

26. JAN. 1961

Rpt. 5c.

REPORT ON WATER TUBE BOILERS.

No. FE-7105

Received at London Office

Date of writing Report 15th Dec., 1960 When handed in at Local Office **JAN 19 1961** Port of Kobe

No. in Survey held at Aioi, Japan Date, First Survey 21st May, 1959 Last Survey 8th November, 1960

Reg. Book. S.S. "MIR" (Number of Visits 65) Gross 25,037 Tons Net 16,304

Built at Aioi, Japan By whom built Harima Shipbuilding & Eng., Co., Ltd. Yard No. 529 When built 1960.11

Engines made at Tokyo, Japan By whom made Ishikawajima Heavy Ind., Co. Engine No. IT-2261 When made 1960.11

Boilers made at Aioi, Japan By whom made Harima Shipbuilding & Eng., Co., Ltd. Boiler No. B-867, 868 When made 1960.11

HS for Register Book 2221.03 M² Owners Vsesojuznoje Exportno-Importno Objedineniye "Sudoimport" Port belonging to Odessa, USSR

WATER TUBE BOILERS—MAIN, AUXILIARY, OR DONKEY.—Manufacturers of Steel Japan Steel Works, Ltd., Muroran Works. Kawasaki Steel Corporation, Fukui Plant. Sumitomo Metal Industries, Ltd., Steel Tube Works & No. and Description or Type

Date of Approval of plan 18-2-1959

of Boilers 2 x Two Drums Water Tube Boiler Working Pressure 48 kg/cm² Tested by Hydraulic Pressure to 75.5 kg/cm² Date of Test 20-11-1959

No. of Certificate KOB 1-61301 Can each boiler be worked separately Yes Total Heating Surface of Boilers 557.58 M² Superheaters 141.35 M²

Half Economisers 411.6 M² Is forced draught fitted Yes Area of Fire Grate (coal) in each Boiler -

No. and type of burners (oil) in each boiler 4 x Straight Mechanical Pressure Atomizer No. and description of safety valves on each boiler 2 x Full Lift Type Single Safety Valve Area of each set of valves per boiler as fitted 1186 mm² x 2 Pressure to which they are adjusted 48 kg/cm² Are they fitted with easing gear Yes In case of donkey boilers state whether steam from main boilers can enter the donkey boiler - Smallest distance between boilers or uptakes and bunkers or woodwork fitted away from bunkers or wood Height of boiler 2.260 m

Width and length 6,071 x 4,532 mm Steam Drums: Number in each boiler 1 Inside diameter 1,220 mm

Thickness of plates Shell plate 32 mm, Range of tensile strength 51.0 to 53.3 kg/mm² Are drum shell plates welded or flanged welded Tube plate 95 mm, Range of tensile strength 50.0 to 51.4 kg/mm² Have all the requirements of the Rules for Class I vessels been complied with Yes Description of riveting:—Circ. seams - long. seams -

Diameter of rivet holes in long. seams - Pitch of rivets - Thickness of straps 32.2, 51.4, 76.8 mm Percentage strength of long. joint:—Plate - Rivet - Diameter of tube holes in drum 32.2 and 102.2 mm Pitch of tube holes 48 mm for 1 1/2" tube, 20 mm for 2" tube

Percentage strength of shell in way of tubes 24.2% Min. Steam Drum Heads or Ends: Range of tensile strength 45.2 to 45.8 kg/mm²

Thickness of plates 59 mm, Radius or how stayed 980 mm (240 mm corner) Size of manhole or handhole 305 mm x 405 mm Water Drums: Number in each boiler 1 Inside diameter 65 mm Thickness of plates 22 mm, Range of tensile strength 49.4 to 49.7 kg/mm² Are drum shell plates welded or flanged welded If fusion welded, state name of welding firm Harima Shipbuilding & Eng., Co., Ltd. Have all the requirements of the Rules for Class I vessels been complied with Yes Description of riveting:—Circ. seams - long. seams -

Diameter of rivet holes in long. seams - Pitch of rivets - Thickness of straps 32.2, 51.4, 76.8 mm Percentage strength of long. joint:—Plate - Rivet - Diameter of tube holes in drum 32.2 and 102.2 mm Pitch of tube holes 48 mm for 1 1/2" tube, 20 mm for 2" tube

Percentage strength of drum shell in way of tubes 24.2% Min. Water Drum Heads or Ends: Range of tensile strength 45.2 kg/mm²

Thickness of plates 39 mm, Radius or how stayed 620 mm (160 mm corner) Size of manhole or handhole 305 mm x 405 mm

Headers or Sections: Number 3 Material Steel Forging Thickness 26 mm Tested by hydraulic pressure to 75.5 kg/cm²

Tubes: Diameter 1 1/2", 2", 3" & 4" Thickness 0.105", 0.2" & 0.26" Number 1, 045, 273, 6 & 12 Steam Dome or Collector: Description of joint to shell - Inside diameter - Thickness of shell plates - Range of tensile strength - Description of longitudinal joint - If fusion welded, state name of welding firm - Have all the requirements for the Rules for Class I vessels been complied with - Diameter of rivet holes - Pitch of rivets - Thickness of straps - Percentage strength of long. joint - plate - rivet -

Crown or End Plates: Range of tensile strength - Thickness - Radius or how stayed -

SUPERHEATER. Drums or Headers: Number in each boiler 4 Inside diameter 178 mm x 178 mm square

Thickness 38 mm, Material Cr-Mo Steel Forging Range of tensile strength 45.0 to 45.6 kg/mm² Are drum shell plates welded or flanged No (Solid drawn) If fusion welded, state name of welding firm - Have all the requirements of the Rules for Class I vessels been complied with - Description of riveting:—Circ. seams - long. seams -

Diameter of rivet holes in long. seams - Pitch of rivets - Thickness of straps - Percentage strength of long. joint:—Plate - Rivet - Diameter of tube holes in drum 32.2 mm Pitch of tube holes 47 mm Percentage strength of drum shell in way of tubes 31.5% Drum Heads or Ends: Thickness 51 mm Range of tensile strength 45 kg/mm²

Radius or how stayed Flat End Size of manhole or handhole 35.5 mm Number, diameter, and thickness of tubes 384, 1 1/2", 0.12" Parallel 16 mm

Tested by hydraulic pressure to 75.5 kg/cm² Date of test 22-10-1959 Is a safety valve fitted to each section of the superheater which can be shut off from the boiler Yes No. and description of safety valves 1 x Full Lift Type Single Safety Valve Area of each set of valves 1186 mm² Pressure to which they are adjusted 43.5 kg/cm² Is easing gear fitted Yes

Spare Gear. Has the spare gear required by the Rules been supplied Yes

Y. Matsuyama, Manager of Aioi Works.

THE HARIMA SHIPBUILDING & ENGINEERING CO., LTD.

5292 Aioi, Aioi-shi, Hyogo-kun, Japan

The foregoing is a correct description,

Y. Watanabe, Manufacturer.

Dates of Survey During progress of work in shops 1959, May 21, 30, June 5, 30, July 11, 22, 27, 28, 30, 31, Aug. 4, 6, 7, 10, 28, Sept. 1, 5, 8, 9, 11, 12, 15, 18, 19, 25, 26, 28, 29 Oct. 5, 6, 8, 13, 14, 20, 21, 22, 26, 28, 30 Nov. 5, 7, 11, 12, 13, 16, 19, 20, 21, 24, 25, 26, 27, 28 Dec. 7

while building During erection on board vessel 1959 Nov. 27, Dec. 15, 1960 Jan. 13, Feb. 15, April 1, 7, 11 Oct. 22, 27, 31 Nov. 8

Total No. of visits 65

Is this boiler a duplicate of a previous case No If so, state vessel's name and report No. -

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed and installed in the vessel under Special Survey in accordance with the Rules, approved plans and the Secretary's letter. The materials and workmanship are sound and good. On completion the safety valves were adjusted under steam to 683 Lbs/in² on the boiler drums and 620 Lbs/in² on the superheaters. Accumulation tests were waived at the request of the Builders & Owners representatives, satisfactory certificates of discharge capacity for the safety valves were endorsed.

Survey Fee ... £344.550. When applied for 19

Travelling Expenses (if any) £223.875 When received 19

Date FRIDAY 24 MAR 1961

Committee's Minute

See Rpt. 1.

J. Macfarlane, Engineer Surveyor to Lloyd's Register of Shipping.

Lloyd's Register Foundation

015483-015495-2030

List of Material of Boiler.

ARTICLE	TEST MARK	MAKERS
End plate for Steam drum.	34E70-1/2-1	Japan Steel Works Ltd.,Muroran Works.
Tube plate for Water drum.	34E61-1/2-1	"
Tube plate for Water drum.	34E61-1/2-2	"
End plate for Water drum.	9E1259,3-6063	Kawasaki Steel Corp.,Fukiai Plant.
Shell plate for Steam drum.	9E5605A,	"
	2-9463	"
Shell plate for Steam drum.	9E5605B	"
	2-9463	"
Shell plate for Water drum.	9E4954, 3-6225	"
Tube plate for Steam drum.	33575-1/3-1	"
Tube plate for steam drum.	33575-1/3-2	Japan Steel Works Ltd.,Muroran Works.
End plate for Water wall header	2-9463	Kawasaki Steel Corp.,Fukiai Plant.
End plate for Economizer header	2-9463	"
Desuperheater header.	9E1306	"
	G2-4321	"
End plate for Desuperheater	G2-4171	"
Side water wall tube	YXC 3941	Sumitomo Metal Ind.,Ltd.,Steel Tube Works
Lower connecting tube	YXC 3948	"
Back side water wall tube	YXC 3942	"
"	YXC 3943	"
"	YXC 3944	"
"	YXC 3945	"
Connecting pipe	YXC 3946	"
Lower connecting pipe	YXC 3947	"
"	YXC 3949	"
Upper connecting pipe	YXC 3950	"
"	YXC 3951	"
Desuperheater tube	YXC 3961	"
Water wall header	VMD 637-1	"
"	VMD 638-1	"
"	VMD 639-1	"
"	VMD 637-2	"
"	VMD 638-2	"
"	VMD 639-2	"
Economizer header	VMD 640-1	"
"	VMD 640-2	"
"	VMD 640-3	"
"	VMD 640-4	"
"	VMD 640-5	"
"	VMD 640-6	"
"	VMD 640-7	"
"	VMD 640-8	"
Superheater header	VMD 636-1	"
"	VMD 636-2	"
"	VMD 636-3	"
"	VMD 636-4	"
"	VMD 635-1	"
"	VMD 635-2	"
"	VMD 635-3	"
"	VMD 635-4	"
"	VMD 635-5	"
"	VMD 635-6	"
Economizer tube	YXC 3959	"
Economizer tube	YXC 3960	"
Stay tube for superheater	YXC 3952	"
"	YXC 3953	"
Down comer tube	YXC 3954	"
"	YXC 3955	"
"	YXC 3956	"
"	YXC 3957	"
Connecting pipe for Desuperheater	YXC 3958	"
Economizer pipe	YXA 3664	"
Superheater tube	YTXC 1173	"
"	YTXC 1172	"
"	YTXC 1171	"
Bend tube for desuperheater	EPX81	"
Bend tube for economizer	FPAB2D	"
Generating Tube	YXC 3933	"
"	YXC 3934	"
"	YXC 3935	"
"	YXC 3936	"
"	YXC 3937	"
"	YXC 3938	"
"	YXC 3939	"
"	YXC 3940	"
"	YXC 4299	"



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