

ACCTS. 4b
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30 APR 1959

Received London Port **SHIMONOSEKI.** No. **FE 935**
 In shops
 No. of visits On vessel **13** First date **18-10-1958** Last date **8th Feb., 1959.**

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name **M.V. "NARRA"** Gross tons **3366.97**
 Owners **Philippine Ace Line, Inc.** Managers Port of Registry **Manila**
 Hull built at **Kudamatsu, Japan** By **Kasado Dockyard Co., Ltd.** Yard No. **203** Year Month
 Main Engines made at **Yokohama, Japan** By **Mitsubishi Nippon Heavy-Industries Ltd., Yokohama Shipyard & Engine Works.** Eng. No. **D65238** When **1958-12**
 Gearing made at
 Donkey boilers made at **Osaka, Japan** By **Osaka Boiler Mfg., Co., Ltd.** Blr. Nos. **1454** When **1958-11**
 Machinery installed at **Kudamatsu, Japan** By **Kasado Dockyard Co., Ltd.** When **1959-2**

Particulars of restricted service of ship, if limited for classification **Ocean going**
 Particulars of vegetable or similar cargo oil notation, if required
 Is ship to be classed for navigation in ice? **No** Is ship intended to carry petroleum in bulk? **No**
 refrigerating machinery fitted? **Yes** If so, is it for cargo purposes? **No** Type of refrigerant **Freon-12 Direct expansion**
 Is the refrigerating machinery compartment isolated from the propelling machinery space? **Yes** Is the refrigerated cargo installation intended to be classed? **No**

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 **Main engine direct coupled propulsion**
MAIN RECIPROCATING ENGINES. Licence Name and Type No. **Yokohama M-A-N- G 6z 52/70 Type Engine**

No. of cylinders per engine Dia. of cylinders stroke(s) 2 or 4 stroke cycle Single or double acting
 Maximum approved BHP per engine at **270** RPM of engine and **270** RPM of propeller.
 Corresponding MIP (For DA engines give MIP top & bottom) Maximum cylinder pressure Machinery numeral

Are the cylinders arranged in Vee or other special formation? If so, number of crankshafts per engine
TWO STROKE ENGINES. Is the engine of opposed piston type? 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? No. and type of mechanically driven scavenge pumps or blowers per engine and how driven
 No. of exhaust gas driven scavenge blowers per engine Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action?
 Is a stand-by or emergency pump or blower fitted, state how driven No. of scavenge air coolers Scavenge air pressure at full power
 Are scavenge manifold explosion relief valves fitted?

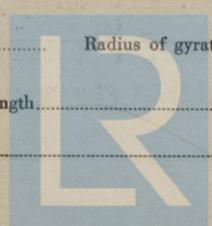
FOUR STROKE ENGINES. Is the engine supercharged? Are the undersides of the pistons arranged as supercharge pumps? No. of exhaust gas driven blowers per engine
 No. of supercharge air coolers per engine Supercharge air pressure Can engine operate without supercharger?

TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel Inlet Exhaust Starting Safety
 Material of cylinder covers Material of piston crowns Is the engine equipped to operate on heavy fuel oil?
 Cooling medium for:—Cylinders **JW** Pistons Fuel valves Overall diameter of piston rod for double acting engines
 Is the rod fitted with a sleeve? Is welded construction employed for: Bedplate? Frames? Entablature? Is the crankcase separated from the underside of pistons?
 Is the engine of crosshead or trunk piston type? Total internal volume of crankcase No. and total area of explosion relief devices
 Are flame guards or traps fitted to relief devices? Is the crankcase readily accessible? 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?
 Can the engine be directly reversed? If not, how is reversing obtained?

Has the engine been tested working in the shop? How long at full power?
CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system **8/5/59 425.W.** State barred speed range(s), if imposed for working propeller **110/135** For spare propeller Is a governor fitted? Is a torsional vibration damper or detuner fitted to the shafting?
 Where positioned? Type No. of main bearings Are main bearings of ball or roller type?
 Distance between inner edges of bearings in way of crank(s) Distance between centre lines of side cranks or eccentrics of opposed piston engines

Crankshaft type: Built, semi-built, solid. (State which)
 Diameter of journals Diameter of crankpins Centre Breadth of webs at mid-throw Axial thickness of webs
 Side Pine Minimum
 If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals Approved
 Webs Tensile strength
 Diameter of flywheel Weight Are balance weights fitted? Total weight Radius of gyration
 Diameter of flywheel shaft Material Minimum approved tensile strength
 Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which)

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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 of 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 per minute at full power _____ Gas delivery pressure _____ Gas delivery temperature _____ Have the turbines and attached equipment been tested working 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 _____ Is gearing of epicyclic type? _____

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 shaft journals _____

Are the wheels of welded construction? _____ Is gearcase of welded construction? _____ Has the wheel/gearcase been heat treated on completion 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 brief 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 260 mm Material Electric furnace forged steel Minimum approved tensile strength 28 T/□"

Shaft separate or integral with crank or wheel shaft? Separate Diameter of intermediate shaft 250 mm Material Electric furnace forged steel

Minimum approved tensile strength 28 T/□" Diameter of screwshaft cone at large end 290 mm 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 screwshaft liners _____

bearings 20 mm Thickness between bearings 15 mm Material of screw/tube shaft Electric furnace forged steel Minimum approved tensile strength 28

Is an approved oil gland fitted? No If so, state type _____ Length of bearing next to and supporting propeller 1100 mm

Material of bearing Lignumvitae In multiple screw vessels is the liner between stern tube and A bracket continuous? _____ If not, is the exposed length of shafting between liners readily visible in dry dock? _____

PROPELLER. Diameter of propeller 3,150 mm Pitch 2,040 mm Built up or solid Solid Total developed surface 3.27 M²

No. of blades 4 Blade thickness at top of root fillet 130 mm Blade material Mn Bronze Moment of inertia of dry propeller 11455 Kg cm²

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

State method of control _____ Material of spare propeller _____ Moment of inertia _____

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

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 2 sets 95 M³/Hrx30kg/cm² driven by Diesel generator engines at port & starb'd lower platform, Kob. No. M-53083

1 set of Emergency Air Compressor, 4.5 M³/Hrx30kg/cm² driven by Paraffin Oil engine, Port lower platform, Kob No. M-53715.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2 Main air receivers, 2200 l x 30kg/cm², port lower platform Kob No. AR-53473 & 1 Aux. Air receiver, 150 l x 30kg/cm², port lower platform Kob No. AR-53473

How are receivers first charged? By 4.5 M³/Hr Air Compressor driven by 2.5 BHP Paraffin Oil engine Maximum working pressure of starting air system 30 kg/cm² 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 1 No. of main engine lubricating oil coolers 1

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure 2-1500 l "A" OF settling tanks for A engines (fwd, port on middle flat); 2-4000 l "C" OF settling tanks for Main engine (fwd, centre flat); 1-4000 l "C" OF gravity tank for Main engine (fwd, centre at middle flat); 2-3000 l OF settling tanks for donkey boiler (starb'd in way of Donkey boiler flat).

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 6-OF injection pump, 1-OF feed pump, 1-LO pump, 1-scavenge blower.

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	D.B.	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling
Bilge ballast & fire pump 1x100/50 T/H (psf) steam	X	X	X													
G.S. & Fire pump 1x100/50 T/H (psf) elect.	X	X	X			X								X		
Jacket cooling FW pump 1 (ssf) elect.						X					X					
Cooling Sea Water pump 1 (ssf) elect.					X							X				
OF Transfer pump 1 (ssf) elect.						X								X		
OF Burning pump for D.B. 1-steam, 1-elect. (ss boiler flat)				X											X	
Aux. LO pump 1 (ssf) steam				X											DB	X
Feed pump 2x6 T/H (ps) steam								X								
Forced circulating pump 1 (ps boiler flat)							X			X						X

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room

No. 1 hold port 2 1/2" x 1" No. 2 hold stbd 3" x 1" No. 3 hold stbd 2 1/2" x 1"

No. and size connected to main bilge line in main engine room 1x2 1/2" port, 1x2 1/2" stbd & 1x2 1/2" aft

In aux. engine room _____ Size and position of direct bilge suction in machinery spaces _____

In tunnel _____ Size and position of emergency bilge suction in machinery spaces 1x5" port forward

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? No Do the piping arrangements comply with the Rules including special requirements for ships carrying petroleum in bulk, cargo oil or classed for navigation in ice? (strike out words not applicable) No

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Port, main engine starting platform	4 cyl. 4 Cycle SA Yanmar MSL Type	Yanmar Diesel Engine Co. Ltd.	Kob. Rpt. 4C. NO. FE-6236	90KVA generator and 95 M ³ /Hr Air Compressor
Starb'd, Main engine starting platform	do	do	do	do
Port, Main engine starting platform	2.5 HP 4 Cycle Paraffin oil engine	Kisaki Kosakusho K.K.	-	4.5 M ³ /Hr x 30kg/cm ² Emergency 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 at sea 90 KVA generator 1 set

Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of donkey boilers burning oil fuel 1 W.P. 142 lb/□" Type Dry Combustion Multitubular Type

Machinery space aft boiler platform

Are these boilers also heated by exhaust gas? No Economizer 1 No. of economizers heated by exhaust gas only? 1 W.P. 185 lb/□"

LA-Mont Heater (tube & header) Position in Funnel on bridge deck Can the exhaust heated boilers deliver steam directly to steam range or do they operate only as economizers in conjunction with oil fired boilers? _____

Port and No. of report on donkey boilers. Kob. Rpt. 5C. No. FE-6236 Is steam essential for operation of the ship at sea? No Are any steam pipes over 3 ins. bore? Yes If so, what is their material? Steel, Solid drawn

For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? Yes No. of oil burning pressure vessels 2 No. of steam condensers 1 No. of Evaporators _____

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) 1 set 5 HP AC Motor driven hydraulic Heleshaw type steering gear with 2 cylinders & rams

Are the safety devices in accordance with the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements Hydrant: 2 at 2 1/2" with 2 hoses & 2 nozzles & 2 spray Froth Portable: 1x45" & 1x9" in way of Donkey boiler flat, 3x9" lower platform, 2x9" OF tank flat. Sand boxes 2x145" & Steam smothering pipes & Air-foam fire fighting protection on DB flat.

Is the spare 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-sea trials of main engines. 7-2-1959, 3 hours Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) No

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

Kasado Shima
KASADO DOCKYARD CO., LTD. Builder
Kasado-Shima, Kudamatsu City,
Yamaguchi Pref. Japan

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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 materials 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.

The machinery of this vessel has been installed under Special Survey in accordance with the Rules, approved plans and secretary's letters and tested under full power working condition during sea trial and found satisfactory.

Torsiograph Results taken on sea trial have been forwarded seperately.

A notice board has been attached to the control station marked engine not to be run continuously between 110 and 135 revolutions per min. & tachometer marked accordingly.

An exhaust gas heated economizer has been fitted to the donkey boiler.

It is submitted that the machinery of this ship is eligible to have the class notation of \times LMC 2/59, DBS 2/59, TS(CL) 2/59.

For the report on Survey of the Main engine during construction in the shops see Yokohama Surveyor's Rpt. 4b attached herewith.

J. H. Kersey & A. J. Smith

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.)

RODS Connecting rods: LLOYD'S YKA wa M33YF/642 to 647 KM 11-11-58
 Tie rods : LLOYD'S YKA wa 11944-1,2,3,4,5,6,7,8,9,10,11,12,13,14 5-11-58
 CRANKSHAFT ~~WIKKORSHAFK~~ LLOYD'S NAG NO. MS. CK-2947 MO LR 29-11-58 (N.S.W.47714 YM-2)
 FLYWHEEL SHAFT -
 THRUSTSHAFT LLOYD'S YKA NO. Y-13416 HT 10-11-58 (T.No. P82 C.NO. 63304)
 GEARING -
 INTERMEDIATE SHAFT LLOYD'S Kob No. KT-F1263 SM LR 8-11-58 (TB.3448-1)
 SCREW ~~WIKKORSHAFK~~ SHAFT LLOYD'S Kob No. KT-F1267 EI LR 15-11-58 (TB.3448-2)
 PROPELLERS LLOYD'S Kob No. N-BC-345 KT LR 15-11-58

OTHER IMPORTANT ITEMS

PISTON CROWN: LLOYD'S TEST YKA TP No. KT-288-1, 392-1&2, 394-1&2, 298-1

Is the installation a duplicate of a previous case? No If so, state name of vessel -
 Date of approval of plans for crankshaft - Intermediate & Tail Shaft
 Straight shafting 4-8-58 Gearing - Clutch -
 Separate oil fuel tanks 23-2-59 Pumping arrangements 5-12-58 Oil fuel arrangements 5-12-58
 Cargo oil pumping arrangements - Air receivers 2200 18-9-58 Donkey boilers 14-8-58
 150 28-11-58
 Dates of examination of principal parts:-
 Fitting of stern tube 28-11-58 Fitting of propeller 3-12-1958 Completion of sea connections 3-12-1958 Alignment of crankshaft in main bearings 10-1-1959
 Engine checks & bolts 10-1-1959 Alignment of gearing - Alignment of straight shafting 28-11-1958 Testing of pumping arrangements 4-2-1959
 Oil fuel lines 10-1-1959 Donkey boiler supports 3-12-1958 Steering machinery 7-2-1959 Windlass 7-2-1959
 Date of Committee FRIDAY 22 MAY 1959
 Decision See Rpt. 1.
 Expenses Smk. ¥49,900
 Yka. 10,200
 Date when A/c rendered 16. APR. 1959

