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May, 1959.

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20 JUL 1959

Rpt. 4b

Date of writing report 19th March, 1959 Received London Port KOBE No. FE-6518  
Survey held at Osaka & Mukaishima, Japan No. of visits In shops 27 First date 24th Oct., 1958 Last date 10th March, 1959  
On vessel 29 First date 16th Jan., 1959 Last date 4th June, 1959

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name Steel Single Screw Motor Fishing Boat " DNESTR " Gross tons 497.10  
Owners V.O. Sudoimport, Moscow, U.S.S.R. Managers Port of Registry Vladivostok  
Hull built at Mukaishima Hitachi Shipbuilding & Eng., Co., Ltd., Mukaishima Shipyard Year Month 1959-6  
Main Engines made at Osaka, Japan Hitachi Shipbuilding & Eng., Co., Ltd., Sakurajima Shipyard Yard No. 3873 When 1959-3  
Eng. No. 2087  
Gearing made at Domestic By Hitachi Shipbuilding & Eng., Co., Ltd. Innoshima Shipyard Blr. Nos. 252 When 1959-1  
Innoshima, Japan  
Machinery installed at Mukaishima, Japan By Hitachi Shipbuilding & Eng., Co., Ltd., Mukaishima Shipyard When 1959-5

Particulars of restricted service of ship, if limited for classification Fishing Purpose  
Particulars of vegetable or similar cargo oil notation, if required -  
Is ship to be classed for navigation in ice? Yes Is ship intended to carry petroleum in bulk? No  
Refrigerating machinery fitted? Yes If so, is it for cargo purposes? Yes Type of refrigerant NH3 Direct Expansion  
Is the refrigerating machinery compartment isolated from the propelling machinery space? Yes Is the refrigerated cargo installation intended to be classed? Yes

The following particulars should be given as fully and as clearly as possible. Where the answer is "No" or "None", say so! Ticks and other, signs of doubtful meaning are not to be used. Where the wording is not applicable to the installation, a black line may be inserted. If the main engines have been constructed at another port and are covered by a separate report, the particulars given in that report need not be repeated below, but the port and report number should be stated.

No. of main engines 1 No. of propellers 1 Brief description of propulsion system Direct connected oil engine  
MAIN RECIPROCATING ENGINES. Licence Name and Type No. 1, B. & W. D. E. 728-VBF-50 Supercharged  
No. of cylinders per engine 7 Dia. of cylinders 280mm stroke(s) 500mm 2 or 4 stroke cycle 2 Single or double acting Single  
Maximum approved BHP per engine 1210 at 360 RPM of engine and 360 RPM of propeller.  
Corresponding MIP 8kgs/cm2 (For DA engines give MIP top & bottom) Maximum cylinder pressure 55 kg/cm2 Machinery numeral 242  
Are the cylinders arranged in Vee or other special formation? No If so, number of crankshafts per engine -

TWO STROKE ENGINES. Is the engine of opposed piston type? No If so, how are upper pistons connected to crankshaft? -  
Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers? Valves No. and type of mechanically driven scavenge pumps or blowers per engine and how driven None  
No. of exhaust gas driven scavenge blowers per engine 2 Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? Yes  
Is a stand-by or emergency pump or blower fitted, state how driven - No. of scavenge air coolers 2 Scavenge air pressure at full power 0.42 kg/cm2 Are scavenge manifold explosion relief valves fitted? Yes

FOUR STROKE ENGINES. Is the engine supercharged? - Are the undersides of the pistons arranged as supercharge pumps? - No. of exhaust gas driven blowers per engine -  
No. of supercharge air coolers per engine - Supercharge air pressure - Can engine operate without supercharger? -

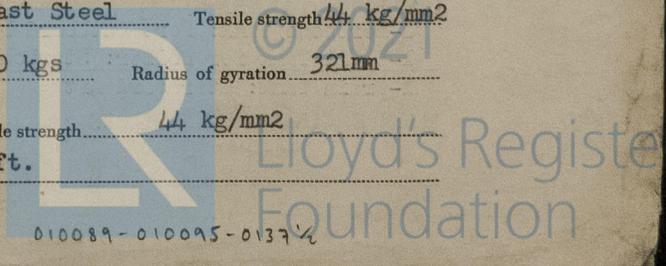
TWO & FOUR STROKE ENGINES-GENERAL. No. of valves per cylinder: Fuel 2 Inlet - Exhaust 1 Starting 1 Safety 1  
Material of cylinder covers Cast Iron Material of piston crowns Cr. Mo Steel Is the engine equipped to operate on heavy fuel oil? Yes  
Cooling medium for: Cylinders Fresh Water Pistons Oil Fuel valves Oil Overall diameter of piston rod for double acting engines -  
Is the rod fitted with a sleeve? - Is welded construction employed for: Bedplate? No Frames? No Entablature? No Is the crankcase separated from the underside of pistons? No Is the engine of crosshead or trunk piston type? Trunk Total internal volume of crankcase 4.3M3 No. and total area of explosion relief devices 7, 714.2cm2 Are flame guards or traps fitted to relief devices? No Is the crankcase readily accessible? Yes If not, must the engine be removed for overhaul of bearings, etc? - Is the engine secured directly to the tank top or to a built-up seating? seating How is the engine started? Compressed air  
Can the engine be directly reversed? Yes If not, how is reversing obtained? -  
Has the engine been tested working in the shop? Yes How long at full power? 4 hours

RANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 23-1-59 State barred speed range(s), if imposed for working propeller 130-157RPM For spare propeller - Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? No  
Where positioned? - Type - No. of main bearings 8 Are main bearings of ball or roller

F.V. type? No Distance between inner edges of bearings in way of crank(s) 352mm Distance between centre lines of side cranks or eccentrics of opposed piston engines -  
Crankshaft type: Built, semi-built, solid. (State which) Semi-built  
Diameter of journals 200mm Diameter of crankpins 200mm Breadth of webs at mid-throw 338mm Axial thickness of webs 120mm  
If shrunk, radial thickness around eyeholes 90mm Are dowel pins fitted? No Crankshaft material Journals Forged Steel Minimum 44 kg/mm2 Approved 44 kg/mm2  
Diameter of flywheel 1086mm Weight 660 kgs Are balance weights fitted? Yes Total weight 340 kgs Radius of gyration 321mm  
Diameter of flywheel shaft 200mm Material Forged Steel Minimum approved tensile strength 44 kg/mm2  
Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) Integral with thrust shaft.

21-653 37-  
17, 19, 24, 26,  
5, 20, 25,  
Total No. of Visits

23/7/59



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MAIN GAS TURBINES. Name and Type No. ....

No. of sets of turbines ..... Open or closed cycle ..... BHP per set ..... at ..... RPM of output shaft .....

How is drive transmitted to propeller shaft? .....

ARRANGEMENT OF TURBINES. HP drives ..... at ..... RPM HP gas inlet temperature ..... pressure .....

(A small diagram should be attached showing gas cycle.) IP drives ..... at ..... RPM IP gas inlet temperature ..... pressure .....

LP drives ..... at ..... RPM LP gas inlet temperature ..... pressure .....

No. of air compressors per set ..... Centrifugal or axial flow type? ..... Material of turbine blades ..... Material .....

compressor blades ..... No. of air coolers per set ..... No. of heat exchangers per set ..... How are turbines started? .....

How is reversing effected? ..... Are the turbines operated in conjunction with free piston gas generators? .....

Total No. of free piston gas generators ..... Diameter of working pistons ..... Diameter of compressor pistons ..... No. of double strokes .....

minute at full power ..... Gas delivery pressure ..... Gas delivery temperature ..... Have the turbines and attached equipment been tested work .....

in the shop? ..... How long at full power? .....

ELECTRIC PROPULSION (Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators ..... KW per generator ..... at ..... RPM AC or DC? ..... Position .....

No. of propulsion motors ..... SHP per motor ..... at ..... RPM Position .....

How is power obtained for excitation of generators? ..... Motors? .....

REDUCTION GEARING (Reciprocating engines or gas turbines. A small line sketch should be attached showing arrangement of gearing.)

Is gearing of single or double helical type? ..... If single, position of gear thrust bearing .....

PCD of pinions: First reduction ..... Second reduction ..... PCD of wheels: First reduction ..... Main .....

Material of pinions ..... Tensile strength ..... Material of wheel rims ..... Tensile strength .....

Are gear teeth surface hardened? ..... How are teeth finished? ..... Diameter of pinion journals ..... Wheel .....

journals ..... Are the wheels of welded construction? ..... Is gearcase of welded construction? ..... Has the wheel/gearcase been heat treated on complete .....

of welding? ..... Where is the propeller thrust bearing located? ..... Are gear bearings of ball or roller type? .....

CLUTCHES, FLEXIBLE COUPLINGS, ETC. If a clutch or other flexible connection is fitted between engine/turbine and gearing or between engine and line shafting give description and, for clutches, state how operated .....

Can the main engine be used for purposes other than propulsion when declutched? ..... If so, what? .....

STRAIGHT SHAFTING. Diameter of thrustshaft ..... 200mm Material Forged Steel Minimum approved tensile strength 44 kg/mm<sup>2</sup>

Shaft separate or integral with crank or wheel shaft? Integral with wheel shaft Diameter of intermediate shaft 180mm Material Forged Steel

Minimum approved tensile strength 44 Kgs/mm<sup>2</sup> Diameter of screwshaft cone at large end 175mm Is screwshaft fitted with a continuous liner? Yes

Diameter of tube shaft. (If these are separate shafts) ..... Is tube shaft fitted with a continuous liner in way of stern tube ..... Thickness of screw/tube shaft lb .....

bearings 15mm Thickness between bearings 13.5mm Material of screw/tube shaft Forged Steel Minimum approved tensile strength .....

Is an approved oil gland fitted? No If so, state type ..... Length of bearing next to and supporting propeller 822mm

Material of bearing Cast Iron Stern Tube In multiple screw vessels is the liner between stern tube and A bracket continuous? No If not, is the exposed length of shafting lb .....

liners readily visible in dry dock? No

PROPELLER. Diameter of propeller 2,000mm Pitch 1,375mm Built up or solid Solid Total developed surface 1,7136 M

No. of blades 4 Blade thickness at top of root fillet 80.2mm Blade material Bronze Moment of inertia of dry propeller 5.562 x 10<sup>6</sup> Kg

If propeller is of special design, state type ..... Is propeller of reversible pitch type? No If so, is it of approved design? No

State method of control ..... Material of spare propeller Bronze Moment of inertia 5.562 x 10<sup>6</sup> Kg

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine None Can they be declutched? No

No. of independently driven air compressors (State capacity, prime mover, position in ship, and Port and No. of certificate) ..... Kobe Cert.No. M-54606

1-Main Compressor: 0.8M<sup>3</sup>/Min. Electric Motor Driven Port Side Inboard in Eng. Room

1-Aux. Compressor: 0.175M<sup>3</sup>/Min. Diesel Eng. Driven Port Outboard in Eng. Room Cert.No. M-54607

No. of starting air receivers (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) ..... Kobe 30049

2-Main, @ 750L. Port & Starboard FWD in Eng. Room under Upp. DK, 1-Aux. 150L. Starboard Outboard Fwd. in Eng. Room under

How are receivers first charged? Diesel Eng. Driven Aux. Compressor Maximum working pressure of starting air system 25Kgs/cm<sup>2</sup> Are the safety devices in accordance with the Rules? Yes Has the starting of the main engines been tested and found satisfactory? Yes

COOLERS. No. of main engine fresh water coolers One No. of main engine lubricating oil coolers One for L.O. One for F.Valve Cooling Oil

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure All in Engine Room

1-Kerosene Tank: Port Outboard Fwd. 2-D.O. Service Tanks: Port Fwd. & Aft on Upper Deck

1-D.Oil Tank for Boiler: Starboard Aft on Upper Deck 1-D.O. Settling Tank: Starboard Aft on Upper Deck

1-Drain Tank: Starboard Aft

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 1- Bilge pump, 1- Sanitary pump, 1-L.O. pump, 1-F.O. Primary pump.

Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	Service for which each pump is connected to be marked thus X														
	SUCTION							DELIVERY							
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling
All in engine room															
F.W. Cooling Pump					X						X				
Std. Inboard E. Motor Driven					X						X				
F.W. Port Service Cooling Pump					X						X				
Std. Outboard E. Motor Driven					X						X				
S.W. Cooling Pump					X						X				
Std. Inboard E. Motor Driven					X	X					X	X	X		
Fire & Reserve Cooling Pump					X	X					X	X	X		
Std. Inboard Fwd. E. Motor Driven					X	X					X	X	X		
Sprinkling & Live Bait Tanks					X	X					X	X	X		
Circulating Pump					X	X					X	X	X		
Port Fwd. E. Motor Driven					X	X					X	X	X		
Do					X	X					X	X	X		
Port Aft. 150M <sup>3</sup> /H x 13M					X	X					X	X	X		
F.O. Transfer Pump					X	X					X	X	X		
Port Inboard Aft. E. Motor Driven					X	X					X	X	X		
Feed Pump					X	X					X	X	X		
Std. Aft Steam Driven					X	X					X	X	X		
S. & Sanitary Pump 60M <sup>3</sup> /H x 15M	X	X	X		X	X					X	X	X		
Port Inboard E. Motor Driven	X	X	X		X	X					X	X	X		
Reserve L.O. Pump					X	X					X	X	X		
Std. Inboard Aft. E. Motor Driven					X	X					X	X	X		
L.O. Transfer Pump					X	X					X	X	X		
Port Aft. E. Motor Driven					X	X					X	X	X		

BE SUCTIONS. No. and size in each hold, deep tank or pump room Chain Locker: 1-50mm. Store: 2-50mm. Aft. Fish Hold: 2-50mm. Std. Fwd. Precooling 1-160mm

1-50mm Pt. Fwd. Precooling T.; 1-50mm Std. Aft. P.C.T.; 2-50mm Live Bait T.; 1-50mm Fish Finder Room; 1-50mm

and size connected to main bilge line in main engine room 3-50mm In tunnel -

of Machy. K. engine room 2-50mm Size and position of direct bilge suction in machinery spaces 1-70mm

Port Inboard Fwd. Size and position of emergency bilge suction in machinery spaces 1-160mm Port side Forward

bilge or ballast system fitted with means for separating oily water on the overboard discharge side? Yes Do the piping arrangements comply with the Rules including

al requirements for ships carrying petroleum in bulk, cargo oil or classed for navigation in ice? (Strike out words not applicable). Yes

STEAM & OIL ENGINE AUXILIARIES			
Position of each	Type	Made by	Port and No. of Rpt. or Cert. (For electric generators, state output)
Std. Fwd. in Eng. Room	4s.c.s.a. Hitachi B&W Diesel Engine	Hitachi S.B. & E. Co., Ltd. Inmohama S.Y.	Kobe Cert.No. 0-30165 75K.W.D.C. Compound Generator
Std. Fwd. in Eng. Room	Do	Do	Kobe Cert.No. 0-30166 4 1/2 Do
Std. Outboard in Eng. Room	4s.c.s.a. Diesel Engine	Showa Seiki Kogyo K.K.	Kobe Cert.No. M-53773 Vertical Single Cylinder 2-staged 0.175M <sup>3</sup> /Min. 25Kgs/cm <sup>2</sup> Aux. Air Compressor

Electric current used for essential services at sea? Yes If so, state the minimum No. and capacity of generators required in order that the ship may operate

1 off-75 K.W. Generator Is an electric generator driven by Main Engine? No

INSTALLATION. No. of donkey boilers burning oil fuel W.P. 4 Kgs/cm<sup>2</sup> Type Vertical Multitubular Fusion Welded

Engine Room Aft.

Preheater fitted? No. Are these boilers also heated by exhaust gas? No No. of donkey boilers heated by exhaust gas only? None W.P. -

Can the exhaust heated boilers deliver steam directly to domestic

range or do they operate only as economisers in conjunction with oil fired boilers? No Port and No. of report on donkey

Kobe Cert.No. M-30047 Is steam essential for operation of the ship at sea? No Are any steam pipes over 3 ins. bore? None If so, what is their

For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? Yes No. of oil burning pressure

None No. of steam condensers - No. of Evaporators One

ING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars)

One-Unit Electric Hydraulic Heleshaw Type

Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 4-Water Coupling each with

Life Foam 1-19 Life Foam 40mm dia. Perforated Steam Smothering 50mm dia. x 10M Canvas hose

Extinguisher, Extinguisher, Pipe under Boiler, 4-Steel Container of 10mm x 1.5M x 2 M Felt

pare gear required by the Rules been supplied? Yes Has all the machinery been tried under full working conditions and found satisfactory? Yes Date and duration of full-

trials of main engines Each 4 hours 18 & 21 May, 1956 Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)

ing description of the main engine and installation is correct and the particulars are as approved for torsional vibration characteristics (Strike out words not applicable).

S. SASAKI Under-Director, Head of Yard Hitachi Shipbuilding & Engineering Co., Ltd. Mukoishima Shipyard

M. OKAMURA Director, Head of Yard Hitachi Shipbuilding & Engineering Co., Ltd. Sakurajima Shipyard

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GENERAL REMARKS

State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of material and workmanship and give recommendations, for classification, including any special notation to be assigned. Where existing machinery is submitted for classification circumstances should be explained as fully as possible.

This Engine has been constructed under Special Survey in accordance with the Rules, approved plans and Secretary's letters.

The material and workmanship are sound and good.

The Engine has been examined under full working condition in the shop and found satisfactory

This Engine is eligible in our opinion to have record of +LMC with date when satisfactorily installed in the vessel.

The above described machinery has been installed on the vessel at Mukaishima in a proper manner and found satisfactory when tested at sea under full working conditions and eligible in our opinion for classification with the records of +LMC 5.59, Domestic Boiler Survey 5.59, TS (CL) 5.59, +Lloyd's RMC 5.59, and to have the notation "Strengthened for Navigation in Ice."

The torsional vibration characteristics of the main propulsion machinery were verified by torsion taken during sea trial and confirmed that rough running was observed between approx. 135 and 160 r.p.m.

It is recommended that the main engine not to be run continuously between 135 and 160 r.p.m.

*Not required for Classification purposes*

*F.A. Macfarlane*  
*S. Hashiguchi* Engineer Surveyor to Lloyd's Register of Shipping

PARTICULARS OF IDENTIFICATION MARKS (Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

Connecting  
 RODS rod:- LLOYD'S KOB No. HC-F827-1,3,4,5,7 & 8 FM LR 17-1-59  
 LLOYD'S KOB No. HC-F823-3 FM LR 2-3-59  
 LLOYD'S KOB No. HC-F871 MH LR 2-2-59  
 CRANKSHAFT ~~OR ROTOR SHAFT~~ LLOYD'S KOB No. KT-CK 393 JN LR 16-12-58  
~~ROTOR SHAFT~~  
 THRUSTSHAFT LLOYD'S KOB No. HC-F829 JN LR 16-12-58  
 GEARING  
 INTERMEDIATE SHAFTS LLOYD'S KOB No. HCF-850 SH LR 16-2-59  
 Working: LLOYD'S KOB No. HCF-851 SH LR 16-2-59  
 SCREW AND ~~TUBE~~ SHAFTS Spare: LLOYD'S KOB No. HCF-853 SH LR 25-5-59  
 Working: LLOYD'S KOB No. 30144 SH LR 18-2-59  
 PROPELLERS Spare: LLOYD'S KOB No. 30145 SH LR 25-5-59  
 OTHER IMPORTANT ITEMS Gudgeon Pin: LLOYD'S KOB No. K-F2650-2,3,4 & 5 FM LR 17-1-59  
 LLOYD'S KOB No. K-F2651-2,3,4,5 & 8 FM LR 17-1-59  
 Piston head: LLOYD'S KOB No. HC-C768-1,3 & 5 763-2,5,6,7,9 & 10 WTP83 kgs OTP 4 kgs FM LR 17-1-59

Is the installation a duplicate of a previous case? Yes If so, state name of vessel m.v. "DNEPR"  
 Date of approval of plans for crankshaft 22-9-58 Straight shafting 20-11-58 Gearing - Clutch -  
 Separate oil fuel tanks KOB 19-12-58 Pumping arrangements 20-11-58 Oil fuel arrangements 20-11-58  
 Cargo oil pumping arrangements - Air receivers KOB 27-9-58, 7-10-58 Room Heating KOB 7-10-58  
 Dates of examination of principal parts:-  
 Fitting of stern tube 16-2-59 Fitting of propeller 25-2-59 Completion of sea connections 20-2-59 Alignment of crankshaft in main bearings 2-4-59  
 Engine chocks & bolts 28-3-59 Alignment of gearing - Alignment of straight shafting 10-2-59 Testing of pumping arrangements 1-5-59  
 Oil fuel lines 7-5-59 Domestic Donkey boiler supports 25-2-59 Steering machinery 7-5-59 Windlass 21-5-59  
 Date of Committee FRIDAY 24 JUL 1959 Special Survey Fee £161.600  
 Decision See Rpt. 1.

Expenses ... 14,250

Date when A/c rendered MAR 16 1959

