

RETAIN

Built at Port Glasgow 8,1919 by Robt. Duncan & Co.

100 Al 'carrying oils in bulk F.P. above 150° F.'

L 400' x B 52' x D 31'- Standard 'Z' vessel.

In March 1921 while under repair at London a Special Report was made to examine the nature of the repairs with a view to obtaining experience for application to future plan approval of Tankers. This report makes a reference to very bad workmanship.

LONDON Rpt.No.85060 dated 10.12.21 Repairs mainly due to defective riveting as follows :-

Grounding Damage	- 19,000
Heavy Weather	- 19,000
Wear and Tear	- 9 Keel plates entirely reriveted, 4 " " part "

A large number of rivets in all shell plating, stringer angles, upper deck, trunk sides, bulkheads, etc.

It was found necessary to broach fair and recountersink or electric weld, drill and recountersink a large number of the above rivets and practically all rivets of upper deck.

In view of the above all subsequent reports have been carefully read and the following notes taken :-

Port Date Number	Summary of reports
Southampton 23.8.22 11331	Docking. A few leaky rivets tooled up.
Southampton 17.3.23 11478	Docking & Heavy Weather Damage. H.W. Repairs :- 2,100 rivets renewed in longitudinal and transverse bulkheads and 1,400 rivets hardened up.
Rotterdam 3.8.23 13019	Heavy Weather Damage. A great number of rivets renewed in shell and transverse bulkheads.
Newcastle 2.9.24. 78256	Heavy Weather. All caulking overhauled and several rivets renewed.
Queenstown 22.1.25 3809	Heavy Weather. Web frames port and starboard faired and doubler fitted in way of fracture in upper web plate p.s. Riveting in way tested and renewed as necessary.
Newcastle 27.7.25 79464	Heavy Weather- several voyages quoted. The following odd riveting renewed :-

Lloyd's Register

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 W487-0162 (1/3)

Port
Date
Number

Summary of reports.

	Fore peak	5	Shell	15	Internal
Nwc. contd.	Fore Hold	-	"	42	"
27.7.25	Ford. D.B.	-	"	39	"
	No.1 Cargo	169	"	538	"
	No.2 "	479	"	1,012	"
	No.3 "	556	"	644	"
	No.4 "	514	"	1,022	"
	No.5 "	205	"	322	"
	O.F. Bunker	59	"	380	"
	Coal "	-	"	128	"
	E & B space	17	"	184	"
	BR D.B. Tk.	-	"	42	"
	ER " "	-	"	35	"
	After peak	-	"	8	"
				<u>2,004</u>	<u>4,411</u>

The shell rivets enumerated above were in the large majority of cases on the bottom.

Southampton
22.4.26
12435

Heavy Weather. Rivets renewed as follows:-

	After Peak	24	Shell	36	Internal
	Fore Peak	3	"	-	"
	Ford. Hold	6	"	-	"
	No.1 Cargo	-	"	446	"
	No.2 "	11	"	800	"
	No.3 "	20	"	950	"
	No.4 "	23	"	1,180	"
	No.5 "	12	"	400	"
	O.F. Bunker	25	"	750	"
		<u>124</u>		<u>4,552</u>	

A large proportion of internal rivets required holes reamering and fitting of larger rivets.

Newcastle
3.6.27
81447

Heavy Weather. Vessel small hammer tested. A number of rivets in bulkhead plating and angle connections and a few in shell plating renewed.

Newcastle
2.5.28
82746

S.S. No. 2 Complete and straightforward collision damage repairs carried out. W. & T. Odd riveting renewed in shell plating. Riveting and caulking on bulkheads, shell, etc. made good.

Manchester
28.2.29
6573

Docking. A number of defective rivets in all cargo tanks and oil fuel bunker of shell, bulkheads, etc. renewed. Riveted doubling plate fitted over fractured deck plate at port corner aft of No.2 starboard cargo tank hatch.

Manchester
25.2.30
6987

Docking. Several shell rivets renewed throughout bottom and sides of cargo tanks, machinery space and oil fuel bunker. A number of rivets renewed in cargo tank bulkheads, angle connections to centre line, transverses, longitudinals, side keelsons etc.

Port
Date
Number

Summary of reports.

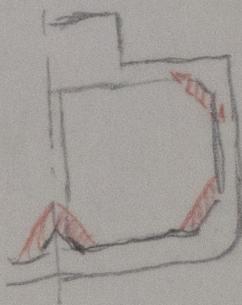
BELFAST
13.3.31
10,592

Stiffening and repairs.

Rudder mainpiece fractured above and below 2nd arm, fracture cut out and mainpiece built up with electric welding. Tiller found to be fractured vertically through boss of forward keyway. Tiller renewed and new forging thickened in way of keyway.

ADDITIONAL INTERNAL STIFFENING FITTED. Briefly this consisted of increasing brackets to transverses at deck, bilge and centre line and additional shell bars to intercostal side girders.

Other repairs. A 10 fractured, renewed, and fracture welded in E 1, both port side. Upper deck plating of 2nd strake from centre line strake doubled in way of boiler casing and coal bunker hatch, port & starboard. Existing doublers at hatch corners cropped back from hatch corners and new doublers overlapped. (Existing doublers fitted 22.4.26 now found cracked) Engine room tank top perforated by floor plate supports - welded doublers fitted. About 41,000 rivets renewed.



Newcastle
15.9.33
90535

S.S. No. 3 Normal wear and tear repairs done.

Extensive pitting of bottom shell plating on tank side - worst now welded. LIMIT of 12 MTHS for re-examination of pitted shell plates.

Sample of deposit sent to London and examined by Mr. L. Ripley who can only say it consists mostly of Ferric Oxide.

Newcastle
20.7.34
91584

Docking. No.4 cargo tank prepared for examination of pitted shell plates and found corrosion had not advanced. Examination of remaining tanks deferred for favourable opportunity.

About 2,500 rivets renewed throughout vessel principally in cargo tanks.

Falmouth
31.3.36
8875

Docking. All defective rivets renewed throughout.

Falmouth
26.8.37
9233

2nd S.S. No.1

All defective rivets renewed throughout.

8.9.39 Vessel sunk by submarine.

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N.B. Machinery amidships - frequent trouble with shafting alignment + holding down bolts of engines + shafting.

31487-0162(3/3)

