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Dream Steam

Bix Ceramic Gas Burner & Tank With Filler Adapter for Mamod or MSS Side Tank Locomotive



Thank you for purchasing this Bix ceramic gas burner & tank with filler adapter for the Mamod and MSS side tank live steam locomotive.

We hope you enjoy using this upgrade part, which is one of many we offer for the Mamod and MSS railway range. Please see our website and back of this booklet for further details.

Introduction: This item is intended for use with the old Mamod and new MSS side tank live steam locomotives. It will give improved heat output and performance. Because of the higher temperature achieved, it is recommended that it is used with a silver soldered high pressure copper boiler.

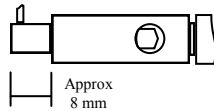
Safety: This product is not intended for and should not be used by children. Fitting requires some dismantling and modification to the locomotive and should only be attempted by a competent adult with suitable tools. Checks must be made that the loco is correctly reassembled and steam tested prior to use. A safety valve must be fitted to the locomotive at all times when in use.

Instruction for fitting your new Bix Gas Burner & Tank

For best results, please read these instructions as a guide only as every loco is slightly different and can have other parts or modifications that require a different arrangement of the gas tank and pipe. Before starting assembly familiarize yourself with the assembly diagrams and check all the components.

Setting the Gas Jet:

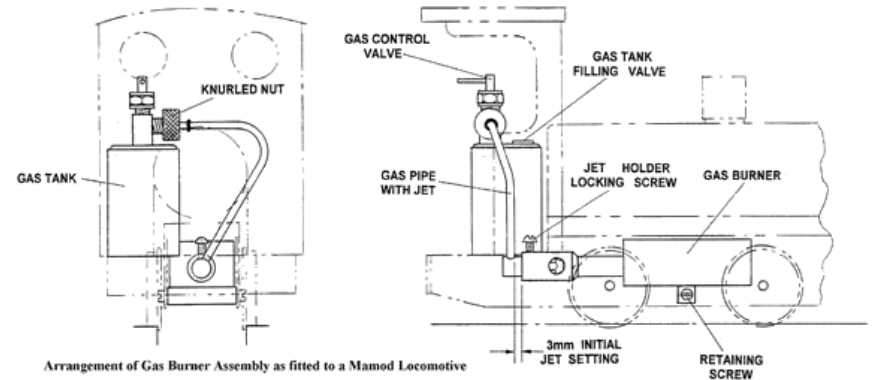
1. The gas jet position will need to be adjusted for maximum heat and economy. This should be carried out in a well ventilated area and in subdued light so the flame can be seen easily. Take care not to burn yourself or clothing. Comply with all gas safety precautions.
2. Connect the gas pipe to the tank using the knurled nut. Slide the jet holder into the mixing tube and lightly tighten the retaining screw, positioning the jet as in the diagram below. The jet must be sealed with PTFE tape or with a non-hardening sealer such as Hermatite.



3. Check for any gas leaks around the valve and pipe connections using soapy water, and rectify if necessary. To light the burner for testing, place on a firm metal surface or gently clamp in a metal vice and stand as far back as possible and hold a flame, preferably a gas cooker lighter, over the ceramic and slowly open the gas tank valve. When lit set the valve to give a reasonable size flame and allow the burner to warm up for 30-40 seconds.
4. Loosen the retaining screw and gently slide the jet holder into the burner until the flame turns soft yellow, which indicates not enough air. Then slide the jet holder back out slowly and the flame should turn blue. Finally adjust the position until there are small light blue cones just above the surface of the ceramic element, tighten the retaining screw at this point as this is the best position for heat output and economy.
5. Avoid sliding the gas jet out too far as this will lower the flame and may result in overheating the ceramic and burner pan. Heat output is lower and noise from the air inlet is increased in this situation.

Fitting:

1. Remove the spacer between the frames and wheels. With the gas tank disconnected, the gas burner and pipe can now be fitted by carefully sliding the burner up between the frames underneath the cab, over the axle and then drop down between the axles until the holes in the burner spacer bar line up with the holes in the frames, with the ceramic element facing up towards the boiler. Fit the two screws provided through the holes in the chassis to secure the burner in place. The holes in the chassis may need a bit of filing to fit these screws.
2. You may prefer to disassemble the chassis frames from the body to perform this task. Be careful not to damage the ceramic element as it is very delicate.
3. Put the gas tank on the cab floor as shown in the diagram, or a suitable position of your choice, and connect the gas pipe from the burner to the gas valve on the tank using the knurled nut, which should only be finger tight to make a gas tight seal.



Operation: To fill the gas tank, use a Butane or Butane/Propane mix gas canister with a screw thread connection, as used with DIY blow torches. Butane/Propane mix burns hotter than pure Butane and can burn too hot on warm days so is more suitable in cold conditions.

Always carry out this operation in a well ventilated area and ensure all naked flames are extinguished first. Attach the refill adaptor to the tread on top of the gas canister. Turn the gas tank valve off. Undo the knurled nut on the gas tank and remove the tank. Holding the gas tank firmly upright in one hand; hold the gas refill canister upside down in the other hand and insert the adaptor nozzle into the gas tank filling valve ensuring it is aligned properly. Press the cartridge down firmly into the tank filler valve until hissing sound can be heard. This means gas is entering the tank and air is being expelled. When the tank is full, cold liquid gas will spray out of the filler valve—**disengage the adaptor nozzle immediately!** Be careful at this stage as the tank can freeze. Performance can be improved by allowing the gas tank to come back up to room temperature after filling, whilst preparing the loco and filling the boiler etc.

When full, replace the gas tank and reattach the knurled nut and hand tighten. Before lighting the burner, ensure any escaped gas, which is heavier than air, is not still present by blowing around the loco to disperse any pockets of gas. With a suitable ignition source, a gas cooker lighter is best, gently open the gas tank valve and hold the lighter either close to the vent holes on the chassis, or close to the opening between the side panel and the boiler top—in either case be prepared for a little gas blowback as the gas ignites so keep at arms length and do not look directly over the loco when lighting the gas burner. If the gas does not light immediately, do not let the gas continue to flow whilst holding the ignition source hoping it will light, as this may cause a bigger blowback than expected and is dangerous. Turn the gas off and try again after blowing the unlit gas away.

When lit, experiment with the level of the flame and the opening of the valve until the ceramic is a cherry red. Flames should not be leaping out from the gaps between the side tanks and the boiler. The gas tank should run out before the boiler runs out of water if both have been filled at the same time. Do not run the boiler dry as this will cause damage. If this occurs, shut the gas off straight away and allow to cool. Check for damage and test for leaks before re-steaming.

Ensure the gas tank valve is shut off after steaming and the flame is extinguished. Never store gas in the tank. Only fill when needed and check all seals before and after every use.