Conversion Etch for Farish GWR 64XX

This kit is designed to fit the Farish Blue Riband model produced from c 2014 onward. It is not suitable for the older Farish locos – replacement etched chassis may be available for these. Before you embark on this conversion you are advised to check that the locomotive is runs well in its N gauge form. It is recommended by the manufacturers to run the loco in each direction for about an hour at a medium speed.

In addition to this etch you will need:

- 3prs Conversion Bearings for Farish Locomotives
- 1pc Geared Conversion Muff for Farish Locomotives
- 2pcs Plain Conversion Muffs for Farish Locomotives
- 3prs 9.0mm 2FS Driving Wheels
- 6pcs Crankpins
- 6pcs Crankpin washers

Tools required

- Small “Phillips” screwdriver
- Tweezers
- Soldering iron and solder
- 2FS Back to back gauge
- Small drills and pin chuck
- Epoxy adhesive
- Paint etc.
- Association quartering jig (optional)

Preparation

Some preparation work is required on the wheels before assembly work can start; check that the 2FS wheels fit the axle bearings – the stub axles should enter the bearings easily and rotate freely. if not, check the size of the axle (they should be 1.5mm diameter) and the bore of the bearings.



Wheelset Assembly

Once you have all six wheels fitted to the bearings you can now fit the crankpins to the wheels. These are probably easiest to epoxy in place. Put the tiniest amount of adhesive on the pin and insert into the wheel ensure any excess squeezed-out from the hole is removed before it sets. The Association wheel quartering jig can be used to assemble the wheelsets. Use of the jig will ensure

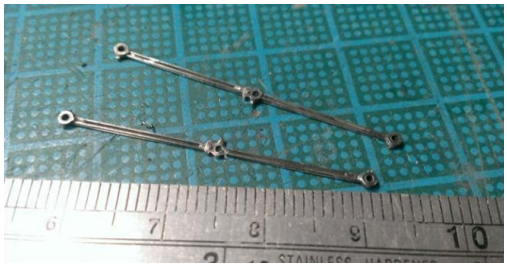
that all wheel sets have their crankpins exactly at 90 degrees to each other and, more importantly, will all be the same. This is critical to a smooth running loco. Place the wheels in the jig inserting the crank pins in their respective holes. Ensure the wheels are sitting flat in their recesses and are not twisted in any way. Add the bearing (double check it is the correct way round in relationship with the wheel back) (flange to the inside, square faces to the outside). Push the jig together until the plastic muff just touches the ends of the axles, Ensure all is in line and gently ease the wheels together checking all the time that one wheel does not “go home” before the other.



Small shims can be introduced to stop the wheel locking the bearing against the inside of the muff. Keep checking all the time whilst also inserting the back-to-back gauge. We need the back-to-back gauge to just slide into place - we are not trying to clamp it between the wheel backs! Once you are happy all is well the wheels can be removed from the jig and the other sets quartered in turn. If you do not have a quartering jig, you can assemble the wheels by hand. You may need to lightly ream out the muff with an appropriately sized drill or jeweller’s broach to allow the wheels to fit. Take care not to open out the hole in the muff too much – the axles should be a tight fit into the muffs. Place the bearings onto the axles and press the wheels into the muffs until the correct back to back measurement is reached and the bearings are free to rotate on the axles. You should now have a set of 3 complete wheel assemblies quartered and with the correct back- to- back measurement.

Coupling Rods

The next stage is to assemble the etched coupling rods. These fold-up to form a double thickness rod (for strength) with a fold over washer to represent the boss. Do not remove the rods from the etch surround until you have completed the soldering work. Take care to ensure that the coupling rods are not distorted in any way during soldering, as this will have a detrimental effect on the performance of the finished loco.

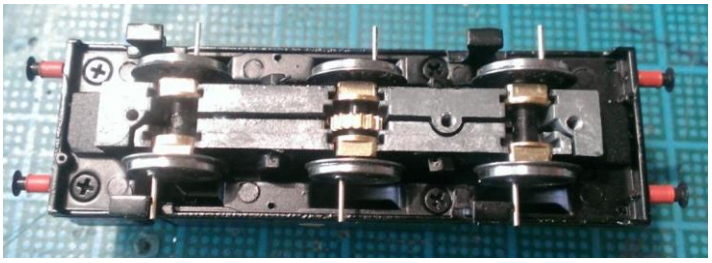


Assembly

Start by inverting the loco and removing the 3 screws in the keeper plate (shown in the photograph below).



A loco cradle would be useful here if available to reduce the risk of damaging the fine detail on the body. Remove the keeper plate and the attached couplings (these can be pulled out with care). Lift out the 3 wheel sets and coupling rods as one sub assembly and put to one side for safekeeping. Insert the 2FS wheel sets in their respective positions (geared axle in the centre, plain axles to front and rear). You will need to rotate the bearings so that the squared sections slide into the slots in the chassis whilst the flanges fit into the adjacent slots.

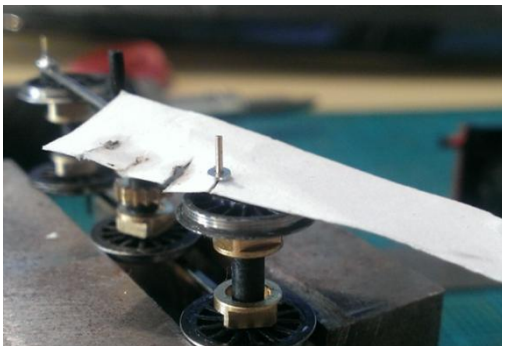


Check at this stage that the front and rear wheelsets rotate freely and that the gear engages correctly with the rest of the gear train. Replace the keeper plate and the three screws and check again for free running (the centre axle will not rotate as it is locked by its gear, however power can be applied (gently) which will allow the centre axle to be driven check that the wheels do not wobble. It will be found that the rear wheel crankpins will foul the rear footsteps unless they are cut down in length (about 2mm). Very sharp end cutters can be used here but we do not want a burr on the end of the pin so dress the end of the crankpin with a needle file after cutting it.

Fitting the Coupling Rods

It has been found that because of 'play' in the bearings between the chassis block of the Farish chassis, it is recommended to open out the crank pin holes a little more than would usually be the case in 2mm loco construction. Start anyway with a 0.5mm drill to ensure we have a clean hole with parallel sides. This should just fit over the crank pins. If not, open out with a 0.6mm drill and re-check the fit. Now rotate the wheelsets to their respective positions so that the crankpins all line up on one side of the loco. Ensure the rods are the correct way round and the right way up. Hold the rods temporarily in place with a small washer of insulation sleeve cut from some layout hook up wire. Repeat on the opposite side of the loco (the crankpins should all be in their correct respective places here too). Test run on a short length of track, applying power slowly. If for any reason the loco locks-up, remove the power immediately and remove the loco from the track. All wheels should have a little play at all positions of rotation and any tight spots must be removed, also check the quartering as it may have moved out during assembly. If the quartering is still correct, remove the coupling rods and open out the hole a little. Once you have a free running loco the wheels can be removed, and the counterbalance weights added (if not already fitted). The wheels could also be painted at this stage Ensuring not paint goes in the bearings or on the crankpins. Once dry the wheels can be replaced and the coupling rods fitted once again. Check again that all runs correctly, this time however, using the etched washers on the fret to hold the rods permanently in position.

Use a piece of oiled paper over the crankpin between the rod and the washer to give a small amount of play.



You should now have a converted model of a 64XX tank engine that will run on 2FS track.