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te of writing report 17.2.60. Received London Port NOTTINGHAM. No. FE.1650 SEP 1960
urvey held at Lincoln No. of visits 7 First date 25.11.59. Last date 11.1.60.

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

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ame of Ship **MOANA ROA** Owners **New Zealand Government.**
Or Contract No. if name unknown). (Or Consignees)
hip Built at **Grangemouth** by **Grangemouth Dockyard Co. Ltd.** when Yard No. **526.** ✓
Auxiliary Engines ~~as constructed~~ made at **Lincoln** by **Ruston & Hornsby Ltd.** when Eng. Nos. **446058.** ✓
Total No. of sets and description (including type name). **Four - Auxiliary - 6VCBXZ.** ✓ **446059.** ✓
446060. ✓
450227. ✓
104. ✓
INTERNAL COMBUSTION RECIPROCATING ENGINES. No. of cylinders per engine **6.** ✓ Dia. of cylinders **8"** ✓ Stroke **10 1/2"** ✓
or 4 stroke cycle **4.** ✓ Maximum approved BHP **330.** ✓ at **650** ✓ RPM Corresponding MIP **146** ✓ Maximum pressure **1050 ± 3%** ✓
uel. **Diesel Oil.** Are cylinders arranged in Vee or other special formation? **No.** If so, No. of
crankshafts per engine **None.** Is engine of opposed piston type? **No.** No. and type of mechanically driven scavenge pumps or blowers
er engine **None.** No. of exhaust gas driven blowers or superchargers per engine **None.** Is welded construction
sed for: Bedplate? **No.** Entablature? **No.** Total internal volume of crankcase (if 20 cu. ft. or over) **47.6** ✓ c.ft. ✓ No. and total area of
crankcase explosion relief devices **9 - 214 sq. ins.** ✓ Are flame guards or traps fitted? **Yes.** Cooling medium for: Cylinders **Water.** ✓
Pistons **Air. None.** No. of attached pumps: F.W. cooling **One.** S.W. cooling **One.** Lubricating oil **One.** How is engine started? **Comp. Air,**

SHAFTING. Is a damper or detuner fitted? **No.** No. of main bearings **8.** ✓ Are bearings of ball or roller type? **No.** Distance between
inner edges of bearings in way of cranks **9.3/16"** ✓ Crankshaft: **Built, semi-built, solid.** Material of crankshaft **Steel.** ✓ Approved
minimum tensile strength **21 1/2"** ✓ Dia. of pins **4 3/4"** ✓ Journals **6"** ✓ Breadth of webs at mid throw **8"** ✓ Axial
thickness **2 1/2"** ✓ If shrunk, radial thickness around eyeholes **-** Dia. of flywheel **3'9"** ✓ Weight **12.3** cwt. ✓ Are balance
weights fitted? **No.** Total weight **-** Rad. of gyration **-** Dia. of flywheel shaft **6"** ✓
Has each engine been tested in shop? **Yes.** How long at full power? **-** Was it tested with driven machinery attached? **Yes.** ✓ Was the
governing tested and found satisfactory? **Yes.** ✓ Date of approval of torsional vibration characteristics (for engines of 150 BHP and over) **10.11.59.** ✓ **CASE 4530**
Date of approval of shafting **20.12.38.** ✓ Identification marks on shafting **LL.12921.RG.9466. LL.12920.RG.9465. LL.12919.RG.9464.**
Particulars of driven machinery **210 kW. DC. Laurence Scott Generators Nos. 252881.2.252879.80. LL.12922.RG.9467.**

Port and No. of Certificate for Starting Air Receivers

AUXILIARY GAS TURBINES. BHP per set **At** RPM of output shaft. Open or closed cycle?
Arrangement of turbines. HP drives **at** RPM HP gas inlet temp. **pressure.**
(A small diagram should be attached showing gas cycle) IP **at** IP **" " " "**
LP **at** LP **" " " "**
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? **Are the turbines operated in conjunction with free piston gas generators?**
Total No. of free piston gas generators **Dia. of working pistons.** Dia. 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 in shop? **How long at full power?** Were they tested with driven machinery
attached? **Particulars of gearing.**
Date of approval of plans **Identification marks.** Particulars of driven machinery

ELECTRIC GENERATORS. Port and No. of Certificate for generators of 100 Kw. and over **Yes.**
For generators under 100 Kw., has Makers' Certificate been obtained? **Are Certificates attached? Yes.**

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

RUSTON & HORNSBY LTD LINCOLN

SIGNED **W. Bay** Date **1/3/60**

MARINE ENGINEERING DEPT.

Manufacturer

Is this machinery duplicate of a previous case? **No.** If so, which?

GENERAL REMARKS. State if the machinery has been constructed under special survey in accordance with the Rules, approved plans and Secretary's letters.
State quality of materials and workmanship. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

These Engines have been built under Special Survey in accordance with the Approved Plans and the
Regulations of the Society, materials and workmanship being good.

On completion, the generating sets have been seen under working conditions in the Shops and the
governing tested, all with satisfactory results.

The Sets have been despatched for installation in the vessel.

Explosion relief devices and Flame Deflectors fitted.

Survey Fee **£31.5s.**Expenses **per engine.**

Date when a/c rendered

Declaration to be signed by Surveyor at fitting-out Port:— The above described machinery has been fitted on board the
at **Grangemouth** in a proper manner and found satisfactory when tested on the (date) **24.10.59** under full working conditions.

GLASGOW - 6 SEP 1960

SEE ACCOMPANYING MACHINERY REPORT

Engineer Surveyor to Lloyd's Register

Engineer Surveyor to Lloyd's Register

013884-013889-0047

Rpt. 4c

Date of writing report

Received London

Port

No.

Survey held at

No. of visits

First date

Last date

FIRST ENTRY REPORT ON AUXILIARY STEAM TURBINE OR STEAM RECIPROCATING ENGINES

Name of Ship
(Or Contract No. if name unknown)

Owners
(Or Consignees)

Ship Built at by when Yard No.
Auxiliary turbines or engines made at by when Eng. Nos.
Total No. of sets and description.....

STEAM TURBINES. No. of turbines per set BHP per set Steam pressure Steam temperature
Type of turbines
Particulars of gearing
RPM of turbine shaft(s) PCD of pinion(s) PCD of wheel(s) Material of pinion(s) Material of wheel rim(s) Has rotor been dynamically balanced? Diameter of rotor shaft at bearings Does the set include a steam condenser? Is an emergency governor fitted? No. and purpose of attached pumps Has the set been tested in the shop? If so, for how long at full power? Was the governing tested and found satisfactory? Was the set tested with driven machinery attached?
Identification marks Particulars of driven machinery

STEAM RECIPROCATING ENGINES. BHP of each at RPM Steam pressure
Dia. of cylinders Stroke Dia. of crankshaft journals Pins Material of crankshaft Is crankcase enclosed? If so, is the internal volume 20 cu. ft. or over? No. and total area of crankcase explosion relief devices fitted? Are the bearings forced lubricated? No. and purpose of attached pumps Is a Governor Fitted? Identification Marks
Particulars of Driven Machinery.....

ELECTRIC GENERATORS. Port and No. of Certificate for generators of 100 Kw. and over
For generators under 100 Kw., has Makers' Certificate been obtained? Are Certificates attached?

The foregoing description is correct.

Manufacturer

Is this machinery duplicate of a previous case? If so, which?

GENERAL REMARKS. State if the machinery has been constructed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

Survey Fee.....

Expenses

Date when a/c rendered.....

Engineer Surveyor to Lloyd's Register

Declaration to be signed by Surveyor at fitting-out Port:— The above described machinery has been fitted on board the
at in a proper manner and found satisfactory when tested on the (date) under full working conditions.

