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Specification
for
Customs Cutter
of 150 tons
(1839)



February, 1962.

Board of Customs & Excise,
King's Beam House,
London, E.C. 3.

Customs Cutter Specification, c. 1840.

Specification for Building a Cutter for the Revenue Service, of 150 Tons.

- LENGTH**..... From Stem to Sternpost..... 72 feet — inches.
Keel for Tonnage..... 68 feet — inches.
- BREADTH**..... Extreme from outside the Plank..... 22 feet 10 inches.
- DEPTH**..... From the upper-part of the Main Hatch-Beam to the Ceiling alongside the Keelson..... 10 feet 3 inches.
- KEEL**..... The Keel to be of good sound Elm in not more than two pieces, with hook and butt scarphs 5 feet long, sided 5 inches. Depth aft 12 inches, forward 16 inches, with a false Keel. 5
- STEM**..... To be of sound English Oak, clear of Sap and all other defects, sided 7 inches and to be sufficiently thick at the Head to admit of a hole for the Main Stay.
- STEM POST**..... To be of sound English Oak, clear of Sap and all other defects, sided 7 inches.
- DEAD WOOD**..... The Deadwood both forward and aft to be of Oak, clear of Sap and all defects, except the two lower pieces which may be Elm, and secured by a Knee well bolted through the Sternpost, and Deadwood aft and stem, and Deadwood forward.
- FLOORS and FUTTOCKS** } To be sided 7 and not more than 5 inches apart. The lower Futtocks sided 6 inches, second Futtocks $5\frac{1}{2}$, third Futtocks 5 and Top-timbers 5 Stantions $4\frac{1}{2}$ inches. The heels of the lower Futtocks to meet on the Keel, all the Timber to be well grown and seasoned, clear of Sap and other defects;—of English Oak.
- KEELSON**..... The Keelson to run well forward and aft, of sound Oak, clear of Sap, sided 8 inches and moulded 10 inches Midships. The ends moulded 7 inches and sided 7 inches. To be bolted through the floors and Keel with $\frac{1}{2}$ inch Copper Bolts well cleached on a ring, under the Keel.
- STANTIONS**..... Stantions sided $4\frac{1}{2}$ inches on the Gunwale and 4 inches at the Head, and so spaced as to form 6 ports, each side 22 inches in the clear, and the port lids hung with composition Leaks and hinges to rough-tree rail and one Stantion between each port, or more if necessary.
- COUNTER-TIMBERS**. To be sided from $4\frac{1}{2}$ to 5 inches and the Transoms well kneed.
- BREAST-HOOKS** To have 3 Breast-Hooks one under the Bowsprit sided $5\frac{1}{2}$ inches, the others sided 6 inches all of the best English Oak with arms not less than $3\frac{1}{2}$ feet long, clear of Sap and other defects; the two lower ones to be bolted with Copper Bolts. The Thrust Bolt to be $\frac{1}{2}$ inch diameter, to go through the stem and clenched, and three in each arm of $\frac{1}{4}$ all well clenched on a ring.
- BEAMS**..... The Beams to be of good sound Oak, clear of all defects, to round up 7 inches. The Beam before and the beam abak the Mast to be sided 7 inches, and moulded 4 inches, and not more than 3 feet apart, and to have two wood lodging Knees to each, also one iron lodging Knee to each; the remainder of the Beams to be sided 7 inches, and moulded 4 inches, and regularly spaced, and not more than 3 feet from Centre to Centre, with $2\frac{1}{2}$ inch dowels in each end, instead of dovetailing into the shelf piece, with a $\frac{1}{2}$ inch bolt through each dowel, and an inch-and-quarter hole bored in the end of all the Beams $\frac{1}{4}$ inches in, and another from the under side to meet it, then secured with a hot Iron to admit Air.
- CARLINGS and LEDGERS** } To have 4 fore and aft Carlings between each beam 4 inches by 4 and a ledge by 3 inches between the Beams where required. The Mast Carlings to be good English Oak 4 inches thick, and 11 inches broad.

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- STEM..... To be of sound English Oak, clear of Sap and all other defects, sided 7 inches and to be sufficiently thick at the Head to admit of a hole for the Main Stay.
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- DEAD WOOD..... The Deadwood both forward and aft to be of Oak, clear of Sap and all defects, except the two lower pieces which may be Elm, and secured by a Knee well bolted through the Stempost, and Deadwood aft and stem, and Deadwood forward.
- FLOORS and } To be sided 7 and not more than 5 inches apart. The lower Futtocks sided 6
FUTTOCKS. } inches, second Futtocks 5 1/2, third Futtocks 5 and Toptimbers 5 Stantions 4 1/2 inches. The heels of the lower Futtocks to meet on the Keel, all the Timber to be well grown and seasoned, clear of Sap and other defects;—of English Oak.
- KEELSON..... The Keelson to run well forward and aft, of sound Oak, clear of Sap, sided 8 inches and moulded 10 inches Midships. The ends moulded 7 inches and sided 7 inches. To be bolted through the floors and Keel with 3/8 inch Copper Bolts well clenched on a ring, under the Keel.
- STANTIONS..... Stantions sided 4 1/2 inches at the Gunwale and 4 inches at the Head, and so spaced as to form 6 ports, each side 22 inches in the clear, and the port lids hung with composition hooks and hinges to rough-tree rail and one Stantion between each port, or more if necessary.
- COUNTER-TIMBERS, To be sided from 4 1/2 to 5 inches and the Transoms well kneed.
- BREAST-HOOKS To have 3 Breast-Hooks one under the Bowsprit sided 5 1/2 inches, the others sided 6 inches all of the best English Oak with arms not less than 3 1/2 feet long, clear of Sap and other defects; the two lower ones to be bolted with Copper Bolts. The Throat Bolt to be 7/8 inch diameter, to go through the stem and clenched, and three in each arm of 3/4 all well clenched on a ring.
- BEAMS..... The Beams to be of good sound Oak, clear of all defects, to round up 7 inches. The Beam before and the beam abaft the Mast to be sided 7 inches, and moulded 6 inches, and not more than 3 feet apart, and to have two wood lodging Knees to each, also one iron hanging Knee to each; the remainder of the Beams to be sided 7 inches, and moulded 6 inches, and regularly spaced, and not more than 3 feet from Centre to Centre, with 2 inch dowels in each end, instead of dovetailing into the shelf piece, with a 3/4 inch bolt through each dowel, and an inch and quarter hole bored in the end of all the Beams 1/4 inches in, and another from the under side to meet it, then seared with a hot iron to admit Air.
- CARLINGS and } To have 4 fore and aft Carlings between each beam 1/2 inches by 1/2 and a ledge 3
LEDGES..... } by 3 inches between the Beams where required. The Mast Carlings to be good English Oak 1/2 inches thick, and 1/2 inches broad.

- WALES and BOTTOM PLANK** } The Wales to be of English well seasoned Oak 3 inches thick, clear of all defects, with one strake of $2\frac{1}{2}$ inches thick next under the Wales, and one bilge strake of 3 inch each side. The remainder of the Bottom to be full 2 inches thick when worked, all of sound English Oak except the Garboard and one next to it which may be of Elm: Plank to work 24 feet long with six feet shifts, and two strakes between each butt: the first strake above the Wales to be $2\frac{1}{2}$ inches thick, the remainder 2 inches, paint strake 2 inches.
- SPIRCKETTING**.....The Spircketting to be 2 inches thick.
- WATERWAYS**.....The Waterways to be of English Oak 3 inches thick, clear of Sap and strakes, and not less than 5 inches broad in any part.
- PLANSHEER**.....The Plansheer of good English Oak full 2 inches thick when worked, and to form the lower Part of the Deck, and the upper part not to be more than 2 inches above the Deck in the Stays.
- SHELF PIECES**.....The Shelf Pieces to be fitted to the timbers instead of working it over the Clamp as heretofore, to be of good sound English Oak 9 inches broad, 4 inches thick, and bolted with $\frac{1}{2}$ inch bolts two feet apart, well clenched.
- CLAMPS**.....The Clamps to be of good sound Oak 11 inches broad and $2\frac{1}{2}$ inches thick, fitted up to the under side of the Shelf Pieces.
- CEILING**.....To have two strakes of $2\frac{1}{2}$ inch Oak on the Floor and lower Futtock Heads, both sides, and the Ceiling to be of 1 inch Oak, all English, as high as one foot above the lower Deck: the remainder as high as the clamp to be of Red Pine, clear of Sap and other defects 1 inch thick.
- CHANNELS**.....The Main Channels to be of the best English Oak, of sufficient breadth to convey the rigging clear of the Weather Cloth Rail, and 7 inches thick with 1 substantial Chainplates with Iron bound Dead-eyes complete, on each side. The two lower bolts in each plate to be one Inch in diameter. No bolt in the Chainplate through the Channel as usual. The Chainplates to be let their thickness into the edge of the Channel, and an Iron plate $2\frac{1}{2}$ inches broad, and $\frac{1}{4}$ inch thick, secured over all by small bolts 1 inches long.
- PORTS**.....To have 6 Ports on each side properly spaced, and the Port Lids bung with Copper Hooks and Hinges.
- BULWARK**.....The Bulwark to be of Baltic Red Pine 1 inch thick, to be worked in narrow strakes about 4 inches broad. The edges grooved and tongued together, and not lined as usual except from forward to bow port.
- ROUGHTREE RAIL**...To be of good clean, straight grained Oak 5 inches broad and 3 deep, to be fitted with a sufficient number of Iron Stanchions 10 inches long with Oak Rail 1 inches square for Weather Cloths. The Roughtree Rail to be 2 feet high from Deck.
- DECK**.....The Upper Deck to be of the best Baltic Red Pine full $2\frac{1}{2}$ inches thick when worked, clear of Sap, Strakes, &c. and not more than 5 inches broad each plank. The plank under, and between the Bitts Knees to be English Oak $2\frac{1}{2}$ inches thick, the whole to be fastened with copper nails of sufficient length.
- BITTS**.....The Bowsprit Bitts to run down to the Ceiling with a bolt in the Keel of each, and so placed that the Bowsprit may be run aft clear of the Mast Larboard Side. Size of the Bitts at the head fore and aft 7 inches, thwartships 6 inches, and to be the same size at lower part of Deck with a regular taper to heel. The Windlass Bitts to be sided $4\frac{1}{2}$ inches, and left broad and high enough above the Deck to admit of a patent pinion Cog, and multiplying Wheels to be fitted to Windlass, with Crank, Handles, &c. To have good and sufficient Knees to all the Bitts. The Bowsprit Bitt Knees sided 5 inches, Windlass Bitt Knees sided $4\frac{1}{2}$ inches.
- WINDGLASS**.....The Barrel of the Windlass to be of good sound English Oak, clear of all defects, diameter in the middle 13 inches, and fitted with Patent Iron Palls with two hoops on each end, and seasoned Elm Whelps 3 inches thick, hollowed in the middle for Chain Cable 11 inches long, taking care that it leads far from the hawse holes, to have 5 Iron Plates let into the angles of the Whelps. The Iron Spindle

to be 3 inches diameter, and to let into the Barrel of the Windlass $\frac{1}{2}$ inches, and to be fitted with Pinion, Cog, and Multiplying Wheels and Crank Handles, to have two Windlass ends not more than a foot long each, care must be taken not to cut the Handspike holes where the Chain Cable works,

- SCUPPERS.....To have 2 oval Lead Scuppers, each side 2 by 3 inch in the clear.
- EYE PLATES.....To have two stout Iron Eye Plates both sides forward for Bowsprit, Shrouds, &c. with two bolts in each, and three plates both sides for Runners and Tackles aft, the eyes to reach up to the top of roughtree rail, and to have a good strong Iron Hanging Knee each side to the beams abreast the runners.
- HATCHWAYS.....The Main Hatchway to be 4 feet broad and 3 feet fore and aft in the clear. The Combins 3 inches thick and 9 inches broad, let down on Carlings 2 inches thick and 10 inches broad.
- SKYLIGHTS.....To be fitted with two Skylights with Plate Glass and Copper Guard, Commanders to be 3 feet long and 2 feet broad; Mate's Skylight 2 feet square, with Plate Glass Copper bars $\frac{1}{2}$ diameter.
- ILLUMINATORS.....To have 2 oblong 9 inch Illuminators let into the Deck where most required, and a 10 inch patent one over the Water Closet.
- WINCH.....To have a patent Winch round the Mast, and the Mast to be wedged in the partners.
- PUMPS.....To be fitted with two Metal bilge Pumps $3\frac{1}{2}$ inch chamber and every thing complete, also one Metal Pump amidships with 3 inch chamber, and two sets of brass boxes and every thing requisite, also a Wash Deck Pump fitted Aft.
- RUDDER.....To have a good and sufficient Rudder with two sets of Metal Pintles and Braces, and one Iron Pintle and Brace at the head of the Sternpost above the Deck, and to be fitted with two good Tillers.
- COMPANION.....To be fitted with a Companion and Bittacle complete.
- HAWSEPIPES.....To have two stout cast Iron Hawsepipes for Chain Cable $\frac{1}{2}$ inches in the clear, also two Cast Iron Pipes in the deck with Bell Mouth, to conduct the Chain Cable below.
- LOWER DECK.....The lower Deck Beams to be regularly spaced and not more than 3 feet, apart the Deck to be 2 inches thick of good Red Pine, the Midships part 4 feet broad to be fastened to the Beams also some of the side plank, the remainder made into hatches the edges bolted together with $\frac{1}{2}$ inch Iron, the Deck and Cabin floor abaft, main hatch to be $\frac{1}{2}$ inch thick and made into hatches where required.
- MAGAZINE.....To have a Magazine abaft properly fitted and lined on the inside with 5lb. lead and double doors with copper hinges and lock to the outside door.
- BREAD ROOM.....To have Bread Rooms and Flour Bins lined with Tin as usual.
- GALLEY.....The Galley under the fire hearth to be coppered with 32oz. sheet copper five feet square, and the under part of the upper deck, beams, &c. over the boilers 4 feet square, to be leaded with 6lb. lead.
- LOCKERS and BINS.....To be fitted with Store Bins and Lockers from the bows to the Cabin Bulkheads between Decks.
- BULKHEADS.....To have Bulkheads between Decks for Commanders Cabin, State Room and all other Bulkheads as is customary for a Revenue Cruiser of the $\frac{1}{2}$ class with all drawers, cupboards, bed places, tables, wash stands, &c. complete. The Cabin Bulkheads to be framed in panels, all hinges to be brass with brass pins.
- BULKHEADS/HOLD.....To have Bulkheads in the Hold for coals, stores, casks, chain cables, &c. and an opening of one inch left between each plank to give air, except the coal hole which must be close.
- LADDERS.....To have a main hatch, fore hatch, and Cabin Ladder complete.
- CLEATS.....To be fitted complete with all Cleats, Cavels, snatch Cleats with Shieves, brass coated belaying Cleats and Racks with belaying Pins, &c. and an Iron Crutch on Taffrail for the Boom.

FASTENINGS..... The whole of the plank to be fastened with good well seasoned Treenails, and one $\frac{3}{8}$ inch copper bolt in every butt from the keel up to the wales, to go through and clench on a ring on the ceiling, and the Treenails drove through the ceiling, wedged on the inside and caulked outside.

RING AND EYE BOLTS..... } To be fitted with all necessary Ring and Eye Bolts, as customary for a Revenue
Cruizer.

LEGS..... To have $\frac{3}{4}$ substantial Oak Legs properly fitted.

PAINT..... The whole of the wood work inside and out to have three-coats of the best Paint, well put on.

HULL..... The Hull to be completed in every respect as a Revenue Cruizer of the $\frac{1}{2}$ Class, and all Materials found by the Contractor, except copper sheathing for the Bottom and water-closets, with all shipwrights', caulkers', joiners', blacksmiths', copper-smiths', braziers', glaziers', plumbers', and painters' work.

CATHEAD..... To have an Iron Cathead with two shieves strong enough to cat the anchor and fitted both sides.

COCK..... To have a stop Cock fitted forward under the lower deck, to let in water occasionally.

WATER CLOSET... To have a patent Water Closet of Danton's fitted below, and a round house on deck aft starboard side complete, with a pantry for meat, the larboard side to correspond with the roundhouse, and a poop deck between both nailed with copper nails, also a seat of ease on the larboard side forward for the Crew with lead pipe to water edge, the whole of the locks throughout to be brass and brass works.

AIR OPENINGS.... An inch opening to be left all fore and aft under the clamp both sides, also in the ceiling between the lower deck beams, and another in the upper part of the bins, and one inch auger hole bored between the timbers in the run aft and forward where lists cannot be left out, also a hole of one inch in all the timbers fore and aft to admit air, and those holes seared with a hot iron, all chocks for securing the frame timbers together are to be split out before the bottom plank is worked.

The Cutter to remain in frame for one Month before closed in, then when the outside plank is worked and all the sap taken off the timbers, and before the ceiling is worked, to give the timbers a good coat of Stockholm Tar.

Should there be any omission or want of more full statement in this specification. The Contractor is to understand that the Hull of the said Vessel is to be fitted and completed fit for Sea in every respect as is usual for a Revenue Vessel of her Class. The Board having the Copper Sheathing and Water Closet.

DEFECTS TO BE AMENDED .. } Any defects discovered in the timbers or plank, &c. by the Officer or Overseer appointed by the Honourable Board of Customs to survey and inspect the same, or insufficient workmanship performed to the said Cutter during her building, the said defect or deficiency both in the one and in the other, shall upon notice thereof to the Contractor be forthwith amended, and the said Overseer shall not at any time have any molestation or obstruction therein.

STANDARD DIMENSIONS OF MASTS
AND SPARS OF A REVENUE CRUISER, 1839.

(From "Papers relating to the Coast Guard Service").

Tonnage	Mast.	Boom.	Bowsprit.	Gaff.	Topmast.	Spread-Ya.
	ft. ins.	ft. ins.	ft. ins.	ft. ins.	ft. ins.	ft. ins.
150 Tons	75 X 20	61 X 13 $\frac{1}{4}$	55 X 16 $\frac{3}{4}$	45 X 8 $\frac{3}{4}$	52 X 9 $\frac{3}{4}$	58 X 9 $\frac{1}{4}$
130 "	72 X 18	59 X 13	53 X 15 $\frac{1}{2}$	40 X 8 $\frac{1}{2}$	48 X 8 $\frac{1}{2}$	56 X 8 $\frac{1}{2}$
100 "	68 X 17	54 X 12	49 X 14	38 X 7 $\frac{3}{4}$	45 X 7 $\frac{3}{4}$	48 X 8 $\frac{1}{4}$
90 "	65 X 16 $\frac{1}{2}$	51 X 11 $\frac{1}{2}$	47 X 13 $\frac{1}{4}$	33 X 7 $\frac{1}{2}$	42 X 7 $\frac{1}{2}$	47 X 7 $\frac{3}{4}$
80 "	63 X 15 $\frac{3}{4}$	49 X 10 $\frac{3}{4}$	44 X 12 $\frac{1}{4}$	32 X 7 $\frac{1}{4}$	40 X 7 $\frac{1}{4}$	46 X 7 $\frac{1}{2}$
70 "	60 X 15	47 X 10 $\frac{1}{2}$	43 X 12	31 X 7	39 X 7	44 X 7
60 "	56 X 14	45 X 10	38 X 11 $\frac{1}{4}$	28 X 6 $\frac{3}{4}$	35 X 6 $\frac{3}{4}$	42 X 6 $\frac{3}{4}$
50 "	55 X 13 $\frac{1}{4}$	43 X 8 $\frac{3}{4}$	37 X 10 $\frac{3}{4}$	30 X 6 $\frac{1}{2}$	35 X 6 $\frac{1}{2}$	38 X 6
40 "	50 X 12	42 X 8 $\frac{1}{2}$	32 X 10	26 X 6	30 X 6	32 X 6

DIMENSIONS OF REVENUE CRUISERS

(From a statement by the Surveyor of Sloops in "Papers relating to the Coast Guard Service, 1839-1842").

<u>150 Tons.</u>		<u>100 Tons.</u>	
Length	72'	Length	62'
Breadth	22' 10"	Breadth	20'
Depth	10' 3"	Depth	9' 6"
Keel	69'	Keel	59"
Draught aft	10' 6"	Draught aft	10'
Draught f'w'd	6' 6"	Draught f'w'd	6'

<u>60 Tons.</u>		<u>50 Tons.</u>	
Length	54'	Length	50'
Breadth	16' 8"	Breadth	15' 9"
Depth	8' 6"	Depth	8'
Keel	51'	Keel	47' 6"
Draught aft	9'	Draught aft	9'
Draught f'w'd	5' 6"	Draught f'w'd	5' 6"
