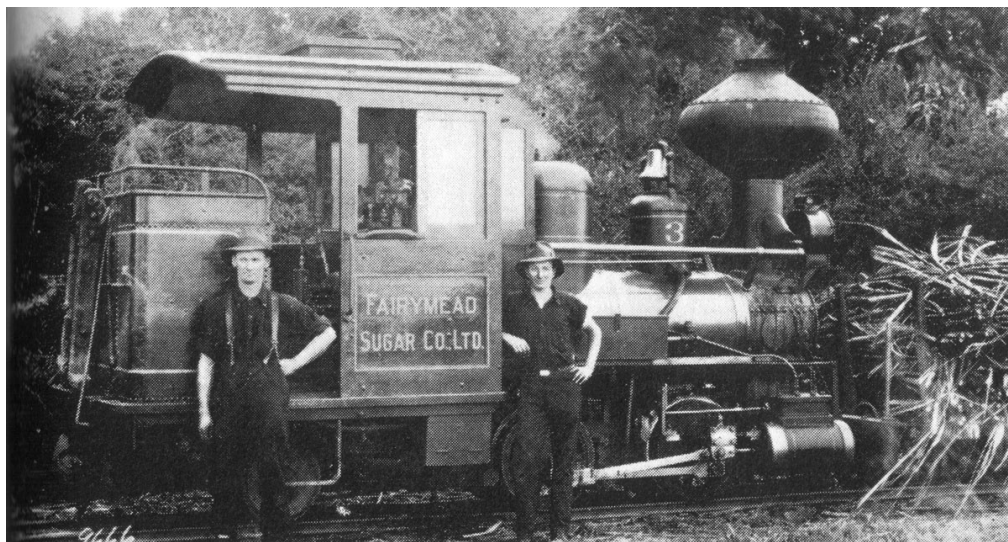
From a Technical standpoint, the locomotive was very much a typical Baldwin industrial engine, a design extensively used on the plantations of the Pacific islands, Caribbean, South America, Japan and in the US. Similar locomotives were built to a number of formats, including different cylinder size and gauge. For the 7" cylinder variety, the 6-8 1/3C class, Fairymead and her sisters were a 'Drawing 10' design, or the 10th design of this class. Baldwin records indicate that there were ultimately 22 different designs developed in this class, with the first design delivered in 1878 and the final of the class built in 1928 for Porto Rico. In all some 73 locomotives of the class were built, all of 0-4-2 design, and all with 7" cylinders, built to different preferences and different gauges. Some were rear-tank design like Fairymead, others were saddle tank design. Only 5 engines were built to the exact Drawing 10 design, that of the 3 locomotives built for Fairymead, and two other locomotives built for Jamaica in 1918.

Probably the most famous of the Baldwin 6-8 1/3C class were the two locomotives of the Waimanalo Sugar Co of Hawaii restored by Gerald Best and Ward Kimball of Disney fame. These two 3' gauge locomotives, both originally saddle tank designs were rebuilt to become the much loved 'Olomana' and 'Chloe'. Olomana was a 'Drawing 4' design, built in 1883 as the 16th locomotive of the class, originally named 'Puaalii', Baldwin Construction No 6753. Ward Kimball's Chloe was built much later as the 62nd locomotive of the class, in 1907 from Drawing 17, Baldwin Construction no 30340. Originally unnamed later named by Waimanalo as 'Pookaa'. Kimball renamed the locomotive Chloe after his youngest daughter and ran the locomotive for many years on his back-yard railway, the Grizzly Flats RR. Other similar Plantation engines have also been preserved in the US and around the world. Today Olomana is preserved at the Pennsylvania Railroad Museum, Strasburg, and Chloe is at the Orange Empire Railroad Museum, Perris California.

When Graeme Belbin lovingly restored Fairymead in the early 1990s, little of the

original archival material was available to assist. Since that time much original design documentation has been uncovered, all of which have been used to reconstruct the drawings used for the Accucraft model. This includes the original specification sheets for all three of the Fairymead engines, the erection drawing to Fairymead #2 engine and the original cards for the stack, smokebox front, domes and cylinders. The colour and decoration of the locomotive has also been reconstructed using the original specification and data from the surviving Baldwin paint books or 'Style Book' held in the Special Collection at Stanford University.

Fairymead and her sisters were painted Baldwin's standard Olive Green as the ground colour, with deep yellow linework applied to the Style Book's standard livery, 'Style 216' as called up in the specification. Style 216 was a standard industrial livery, intended as a simple and plain design. The style would be particularly prevalent on industrial locomotives around the turn of the century. Many of the famous 2 footers of Maine were also painted Olive Green, style 216, with either gold, yellow or silver linework. Of interest is that all three locomotives built 18 years apart sported the same livery, with only minor modernisation of the style applied to the 1925 example. Further the original boiler jacket of the 1889 and 1907 locomotives were the typical Planished Iron material (developed from the original Russia Iron, an unpainted oxidized, heat and pressure treated metal jacket). By 1925 however Planished Iron jackets were superseded, for the most part by painted jackets. There was a short period of unpainted steel jackets through the 1920s, noted as the type 18 polished steel jacket. Such jackets were actually a Copper-Steel alloy, intended to be left unpainted and rust free. Fairymead #3 had such a polished Copper-Steel jacket when delivered in 1925.



The 1925 Fairymead #3, complete with Rushton Stack and polished Copper-Steel alloy boiler jacket. Photo: Broadbelt collection from John Buckland Collection.

The restored Fairymead today sports a far more decorative livery than the original style 216 - much removed from the original deep tones of the 1889 Victorian era. This is partly brought about by Gerald Best and Ward Kimball's rendition of their colourful locomotives, but also in part developed from the two-tone green liveries of the 1890s developed by Baldwin as decorative styles for Brazilian exports, particularly to the Paulista Railway. Other examples of this livery were exported to Norway, Japan and Western Australia. Sadly in some ways, the Fairymead engines were never blessed with such painted beauty, but are beautiful for their form and character. The Accucraft Fairymead brings the original livery, design and character of the little Baldwin back to life, exactly how she looked when arriving in Australia in 1890 and so very typical of the many industrials built by Baldwin in this period.



The restored Fairymead, 1993. Photo: Gaye Cozens

Further reading – Light Railways no 123, January 1994, The Light Railways Research Society of Australia Inc.

Special Thanks for Graeme Belbin for his superb restoration, loving care of the original locomotive and for the useful in-service historical photographs of the locomotive.

Fairymead Specifications

Scale 1:13.7
Gauge 45mm
Weight 11lb 1oz
Length 13.6" (345mm)
Width 5.6" (142mm)
Height 7.5" (191mm)
Min Radius 48" (1.2m)
Butane fired
Slide valve cylinders
Stephenson valve gear
Cylinder draincocks
Handpump
Lubricator
Water level gauge

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