

# REPORT ON OIL ENGINE MACHINERY.

No. 4154 P

117 MAR 1959

Received at London Office 112 MAR 1955  
 Date of writing Report 23.2.1955 When handed in at Local Office 19 Port of Helsingfors  
 in Survey held at Date, First Survey Last Survey  
 7. Book. Number of Visits 19  
Single on the Twin Triple Quadruple Screw vessel Diesel-Electric Icebreaker "KAPITAN BELOUSOV"  
It at Helsingfors By whom built Wärtsilä-koncernen Ab, Sandvikens Skeppsdocka  
Engines made at By whom made Yard No. 353 When built 1954  
Key Boilers made at By whom made Engine No. When made  
Key Horse Power Maximum Service Owners Boiler No. When made  
N. as per Rule Is Refrigerating Machinery fitted for cargo purposes Port belonging to  
de for which vessel is intended Is Electric Light fitted

**ENGINES, &c.**    *Type of Engines*

..... 2 or 4 stroke cycle ..... Single or double acting .....

..... Maximum pressure in cylinders ..... Diameter of cylinders ..... Length of stroke ..... No. of cylinders ..... No. of cranks .....

..... Indicated Pressure ..... Span of bearings (i.e., distance between inner edges of bearings in  
of a crank) ..... Is there a bearing between each crank ..... Revolutions per minute {  
Maximum .....  
Service .....

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wheel dia. .... Weight ..... Moment of inertia  $I$  (lbs.in<sup>2</sup> or Kg.cm.<sup>2</sup>) ..... Means of ignition ..... Kind of fuel used .....  
 SEE MY REPORT NO. 11541 balance wts. ( " " " " " ) .....  
 Solid forged dia. of journals ..... as per Rule ..... Crank pin dia. .... Crank webs ..... Mid. length breadth ..... Thickness parallel to axis .....  
 Semi built ..... as fitted ..... Mid. length thickness ..... shrunk ..... Thickness around eye hole .....  
 All built ..... as per Rule .....

heel Shaft, diameter as per Rule..... as fitted..... Intermediate Shafts, diameter as per Rule..... as fitted..... 380 mm Thrust Shaft, diameter at collars as per Rule..... as fitted..... 390 mm

Shaft, diameter as per Rule..... as fitted..... Screw Shaft, diameter as per Rule..... as fitted..... 400 mm Is the tube shaft fitted..... (yes)

ze Liners, thickness in way of bushes as per Rule.....  
 as fitted..... 22 mm..... Thickness between bushes as per Rule.....  
 Is the after end of the liner made watertight in the  
 If the liner is in more than one length

If the liner is in more than one length are the junctions made 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 plastic material insoluble in water and non-.....  
 If two liners are fitted, is the shaft lapped or protected between the liners.....

f stern tube...no.....If so, state type.....Length of bearing in Stern Bush next to and supporting propeller.....Is an approved Oil Gland fitted at the after  
eller, fwd 3500 Pitch 2500 No. of blades 4 Material Cast steel whether moveable no Total developed surface 5.77 sq.m.  
Pitch 4200 3930 " " " " no 7.16

nt of inertia of propeller including entrained water ( $\text{lbs. in}^2 \text{ or } \text{Kg.cm}^2$ ) .....

Kind of damper, if fitted no 7,40  
 Is a governor or other arrangement fitted to prevent racing of the engine yes Means of  
 Thickness of cylinder liners SEE MY REPORT Nos. 4154 and 4155  
 Are the exhaust pipes and silencers water cooled yes

to the engine. 2 Spare F.W. and S.W. 2 Cooling Water Pumps, No. and how driven 6 in each engine room 3 centrifugal Working F.W. 2 pumps worked from the Main Engines. No. and capacity 4400 liters

is connected to the Main Bilge Line { No. and capacity of each 4 centrifugal pumps. 3 of them giving 500 liters/min. for 8 or 600 " " " 15 mtrs. height. One delivering 1660 liters/min. for 15 mtrs. height. How driven electrically. Can one be overhauled while the other is at work. - 1/20

cooling water led to the bilges. no If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping  
gements.  
t Pumps, No. and capacity 1 centrifugal Power Driven Lubricating Oil Pumps, including spare pump. No. and size 4 screw Pumps, 180  
liters/min. at 15 mtr. height

no independent means arranged for circulating water through the Oil Cooler yes Branch Bilge Suctions.

d size:—In machinery spaces. 4 suction in each engine room, 2 1/2", 3 in each propulsion motor room, 2 1/2".

**Bilge Suctions to the engine room bilges, No. and size.** One from each Diesel Room and one from aft Propulsion Room, size: 3"

Are the bilge suction pipes in holds and tunnel well fitted with strum-boxes yes Are the bilge suction pipes in the machinery spaces 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 Intake Are they fitted with valves on each side valves

Are they fitted with valves or cocks. valves Are they fixed  
high on the ship's side to be seen without lifting the platform plates. Yes Are the overboard discharges above or below the deep water line both  
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 line. Yes

pipes pass through the bunkers. Only overflow pipes from the blow off cocks fitted with a spigot and brass covering plate. Yes  
other bunker tanks. How are they protected  
 pipes pass through the deep tanks ditto Have they been tested as per Rule yes  
 pipes, cocks and

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 or from one compartment to another. yes Is there a fire pump? yes

od vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork.....

Air Compressors, No. .... - No. of stages .... - diameters .... -

SEE MY REPORT NO. 4154 M/ Rpt. 4 c.

provision is made for first charging the air receivers \_\_\_\_\_  
 ing Air Pumps or Blowers, No. \_\_\_\_\_ How driven \_\_\_\_\_  
 Have they been made under survey \_\_\_\_\_

*Have they been made under survey.*

*Makers name*.....*Engine Nos.*.....

*Position of each in engine room*.....

*Report No.*.....

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**AIR RECEIVERS.** Have they been made under survey..... State No. of report or certificate.....  
State full details of safety devices.....  
Can the internal surfaces of the receivers be examined and cleaned..... Is a drain fitted at the lowest part of each receiver.....  
Injection Air Receivers, No..... Cubic capacity of each..... Internal diameter..... thickness.....  
Seamless, welded or riveted longitudinal joint..... Material SM-Steel Rpt. 4c Range of tensile strength..... Working pressure.....  
Starting Air Receivers, No..... SEE MY REPORT NO. 4154 M Total cubic capacity..... Internal diameter..... thickness.....  
Seamless, welded or riveted longitudinal joint..... Material..... Range of tensile strength..... Working pressure.....  
**IS A DONKEY BOILER FITTED** 2 boilers so, is a report now forwarded..... yes  
Is the donkey boiler intended to be used for domestic purposes only..... For heating coils in tanks, for heating of accommodation and for evaporating plant.....  
**PLANS.** Are approved plans forwarded herewith for shafting..... yes Receivers..... Separate fuel tanks.....  
(If not, state date of approval)  
Donkey boilers..... yes General pumping arrangements..... and Pumping arrangements in machinery space..... yes  
Oil fuel burning arrangements..... yes  
Have Torsional Vibration characteristics been approved..... yes Date and particulars of approval..... See your letter Eng. 1/11/54

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied..... yes State if for "short voyages" only..... no  
State the principal additional spare gear supplied..... See attached list.

The foregoing is a correct description,

**Wärtsilä-koncernen A/B**  
SANDVICKENS SKEPPSÖCKA

Manufacturer.

Dates of Survey while building  
During progress of work in shops - - - See my Report No. 4154 M/Rpt. 4c.  
During erection on board vessel - - -  
Total No. of visits.....

Dates of examination of principal parts—Cylinders..... Covers..... Pistons..... Rods..... Connecting rods.....  
Crank shaft..... Flywheel shaft..... Thrust shaft..... Intermediate shafts..... Tube shaft.....  
Screw shaft..... 10.3.54 Propellers..... 14.3.54 Stern tubes..... 10.3.54 Engine seatings..... 16.3.54 Engine holding down bolts..... 5.4  
Completion of fitting sea connections..... 14.3.54 Completion of pumping arrangements..... 9.11.54 Engines tried under working conditions..... 12.1  
Crank shaft, material..... Identification mark..... Flywheel shaft, material..... Identification mark.....  
Thrust shaft, material..... SM-Steel Identification marks 7421, 7493 Intermediate shafts, material..... SM-Steel Identification marks 7155, 7390  
Tube shaft, material..... Identification mark..... Screw shaft, material..... SM-Steel Identification mark..... 7617, 7709  
Identification marks on air receivers..... Two 1500 liters Receivers: 2613 and 2614 Lloyd's Test 18.5.54. Two 800  
Receivers: 2606 and 2607 Lloyd's Test 18.5.54. Two 200 liters Receivers: 2618 and 2619 Lloyd's  
Welded receivers, state Makers' Name..... Wärtsilä-koncernen Ab, Maskin och Bro.

Is the flash point of the oil to be used over 150°F..... yes  
Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with..... yes  
Full description of fire extinguishing apparatus fitted in machinery spaces..... foam in Diesel Engine Rooms, Boiler Room, on open deck, CO<sub>2</sub> in all Engine Rooms, Boiler Room, Manoeuvring Room, Fuel Oil Tanks, Cargo Holds, etc.  
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.....  
What is the special notation desired..... Strengthened for Navigation in Ice.  
If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with..... yes

Is this machinery duplicate of a previous case..... No If so, state name of vessel.....

**General Remarks** (State quality of workmanship, opinions as to class, Speed restrictions, &c.)

All the pumps, mentioned above, have been manufactured by the Builders, and have same been examined and tested and tried by the undersigned. The shafts have been manufactured abroad and have same been found certified by the Surveyors of our Society.  
The workmanship has been found good.  
I am of the opinion that the machinery is eligible to be entered as classed in the Register

For certificates and drawings, see attached lists.

PLEASE SEE MY LETTER L 181/55 of 12.3.55

The amount of Entry Fee..... Fee included in the amount stated on the Report No. 4154 M.  
Special ..... When applied for..... 19  
Donkey Boiler Fee..... £..... When received..... 19  
Travelling Expenses (if any) £.....

Committee's Minute..... FRIDAY 29 APR 1955

Assigned..... +LMC 1.55- July.  
2 DB 142 lb.  
Ch. Str for Nav. in Ice.



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