

REPORT ON MACHINERY. No. 1565

Received at London Office 10 JAN 1927

Date of writing Report **2nd Dec. 1926** When handed in at Local Office **2nd Dec. 1926** Port of **NAGASAKI.**

No. in Survey held at **NAGASAKI.** Date, First Survey **1st July 1926.** Last Survey **27th Nov. 1926**
 Reg. Book. (Number of Vols. **37.**)

on the **Mitsubishi Engine No. 426: for Uraga Dock Hull No. 317.,** Tons { Gross _____ Net _____

Master _____ Built at **Uraga.** By whom built **Uraga Dock Co.,** When built **1926.**

Engines made at **Nagasaki.** By whom made **Nagasaki Wks. Mitsubishi Zosen Kaisha,** when made **1926.**

Boilers made at _____ By whom made _____ when made _____

Registered Horse Power **732.** Owners **Osaka Shosen Kabushiki Kaisha.** Port belonging to **Osaka.**

Shaft Horse Power at Full Power **3800.** Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____

URBINE ENGINES, &c.—Description of Engines **Single Screw Double Reduction.** No. of Turbines **2 Ahead. 2 Astern.**

Diameter of Rotor Shaft Journals, H.P. **6"** L.P. **6½"** Diameter of Pinion Shaft **1st 6". 2nd 6" inner, & 11½" outer.**

Diameter of Journals **1st 6" 2nd 11½"** Distance between Centres of Bearings **1st 2'-4½" 2nd 4'-0"** Diameter of Pitch Circle **1st HP 7.70" LP 8.98" 2nd 17.6"**

Diameter of Wheel Shaft **1st 1'-1½" 2nd 1'-7¼"** Distance between Centres of Bearings **1st 2'-2" 2nd 4'-0½"** Diameter of Pitch Circle of Wheel **1st 48.96" 2nd 89.80"**

Width of Face **1st 16"+3" Gap 2nd 31"+3½" Gap.** Diameter of Thrust Shaft under Collars **14"** Diameter of Tunnel Shaft as per rule / as fitted /

No. of Screw Shafts / Diameter of same as per rule / as fitted / Diameter of Propeller / Pitch of Propeller /

No. of Blades / State whether Moveable / Total Surface / **Mean** Diameter of Rotor Drum, H.P. **2'9¾" L.P. 3'4" Astern HP 2'8" LP 3'4"**

Thickness at Bottom of Groove, H.P. / L.P. / Astern / Revs. per Minute at Full Power, Turbine **HP 3378 LP 3242** Propeller **116.5**

PARTICULARS OF BLADING.

	H.P.			L.P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	3/4"	2'-10 9/16"	1	2 3/16"	3'-6 1/4"	1	HIGH PRESSURE.		
2ND "	23/32"	2'-10 1/2"	1	2 9/16"	3'-6 5/8"	1	1st 1 1/16"	2'-9 1/16"	1
3RD "	7/8"	2'-10 11/16"	1	3 11/16"	3'-7 3/4"	1	2nd 2"	2'-10"	1
4TH "	1 3/32"	2'-10 7/8"	1	4"	3'-8 1/16"	1	Cyl. 1 9/16" 2'-6 7/16" 1		
5TH "	1 7/16"	2'-11 1/4"	1	4 13/16"	3'-8 7/8"	1	LOW PRESSURE.		
6TH "				5 1/2"	3'-9 9/16"	1	1st 2 3/16"	3'-6 3/16"	1
7TH "							2nd 3 5/8"	3'-7 5/8"	1
8TH "							Cyl. 2 7/8" 3'-1 1/8" 1		

No. and size of Feed pumps _____

No. and size of Bilge pumps _____

No. and size of Bilge suction in Engine Room _____

In Holds, &c. _____

No. of Bilge Injections _____ sizes _____ Connected to condenser, or to circulating pump _____ Is a separate Donkey Suction fitted in Engine Room & size _____

Are all the bilge suction pipes fitted with roses _____ Are the roses in Engine room always accessible _____

Are all connections with the sea direct on the skin of the ship _____ Are they Valves or Cocks _____

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates _____ Are the Discharge Pipes above or below the deep water line _____

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel _____ Are the Blow Off Cocks fitted with a spigot and brass covering plate _____

What pipes are carried through the bunkers _____ How are they protected _____

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times _____

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges _____

Is the Screw Shaft Tunnel watertight _____ Is it fitted with a watertight door _____ worked from _____

BOILERS, &c.—(Letter for record _____) Manufacturers of Steel _____

Total Heating Surface of Boilers _____ Is Forced Draft fitted _____ No. and Description of Boilers _____

Working Pressure _____ Tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____

Can each boiler be worked separately _____ Area of fire grate in each boiler _____ No. and Description of Safety Valves to each boiler _____ Are they fitted with easing gear _____

Smallest distance between boilers or uptakes and bunkers or woodwork _____ Mean dia. of boilers _____ Length _____ Material of shell plates _____

Thickness _____ Range of tensile strength _____ Are the shell plates welded or flanged _____ Descrip. of riveting: cir. seams _____

long. seams _____ Diameter of rivet holes in long. seams _____ Pitch of rivets _____ Lap of plates or width of butt straps _____

Per centages of strength of longitudinal joint _____ Working pressure of shell by rules _____ Size of manhole in shell _____

Size of compensating ring _____ No. and Description of Furnaces in each Boiler _____ Material _____ Outside diameter _____

Length of plain part _____ Thickness of plates _____ Description of longitudinal joint _____ No. of strengthening rings _____

Working pressure of furnace by the rules _____ Combustion chamber plates: Material _____ Thickness: Sides _____ Back _____ Top _____ Bottom _____

Pitch of stays to ditto: Sides _____ Back _____ Top _____ If stays are fitted with nuts or riveted heads _____ Working pressure by rules _____

Material of stays _____ Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ End plates in steam space _____

Material _____ Thickness _____ Pitch of stays _____ How are stays secured _____ Working pressure by rules _____ Material of stays _____

Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ Material of Front plates at bottom _____

Thickness _____ Material of Lower back plate _____ Thickness _____ Greatest pitch of stays _____ Working pressure of plate by rules _____

Diameter of tubes _____ Pitch of tubes _____ Material of tube plates _____ Thickness: Front _____ Back _____ Mean pitch of stays _____

Pitch across wide water spaces _____ Working pressures by rules _____ Girders to Chamber tops: Material _____ Depth and thickness of girder at centre _____ Length as per rule _____ Distance apart _____ Number and pitch of stays in each _____

Working pressure by rules _____ Steam dome: description of joint to shell _____ % of strength of joint _____ Diameter _____

Thickness of shell plates _____ Material _____ Description of longitudinal joint _____ Diameter of rivet holes _____ Pitch of rivets _____

Working pressure of shell by rules _____ Crown plates: Thickness _____ How stayed _____

SUPERHEATER. Type _____ Date of Approval of Plan _____ Tested by Hydraulic Pressure to _____
 Date of Test _____ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler _____
 Diameter of Safety Valve _____ Pressure to which each is adjusted _____ Is Easing Gear fitted _____

IS A DONKEY BOILER FITTED? _____ If so, is a report now forwarded? _____

- SPARE GEAR.** State the articles supplied:—
- 1 set HP Turbine Rotor Shaft Bearing Brasses.
 - 1 set LP " " " " " "
 - 1 set Connecting Shaft Bearing Brasses.
 - 1 set 1st Pinion Shaft Bearing Brasses.
 - 2 sets 1st Gear Wheel Shaft Bearing Brasses.
 - 1 set 2nd Pinion Shaft Bearing Brasses.
 - 1 set 2nd Gear Wheel Shaft Bearing Brasses.
 - 2 sets HP Turbine Adjusting Block Liners.
 - 2 sets LP " " " " " "
 - 2 sets of Pads for Two Faces of Adjusting Block of HP Turbine.
 - 2 sets of Pads for Two Faces of Adjusting Block of LP Turbine.
 - 1 Spring for Relief valve for HPT Ahead Steam Chest.
 - 1 " " " " " " " " " " " "

- 1 Spring for Relief valve for Gland Steam Receiver
- 1/20 Total Number of Bolts & Nuts for Each Turbine Casing Joint.
- 1/20 Total Number of Bolts & Nuts for Each Gear Casing Joint.
- 2 Bolts & Nuts for Each size of Rotor Bearings.
- 2 " " " " " " of Pinion Bearings.
- 2 " " " " " " of G.W. Bearings.
- 1 Sight Glass for Kerosene Injector.
- 2 Sights Glasses for Lubrication Oil Flow Indicator
- 1 set of Felt Packing for HP Turbine Fore & Aft Bearing.
- 1 set of Felt Packing for LP Turbine Fore & Aft Bearing.
- 1 set of Pads for One Face of Main Thrust Block.
- 1 quantity of assorted bolts, studs & nuts.

The foregoing is a correct description. *LPT*
 NAGASAKI WORKS, LTD. Manufacturer.
 GENERAL MANAGER

1926. July 1.2.5.6.12.20.23. Aug. 2.3.10.15. Sep. 15.24.27.28.29.30. Oct. 1.2.5.11. 15.26. Nov. 1.2.4.6.9.10.12.13.17.22.26.27.
 Dates of Survey while building: During progress of work in shops --- 15.26. During erection on board vessel --- 37. Total No. of visits 37.

Dates of Examination of principal parts—Casings 15-9-26 to 26-11-26 Rotors 24-9-26 to 26-11-26 Blading 24-9-26 to 26-11-26 Gearing 2-7-26 to 27-11-26
 Rotor shaft 24-9-26 to 26-11-26 Thrust shaft 23-7-26 to 27-11-26 Tunnel shafts _____ Screw shaft _____ Propeller _____
 Stern tube _____ Steam pipes tested _____ Engine and boiler seatings _____ Engines holding down bolts _____
 Completion of pumping arrangements _____ Boilers sized _____ Engines tried under steam in Shop. 22-11-26.
 Main boiler safety valves adjusted _____ Thickness of adjusting washers _____

Material and tensile strength of Rotor shaft S.M.I.Stl: as per certificates attached. Identification Mark on Do. No.231 R.C.2-11-26
 Material and tensile strength of Pinion shaft S.M.I.Stl: as per certificates attached. Identification Mark on Do. No.231 R.C.26-10-2
 Material of Wheel shaft 1st & End S.M.I.Stl. Identification Mark on Do. No.231. Material of Thrust shaft S.M.I.Stl. Identification Mark on Do. No.231. R.C.26-10-26. R.C.27-11-26.
 Material of Tunnel shafts _____ Identification Marks on Do. _____ Material of Screw shafts _____ Identification Marks on Do. _____
 Material of Steam Pipes _____ Test pressure _____

Is an installation fitted for burning oil fuel _____ Is the flash point of the oil to be used over 150°F. _____
 Have the requirements of Section 49 of the Rules been complied with _____
 Is this machinery a duplicate of a previous case Yes If so, state name of vessel Engine No.425.

General Remarks (State quality of workmanship, opinions as to class, &c. These Turbines & Gearing have been built under Special Survey in accordance with the approved plans and of tested material. These Turbines & Gearing were tested on the test bed in Mitsubishi Shop at full revolutions under "no load" condition and found to run satisfactorily. These Turbines & Gearing are intended for Messrs. Uruga Dock No.317, and are eligible in my opinion for the notation of **LMC** when fitted on board. Approved plans of Thrust shaft & Shafting for Double Red.Gearing are forwarded under separate cover

Certificate (if required) to be sent to _____
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee	£ ¥ 60:00	When applied for,	
Special 2/5 fee.	£ ¥ 650:00	29. 11. 19 26	
Donkey Boiler Fee	£ :	When received,	
Travelling Expenses (if any)	£ :	11-3-27	666

H. Crawford
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
 Assigned _____

Rpt. 13.
RI
 Date of ...
 No. in Reg. Bo ...
 Built at ...
 Owners ...
 Electric ...
 System ...
 Pressure ...
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 If altern ...
 Has the ...
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