

(Received at London Office

No. in Reg. Book. Survey held at GREENOCK & FIATH OF CLYDE. Date. First Survey 31ST. OCT. 1947. Last Survey 10TH. FEB. 1948.
(No. of Visits 34.)

Year. Month.

Last Report No. 72483. Port GLASGOW. { CONVERSION TO BURNING OIL FUEL. &

(Periodical Surveys, when held, must be reported in detail and seriatim in the terms of the Rules. State clearly the cause of Repairs, if any, and, in detail, the nature and extent of Examinations and subsequent Repairs. Repairs on account of Damage (the cause of which must be stated) should be separated from Repairs due to other causes; and besides being detailed in the body of the report, should be briefly summarised at the end of the report. State also the dates and initials of any letters respecting this case.....)

Was a damage report made by anyone else? If so, by whom? ☒

Did the Surveyor personally go inside each Main Boiler separately and make a thorough examination at this time? Yes.

	Aux.				/
"	<u>Donkey</u>	"	"	"	<u>Yes.</u>

If not, state for what reasons ☒ What parts of the Boilers could not be thus thoroughly examined? ☒

What special means, in the absence of internal examination, were adopted by the Surveyor to assure himself of the thorough efficiency of those parts of each Boiler? ✓

State latest date of internal examination of each boiler SB. Aux. B 2.48. PB. 2.48

Did the Surveyor examine the Safety Valves of the Main Boilers? YES. To what pressure were they afterwards adjusted under steam? 230 lbs

Did the Surveyor examine the Safety Valves of the ~~Boiler~~ ^{Aux:} Boilers? Yes To what pressure were they afterwards adjusted under steam? 230 lbs

Did the Surveyor examine all the manholes, doors and their fastenings of the Main Boilers? YES. and of the ^{AUX:}~~Deck~~ Boilers? YES.

Did the Surveyor examine the drain plugs of the Main Boilers? NONE FITTED. and of the ^{Aux:} ~~Boilers~~ Boilers? NONE FITTED.

Did the Surveyor examine all the mountings of the Main Boilers? Yes. and of the ^{Auxi}~~auxiliary~~ Boilers? Yes

Has the screw shaft now been drawn and examined? SEE G/S. REPORT Has it a continuous liner? ☒ Is an approved oil retaining appliance fitted at the after end? ☒

Has shaft now been changed? ☒ If so, state reasons ☒ Has the shaft now fitted been previously used? ☒ Has it a continuous liner? ☒

Is an approved oil retaining appliance fitted at the after end? ☒ State date of examination of Screw Shaft 10.1.48 AS PER G/S REPORT. State the wear down in the stern bush ☒ Is electric light ~~and/or power~~ fitted? YES. If so, did the Surveyor examine the generators, motors, switchgear, cables and fuses? YES.

Has the insulation resistance of the generators, circuits and apparatus been tested and found to be not less than 100,000 ohms? Yes.

Engine parts, when referred to by numbers, should be counted from forward.

If the Survey is not complete, state what arrangements have been made for its completion and what remains to be done. COMPLETE.

attended vessel afloat for Conversion to Oil Burning & for full L.M.C. Survey: Vessel was towed to Glasgow for Docking Survey, examination of Screw Shaft, repairs to Propeller etc on 8th Jan. & returned to Greenock 18th Jan. for Completion of the Surveys. Attendance was at the request of Owners Representatives.

NOW DONE:—Boilers. The Port & Starboard main boilers, & the Auxiliary (Centre) boiler, opened out & cleaned, examined internally & externally together with their safety valves (main & superheater), mountings, manhole doors, ratings, Collision Chocks & Gunnel. On Completion of extensive repairs detailed hereunder, the Main & Superheater safety valves adjusted under steam to WP of 230 lbs^{sq} & found efficient. Superheater headers & elements examined. Boiler Repairs now done for wear & tear. PORT BOILER. 111 defective Combustion Chamber back & side stays renewed & all Comb. chamber top girder stays wasted now renewed viz. 42 girder stays renewed. STARBOARD BOILER. 125 defective Combustion Chamber back & side stays renewed. Buckled Combustion Chamber top plate of starboard wing chamber cropped & renewed with F & A electrically welded seams. 42 Comb. Chbr. top girder stays renewed. All plain & stay tubes in Port & Starboard main boilers renewed. AUXILIARY BOILER. 10 defective Comb. Chbr. back & side stays renewed, All (30) defective Comb. Chbr. top girder stays renewed. All main & Auxiliary main & superheater safety valves & mountings completely overhauled.

P.T.O.

General Observations, Opinion, and Recommendation:—

(State clearly what alteration, if any, is suggested to be made in the existing classification of the vessel's machinery in the Register Book, consequent upon this survey, and also any alteration required to be made in the records of the vessel's machinery, boilers, working pressures, &c.; thus, for example, BS 9,11, B&MS 9,11 & LMC 9,11 or & LMC 140 lb., FD, &c.)

The boilers & machinery of this vessel are eligible in my opinion to remain as classed & to have fresh record of survey *LMC, 2.48 & the Notation Fitted for Oil Fuel 2.48 F.P. above 150°F. Also to have fresh record of Tail Shaft run, C.L. 1.48 & deletion in S.P.L of examination & repairs to propeller blades next docking as per Glasgow Report No. 72483.

Survey Fee (per Section 29.)	<u>*LMC-2.48</u>	£ 28-0-0.	Fees applied for
<u>CONVERSION TO OIL BURNING.</u>		50-0-0.	<u>25th FEBY 1948.</u>
Special Damage or Repair Fee (if any)	(per Section 29.) <u>BOILER REPAIRS</u>	£ 26-5-0.	Received by me,
Travelling expenses (if chargeable)	<u>ELEC^t EQUIPT.</u>	8-0-0.	
			19

Committee's Minute
Assigned - 1 - Incl 2. 48 without one cond
Fitted for oil fuel 2. 48 I.P. above 1500f

51.48

CERTIFICATE WRITTEN

Particulars of Classification (which must be inserted precisely as in Register Book & Supplements).

CHARACTER.
✕ for Special Survey.
Date of last Survey and of
Periodical Surveys.

Years assigned now expired.	Machinery and Boiler Surveys (Including date of N.B., if any)
	* LMC. 3.46. CL. 4.46.

Insert Character of Ship and Machinery precisely as in the Register Book.

Is a Certificate required? If so, to be sent to GREENOCK OFFICE.

together with root blowers. A selected number of main & auxiliary steam pipes removed, stripped, examined & tested to WP x 2 = 460 lbs. & refitted & relagged. Marked & Lloyd's Test 460 lbs. 4.12.47. All superheater elements removed, sent to Warkent, reconditioned & refitted in good order. All headers & elements examined & tested under steam pressure on completion of repairs.

Main & Auxiliary Machinery. All cylinders, pistons, slide valves & gears, crank shaft, journals, pins, main & bottom end bearings, crosshead pins & bearings, thrust & intermediate shafting, main engine driven pumps, steam & water ends of all auxiliary pumps completely opened out, examined & refitted in good order.

Main & Auxiliary Condensers opened, cleaned, examined & tested to required water pressure & closed up in efficient condition.

Pumping Arrangements. The valves, cocks, pipes & strainers examined & placed in good order.

Screw Shaft & Sea Connections, examined with fastenings by Glasgow Surveyor. Please refer to Glasgow Report No. 72483. & Special Reasons List.

MACHINERY REPAIRS. Main Engine: Main engine stop valve seat & valve lid renewed. HP, MP & LP slide valves & valve gears - Andrew Cameron type, reconditioned with saddle pieces, adjusted. Eccentric straps & sheaves examined & adjusted. HP valve spindle top glands replaced by Domes. Main bearings & bottom end bearings dressed & adjusted. LP crank pin honed. MP bottom end bearing & spare bearing reinstalled. Crosshead bearings dressed & adjusted. Pins honed. Holding down bolts overhauled & tightened esp. Aspinall Governor & gear fitted. Main Pumps. 2 bilge pumps runs machined & rebushed. Suction & delivery valves overhauled. Pump links overhauled & adjusted. Atmospheric valve machined. Main & Auxiliary Condensers. Cleaned on water sides. Water ends scaled & coated. Auxiliary Machinery: - Wear Feed pumps. Shuttle valves & S. & D. valves reconditioned. Piston & bucket rings renewed. Forward pump brass chamber renewed. Ballast pump, Harbour pump & General Service pump. Reconditioned throughout. Water liners & rods, re. Evaporator. New baffles fitted & number of steam coils renewed. Feed heater opened & tested by water pressure. Twin Engine. Cylinder rebored, new piston & rings fitted. Piston rod machined & new bushes fitted. Electrical Equipment. Dynamo Engines, Generators, main & sub-distribution, boards, boxes & fittings & wiring circuits examined & on completion of necessary repairs, megger tested throughout & found satisfactory. REPAIRS. Dynamos engines & generators reconditioned. Boiler room circuits renewed. ER circuits part renewed. Engineers Accommodation renewed. Navigation circuits renewed. Wheel house, chart room & wireless circuits renewed. Pops accommodation part renewed. Emergency Generator & Diesel Engine. Removed to shop & reconditioned throughout.

On completion of repairs, the electrical equipment was examined under working conditions & found satisfactory.

Steam Steering Engine & Telemotor Gear. Opened out, reconditioned & refitted in good order. REPAIRS. Main bearings renewed. Piston & valve rods machined & new bushes fitted. Valve gear quadrant renewed. SS eccentric strap renewed. Sundry minor repairs carried out.

On completion of repairs, steering engine & telemotor gear tested under working conditions hand over each way & found satisfactory.

Windlass. Windlass opened out, reconditioned & refitted in good order. REPAIRS. Piston rods machined & new bushes fitted. Piston rings renewed. Piston crosshead pin renewed & crosshead bushes renewed.

On completion of repairs, the windlass tested under working conditions & found satisfactory.

Conversion to Oil Burning. This vessel has now been fitted for Oil Fuel F.P. above 150°F in accordance with Rule requirements, the Secretary's Letters, & the approved plans, as follows:

- (1) Arrangement of Bilge & Ballast & underfloor pipes, approved 20.2.47.
- (2) Arrangement of Oil Fuel Plant & Connections (Glyde Fuel Systems Ltd). 25.3.47.

D.B. TANKS & CONNECTIONS. Nos. 2-3 & 6 D.B. Tanks now modified to comply with Sections 20 & 34 of these Rules, so far as applicable. These tanks have now been cleaned out & all bottom cement & element wash removed P. & S. Similarly all bituminous enamel has been removed below BR platforms & under boilers. 1 1/2" steel steam heating pipes have been fitted in each tank.

Copperhams have been introduced at the forward end of No. 4 tank (ER tank) which is now to be used for fresh water, & at the after end of No. 5 tank (ER tank) also to be used for FW, & D.B. Tanks Nos. 2-3 & 6, have been arranged for carriage of Oil Fuel. Air & sounding pipes & 2" suction pipes fitted to Copperhams.

SETTLING TANKS. The crossbunker space has been converted into 3 settling O.F. tanks ahead with stokehold bulkhead forming after O.T. bulkhead. The forward portion of the crossbunker space has been converted into a deep tank for water ballast. Coal hatch openings at second deck have been plated over & oil tight & water tight hatches fitted.

Generators. The inboard & outboard generators on SS. have been repositioned in line fore & aft, with heatings suitably E.W. to tank top plating.

Oil Fuel Units. Twin Oil Fuel units have been installed at forward end of ER, on suitable steel plate seating E.W. to tank top. Makers: - Glyde Fuel System Ltd, Glasgow. Pump No. 2715.

Transfer Pumps. has been installed at after end of ER, inboard starboard side, on steel plate seating E.W. to tank top. Makers: - Dawson & Downie, Ltd Clydebank. Pumps No. 21847. The Transfer Pump

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is arranged with Oil Bilge Suctions at after end of ER, & on P.S. sides in BR, suitably lighted. (3) Oil Water Separator. "Coastguard" type, has been installed in ER. SS. on E.W. steel plate seating. Lead Pipes etc. All lead pipes & bends throughout the machinery compartments have been removed & replaced by steel pipes & bends.

Steam Heating & O.F. Pipes. All steam heating pipes throughout Nos. 2-3 & 6 D.B. Tanks (P.S.), O.F. pipes to & from boilers, & oil fuel suction filling pipes have been tested to Rule Requirements.

O.F. Settling Tank heating pipes were tested by Glasgow Surveyor. Please see GLO. REPORT No. 72483.

Observation Tank. Installed in ER (SS) as required for returns from fuel heating coils.

Starting Up Heating Unit. Initially installed in B.R.

Gutterways. A 6"x3" angle to form Cramming & gutterway, has been E.W. to tank top from transfer pumps aft end ER (SS) extending forward round Oil Fuel units & Coastguard Separator, to starboard Bilge. Similarly an angle gutterway has been fitted from P.S. bilges abaft stokehold bulkhead forming after bulkhead of transverse settling tanks.

Deck Control Gear. Has been suitably installed & satisfactorily tested for fuel shut off valves - high & low - from settling tanks, steam shut off valves to oil fuel units & transfer pumps, & for fire smothering perforated pipes under boilers & in engine room.

Fire Extinguishing Apparatus. Perforated steam smothering pipes as above, fire hoses & ER & BR.

Drips trays under furnace fronts, sand bins. 1-10 gal. Foamite Extinguisher & 2-2 gal.

Foamite Extinguishers in boiler room & 2-2 gal. foamite extinguishers in engine room, have been satisfactorily installed.

Loading Pipes. In tunnel & machinery space fitted to rule requirements.

General Service Pump. The connection to the ballast main line has been retained, but the suction from the filter tank & discharge line to boilers have been removed.

Deep Tank. The Bilge & Ballast Pipe Arrangement as approved for Conversion to Oil Burning, on completion, made no provision for filling the deep tank, due to the 6" suction valves (P.S.) being of the SDNR (Screwdown non-return) type, as shown on the approved plan.

Filling the Deep Tank by hose from the washdeck line is an extremely slow process, & to overcome the difficulty, proposals were made by the Repairers, to alter these 6" suction valves to Screw Lift Type. These proposals were communicated to Glasgow Office by telephone & were agreed, whereby the Ballast Pump could be used for discharging through a 3" pipe to the main ballast line to the 6" screw lift suction valves P.S.

On the approved plan, the Deep Tank is inadvertently referred to as the Cross Bunker Hold, with crossbunker hold suction & bilge suction valves, instead of Deep Tank suction & deep tank bilge suction valves.

Blank & Ring flanges have been fitted to the 6" deep tank screw lift suction valves (P.S.) & to the Deep tank bilge suction (P.S.), to afford efficient isolation when the Deep Tank is in use for cargo purposes, & the Deep Tank is provided with 5" dia. overflow air pipes P.S. & thus comply with Rule requirements. Please refer to the Arrangement of Bilge & Ballast Pipes forwarded herewith, also Arrangement of O.F. Plant & Connections.

TRIALS: On completion of the above surveys, repairs & Conversion to Oil Burning, the main engine, auxiliary machinery, pumping arrangements & electrical equipment were examined under working conditions on full power sea trial in the Firth of Clyde, & found satisfactory except that further adjustments to the Oil Burning System were considered necessary owing to difficulty in maintaining steam pressure & to eliminate excessive smoke. The vessel re-entered Greenock Harbour on 5th February, when after discussion with all parties concerned, it was arranged to fit baffles at the root of the funnel in order to eliminate turbulence at the uptake of the auxiliary boiler situated between the

—STEEL SC: "TEMPLE ARCH"—

port & starboard main boilers, & to fit a different type of air deflection ring at the furnace mouths.

Baffles were duly fitted in the funnel, without changing the deflection rings at the furnaces & a further sea trial was carried out on 10th Feb. when, though the results showed considerable improvement, there was still considerable difficulty in maintaining full steam pressure.

In order to catch her Charter, the vessel then proceeded to Newport (Mon). to load for Gibraltar, & it is reported that the Air deflector rings were replaced at that port.

From reports received since the vessel's departure from Newport, it is understood the alteration has given satisfactory results.

[Signature]

Noted.
without special conditions.

F. H.
19/3/46.



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Foundation