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30 APR 1959

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

# 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 \_\_\_\_\_ By \_\_\_\_\_  
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 \_\_\_\_\_  
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  
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 220 RPM of engine and 220 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? \_\_\_\_\_  
If a stand-by or emergency pump or blower is 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? \_\_\_\_\_

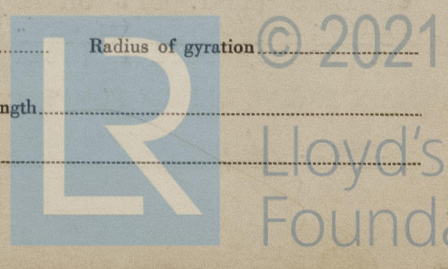
TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel \_\_\_\_\_ Inlet \_\_\_\_\_ Exhaust \_\_\_\_\_ Starting \_\_\_\_\_ Safety \_\_\_\_\_  
Material of cylinder covers \_\_\_\_\_ Material of piston crowns \_\_\_\_\_ Is the engine equipped to operate on heavy fuel oil? \_\_\_\_\_  
Cooling medium for:—Cylinders FW 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 \_\_\_\_\_ 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 ☐ Material ☐ Minimum approved tensile strength ☐

Shaft separate or integral with crank or wheel shaft? ☐ Diameter of intermediate shaft ☐ Material ☐

Minimum approved tensile strength ☐ Diameter of screwshaft cone at large end ☐ Is screwshaft fitted with a continuous liner? ☐

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 liner ☐

bearings ☐ Thickness between bearings ☐ Material of screw/tube shaft ☐ Minimum approved tensile strength ☐

Is an approved oil gland fitted? ☐ If so, state type ☐ Length of bearing next to and supporting propeller ☐

Material of bearing ☐ 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 ☐ Pitch ☐ Built up or solid ☐ Total developed surface ☐

No. of blades ☐ Blade thickness at top of root fillet ☐ Blade material ☐ Moment of inertia of dry propeller ☐

If propeller is of special design, state type ☐ Is propeller of reversible pitch type? ☐ 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 ☐ Can they be declutched? ☐

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) ☐

by Diesel generator engines at port & starb'd lower platform, Kob. No. M-53083 ☐

1 set of Emergency Air Compressor, 4.5 M3/Hr x 30kg/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) ☐

port fwd, Kob No. AR-53473 & 1 Aux. Air receiver, 150 x 30kg/cm2, port lower platform Kob No. AR-53473 ☐

By 4.5 M3/Hr Air Compressor driven ☐

How are receivers first charged? ☐ Maximum working pressure of starting air system ☐

accordance with the Rules? ☐ Has the starting of the main engines been tested and found satisfactory? ☐

## COOLERS. No. of main engine fresh water coolers ☐ No. of main engine lubricating oil coolers ☐

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks forming part of hull structure ☐

engines (fwd, port on middle flat); 2-4000" OF settling tanks for main engine (fwd, centre flat); 1-4000" OF gravity tank for Main engine (fwd, centre at middle flat); 2-3000" OF settling tanks for donkey boiler (starb'd in way of Donkey boiler flat) ☐

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) ☐

blower. ☐

### INDEPENDENT PUMPS

Name below essential pumps, state position and how driven. Give capacity of bilge pumps.

Bilge ballast & fire pump 1x100/50 T/H (psf) steam  
G.S. & Fire pump 1x100/50 T/H (psf) elect.  
Jacket cooling FW pump 1 (ssf) elect.  
Cooling Sea Water pump 1 (ssf) elect.  
OF Transfer pump 1 (ssf) elect.  
OF Burning pump for D.B. 1-steam, 1-elect. (ss boiler flat)  
Aux. LO pump 1 (ssf) steam  
Feed pump 2x8 T/H (ps) steam  
Forced circulating pump 1 (ps boiler flat)

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	Piston Cool.
Bilge ballast & fire pump	X	X	X			X									
G.S. & Fire pump	X	X	X			X									
Jacket cooling FW pump					X									X	
Cooling Sea Water pump					X							X		X	
OF Transfer pump						X									
OF Burning pump for D.B.				X										X	
1-steam, 1-elect. (ss boiler flat)				X									X	DB	
Aux. LO pump															
Feed pump							X								
2x8 T/H (ps) steam								X							
Forced circulating pump							X			X					
1 (ps boiler flat)									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 port 2 1/2" x 1" No.4 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 ☐ In tunnel ☐

1x4" engine room aft ☐

Size and position of direct 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 MS1 Type	Yanmar Diesel Engine Co. Ltd.	Kob. Rpt. 4C. NO. FE-6236	90KVA generator and 95 M3/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 M3/Hr x 30kg/cm2 Emergency Air Compressor

electric current used for essential services at sea? ☐ Yes

90 KVA generator 1 set ☐

Is an electric generator driven by Main Engine? ☐ No

W.P. 142 lb/sq" Type Dry Combustion Multitubular Type ☐

Are these boilers also heated by exhaust gas? ☐ No

Economizer ☐

No. of economizers heated by exhaust gas only? ☐ 1 W.P. 185 lb/sq" ☐

Can the exhaust heated boilers deliver steam directly to steam range or do they operate only as economisers in conjunction with oil fired boilers? ☐

Port and No. of report on donkey ☐

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 No. of oil burning pressure ☐

For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? ☐ Yes

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

1 set 5 HP AC Motor driven ☐

Are the safety devices in accordance with the Rule Requirements for fire extinguishing arrangements been complied with? ☐ Yes

Hydrant: 2 at 2 1/2" with 2 nozzles & 2 spray) Froth Portable: 1x45" x 9" 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. ☐

Has all the machinery been tried under full working conditions and found satisfactory? ☐ Yes

Date and duration of full-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 DOCKYARD CO., LTD. Builder  
Kasado-Shima, Kudamatsu City,  
Yamaguchi Pref. Japan

Lloyd's Register Foundation



## 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 separately.

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  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.

*Robert M. A. 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 ~~WATER PUMP SHAFT~~ 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 ~~WATER PUMP~~ 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.  
Installation Special Survey Fee ¥160,000

Expenses Smk. ¥49,900  
Yka. 10,200

Date when A/c rendered 16. APR. 1959