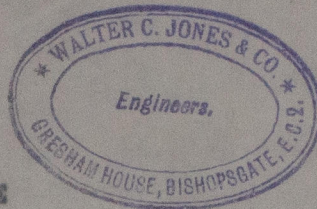


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S.S. "PHARAX"

**SPECIFICATION FOR CONVERTING THE ABOVE
VESSEL FROM COAL TO OIL BURNING.**



OIL FUEL TANKS. The existing deep tank and No.4 and 5 double bottom tanks to be used for carrying fuel oil. Two web frames in the deep tank, one port and one starboard to be modified as required by Lloyd's, by fitting two forked tie plates 9" wide x .6 thick, as arranged with Lloyd's, London. These modifications to be completed to the satisfaction of Lloyd's Surveyor.

Two doors in deep tank bulkhead to be rejointed with oil tight jointing.

Existing deep tank wash plates to be fitted in place by Crew.

Pipes of iron or steel of heavy construction
Bilge suction lines to forward holds where passing through the deep tank to have joints remade with oil tight joints.

Existing deep tank bilge suction port and starboard to be blanked off at the suction valve chest in stokehold.

Existing hatches on top of deep tank port and starboard, also manhole in same, to have joints remade with oil tight jointing.

Tank to be tested to the satisfaction of Lloyd's.

DOUBLE BOTTOM TANKS.

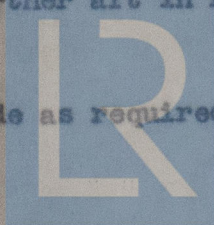
Nos. 4 and 5 double bottom tanks to be used for oil fuel bunkers.

Floor at frame No.120 underneath forward deep tank bulkhead, to be made oil tight, and to form the end of oil bunker.

Existing division in double bottom between Nos. 2 and 3, and 4 and 5 tanks at frame No.128, to have holes made in same in order to make it a common tank up to frame No.120.

Existing centre and wing ballast suctions for tanks No. 2 and 3, to be modified and put further aft in frame bay, between frames Nos. 120 and 121.

All new connections to be made as required.



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Existing manholes of double bottom oil fuel tank to be provided with 3" angle bar ring, existing covers to be used. Tank to be tested to the satisfaction of Lloyd's.

CLEANING.

All necessary preparation of the deep tank and double bottom tank by cleaning, removal of cement, etc, to be done by Crew.

MAIN OIL LINE

New filling pipes and suction pipes for the deep tank and double bottom tank to be supplied and fitted, generally in accordance with plan herewith, all to the satisfaction of Lloyd's requirements.

A 4" overflow pipe is to be fitted 4ft above the top of deep tank, and is to be led by means of a pipe to the double bottom tank, with a non-return valve (not screwed down type) fitted at the bottom. The section of pipe in the 'tween decks leading from the top of the deep tank to the bulkhead, is to be of the best quality steel steam pipe and is to be protected against damage from the cargo etc.

If possible, the existing 6" suction and sluice valves, port and starboard sides inside deep tank, to be left in place, but the suction elbow, T piece and straight length of ballast pipe connecting them, also bend on port side on outside of deep tank, to be removed and secured in safe place under forward boiler.

Oil tight blank flanges to be fitted over sluice valves on deep tank bulkhead, and the existing water ballast suction from Nos. 4 and 5 tanks to be blanked off from the ballast pump. The existing suction from Nos. 4 and 5 tanks to be blanked off at valve chest.

Pipes of iron or steel of heavy construction
All existing water ballast pipes passing through double bottom, now used as an oil bunker, to have joints remade with oil tight jointing, also new bulkhead flanges will have to be fitted at frame No.120, which will now be oiltight.

The same applies to the existing bilge suction passing

through the deep tank.

LEAD BENDS

All lead bends to be replaced with steel bends as required by Lloyd's.

AIR PIPES.

Two new 4" air pipes with wire gauze diaphragms, to be supplied and fitted for the double bottom oil tank, also two sounding pipes to be fitted and supplied with self closing cocks.

Existing air and suction pipes of deep tank will remain unaltered if satisfactory to Lloyd's, otherwise modify as required.

STOKEHOLD.

Floor plates to be lifted and all wood removed and taken ashore.

Floor plates to be relaid and angle bar bearers or floor plates renewed as required, after modification.

PNEUMAGATORS.

Pneumagators to be supplied and fitted for port and starboard deep tank.

TRANSFER PUMP.

Delivery to be taken of Owners transfer pump, and same to be fitted on stool prepared by Repairers, in stokehold in position approximately shewn on plan.

OIL BILGES.

Bilge bracket port and starboard on frame No.93, to be made oil tight and that part of bilge between frame 93 and 105 to form oil bilge.

Existing port and starboard bilge suction from deep tank, to be disconnected at valve chest, and a new pipe, strum box, etc, to be connected to the valve chest in its place, one port and one starboard.

OIL FUEL UNIT.

New Todd Oil burning Unit, supplied by Owners, to be taken.

delivery of, and fitted in engine room in position shewn on plan.
New seating to be made for the Unit as required.

Twelve furnace fronts to be made to suit Todd Oil Burning requirements, which includes removing existing fire doors and fitting on Todd's fronts, also modifications to the dead plates, and the fitting in of diaphragms, cones, burners etc, also supplied by Todd's.

The whole Unit to be connected up with steel pipes from the unit to the burners, including hand starting pump etc, all in accordance with plan supplied by Messrs Todd.

All as required ready for work.

Removal of fire doors and cleaning of furnaces, to be done by Crew.

The suction side of the Unit will be connected to deep tanks as shewn on plan.

All fittings, valves, etc, not supplied by Todd's, to be supplied by Repairers.

Sluice Valves may be supplied by Owners.

Drain from tray around Unit to be taken to oil bilge.

OBSERVATION TANK.

New steel observation tank to be fitted in stokehold on seating prepared by Repairers, alongside forward boiler, and all steam drains from Unit, Coils, etc, to be taken to same.

The drain from this tank to have change over cock with pipes leading to filter tank in engine room or to oil bilge.

STEAM HEATING.

New steam grid coils to be fitted in double bottom tank from 2" outside diameter steel tube, one grid port and the other one starboard, suitable for 185.lbs per square inch, and tested hydraulically to 370.lbs per square inch.

The area of this coil to be approximately $1\frac{1}{2}$ per sq. ft. per ton of oil.



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Similar grid coil to the above, to be fitted in port and starboard side of the deep tank, and additional coils to be fitted in way of the centre and high suction valves, thus making one long coil and one short coil in each tank.

The area of the coil to be approximately .6 per sq. ft. per ton of oil.

1.1/4" steam and exhaust valves to be fitted for the big grid coils in double bottom and deep tank, but 1" steam valves and exhaust valves to be fitted to the smaller suction coils in the deep tank.

All drains taken to observation tank.

STEAM AND EXHAUST LINES

A new steam line to be supplied and connected to existing auxiliary line and all the necessary connections made to the oil unit transfer, bilge pump, fire extinguishing arrangements etc. All these pipes to be lagged as required.

A master valve with extended spindle worked from the deck to be fitted as required by Lloyd's. *for transfer & unit pressure pumps*

A 3/4" steam connection to be connected to the suction line for steaming out oil fuel tanks. The exhaust from pumps on unit, also transfer and bilge pumps to be taken to condenser.

FIRE EXTINGUISHING.

Steam fire extinguishing pipe to be fitted underneath boilers, to Lloyd's requirements, and to be connected up to steam (and) exhaust as mentioned previously.

The valve to this fire extinguishing arrangement to have extended spindle to deck as required by Lloyd's.

Also in connection with fire extinguishing, a connection, if required, to be made on the discharge side to general service Donkey in engine room, and sufficient length of hose with nozzle supplied to reach stokehold.

Damper in funnel to be fixed in an open position and padlocked.

SAND BOXES AND DRIP TRAYS

Twelve drip trays to be supplied and fitted under each furnace

front, and two sand boxes of suitable size to be supplied and fitted.

NAME PLATES

All new valves to have nameplates.

NOTICE BOARD

Notice board to be placed in prominent place in Boiler Room, near filling pipe, stating that the Deep Tank must always be filled before the Double Bottom Tank when refuelling.

GENERALLY.

All the above work is to be completed to the satisfaction of Owners and Lloyd's, and all necessary clips, bolts, pipe stays, packing etc, to be included, and the whole installation to be left complete and ready for work.

On completion the boilers are to be filled with fresh water and the whole installation tried to the Classification Surveyor and Owners satisfaction.

Owners to supply the necessary fuel oil for this purpose.

Any item of Lloyd's requirements omitted from this specification to be included.

The flash point of the oil fuel to be above 150° F.

The remaining requirements of Section 20 of the Rules 1938-9 to be complied with so far as they are applicable.

*MCC
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