GWR 32xx Class 2-4-0

Manufactured by: Martin Finney, 1, Poolestown Cottages, Thornhill, Stalbridge, STURMINSTER NEWTON, DT10 2SQ.1. Tel: 01963 362400 E-mail: martin.finney@virgin.net Website: http://website.lineone.net/~cbwesson/

Introduction.

Originally returned to its owner to complete this one has returned to my workshops for completion. The Finney kit for the 3232 Class 2-4-0 is the basis for this, much modified, model.

It comes in a box that will not hold the completed model, as does the associated tender. A "proper" box is therefore essential to protect the finished engine; good thing too.

The instructions come as A5, unbound, booklets and are quite comprehensive. There is an excellent drawing for an early and a late period engine and exploded diagrams for the chassis. Had there been similar diagrams for the body, I think it would have made the job a little easier. Finney kits are considered by some as "fussy" or over complex. However, I would rather have a "fussy" kit that goes together and fits than an unfussy one that requires lots of extra work to make it fit. So far all the parts have fitted very well and the design has proved to be good, once one has got used to how the designer thinks. A good many modifications were made to this kit so it cannot be seen truly as a review of the kit but of how it was altered to suit my client's requirements.

The Build.
Not having built a Finney kit before, it is proving to be an interesting journey.
This engine, No: 3235, is being built as the motive power for a complete GWR train for a friend. The chassis, shewn here part completed, goes together well. I had already turned up the Harris wheels and here they are temporarily fitted in to get the ride height right I intend to modify the chassis so that the driving wheels can be dropped out and avoid using telescopic axles, though the front carrying wheels has one. If the kit were built as designed, I do not think that the wheels would be removable.

For notes on turning cast iron wheels go to Wheel Turning. The footplate goes together nicely but do read the instructions carefully, particularly if contemplating not following the given order. Later, the central section will be cut out to allow the chassis to fit.

The lamp irons are interesting. The two behind the buffer plank are part of the sub base for the footplate. However, the ones over the buffer plank need to be fitted as separate items (part 80). The instructions call for them being fitted
very late in the order of construction. There are slots in the overlay but they do not match in size the corresponding holes in the sub base. Fitting them after the buffer plank is soldered in would, I think, be difficult. I did not notice this until I had soldered up the sub base and overlay or would have cut out spaces for them.

I used a piecing saw, very carefully, to open the holes in the sub base, soldered in parts 80 and then filed back the overlap where the buffers plank will go, as in this picture.

The instructions suggest fitting the small splashers first and then fitting the tops. I found it easier to bend the tops to shape and, after having filed the cusps off solder them to the fronts. If the splasher front is held down firmly a small block of wood suffices to hold the top in place while soldering with the RSU probe from behind. This picture shews two complete and two still to finish.

A very similar procedure can be followed for the large splashers as shewn below. The difference between the two is that there is a piece of scrap etch under the splasher front to raise it so that the beading overlaps the front. These things are matters of personal preference of course. After all this careful work I discovered that I had soldered the tops of the splashers on the wrong way round as can be seen in the picture below. Check and dry run and check again as I ought to have done.
The smoke box is built around an inverted, open top box. I added a piece of carefully measured scrap at the top to ensure it stayed square while fitting the wrapper. The completed smoke box together, with the chimney, was then temporarily bolted in place on the footplate.

The instructions suggest building the cab up in-situ on the footplate. I opted instead to build it as a separate item using a steel square, magnets and the steel base plate of the RSU to ensure it was square. One shot shewing the completed footplate assembled, and the other with the smoke box bolted in place.

The excellent copper chimney was fitted early while it was easy to get it lined up correctly.

The boiler, once carefully rolled, fits around a couple of formers. Some modification will be required to ensure it fits over the splashers neatly.

The boiler and smoke box are meant to be bolted together and to the
footplate but soldered to the cab. This strikes me as a little odd and I shall try to modify it so that it is all bolted to make painting easier. I have also yet to come up with a method of retaining the driving wheels so that I can use solid axles instead of the telescopic type. In the meantime work continued.

The safety valve needs to be removable so that it can be polished. After clearing out the hole of burnt wax I used a piece of brass rod turned down to just fit. Drilled and tapped it 6BA and then soldered the plug into the hole in the safety valve. A couple of washers soldered on to the bolt ensured that when tightened, the unit would be a tight fit on the curve of the boiler.

The dome needs similar treatment but this time a piece of nickel silver was cut and filed to shape to fit, drilled and tapped 6BA and a washer soldered on to the bolt. It similarly holds the unit tight against the curve of the boiler. Both the safety valve and dome bases were
carefully shaped by rubbing against 240 grit paper wrapped round a piece of suitable diameter rod. Here are the parts bolted in place. Both parts required a deal of work to rub out imperfections and mold marks before they could be polished.

The drive problem was solved by changing the drive to the front drivers, bending up a bracket cut from the frame spacer and soldering an 8BA nut to it. It was then a simple matter of filing up some brass rod to fit across and hold both axles in place. It should be I hope fairly self-explanatory from these two pictures. It has the advantage that the compensation pivot did not have to be disturbed.

The top of the frame spacer was ground down to a convex shape to allow the motor to lie flat inside the boiler. Having got the motor fitted the time had come to test it out on the rolling road.

The underhung springs for the front drivers will now also need to be fitted to this keeper plate. They were soldered to a cross bar of brass strip thus:

And so when the keeper plate is bolted in place, it holds the underhung springs in the correct position.
Now attention could be focused on arranging for the boiler/firebox, smoke box assembly to be separate components capable of being taken apart for painting and maintenance.

I utilized the mounting holes for constructing the Belpair firebox as a guide, drilled through the firebox end plate and soldered in a couple of 6BA nuts. You can see how it goes together in this picture. The shaft extending from the back of the motor will also need to be shortened to prevent it fouling the cab front.

With the cab finally soldered in place the boiler, smoke box, dome and safety valve cover were all bolted together to check for correct fit. All this work had to be taken apart once it was realized that the splashers inside the cab were far too wide.

Even so, the floor needs to be made narrower.
So the cab was carefully removed and the splashers filed down to a more appropriate width. It is all a compromise unless one is building and engine to S7 standards or one that never needs to go round typical 0 Gauge curves. I have not yet completely solved the problem but will probably make the inside splasher sides from plastic to prevent shorting.

There are some well made white metal springs and dampers provided to be fitted to the front of the footplate. However, the spigots are also cast in. I find such things rather fragile and so cut them all off, drilled out the part and replaced the spigots with 1mm brass rod. Here are the parts ready for assembly but on reflection, it may have been easier to have fitted the hangers and rods to the spring and offered up the dampers from underneath.

The spring hangers fitted to the ends.

The body is now just about finished waiting only for the backhead.
Since the wheels and motor/gearbox are removable, it is essential that the brakes are to or, due to the design and my modifications, they will be trapped in place. To begin I modified the frames so that the brake hangers could be bolted in with 14BA bolts tapping through the frames holes and soldering a nut on the outside. Similar to the methods used on the Armstrong.

The engine brake components partially assembled ready to be fitted to the frames. The brake shoes are held apart by small pieces of tubing at top and bottom; more tubing will be used to space the brake blocks out from the frames. The castings for the steam brake cylinders are well made but the spigots do not line with the holes in the frames. Since I intended to drill through each cylinder to allow a 14BA bolt to hold the brake rods in place, I think it will need a stronger mounting anyway so I obtained a set of lost wax cylinders from MOK, which will make a stronger unit. Never-the-less, it's necessary to try them for fit.

The brakes proved to be more difficult than at first imagined. They are designed to be soldered in place but, of course, I
needed them to be removable. Once the parts were assembled I bolted them to the frames. The idea being that bolts would hold the two brake hangers in place and the pull rods clip onto the brake cylinders. The original cylinders did not fit well, the holes were out of alignment and the white metal would not allow of clipping the pull rods, drilling them for 14BA bolts had been ruled out as impractical. This proved not to be possible as the rear brake hanger bolt then fouled the rods. After some thought the rear hanger was soldered in place and its connection to the pull rods removed. The front hanger is bolted in place and the pull rods clipped to the brake cylinder and can be removed to drop the wheels out of the frames.

The floor needed modifying to raise it to the level of the tender and at the same time I made it removable and fixed the drop plate to it. It is fitted in with a small piece of blue tack.

**The Tender.**
While I normally build the tender first (to get it out of the way) this time I had elected to start with the locomotive but the time has come to get on with this part too. It is a separate kit and comes in its own box, which quite rightly will not hold the finished vehicle.

The etches are dated 1988 so it has been around a while and it appears to have been hand drawn not CAD as most of today's output from reputable manufacturers is but, like the engine, the draughtsmanship is of a high order. The instructions are quite comprehensive but it is necessary to read them through a couple of times to get a feel for how the designer thinks, especially if one has built other variations of this type of tender from different manufacturers.

Each designer has his or her own way of doing things and it makes sense to figure out their individual methods before launching out with the solder. Having the read the instructions I promptly decided to go my own way as usual. I used to think that this sort of behaviour from reviewers was simply arrogance but once one has built a number of different kits one recognizes that, provided the basics are followed, the instructions are really a guide to "doing it my way" (provided one is prepared to own-up to any cock-ups of course).
I began as I often do by using the trusty Leaky press to push out all the rivets and bolt heads in the parts I would be using, during a local club night. This kit makes at least six different versions of the 3000 gallon tender so one must be sure one knows which version to build so that the right parts are chosen, there are a lot of them. Martin has done considerable research but the builder still needs to do some work here.

I next began to fold up some of the major parts: Here they are: from left to right, the three parts of the chassis, the footplate and the main body foundation. So far, nothing has been soldered, simply checked and folded up in readiness.

The chassis is very different to anything I have built before. The two outer halves are temporarily bolted to the well tank so that the wheels can be aligned. For this one needs special axles with 2mm extensions to fit the holes for which bearings are provided. It rather looks as though, once the wheels are fitted, they cannot be removed because those side pieces need to be soldered together and the bolts removed.

If, like me, one is using the "American" method of pick-up, make sure all the work necessary has been completed before taking this irrevocable step. In this case, the backs of the wheels on one side have been painted with Electrolube to short them out. The wheelbase for this tender is compensated but, does not appear to be designed to throw its weight on the back of the engine.

This is the compensation beam fitted to the brass tube that revolves around the fulcrum. Each opening has been chemically blackened so that, when the brass rod fulcrum it swivels on is
soldered into the well tank sides, it does not seize up. Once fitted the ends of the pivot rod are filed down smooth. This needs to be carefully done because there is a line of rivets close by that can be easily damaged.

The body has now been temporarily fitted to the base and the etched top soldered on and trimmed to size, the water scoop fountain cover built and the early type of rod tensioners fitted on the axle box mounting plates.

Next job is to bend the flared sides to shape and fit around the body, followed by organizing a running chassis, when the proper axles arrive from Slater's. The flared sides were simple enough; I took the precaution of annealing the tender side sheets before starting work. The fingers at the corners will be filled with solder and filed to shape later. Slater's excellent service soon provided the correct wheels and axles and so the chassis was bolted together with the wheels fitted on their 2mm extension axles. The
next stage is to solder the two sides and well tank together before removing the bolts.

Once done, removing the wheels would be a major undertaking, so getting the chassis right at this stage is critically important. It runs well and is level so the next thing is to modify it so that I can take it apart for painting and maintenance. This was achieved by drilling six holes at 10BA, soldering nuts in place underneath the chassis and bolting the sides to the well tank using countersunk bolts. Now it is possible to remove the wheels should the necessity arise. Well, it was, unfortunately the fittings for the brakes would have needed very extensive modification to allow the parts to be taken apart so all that work really went for nothing. Both ends also needed shortening to allow for the extra strengthening I had used in constructing the tender footplate.

The time had come to begin fitting all the bits that give character. The rear two steps were offered up to their slots only to find that there is no matching slot in the underlying body frame so fitting them was not at all easy. The steam heat fitting is supposed to be fixed to the buffer beam but I elected instead to drill it out and solder it to the end of the steam pipe, the vacuum stanchion though was fitted to the beam.

Here are the parts for the brakes in process of being assembled before fitting to the frames.

The buffers shanks are designed to be fixed in place with a soldered on washer. However, they are threaded 14BA so I used nuts instead.
Finally the tender is finished as these three pictures shew. The pictures of course always shew up the odd problem, like the bent brake standard and spring hanger.

Completed at last and ready for the paint shop.
Had I built it as per the directions it would have been a relatively easy build.

Instead, it has been an interesting challenge.