

# STEAM TUG 'BANGARTH'

JOHN COX BUILDS AND REVIEWS A  
CLASSIC 50's STEAM TUG KIT FROM  
MOUNT FLEET MODELS



**ABOVE:** The completed Mount Fleet Bangarth on the water, a fine and large model well suited for keen tug builders

The Steam Tug 'Bangarth' is probably the final model that will be produced under the Mount Fleet name as the proprietor, Frank Hinchcliffe, seeks retirement.

'Bangarth' was built in 1951 to the order of Rea Towing Ltd of Liverpool and followed the format of most tugs of that era, a format which had not changed much from the basic, but satisfactory designs, of the first half of the twentieth century. The three cylinder compound steam engine, with a coal fired boiler, produced 1,120 hp giving a bollard pull of 13 tons. In 1959 she was converted to oil burning, perhaps the only concession to modernity. She served until 1969 when she was sold out of service, but foundered under tow off Strumble Head on 23.10.69. This particular type of tug is unusual in that bridge/boat deck is carried straight up from the bulwarks. Access to the foredeck is gained by a ladder and not from a bulkhead door as one would expect.

## The Kit

The kit follows the established Mount Fleet formula of a fibreglass hull with most of the superstructure built up from plywood cut-outs. The fittings amounting to some 630 in number are packed in 12 separate, numbered bags, each number referring to a specific area on the model. Various sizes of strip wood, dowel, brass rod, alloy and plastic tube are included, plus numerous other items necessary to complete the finished model. The propshaft is of silver steel running in a brass tube with plastic bearings. The funnel, which has much of the detail moulded in, is pre-cast in fibreglass as are the ship's boats. The instruction manual has diagrams and pictures plus the written word and together with two full sized detailed plans completes the kit.

## Building 'Bangarth'

As with any model built from a kit, time spent studying the instruction manual and plan is time well spent. Between readings the bags of white metal fittings were checked against the parts list and each item trimmed of any flash or mould lines. A



**ABOVE:** The kit follows Mount Fleet practice of using fibreglass mouldings for the hull and selected features while white metal castings are used for fittings. Plywood is used extensively in the kit, the sheets having the various diagrams and part numbers printed on them. All the parts have to be cut out using a fretsaw or a similar tool



**ABOVE:** The author's favourite method of mounting the drive motor although the first time I have used plywood as a mount. Pulleys are available from various sources but I am able to turn up my own. An 'O' ring from a car accessory shop serves as the drive belt



**ABOVE:** The deck plating is from art card cut to the appropriate size and a dressmakers stitch marker used to indent the rivet lines. The 'rivet' heads stand proud when the card is turned over



fibreglass scratch pen was used to create a final surface on the fittings which were then 'blown over' with matt white cellulose spray and when dry, returned to their respective bags until required. Most builders will follow the instruction manual which lays out a logical building sequence, starting with the hull although this is not written in stone.



**ABOVE:** The hull has the sidings raised and much of the upper works at an advanced stage. The bilge keels are clear in the picture having been inserted into slots in the hull and secured using resin paste. This is much more secure way than butt joining them to the hull



**ABOVE:** Showing the removable section of the boat deck. Although the whole deck can be made removable I retained the outer sections as fixtures as the davits and lifeboats are quite heavy and are probably better for being mounted on a fixed area of the boat deck

## The Hull

The fibreglass hull has plating detail and rubbing strake moulded in. The position of ports, bilge keels and fittings are marked in their appropriate locations. The hull itself is cavernous and highly suitable for a steam plant should the builder so wish. The inside of the bulwarks require flattening in certain areas and is best achieved by smoothing with body filler and then cutting back with 'wet & dry'. I always carry out this task prior to fitting the stern frame and propshaft which can sometimes be vulnerable to knocks. The same remarks apply to the bilge keels which were cut 10 mm oversize for insertion into slots cut in the hull. The slots were opened up using an electric drill and cutting disc. Holes were drill in the inboard area of the bilge keels and pieces of cocktail stick inserted. The keels were tacked into the slots from



**ABOVE:** The aft deck is quite a 'busy' area with a host of fittings, and later ropes, steering chains etc. All were toned down with matt varnish later in the build



**ABOVE:** The engine room casing lifts off for access to the motor and drive system. More fittings are also applied to the casing



**ABOVE:** The wheelhouse is a simple box section stained on the outside and painted white inside. The roof has been made removable but secured by adapting two vent fittings. The interior was subsequently fitted out with wheel, binnacle and telegraph for display purposes. The sliding doors also give a glimpse of the interiors when on the water

inside the hull with spots of cyno then bonded permanently with resin. The white metal stern frame was bonded in with a fibreglass resin as was the propshaft.

I opted for electric drive and utilised a five pole fan cooled 545 motor I had to hand. I always step down the drive using pulleys and an 'O' ring as a drive belt, giving a ratio of 2.5 to 1. Although a 75 mm prop cast white metal prop was included experience tells me they are very difficult to balance, so a 75 mm brass prop was substituted. Timber inwhales were fitted to support the fore and aft deck. The decks are printed on suitable plywood but require cutting out and then trimming to obtain an

accurate fit. The deck is 'plated' with a good quality art card supplied in the kit and attached with waterproof glue. I used a tailor's stitch marker (similar to a cog wheel on a handle and obtainable from most sewing shops) to indent the 'plates' with simulated rivets. When the 'plates' are turned over the rivet heads stand proud.

Raising the sidings to the boat deck is quite a simple process and well covered in the instructions. The sidings are printed onto plywood sheet together with the porthole locations and position of brackets that support the side fenders (tyres on chains). The portholes are best drilled before fitting the sidings. The boat deck itself is made removable to gain access to the interior but as added security I adapted mushroom vents with 4 mm studding, which in turn locate into captive. The wash ports were cut at deck level and the various fittings for the mooring and anchor ports plus the bulkhead cappings were positioned using cyno. The Rea Towing Co tugs have a yellow band painted just above the rubbing strake and running around the entire hull.

The general area was sprayed with yellow paint and then a 5 mm masking tape applied at the band area. The hull was sprayed matt black with red oxide for the underwater area. When the 5 mm masking tape was removed the yellow band looks very authentic as opposed to a yellow trim tape. The deck was finished with several coats of Humbrol 'deck green' and when all the painting had thoroughly dried several coats of clear matt polyurethane were sprayed over the entire hull. The portholes had not been fitted at this stage. The hull build poses no difficulties, but it is imperative to fully understand the instructions.

## Building the Upper Works and Wheelhouse

The wheelhouse is a straightforward task but the printed plywood sides need to be cut accurately. The interior was fitted out with floor covering and fittings supplied in the kit. I made the roof removable by adapting the roof vents with studding and captive nuts allowing for easey removal for display purposes. The wheelhouse exterior was coloured with a light stain, which darkens when matt varnish is applied. Glazing is by clear plastic but secured with 'canopy adhesive' NOT cyno which clouds plastic.

The engine room casing is another simple plywood construction but allowances must be made for the fitting the skylights. The casing is located over a hatch cut in the deck giving access to the motor and propshaft. Coamings raised from the deck hold the casing in place and also prevent water ingress. The coal bunkers are formed from plywood and provision made for the timber cover boards. The bunkers abut the rear bulkhead of the raised hull section. The upper works and bulkhead



interiors were painted in light brown colour using a mixture of red/orange/brown mix of Humbrol enamels and then sprayed with matt polyurethane.

## Fixtures and Fittings

Mount Fleet Models fittings are always white metal castings and very accurate in presentation. As mentioned earlier they were already primed with a white undercoat and for the most part need to be painted either black or white depending on function and location. The port holes surrounds are also white metal castings but these were painted with several coats of Humbrol 'brass' and then sprayed with gloss polyurethane. Glazing ports is never easy but my method is to use a lathe to turn down clear acrylic rod to the correct diameter for a good fit, and then slice off thin sections. These are polished on wet and dry and finished off with 'Brasso'. The sections are then pressed into the port-hole surrounds using the vice. Two escape ports in the forward facing bulkhead and beneath the wheelhouse are quite a large diameter as are the engine room skylights.

Having no suitable size acrylic I mixed up casting resin and poured it into sealed plastic tube from a fax paper roll. When cured it was turned down and cut and polished as per the acrylic cut offs; the method worked well. The davits are worth a special mention as these are quite substantial in size and weight, so locating pins were added to the bases to make them more secure on the boat deck. Brass rod is used to form the tow beams protecting the engine room casing but the main tow beam over the aft deck needs to be built up from plywood laminations. This was done by striking an arc on graph paper, which in turn was pasted onto a piece of flat timber. Small pins were inserted to follow the arc then five, 8mm strips of 1/32" plywood bent to follow the arc and secured with further pins. The 5 strips were laminated using waterproof glue and left to dry for 48 hours. When removed the beam retains its shape and can then be adjusted to fit the model using the metal fittings supplied.

The fibreglass funnel is a substantial item in its own right and has the plating and funnel bands ready moulded in. The vent pipe and steam whistle pipes are form from rod and alloy tube and then topped with the various fittings. Steps need to be fitted to the rear of the funnel giving crew access for funnel maintenance. Rather than bend these up from wire I used staples from an upholstery staple gun. A piece of graph paper temporarily pasted to the funnel ensures accurate drilling and positioning of the steps. The funnel was painted red with a topping band of black and white. I was fortunate with the Rea Towing logo that is displayed on the funnel as I still had a suitable image on my PC from an earlier proj-



**ABOVE:** The tow beam protecting the rear deck is formed by strips of plywood bonded to each other thus retaining the arc when the glue dries



**ABOVE:** The funnel mounts to the boat deck using a simple nut and bolt. The funnel can be easily removed if a smoke generator or steam plant is fitted at a later date

ect. This was printed off onto waterslide paper (Crafty Computer Paper Co on the web) and applied to the funnel and secured with artist's fixative (art shops).

'Bangarth' had metal lifeboats in her full size version and for the model purpose they are moulded to represent that format. ST boats were almost permanently covered and in this model version white 'Solartex' is provided but does need painting a suitable colour after application. When cut to shape and applied with a domestic iron 'Solartex' will adhere and shrink to shape. Grab ropes were made from twisted fuse wire which was wound round a piece of dowel and then cut to half circle using snips. The half circles were inserted at right angles, into holes drilled in the boats gunwales. After



**ABOVE:** A fire monitor from Mobile Marine Models is fitted to the finished model and uses pond water from an inlet near the prop. It swivels via a mini servo while the pump, etc. came from car breakers

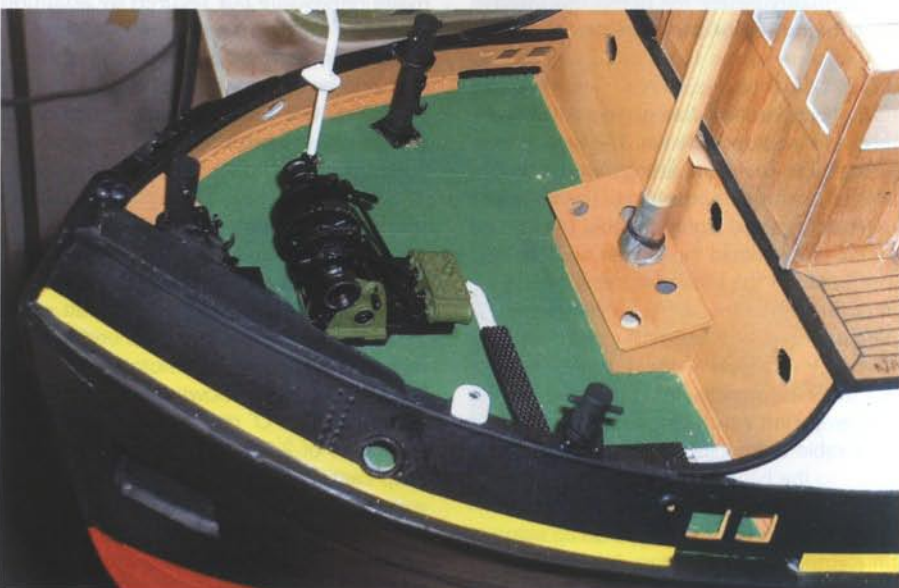
painting brown they were bent down to hang in more natural manner than can be achieved using cord.

## The Mast

The dowelling supplied for the mast was turned down by clamping in a drill chuck and the drill clamped into a 'workmate'. Using coarse sandpaper and the drill running at slow speed makes the tapering easy. The mast rings should be offered up continuously until they fit correctly. The mast fixes into a plywood housing mounted on the forward bulkhead. The instructions on the mast and rigging are extensive and helpful.

## Additional Items?

Although probably not genuine it was decided to fit a working fire monitor to the boat deck. This is Mobile Marine Modelling item of which there are four types available and to the scale used for 'Bangarth'. The monitor is cast from white metal and



**ABOVE:** The fore deck is another area that eventually becomes much more workmanlike in the final stages of construction



rotates in a cast resin fitting. In this application it is swivelled using a miniature servo controlled from a channel on the Tx but the elevation is fixed. A car windscreen washer pump (£1 at a local scrap yard with plastic piping valves and filter) uses an inlet low in the hull near the prop to pump the water through the monitor. Some of the water is tapped off to discharge pipes either side of the hull as per the real thing. These discharges need a restrictor in the tube to reduce water flow to realistic levels. The fire monitor will project a jet of water about 5 metres and the kids love it!

### Final Finishing

Most models stand or fall by their final finish and that is where time spent in this area will pay off. Any working vessel afloat with the possible exception of the RNLI boats will always show signs of usage and rust. Tugs are especially hard worked vessels so weathering and rust was applied to add authenticity. Up until recently I have never 'weathered' my models but articles in MMI stimulated me to try my hand on a previous Mount Fleet Model, 'Ben Ain'. I used the experience gained to apply the same finish to 'Bangarth' and am well pleased with the result.

Final finishing touches were model car tyres as fenders (supplied) and bow and stern fenders knitted by the mate, using simple parcel string which when sewn into

a suitable 'sausage' and left in the teapot overnight look very genuine.

### Radio Control

Control is by use of a HiTec 6 channel Tx and Rx using conventional stick set up. The ESC is a home built Action Kits item controlling forward and reverses functions. The fire monitor is rotated via a spare channel while the on off switch for the water pump is controlled from a switched channel through an Action Control switch-unit.

### On the Water

No problems were experienced as the big rudder gives excellent control plus small turning circle. When running on twelve volts there is too much power so the gell battery was replaced with a 6 volt item. The model performance has attracted favourable comment all round.

### Overall View

A good kit, perhaps a trifle expensive, but certainly gives a pleasing final result. It is not a first time project but some experience and perhaps a bit of research will make the building a pleasant experience. Steam tug and steam coasters of the first half of the 20th century are particularly evocative to me so this particular offering was all the more interesting with a very pleasing final result. ■

## KITBOX DATA

### MOUNT FLEET BANGARTH

#### SCALE 50'S STEAM TUG

Scale: 1:32

L.O.A: 41.5"

Beam: 9.5"

Displacement: 30 lb

#### Manufacturers

Mount Fleet Models

Laurel Mount

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