

## **GWR Iron Minks**

### 1. Historical Information

The 16ft long Iron Mink that these parts represent were built between 1888 to 1901. When first built they had a double block brake with a single lever on one side only, the shorter bonnet vents at the ends and Grease axleboxes. Those built after 1897 were fitted from new with oil axleboxes, those originally built with Grease axleboxes were gradually converted to the oil axleboxes between 1899 and 1915. Those wagons built from about 1899 were fitted with the deeper bonnet vents. A few older vans may have been fitted with the deeper bonnet vents if repairs were necessary, but generally retained the original vents. Between the late 1920's and mid 1930's all the remaining vans were fitted with an additional single brake block and lever to comply with the BoT regulations on brakes introduced in 1911. From the late 1920's where the doors required repair/replacement a pair of vertically planked doors was fitted instead.

As well as the GWR, some of the Welsh railways also had Iron (or Steel) Minks. As far as I can determine the Rhymney Railway had 30 vans second hand that were the same design, but had different axleboxes and comode handles on the ends and the Rhonda and Swansea Bay Railway had some to the same design as the Original GWR ones, though possibly with Split spoke wheels. The other Welsh railways vans had different size bodies in one dimension or another, so the body parts would not be suitable for these.

The following are notes on how I built my models which may be helpful to you.

I printed all the 3D printed parts in PETG on a Prussa Mini at 0.15mm deposit height.

The drawing that I used as a basis for my model was from a book "All about Iron Minks", published by HMRS.

Bought parts:

The wheels I used are Slaters plain spoke wheels part number S9110

The coupling hooks are Model Engineers Laser part number 24312

The buffers are From Peter Korzillius

The Brass roof is from Model Engineers Laser part number 22665

## Body to Chassis assembly

23mm from the end of the chassis is a 1.5mm diameter round protrusion. This is for locating the brake rack onto. If you are making an earlier wagon with double block brakes on one side only then cut the protrusion off the opposite side. Obviously this is easier if you do it before fitting the body to the chassis (don't ask me how I know).

The Chassis has 6 off 1/8" diameter holes for alignment with the 2 body sections and the body sections have 2 off 6BA holes for alignment with each other. I used EvoStik Impact adhesive to join them together as it allows a bit of time for alignment. After its set the bolts/dowels could be removed, or left in if you are a belt and braces man. If you do leave them in, note that the two on the centre line will obstruct a through coupling if you use this (see below).

## Axleguards and wheels.

Note that the spacing between the axleguards is a bit tighter than the G1MRA standard at 56.5mm, but this was as much as I could get it. The holes for the bearings are 3/16" diameter and I use PTFE top hat bearings with a brim thickness of 0.050". I am aware that 3/16" diameter is not big enough hole if you want to use ball bearings, but in the case of the Grease axleboxes the box itself is less than 1/4" wide, so they just won't go. If you want them wider in the Oil axleboxes let me know and I will modify the drawing as required.

## Brakes:

The vee hangar is designed to fit in the slots on the brake gear assembly and the brake gear assembly is designed to locate in the gap in the chassis to set it at the right spacing from the side frame and from the wheels. As far as the Minks were concerned it appears that there was a vertical rod (presumably with a boss) on the opposite side of the brake gear from the Vee hangar instead of another vee hangar as in many other wagons. I represented this on mine by bending a bit of Brass wire at 90° and fitting it in a hole in the floor (see photo 1).

The hole in the brake actuating beam and the vee hangar may require clearing (mine did) for the wire to fit. The other end of the Brass wire can then be used to locate the Brake lever on.

## Couplings

I use a through coupling (see photo 2) to avoid load on the plastic bodywork. I was interested to learn that the original full size Minks did not have a through coupling and took the load through the bodywork, but later a through coupling was introduced.

I used Model Engineers Laser hooks with 106 clock chain (as recommended by Malcolm High) and it seems to be most satisfactory in size and strength. I linked the hooks via some 1mm diameter steel wire and a sprung centre as in the photo.

## Doors

Both door types have a locking bar at the top and peg at the bottom. Originally I tried 3D printing these, but they didn't form satisfactorily or broke off, so I have now just printed mounting lugs and fitted Brass wire as shown in (photo 3)

The upper bar is 34mm long and both are from 30thou Brass wire.

## Roof

I haven't produced a 3D printed roof. I believe the original full size roof consisted of 4 sections where each was joggled to overlap its neighbour. Rather than do this I decided to use a plain roof and 3D print 3 double rivet strips and stick them on. After painting it will probably be hard to tell in G1. From the drawing it appears that there are rivets all around the edge of the roof at about 3 1/2" spacing, but they don't really show up in most of the photos I have seen, so I haven't put them in.

A pre-shaped roof is available from Model Engineers Laser as part number 22665, which just needs rolling to the roof curve and the rivet strips stuck on. But if you want to make your own roof, then the dimensions I used to make up a roof are 166mm long by 85.45mm wide with a 7.8mm radius around the corners. The advantage of the laser cut part is that you don't get frustrated when you have made 3 corners all the same and the last one doesn't match.

## Finally

This is the first 3D printed van I have done, I have completed 2 models, which appear to build satisfactorily, but there may be something I have overlooked. If you have any problem let me know and I will try to help.