CLEY WINDMILL

Specification for building new fan.

The eight blades of the fan all need renewing, as do all fastenings, and the two rings.

The new blades should be made exactly to the pattern of the old in all details.

Clean, prime and paint old fan shaft and hub.

The arms are to be made from Balau timber, air dried and planed all round to the finished size, make slightly over length. The arms are to be trimmed accurately to be a push fit in the iron hub. They should fit well, only leaving enough clearance for the paint. The arms and hub sockets must be marked with numbers to ensure correct assembly. The bolt holes should be bored through about .5mm over size, and new hot-dip galvanised bolts fitted. Cut the arms to correct length, measuring from the hub.

Two new mild steel rings must be made to match the originals, rolled to shape and drilled with 8 equidistant holes. The rings to be hot dip galvanised. The rings must be offered up and centralised, and the bolt holes bored through the arms. Mark the rings with numbers and side to ensure correct assembly.

Dismantle the parts assembled so far.

Accurately mark out the arm slots. Make sure that the angle is correct, and the direction of slope correct (we don't want it to rotate backwards! Saw out the slots and cut the ends with a chisel. Trim out any steps or wanders and sand. Check that the vanes will fit using a piece of scrap board.

The vanes are to be made from joinery quality unsorted redwood, planed all round to finish at the same thicknesses and widths as the original. The boards are to be Tanalith treated to PT3 specification, and dried out with sticks between before working.

The boards of the vanes and battens may be cut to length, shape and angle, a little over length before assembling. All touching surfaces are to be painted before assembly and allowed to dry. Paint again on assembly.

The battens are attached by clenched nails. The nails should be galvanised and 10mm longer than the combined thickness of boards and battens. Drill slightly undersize holes for the nails, drive through and clench over along the grain. Rest the nail heads on a steel plate to prevent them being driven back during the clenching process.

Trim the excess length off the boards along the battens and plane to finish.

Put the completed vanes into the arm slots and centralise, measuring on opposite sides until equal. Clamp in place and bore holes for fastening bolts, which must be hot-dip galvanised. Mark the vanes with numbers to ensure correct assembly. Bore holes in the corners for the rod connectors.

Dismantle vanes from arms and paint 2 coats of Holkham linseed oil paint according to manufacturer's instructions. Paint slots and bolt holes using a bottle brush as necessary. Assemble and paint a final coat.

The rod connectors should be repaired as necessary, cleaned and spin galvanised. Obtain oversize galvanised nuts and square washers to fit.

Assemble fan and re-fit.

Specification for new hatch in cap for access to sails

The hatchway is to be made in the flat roof of the dormer starting about 300mm from the near-vertical face where the shaft carrying the sails goes through.

Cut a hole about 450mm square through the boards and glass fibre and clean up. Form an upstand 50mm high all round using 50mm x 38mm batten, screwed in place with stainless steel screws and bedded on Gripfill.

Clean and roughen the existing glass fibre surface around the upstand about 80mm wide, and clean with thinners. Mix polyester resin, hardener and white pigment, and lay up glass fibre mat to overlap the cleaned area, and carry up the side of the upstand and cover the top edge. Wet out well, and roll to ensure saturation. Apply 3 thicknesses.

Make a hatch to cover the hatchway. The hatch to be made from 12mm WBP plywood, edged with 50mm x 25mm batten, screwed in place with stainless steel screws. Screw and glue a piece of 75mm x 20mm batten to the middle of the hatch inside to carry a D-handle for lifting and fastening. Make the hatch to fit over the cap's upstand, allowing for the thicknesses of glass fibre.

Cover the hatch with glass fibre and resin as for the hatchway. Carry the glass fibre round the battens to cover the outside face, bottom edge and inside face, terminating at the inside of the plywood.

Put the hatch in place, securing with cord and a 50mm x 50mm batten to bridge across the underside of the dormer.

End of Specification

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