

DOUBLE REDUCTION GEAR  
**REPORT ON STEAM TURBINE MACHINERY.**

No. 9313  
 22 SEP 1949

Received at London Office

warded and  
 ot. 4a.  
 ructer  
 vessel  
 of writing Report 24th Aug., 1949 When handed in at Local Office 24th Aug., 1949 Port of PHILADELPHIA, PA.  
 in Survey held at Chester, Pa. Date, First Survey 24 Jan. Last Survey 23rd June, 1949  
 eg. Book on the S.S. "RAS AL ARDH" (Number of Visits 29)  
 Tons Gross Net  
 ilt at Chester, Pa. By whom built Sun S.B. & D.D. Co. Yard No. 569 When built 1949  
 gines made at Lynn, Mass. By whom made General Elec. Engine No. H.P. 83325 When made 1948  
 lers made at Barberton, Ohio By whom made Babcock & Wilcox Boiler No. L.P. 83326 When made 1948  
 ft Horse Power at Full Power 13,750 max. / 12500 NORMAL Owners Kupan Transport Co. Boiler No. 12365 When made 1948  
 m. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes No Port belonging to  
 ide for which Vessel is intended Foreign Is Electric Light fitted Yes

**STEAM TURBINE ENGINES, &C.**—Description of Engines Cross Compound turbines and double reduction gears

of Turbines Ahead two ~~Direct coupled,~~ ~~Single reduction geared~~ } to one propelling shafts. No. of primary pinions to each set of reduction gearing Two  
 Astern One double reduction geared }  
 ct coupled to { Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;  
 supplying power for driving Propelling Motors, Type Direct Current Generator }  
 Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE LOADING.	H. P.			I. 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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
EXPANSION	.65	29.3	1				1.28	40.7	1	.85	44.4	1
"	.86	19.0	1				1.62	41.4	1	1.13	44.7	1
"	.96	19.2	1				2.18	42.5	1	4.58	49.0	1
"	1.08	19.5	1				3.03	44.2	1			
"	1.28	19.7	1				4.02	46.2	1			
"	1.39	20.1	1				6.11	49.5	1			
"	1.62	20.6	1				8.79	53.4	1			
"	2.02	21.4	1				11.38	57.3	1	4.58	49.0	1

H.P. 6688  
 Horse Power at each turbine I.P. 5812  
 total 12,500 normal L.P. 5812  
 " 13,750 max. H.P. 4.5" Forward  
 Shaft diameter at journals I.P. 8.0" Fwd Pitch Circle Diameter  
 L.P. 6.5" Aft  
 H.P. - 9.950"  
 L.P. - 15.709"  
 L.P. - 18.0"  
 H.P. - 69.850"  
 L.P. - 53.6905"  
 H.P. 7062 1st reduction wheel 1006  
 I.P. 3438 main shaft 112 NORMAL  
 L.P. 3438 main shaft 1157 max  
 Width of Face { 1st reduction wheel 19-1/4"  
 main wheel 41"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 15-1/2" 1st reduction wheel 15-1/4"  
 2nd pinion 215-3/4" main wheel 21-8-1/2"  
 H.P. - 6.2" Pinion Shafts, diameter at bearings External { 1st 10.0" diameter at wheel shroud, { 1st 10-3/8" Generator Shaft, diameter at bearings  
 L.P. - 8.79" Internal { 2nd 13.0" / solid } Propelling Motor Shaft, diameter at bearings  
 H.P. - 9.503"  
 L.P. - 15.2625"  
 H.P. - 17.237"

Intermediate Shafts, diameter as per rule as fitted 19-3/4"  
 Thrust Shaft, diameter at collars as per rule as fitted 13-3/8"  
 Tube Shaft, diameter as per rule as fitted  
 Propeller Shaft, diameter as per rule as fitted 22" Is the tube screw shaft fitted with a continuous liner { yes }  
 Bronze Liners, thickness in way of bushes as per rule as fitted 1-1/8"

Seal between bushes as per rule as fitted 27/32" Is the after end of the liner made watertight in the propeller boss yes If the liner is in more than one length are the junctions  
 by fusion through the whole thickness of the liner. - If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a  
 material insoluble in water and non-corrosive. - If two liners are fitted, is the shaft lapped or protected between the liners. - Is an approved Oil Gland  
 over appliance fitted at the after end of the tube shaft rubber ring & gland length of Bearing in Stern Bush next to and supporting propeller 8'3" ✓  
 Propeller, diameter 20" Pitch 16'10" No. of Blades 4 State whether Moveable no Total Developed Surface 173 square feet.

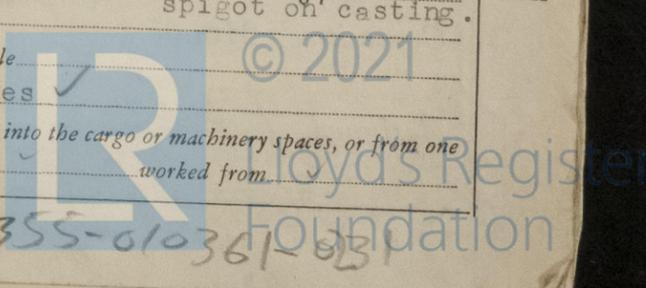
Angle Screw, are arrangements made so that steam can be led direct to the L.P. Turbine yes Can the H.P. or I.P. Turbine exhaust direct to the  
 condenser yes No. of Turbines fitted with astern wheels one Feed Pumps No. and size 2 main - 320 G.P.M., 1 aux. 240 G.P.M.  
 How driven Steam Turbines  
 Pumps connected to the Main Bilge Line { No. and size 1-400 G.P.M., 1-600 G.P.M., 14" x 10" x 12 vert. duplex steam engine  
 How driven motor

Oil Pumps, No. and size 1 Gen. Serv. 600 G.P.M. Lubricating Oil Pumps, including Spare Pump, No. and size 2 - 350 G.P.M. Rotary  
 two independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge  
 pumps, No. and size: In Engine and Boiler Room 6" main, 4-2" & 1 1/2" boiler flat, 2-3" aft eng. rm., 6-3" for 'd. eng. rm., 3-2"  
 fwd. cofferdams, 1-1 1/2" rathometer comp't. Indpt. bilge P. in pump rm. with 1-4" suct. & 2-3" cofferdam suctions. Indpt. pump in fwd. rm.  
 2-4" & 4-2 1/2" suctions.

Water Circulating Pump Direct Bilge Suctions, No. and size 1 - 18" Independent Power Pump Direct Suctions to the Engine Room  
 No. and size 2 - 6" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes  
 Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges yes  
 Sea Connections fitted direct on the skin of the ship yes Are they fitted with Valves or Cocks valves ✓

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the Overboard Discharges above or below the deep water line below  
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel yes Are the Blow Off Cocks fitted with a spigot and brass covering plate valve with  
 pipes pass through the bunks none How are they protected spigot on casting.  
 pipes pass through the deep tanks none Have they been tested as per rule  
 Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes  
 arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one  
 compartment to another. yes Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

26/10/49



010355-010361-02

**BOILERS, &c.**— (Letter for record) Total Heating Surface of Boilers 11940 sq. ft.  
 Is Forced Draft fitted Yes  No. and Description of Boilers 2 B. & W. two drum type Working Pressure 960  
 Is a Report on Main Boilers now forwarded? Yes   
 Is { a Donkey } Boiler fitted? No  If so, is a report now forwarded?  
 { an Auxiliary }  
 Plans. Are approved plans forwarded herewith for Shafting - Main Boilers - Auxiliary Boilers - Donkey Boilers -  
 (If not state date of approval)  
 Superheaters - General Pumping Arrangements - Oil Fuel Burning Arrangements -  
 Spare Gear. State the articles supplied: -

*L.M. Connelley*  
 SUN SHIPBUILDING & DRY DOCK CO. Manuf.

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - } Jan. 24, 31, March 3, 4, 21 and April 1, 1949  
 { During erection on board vessel X - } Mar. 2, 3, 28, 29, 30 - Apr. 1, 4, 7, 13, 14, 18, 20 - May 3, 9, 13, 23, 27 - Jun 8, 13, 21, 23, 1949  
 Total No. of visits 29  
 Dates of Examination of principal parts—Casings Jan. 24, Mar. 3, 21 (49) Rotors Jan. 24, 31 Mar. 4, 1949 Blading Jan. 24, 31 Mar. 4, 1949 Gearing Jan. 24, 31 Mar. 4, 1949  
 Wheel shaft Jan. 24, 1949 Thrust shaft Jan. 24, 1948 Intermediate shafts May 4, 1949 Tube shaft - Screw shaft Mar. 23, 1949  
 Propeller Mar. 2, 1949 Stern tube Apr. 18, 1949 Engine and boiler seatings Apr. 18, 1949 Engine holding down bolts May 23, 1949  
 Completion of pumping arrangements Jun. 21, 1949 Boilers fixed Apr. 20, 1949 Engines tried under steam Jun. 21, 1949  
 Main boiler safety valves adjusted Jun. 13, 1949 thickness of adjusting washers Locknuts  
 Rotor shaft, Material and tensile strength L.P. - O.H. Steel 111,500 lbs. Identification Mark LR 302 1-4  
 H. S. H.P. - O.H. Steel 103,000 lbs. Identification Mark LR 301 4-3  
 Flexible Pinion Shaft, Material and tensile strength L.P. - O.H. Steel 100,500 lbs. Identification Mark LR 301 31-1  
 S. Pinion shaft, Material and tensile strength L.P. - O.H. Steel 117,000 lbs. Identification Mark LR 301 31-1  
 H.P. - O.H. Steel 96,000 lbs. Identification Mark LR 301 31-1  
 S. Pinion shaft, Material and tensile strength H.P. - O.H. Steel 103,500 lbs. Identification Mark LR 301 31-1  
 1st Reduction Wheel Shaft, Material and tensile strength L.P. - O.H. Steel 106,500 lbs. Identification Mark LR 301 31-1  
 Wheel shaft, Material O.H. Steel Identification Mark LR 301 31-1-49 Thrust shaft, Material T.B. Identification Mark  
 Intermediate shafts, Material O.H. Steel Identification Marks 3786, 3787 S. S Tube shaft, Material - Identification Marks  
 Serv. shaft 5949  
 Screw shaft, Material O.H. Steel Identification Mark Spare " 5994 Steam Pipes, Material Solid drawn steel Test pressure 19, dia  
 Date of test Various from March 2 to May 23, 1949 Is an installation fitted for burning oil fuel yes   
 Is the flash point of the oil to be used over 150°F. yes  Have the requirements of the Rules for the use of oil as fuel been complied with   
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo - If so, have the requirements of the Rules been complied with -  
 Is this machinery a duplicate of a previous case yes If so, state name of vessel "KUWAIT"

**General Remarks** (State quality of workmanship, opinions as to class, &c.) The machinery has been satisfactorily installed on board the vessel, tried out under full power and found satisfactory. In our opinion, the installation is entitled to receive the record of +LMC 6,49, fitted for oil fuel 6,49 F.P. above 150° F.

Certificate (if required) to be sent to...

The amount of Entry Fee	£	:	:	When applied for,
Special	£	AS	:	18 Jul. 1949
Donkey Boiler Fee	£	AGREED	:	per F.A.G.
Travelling Expenses (if any)	£	:	:	When received,
				18 J
				23 Aug. 1949

*M.P. Penham*  
 Engineer Surveyor to Lloyd's Register of Shipping.

NEW YORK AUG 31 1949

Committee's Minute

Assigned + LMC-6,49.

NOTE-2 WT B(NPT) 965 lbs.



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