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Engine No. 1834

S.S. No. 505

~~R.F.A.~~

s/s. *Adleef*
Mdb. rht
no 9589

SPECIFICATION

OF

PUMPING INSTALLATION, Etc.

FOR

OIL CARGO

BY

BLAIR & Co., Limited,

STOCKTON-ON-TEES

FOR

Messrs. *Ropner & Sons Ltd*

SPECIFICATION

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PUMPING INSTALLATION, Etc.

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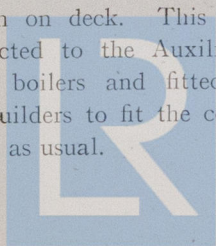
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Specification OF PUMPING INSTALLATION FOR OIL CARGO CARRIED IN EIGHT DOUBLE OIL COMPARTMENTS, OR SIXTEEN TANKS IN ALL.

1. Pump Room. The Pump Room to be arranged forward of the midship position in accordance with shipbuilders arrangement plan and to extend the full width of the vessel. The entrances to the Pump Room to be fitted complete by shipbuilders but gratings and ladders for entrance, and access to the control valves, and flooring of pump room are fitted by enginebuilders as contractors for the fitting of the pumping installation. No wood is to be used in the fittings of pump room.

2. Fittings. The two oil cargo pumps of Mercantile pattern are to be supplied free of cost by the Admiralty but fitted up by contractors. Pumps to be capable of delivering against 250 lbs. pressure. The steam supply to these pumps is to be taken from the steam pipe system on deck. This steam pipe system is to be connected to the Auxiliary steam supply system on main boilers and fitted up complete by engineers. Shipbuilders to fit the connection from donkey boiler steam as usual.



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3. Suction Lines of Piping. Two 10" suction mains are to be carried fore and aft in the holds having 8" branch and suction to each tank, and a cross connection to the opposite tank on each side of ship. One of these mains is to be fitted on each side of the centre line bulkhead. A control valve is to be fitted to the suction strums in each tank. The straight lengths of piping will be of lapwelded wrought iron or steel 10" bore with flange couplings where necessary. All tee pieces, branch pipes, bends, elbows and expansion boxes of cast iron with faced flanges, close bolted; flanges being jointed with suitable materials. Expansion boxes to be fitted where pipes pass through bulkheads. These special fittings will be of cast iron with strong collar flange and gun-metal neck and gland bushes, all in accordance with Admiralty plan. The suction strum will have enlarged bell-mouth end fitted close down to the bottom of the ship, and a handhole provided on the side of the casting so that the inlet can be cleaned without lifting out of position. Arrangements are also to be made for pumping from a vessel alongside, the suction pipe for this purpose having a cross connection so that vessel from which the oil is being pumped can lie at either side. The necessary portable suction hose is to be supplied by the Admiralty. The hose connections are to be in accordance with Admiralty plan.



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4. Delivery Line of Piping. Two 8" pipe lines will be fitted, one from each pump and led one on each side of upper deck combining into one pipe at bow and stern. Arrangements are to be made so that oil can be discharged overboard either ahead or astern, or at three places on each side of vessel through 8" branches, the branches being fitted with shut off valves having flanges suitable for Mercantile or for Admiralty connections. Six 8" Y pieces with 5" branches and valves terminating in 5" Admiralty male screw connections and caps are to be supplied for use on any of the branches as desired. Admiralty will supply adaptors and hoses. An adjustable spring loaded relief valve is to be fitted on each pump delivery arranged so that surplus oil is returned to the suction side of pump.

5. Valves. All the valves in connection with the suctions and delivery mains will be sluice valves, brass fitted, with muntz metal spindles working in gunmetal nuts. The extension spindles are to be properly supported and where passing through decks are to be fitted with stuffing boxes and each valve rod marked with plate showing to where connected. Hand wheels on suction pipes are to be a different type to those on valves of delivery pipes.



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6. Pump Room Fittings and Connections. The piping inside pump room will be arranged in accordance with Admiralty guidance plan with strainer box with removable cover on each suction pipe main, all suction and delivery valves being sluice valves. The steam and exhaust pipes to the pumps will be of lapwelded steel or iron with copper bends as necessary and gunmetal steam and exhaust valves. A 2" suction with non-return valve arranged on the suction pipes to each pump for dealing with the drainage from the bilges of the main pump room. Means are to be provided so that the steam supply to oil pumps can be controlled from the pump room entrance, and steam pipes inside pump room are to be covered with asbestos rope and canvas and painted.

7. Oil Filters. Of vertical type, two filters on each delivery main arranged so that oil can be discharged through either or both filters or by passed direct to deck main.

8. Sea Connections. A 10" injection valve fitted on each side of ship in pump room so that the oil pumps can draw from the sea, and discharge sea water into any tank through the deck delivery range. Hose to be supplied by the Admiralty. An ice valve is to be fitted on each injection valve.

9. Steam Heating. Steam pipes for heating in each tank are to be fitted in accordance with Admiralty guidance plans, the controls both steam and exhaust being arranged in suitable casings. The heating connections are to be taken from the steam main on deck, and the pipes will be of lapwelded steel or iron, the return exhaust pipes from this system being led to a suitable drain tank fixed in boiler-room. These exhaust pipes are supplied and fitted by engineers.

10. Steaming Out Tanks and Pipes. A $1\frac{1}{4}$ " screw down valve with hose connection and cap is to be fitted to the suction pipes, and a portable hose provided for steaming out the suction pipes from a connection provided for this purpose on the steam system in pump room (see also ventilation clause). Means are to be provided for steaming out the oil tanks, and for fire extinguishing, the necessary connections with valves from the Auxiliary steam system being fitted.



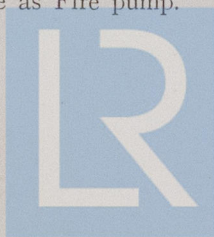
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11. Ventilation System (Mechanical) to Cargo Compartments.

Two steam driven fans are to be fitted in cargo pump room casing drawing fresh air from the pump room ventilator tubes delivering air into the suction mains alternatively drawing from the suction mains and discharging into the open air, all in accordance with Admiralty guidance plans. An 8" sluice valve is to be arranged on the side of the strum boxes in each tank for air supply in connection with these fans. Steam connection to be made on the suction pipes in pump room (live steam or exhaust as may be arranged) for mixing steam and air before admission to tanks. Two 12" ventilators with cowls complete to be fitted to the pump room.

- 12. Forward Ballast Pump.** A duplex type ballast pump 8" x 9" x 8" fitted forward with independent sea suction and discharge valves for dealing with the ballast in the forward ballast compartments, with a bilge suction from the forward cofferdam. Shipbuilders fit necessary seatings and recesses for sea inlet and discharge valves, and trunks for same if necessary. The steam and exhaust connections for this pump are to be taken from the steam and exhaust piping in connection with the oil cargo pumps, and in addition to the overboard discharge, this pump is also to discharge into wash deck pipes to serve as Fire pump.



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13. General. The whole of the work will be finished in a first class manner, all pipes being properly chocked and secured and all made ready for sea, guard rails fitted round pumps, ladders and gratings provided for access to control valves, etc., pressure gauges fitted, shackles fitted above pumps for overhauling, and work bench with vice, lockers and spanner racks fixed complete. No wood work to be used in connection with pump room fittings, and the whole of the work carried out in accordance with Lloyds Rules and under their survey and inspection and tested to their satisfaction. Seatings complete with necessary stiffening to be provided by the shipbuilders in accordance with engineers plans. Shipbuilders to cut all required holes in ironwork and fit any compensation required by Lloyds Rules. A bilge suction from the after cofferdam is to be fitted to the main ballast pump and engine bilge pump in propelling machinery space.

General arrangement plans to be submitted for approval, and on completion of the work complete prints showing the arrangements of oil pumps, pipes and fittings in the pump room, steaming out connections suction and delivery lines and heating arrangements are to be supplied to the Admiralty and also to vessel.



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DEMARCATIION OF WORK.

The Demarcation of Work as already agreed for Cargo Steamers to be the basis of the contract but due to the special type of vessel the following additions are to apply:—

14. The main oil tanks are to be arranged for carrying oil only. No suctions will be fitted to the ballast pumps from the oil compartments either for ballast or bilge purposes, all suction and delivery connections from these cargo holds being through oil pumps only, located in pump room.

15. A bilge suction from the bottom of the cargo pump room is to be arranged on the branches of cargo pumps through a non-return valve discharging overboard through the ordinary cargo discharge pipes. Suctions as necessary from the cofferdam bilges are to be led as usual by shipbuilders, the suction from the forward cofferdam to the fore hold bulkhead, and the after cofferdam suction (if required) to the forward bulkhead of machinery space, from both of which points engineers connect to the pumps. These bilge pipes to be jointed to bulkheads by means of special flanges which will allow engineers connection to be jointed direct to pipe flanges clear of bulkhead plate.



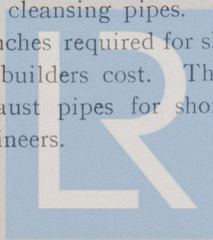
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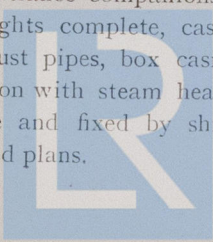
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16. The seatings for the cargo pumps, ventilation fans, filters, strainers and ballast pumps, etc., also all seatings for oil fuel pumps, drain tanks and connections in boiler room and any stiffening required on bulkheads or casings are to be fitted by shipbuilders in accordance with engineers plans.

17. All hole cutting required by engineers in the fitting of suction and delivery piping and valves, heating and cleansing pipes is to be done by shipbuilders in accordance with engineers requirements, and any compensation required owing to the same is to be fitted by shipbuilders as may be necessary for Lloyds Surveyors' requirements. Enginebuilders do any drilling required for bolting, or shipbuilders do this drilling at engineers cost as may be later arranged. No large holes to be cut before being submitted to shipbuilders and approved by Lloyds.

18. The steam and exhaust pipes are to be of sufficient area for cargo pumps, forward ballast pump, heating coils and cleansing pipes. Any increase in size of pipes or branches required for shipbuilders purposes are to be at shipbuilders cost. The branches on these steam and exhaust pipes for shore connections are provided by engineers.



19. The steam supply for the steam heating system and drains from same are to be taken through the pipes referred to in clauses 9 and 18. The exhaust range is to be led to a suitable drain tank fitted in boiler room. Suction to be fitted from this tank to main engine hotwell or independent feed pump as may be arranged.
 20. If a feed tank to receive this condensed water and other exhausts should be required as part of the ship's structure this tank is to be fitted complete by shipbuilders with all details, etc., other than the exhaust and suction pipes referred to in No. 19.
 21. Shipbuilders are to supply and fix all gutters and pipe leads to bilges, against all oil tight bulkheads in machinery spaces, both for bunkers and cargo, so that leakage of oil is suitably intercepted.
 22. The entrance companions to pump room with doors and skylights complete, casings over all deck steam and exhaust pipes, box casings for control valves in connection with steam heating system, etc., are all to be made and fixed by shipbuilders in accordance with agreed plans.
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23. The internal grating and ladders for pump room entrance for access to pumps and control valves and the whole of the piping in pump room are supplied and fitted by engineers, who also supply and fit the ventilation arrangements in connection with pump room and ventilation fan suction. If store room is required in pump room, this is to be built by shipbuilders but the internal fitting of same is engineers work. Flooring of pump room all iron on iron bearers is to be fitted by engineers. All bars on bulkheads and casing sides for carrying floors and gratings are fitted by shipbuilders. No wood is to be used in any of the pump room fittings.
24. Insulation as required for protection of oil fuel or cargo compartments from the heat of boilers, smoke boxes, etc., is to be fitted complete by shipbuilders.



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