



moved through the Forth & Clyde Canal and delivered with a different cargo on the return journey.

Many loads were undertaken by these wonderful workhorses but with the improvement in roads and motor transport their days were numbered. The change to diesel motor vessels brought to an end the era of the Puffer.

Neil Munro has immortalised the Puffer in the form of The Vital Spark, skippered by Para Handy. Because of him the Puffer will never be forgotten.

Memories of Puffers unloading on a beach or small creek with steam escaping from the winch and boiler, and the smell of herring frying on the stove and the crew rowing across to the fishing fleet exchanging a basket of coal for a basket of herring. These must have been wonderful days.

One or two of the vessels are still in existence but most have now been converted to diesel power and carry passengers on holidays or adventure schemes, with the hold converted into dormitories or classrooms.

This model is representative of a 66ft West Scottish Coaster at a scale of 1:24 with an overall length of 33ins (838mm) and a beam of 9.5ins (235mm). This really is an enthusiast's model, allowing for the personal touch - also for the atmospheric modeller. It is highly suitable for steam or electric motor.

The Kit

As with all Mount Fleet Models the kit comes packed in a strong cardboard box with the hull and superstructure wrapped in bubblewrap, Photos 1 and 2. The hull, ship's boat and superstructure are all one piece grp moulds and the deck and superstructure cabin are good quality ply which is printed and only requires to be cut to size. Various size strip wood, plastic strip, plastic funnel, brass wire, alloy tube and wood dowel are included, as well as a prop-shaft, chain, rigging cord and numerous other materials to construct the model.

Full size plans are supplied as well as an instruction manual which gives a step-by-step guide to building. Last of all comes a magnificent set of white metal castings, all numbered in plastic bags. These numbers correspond with the step-by-step manual.

The grp hull shows all external plating and riveting and has been designed to represent a working boat. It is not glossy smooth but depicts what a hull of this type should look like.

Finally a photo pack of the finished model by the designer and builder show how the model can be brought to life by slightly weathering the finish. Altogether a full and comprehensive set of materials and fittings.

HIGHLANDER

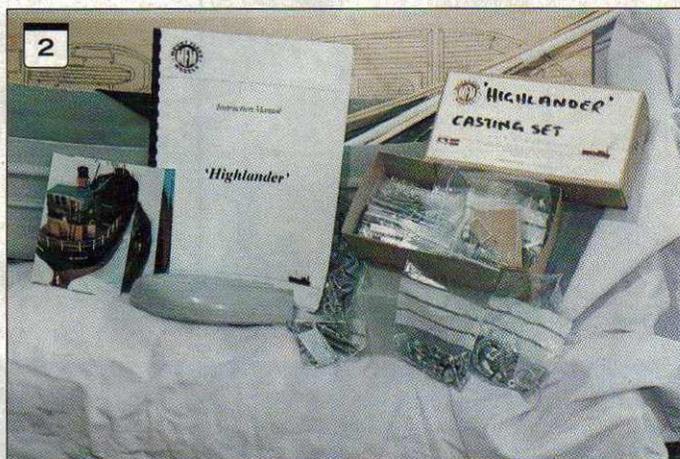
DAVE ABBOTT reviews Mount Fleet Models' Puffer kit

A recent addition to the ever growing range of model boats from Mount Fleet Models is the Highlander, a typical example of the small hard working boats which plied the placid canals and even made short journeys along the coast of the Scottish Isles.

Their cargoes were varied; coal cargoes were usually loaded at Glasgow and then taken to the small stone jetties of the Western Isles, or even beaches if no jetty was available. The cargoes were then delivered by local merchants, or maybe a big household or mansion would order an annual supply, in which case the Puffer would beach herself and the landowner's cart or even

wheelbarrows would unload the cargo, day and night if necessary. The Puffer would then move on to the next quay or beach until the cargo had been distributed.

Not only did the Puffer supply domestic customers but also kept the lighthouses supplied, maybe twice a year. The largest single customers by far were the whisky distillers who required coal, malt, barley and empty barrels. When these were delivered the puffers would return with a load of whisky for export and distribution at the docks in Glasgow. Gas works were also supplied with coal by the Puffers, carrying coke on their return journey. Refined salt was



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Construction of Highlander

Little work was required on cleaning up the grp hull with just a few flashes needing to be filed down. No holes or blow marks were to be seen. The detail of both the rivet heads and plating was extremely good and great care was taken not to rub away any detail when preparing and cleaning down the hull. The tops of the bulwarks all around were filed to a level which would accept the bulwark capping rails when fitted. After rubbing down with a very fine wet and dry abrasive paper the whole of the hull was washed with hot water and a mild detergent to kill any static build up. It was then hung in a suitable place overnight with a wire lead from hull to concrete floor to finally discharge any static electricity in the hull and prevent unsightly patches of paint when spraying on to the hull. It may sound over the top but it does work.

When the hull is dry the first job is to install the skeg, rudder and prop shaft. Photo 3 shows the collection of parts required for this operation. It comprises of skeg, skeg support, rudder, rudder shaft bearings, prop shaft, tube and white metal propeller. Two holes were drilled into the bottom of the keel to accommodate the pins in the lower skeg, and a hole drilled in the position where the vertical skeg support meets the top of the keel. The rudder can then be placed in the lower skeg and the position for the rudder shaft bearings marked.

These parts are temporarily held together, making sure that the rudder turns freely, but they were not permanently fixed at this stage as first we need to install the prop shaft and propeller. I marked the centre of the grp propeller boss, and drilled a hole slightly smaller than the propeller tube, and with a round file opened out the hole until the shaft was a snug fit.

At this stage one must consider the method of propulsion, i.e., steam plant, electric motor etc., and file and line up the shaft and tube to suit the unit to be used. Then one can refit the skeg-rudder, shaft and propeller. After making sure that everything works and nothing catches or binds, glue can be applied. As these parts

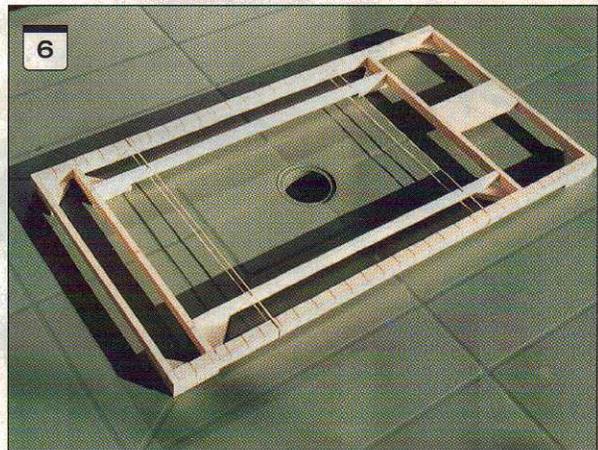
are probably the most vulnerable they need to be strongly fixed, Photo 4. I used 24 hour Araldite two-part epoxy which gives great strength.

The wash port covers can be fixed on to the bulwark sides. I chose to glue them straight on and not cut openings through the bulwarks due to the almost nil freeboard when operating the model, thus keeping drier decks. Three each side were fixed using Superglue.

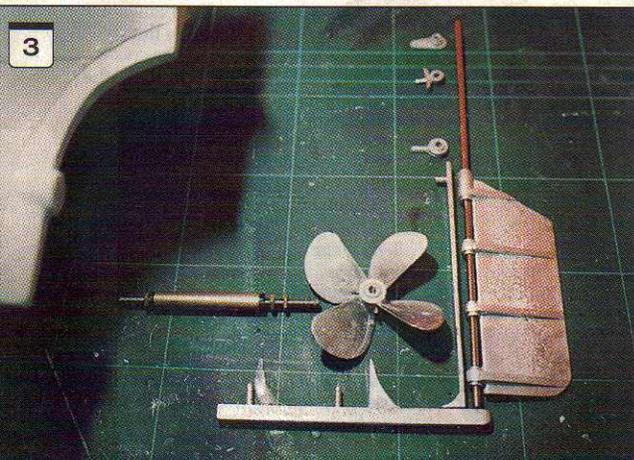
Also, while working on the hull, the mooring and anchor ports were fitted, drilling through the hull and cleaning the holes back to the inner edges of the castings, Photo 5. Again these were fixed to the hull side using Superglue. Any gaps left were filled with Isopon and the skeg was faired into the keel by the same method. This now completed work on the outside of the hull.



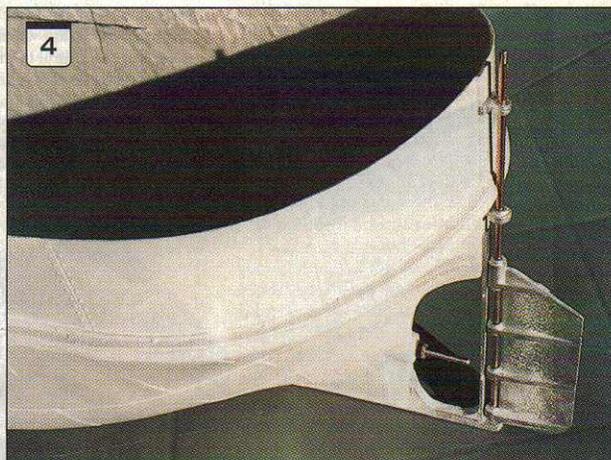
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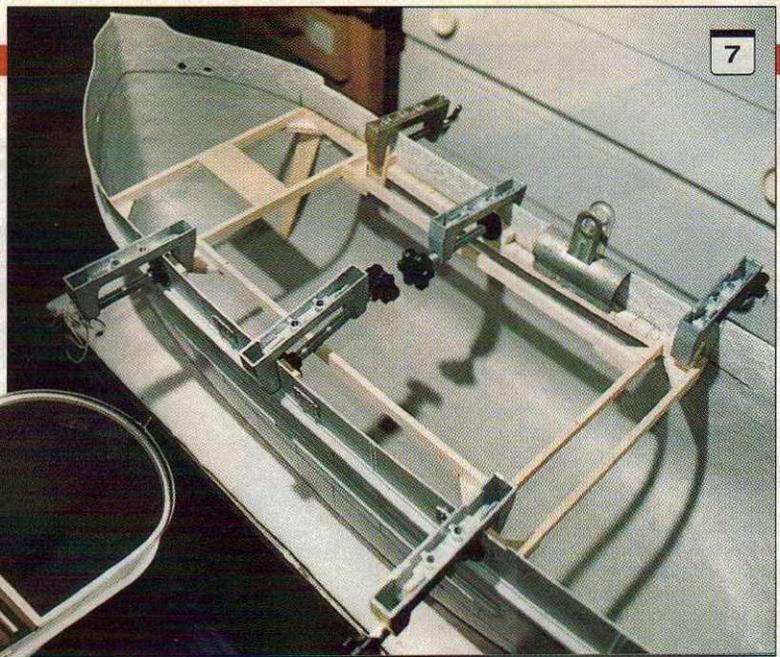


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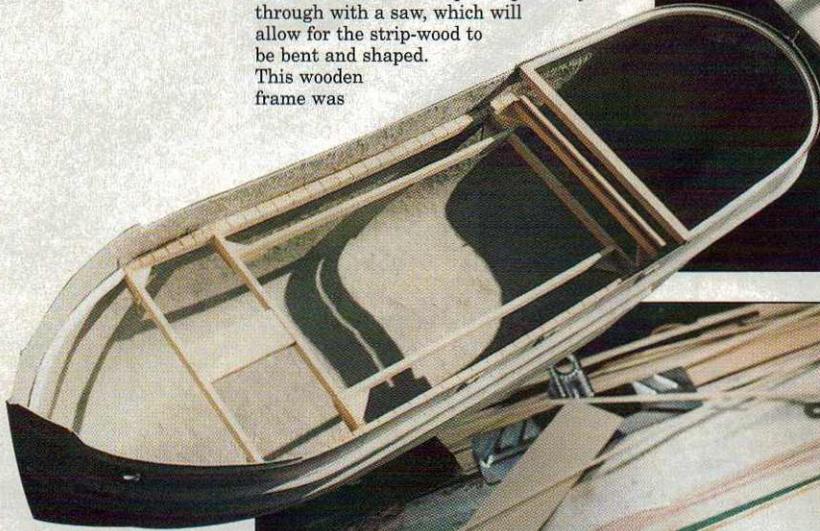


Decks

Fitting the main and quarter decks were the next jobs. To support the main deck a wooden frame is constructed and fitted into the position indicated on the full size plan and the instruction manual. This frame is made up from 10mm x 10mm and 10mm x 5mm strip-wood. Due to the sheer of the deck the side strip-wood needs shaping to fit the sheer. Photo 6 shows the two side strips cut part way through with a saw, which will allow for the strip-wood to be bent and shaped. This wooden frame was



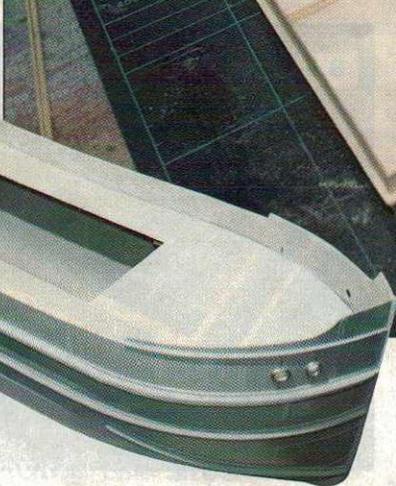
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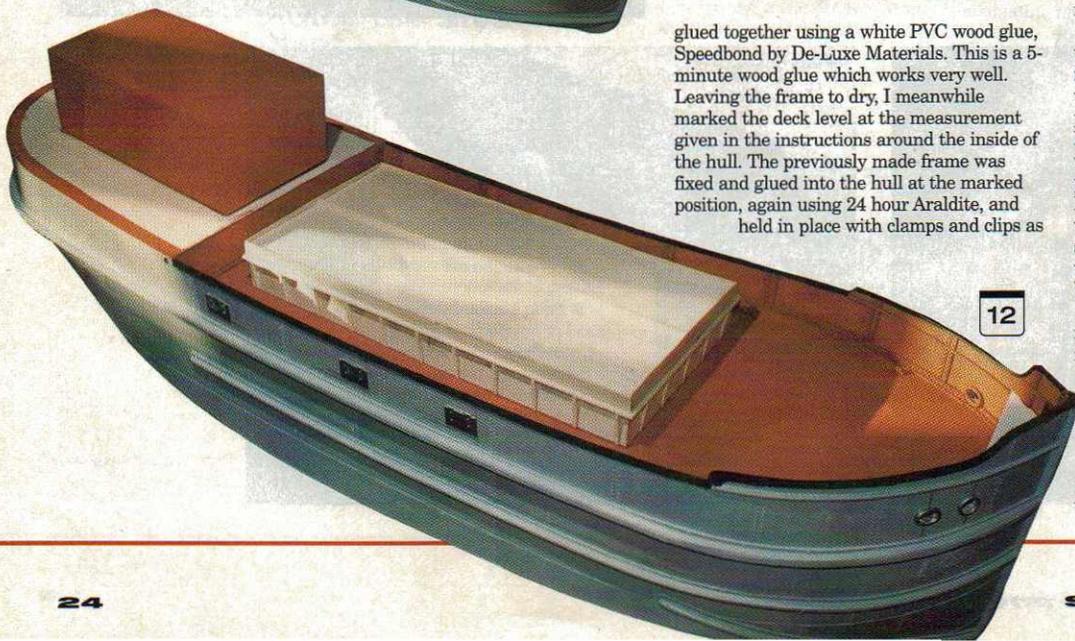
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glued together using a white PVC wood glue, Speedbond by De-Luxe Materials. This is a 5-minute wood glue which works very well. Leaving the frame to dry, I meanwhile marked the deck level at the measurement given in the instructions around the inside of the hull. The previously made frame was fixed and glued into the hull at the marked position, again using 24 hour Araldite, and held in place with clamps and clips as

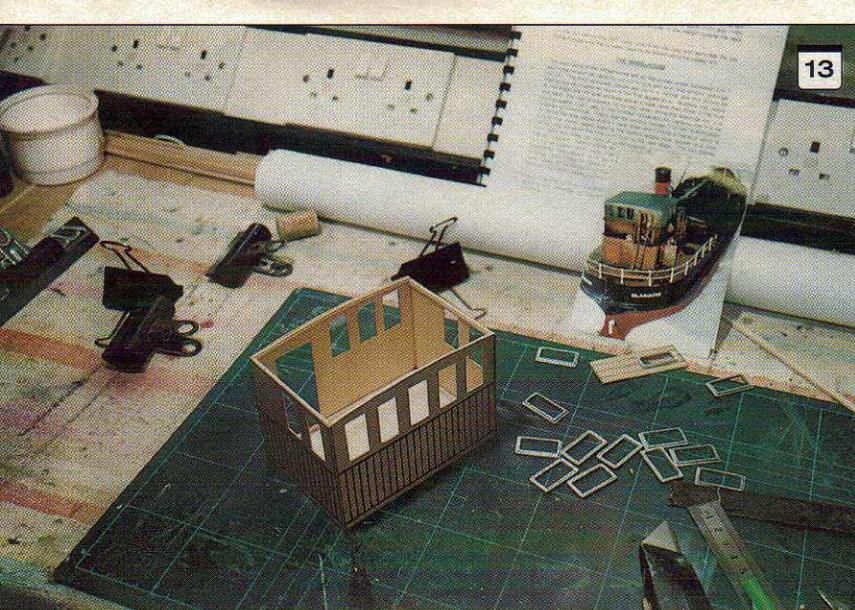
necessary, Photo 7.

When dry it leaves the deck supports to which the fore and quarter decks can be fitted. Because of the shape of the hull at the bow and stern plastic strips are provided which are glued to the sides of the hull. The first strip of plastic was glued to the hull with Araldite and the second strip, plastic to plastic, with a plastic solvent i.e., Plasta-weld or similar. Each strip follows the sheer of the deck. This process can be seen in Photo 8. Also at this stage the wooden plate on the frame at the front can be drilled for the foremast.

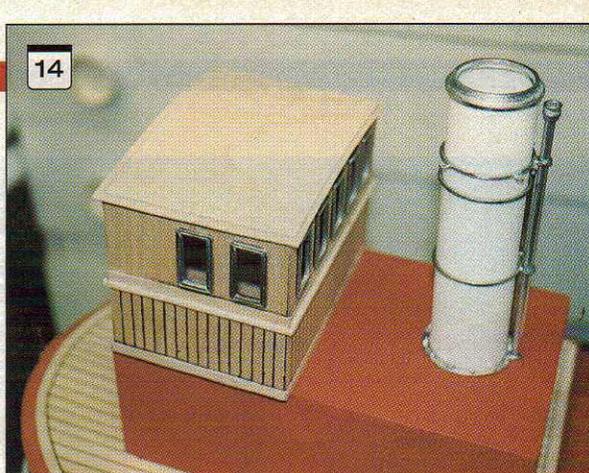
After allowing this to dry off it will be ready to accept the two decks. These are pre-marked on sheets of ply, but needed to be cut over size and laid over the top of the bulwarks and marked with a pencil around the shape of the hull. I cut to this mark and kept cutting away and sanding until it was a perfect fit on to the deck frames and the sides of the hull. The deck was glued down on to the frames using PVC



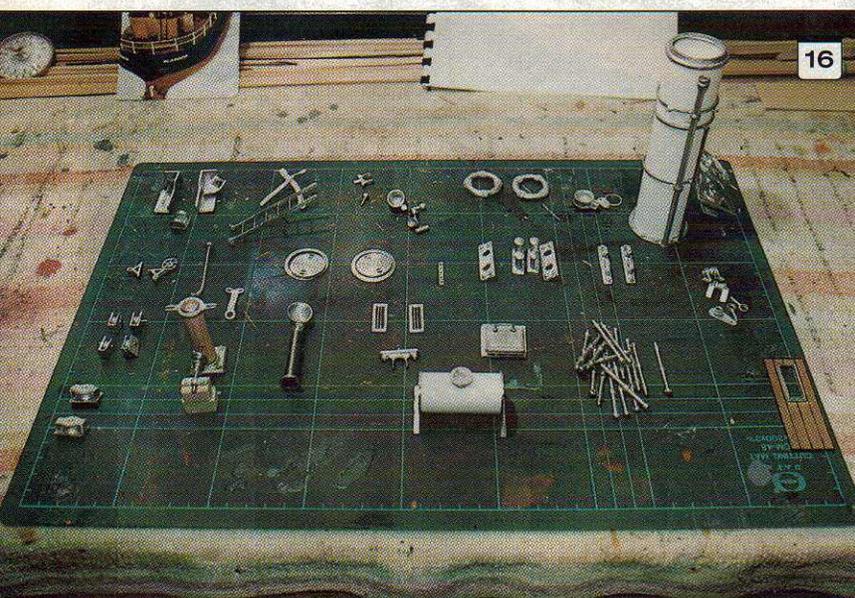
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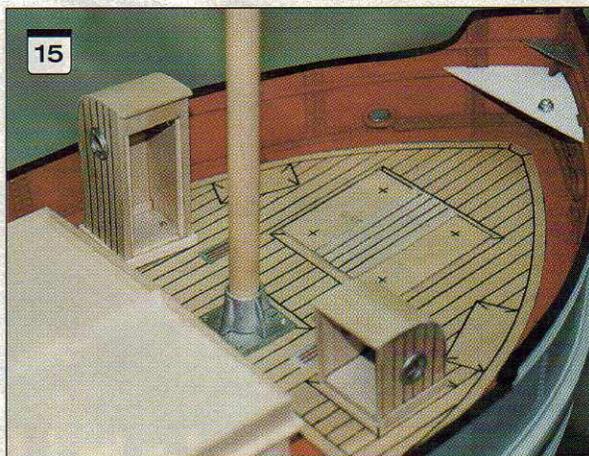
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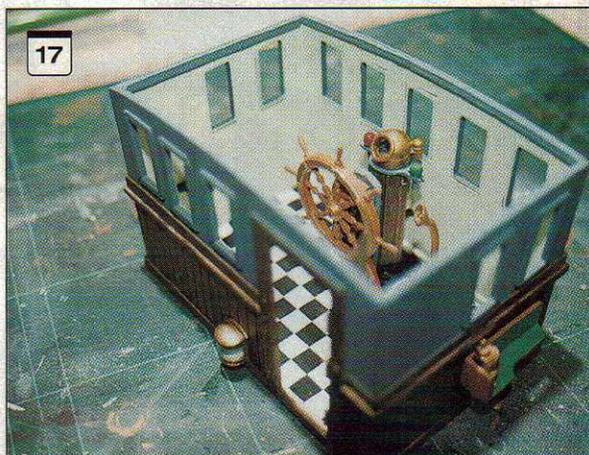
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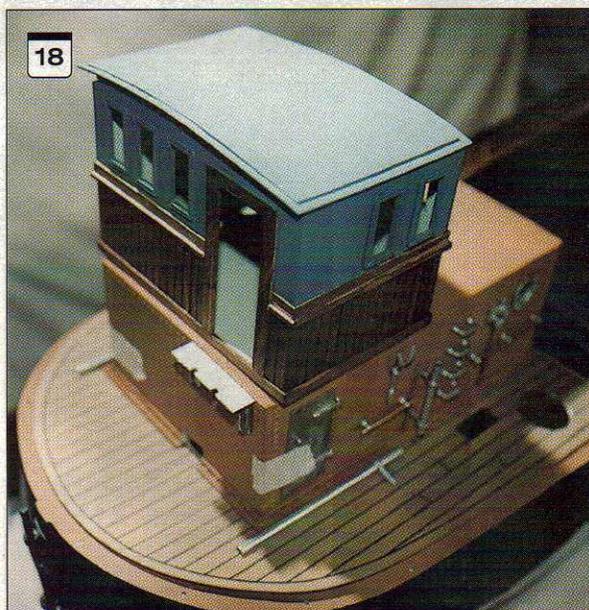
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wood glue, and epoxy for the plastic strips. Weights were placed on top of the decks and left until dry, overnight if possible. Any tiny gaps between the deck and hull sides were filled with Isopon filler. Photo 9 shows deck fitted.

The inside of the bulwarks above the deck level are left in a rough and uneven state due to the grp material. The way to overcome this is to coat the areas with Isopon filler, building up to a nice smooth finish on to which the bulwark supports and rivet plates can be fitted. The rivet plates are fitted to match the positions of the plates on the outside of the bulwarks and the bulwark support feet are fitted on to the deck at positions marked on the main drawing. Photo 10 shows all these plus the coaming fitted on the quarter deck which will hold the superstructure in position. Note: coaming for the main hatch has not been fitted yet.

A plywood coaming was made for the main hatch to sit on; this from plywood strip and glued into place. Before making the main hatch I made sure that the rear superstructure fitted snugly over the coaming on the rear deck and gave a coat of primer paint to the superstructure.

The main hatch was made from plywood strip and sheet, not forgetting to make sure that the four side pieces of the hatch fit not too tight or too loose. The side webbing supports of the hatch are from strip-wood cut on the diagonal and sanded to shape. A centre strip of wood is higher than the sides to give a tent like effect on which the hatch boards fit. Photos 11 and 12 show the construction of the superstructure, and the hatch cover fitted on to the decks.

Wheelhouse

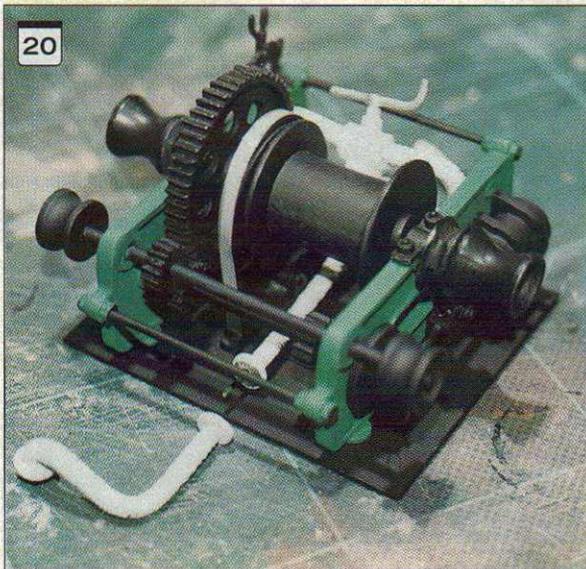
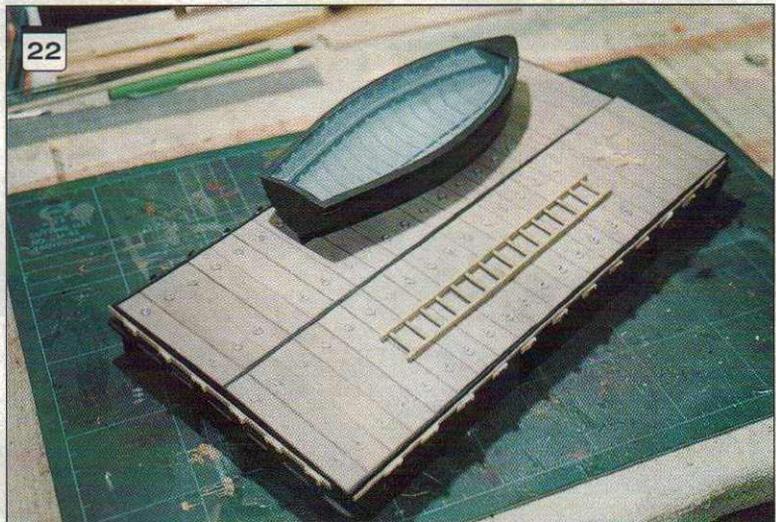
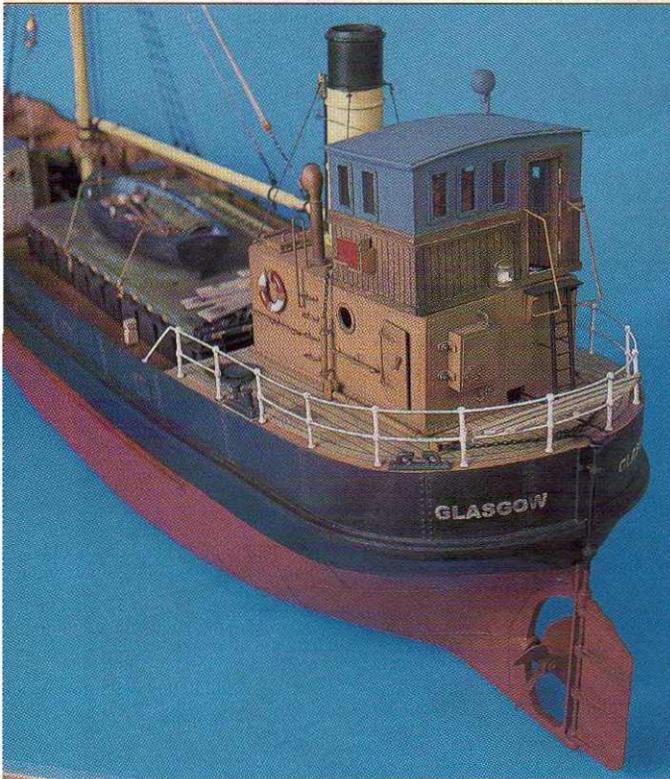
The sides, roof and floor of the wheelhouse are printed on ply sheet and require cutting out carefully, making sure that all are square when glued together otherwise the roof will not fit when finished. It's best to cut out and fit the window openings and the white metal frames as you go along, finally making the roof top to fit the wheelhouse. I made mine removable so the interior could be fitted out later in the project.

I also decided to make the funnel at this stage. The funnel is made of plastic tube, the funnel bands, top and base are white metal and the steam pipe and whistle pipe are in alloy tube. Photos 13 and 14 show the construction of the wheelhouse and funnel.

More decks

The quarter-deck and fore-deck were the next items to be fitted, these were again cut from printed ply sheet. The quarter-deck needed to be cut accurately to fit around the coaming of the superstructure and the front needed to be flush with the front of the step-down. The fore-deck wax held temporarily in position so that the main mast could be drilled to fit through the main deck and into a drilled plank of wood in the hull bottom. Before gluing the decks into position the sub decks were painted with red oxide so that when the printed decks were fitted no more painting was required.

The companionway and outside lavatory were constructed all as shown, Photo 15. Decks were glued down on to the sub decks using Araldite two-part epoxy, weighted down and left overnight to dry.



Fittings

A major part of the kit are the white metal fittings - too numerous to mention all, but they include bollards, stantions, ladders, coal holes, winches, etc. Photo 16 shows a selection filed down and ready for spraying.

Before fitting and installing them the superstructure and wheelhouse needed to be painted. These were mostly sprayed using a Badger airbrush.

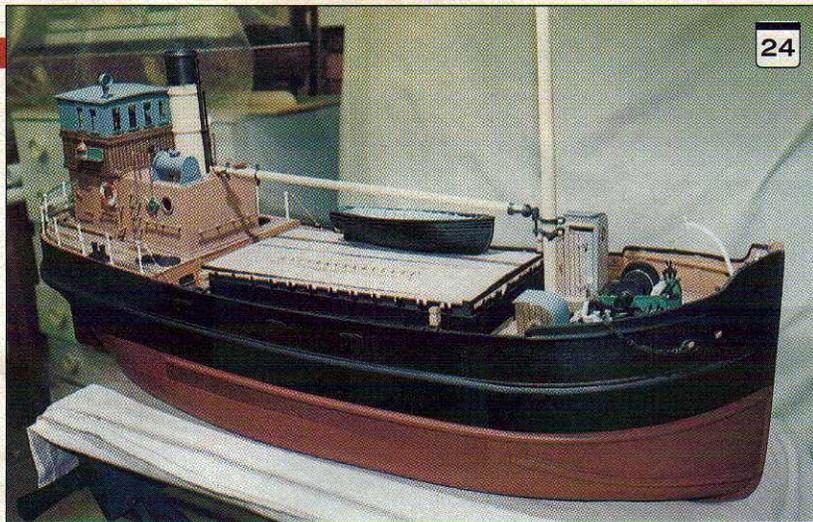
First to receive the fittings were the superstructure and wheelhouse, most fittings were drilled and Superglued. Some were pre-painted as in the wheelhouse but others were fixed and then painted in situ. Photo 17 shows fittings painted in wheelhouse - note the black and white tiled floor; and Photo 18 shows fittings to be painted on superstructure side. To complete the superstructure and wheelhouse the

funnel and stays have to be fitted, together with the water tank, lifebelts, steering chain, mast crutch, grab rails and navigation lights. Photo 19 shows the completed wheelhouse and superstructure.

Winch and Ship's Boat

The two other major items are the winch and the ship's boat. The winch is made up of 33 parts, all white metal. It's a model in its own right with steam cylinders, gear wheels, lagged steam pipes etc. One can really go to town and finish the winch to look as if it actually works. Photo 20 shows the completed winch without the rope attached.

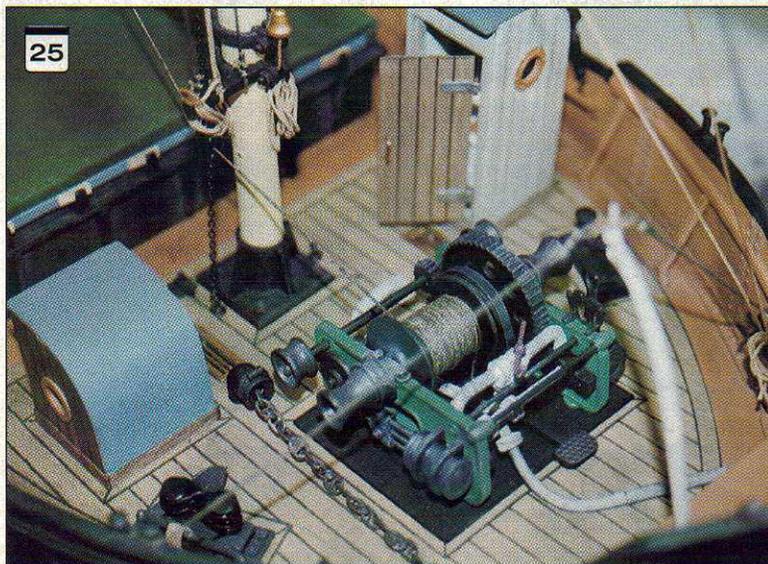
The second item, the ship's boat, is another model on its own. The hull comes as a grp mould and as before, the inside is rough and uneven so needed to be



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smoothed with Isocon filler. The inside ribs are simulated with plastic strip, measured and glued at correct intervals with side stringers to support the seats and thwarts. Photo 21 shows the ribbed hull and fittings such as oars, rowlocks etc. Internal seats are from printed ply sheet, stained and painted.

The builder's ladder, which most Puffers carried to scale the sides of the quay when the tide was out, is also supplied in the kit and is made up from white metal rungs and wooden sides. This is shown in Photo 22 as are the hatch boards, all cut individually with two handles on each board. Also note in Photo 23 that the canvas tarpaulin has been fitted to cover the boards and held in place by wooden wedges and steel bands. The canvas ship's boat cover can also be seen rolled up in the ship's boat in this photo.

Photo 24 is of the Puffer almost complete except for the rigging and final painting. The rigging and ratlines are simple and should not give any problems. All rigging cord is supplied in the kit and included are instructions on how to tie off the ends. Beeswax is also supplied, which when run along the rigging cord, lays back the hairy bits so that the cord will hang correctly. The cord can be dyed or stained to the colour required by soaking in tea or coffee, no milk, no sugar!

Painting and Finishing

Most of the painting was carried out using Humbrol paints. The large areas like the superstructure, wheelhouse and black on the top part of the hull were all airbrushed, as also were the funnel colours. The lower part of the hull and the deck bulwarks were sprayed with red oxide primer paint. As this was not a model that should be seen in pristine

condition, but with a slight weathering effect, this was the way I decided to finish the model. In the kit some real coal was supplied and I decided to simulate a cargo of coal in the main hatch, with a few hatch boards open and coal spilling out on to the main deck. The coal was also used in and around the bunkering coal scuttles. 35mm film canisters were cut down, glued under the deck and filled with coal. The lumps of coal were placed in a piece of thick cloth and hit with a hammer until the correct size was obtained. The very fine coal dust was used to rub into the wooden decks.

Ageing or atmospherising is a separate art from painting and could be the subject of a separate article. Never over-do it! Skippers used to take a pride in their vessels. Photo 25 shows a view of the fore-deck shot of the finished model.

Power

The Highlander Puffer kit has been designed for steam or electric propulsion. The hull provided more than enough room for a steam plant, but I decided to install an electric motor with a simulated steam sound and a smoke generator. This was a Decaperm 12v motor geared, chosen due to the large size propeller it would have to drive and also the final weight of the model. This motor proved to be the correct choice when the trials were carried out. Two gel cell 12v 10Ah batteries were used to power the motor and these were installed flat down in the bottom of the hull to keep the centre of gravity as low as possible.

Extras

Considering the atmosphere of the type of model involved I thought that it would be a good idea to have a steam sound generator installed. Many different

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manufacturers make these kits, however I decided on a unit from ACTION. Having placed an order and receiving the unit by return of post I found it was just what I was looking for. The heart of the unit is the box of electronics size 73.5mm x 49.5mm x 29mm. Also supplied was a 4in Mylar waterproof loudspeaker. These units can be supplied 6v or 12v. The one I used was a P56 steam engine sound simulator; this unit has a removable link which will cause the unit to change from multi cylinder sound to single cylinder sound. Full instructions are given in the leaflet enclosed for wiring and setting up. The wiring is very simple and I had no problems at all. It worked first time, with the beat of the unit increasing proportionally with the speed of the motor. This could be adjusted within the unit as also could the volume plus the stationary trimmer control which allowed a hiss of sound when the motor was not

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30A



running. Photo 26 shows the unit and loudspeaker as received from ACTION. A wooden plywood speaker box was made to improve the sound, and fitted directly above the batteries in the opening for the main hatch, Photo 27. To allow the sound to be heard better I cut a circular hole in the wooden main hatch which improved the volume much better through the canvas tarpaulin.

A smoke generator was also installed in Highlander. Again there are a number of manufacturers who produce these units - I decided to use one from Tomahawk Products. This was their new improved

101 unit which produces dramatic thick smoke.

The unit is 2.2 x 1.25 x 2.2ins, voltage is 12v and it holds approximately 20cc of smoke fluid. The electric case includes two LEDs, green for power on and red indicates smoke fluid level. One optional extra is a heat sink which can be attached to the bottom of the unit to dissipate the heat from the main unit. A filler tube is provided for the smoke fluid and the unit will run for approximately 20 minutes. When the fluid is used up the element will



switch off. This unit produces lots of white smoke and adds great realism to Highlander. I lined the inside of the funnel with aluminium tube as heat is generated when the unit is in use. Photo 28 shows the smoke unit and heat sink. A switch is not supplied with the unit.

A large number of manufacturers also produce speed controllers. For this model I decided to use one of the units from Electronize. The one chosen was type 43HVR high power speed control. This controller will run any motor up to 15 amps continuous current. It is the upgraded version of the 43X and 43VR incorporating a higher rated mosfet and larger and thicker leads. This unit's voltage range is 7-24v and it can be supplied as a self assembly kit or fully assembled and tested.

The one thing I did like about this unit was the long length of the leads, allowing the controller to be installed some distance from the motor and RC equipment. When set up this unit worked well and gave good results over the full speed range of the motor. Adjustments are provided for neutral and speed range and are easily accessible. Photo 29 shows the unit with the diagram and instructions; Photo 30 shows the unit installed.

Radio control equipment used was Hitec 2-channel 40Mhz, one channel for steering and one for the motor. The smoke generator and the sound generator were switched by separate switches, although these could be operated by a switcher unit on a third and fourth channel.

Photo 30 shows how the whole installation was put together under the main superstructure, this was to maximise access to the equipment. As can be seen the equipment sits in an aluminium tray, with the smoke generator isolated by an aluminium screen in case of heat problems.

All the units are held down with Velcro tape. Also note that the receiver, battery and steering servo are installed in this area. Wires and connections all go through the bottom of the tray and are terminated in a block of connectors at the rear of the main hatch, Photo 31.

On the water

Even with the two batteries in the bottom of the hull the Highlander still required some extra ballast in the form of lead weight. I ballasted the model down to a realistic level to give the impression that it was carrying a full load of cargo, coal in this case. At this level the model was very stable on the water and really looked the part. I put the propeller in the vice in the workshop and balanced and checked the pitch. In fact I found the propeller to be perfectly good for running, nice and smooth with adequate thrust. Turning circle and manoeuvrability were very good.

Conclusion

I can say that the Highlander builds easily, looks good on completion and looks great on the water. It also offers extremely good value for money and puts a high class model well within the reach of the average modeller. Price is around £250.

Well done, Mount Fleet Models.

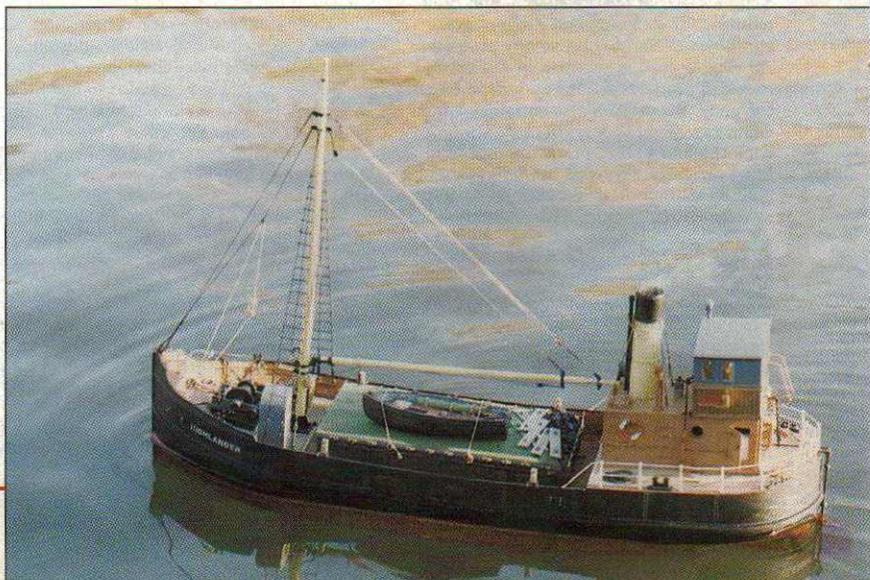
Further information from:

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ACTION, 140 Holme Court Avenue, Biggleswade, Beds SG18 8PB. Tel: 01767 314732.

Tomahawk Products, Unit 346B, Poole Road, Branksome, Dorset BH12 1AW. Tel: 01202 766884.

Electronize Design, 2 Hillside Road, Sutton Coldfield, West Midlands B74 4DG. Tel: 0121 308 5877.



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