

# REPORT ON MACHINERY.

No. 22580

Port of Sunderland

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No. in Survey held at Sunderland Date, first Survey 19<sup>th</sup> April, 1905 Last Survey 3<sup>rd</sup> January 1906

Reg. Book. on the Steel Screw Steamer "NEEDWOOD" (Number of Visits 37)

Master David Jones Built at Sunderland By whom built Ostbourne, Gillingham Tons } Gross 1984.63  
Net 1243.36  
When built 1906

Engines made at Sunderland By whom made N.E. Marine Eng. Co. Ltd. when made 1906

Boilers made at Sunderland By whom made N.E. Marine Eng. Co. Ltd. when made 1906

Registered Horse Power \_\_\_\_\_ Owners W. France Fenwick & Co. Ltd. Port belonging to London

Nom. Horse Power as per Section 28 194 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

## ENGINES, &c.—Description of Engines Inverted, Triple Expansion No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 20 1/2 - 33 - 54 Length of Stroke 39 Revs. per minute 66 Dia. of Screw shaft 12 1/2 Material of screw shaft Iron

Is the screw shaft fitted with a continuous liner the whole length of the stern tube no Is the after end of the liner made water tight in the propeller boss yes If the liner is in more than one length are the joints burned — 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-corrosive — If two liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 4-3

Dia. of Tunnel shaft 10 3/8 Dia. of Crank shaft journals 10 7/8 Dia. of Crank pin 10 7/8 Size of Crank webs 14 x 6 3/4 Dia. of thrust shaft under collars 10 7/8 Dia. of screw 14-9 Pitch of screw 15-6 No. of blades four State whether moveable no Total surface 69 sq ft

No. of Feed pumps Two Diameter of ditto 3 Stroke 18 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 3 1/2 Stroke 18 Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps 4x9x9 + 6x4x6 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room four 3" mags, one 3" centre In Holds, &c. many holds two 3" mags, perfect 2 1/2"

No. of bilge injections one size 4 Connected to condenser, or to circulating pump no Is a separate donkey suction fitted in Engine room & size yes 3"

Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices on Engine room bulkheads always accessible none

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the discharge pipes above or below the deep water line above

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 yes

What pipes are carried through the bunkers none How are they protected —

Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times yes

Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges yes

When were stern tube, propeller, screw shaft, and all connections examined in dry dock 10/11/05 Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from top platform

## BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 2940 sq ft Is forced draft fitted no

No. and Description of Boilers Two single ended, cylind. mult. Working Pressure 180 lb Tested by hydraulic pressure to 360 lb

Date of test 18/10/05 Can each boiler be worked separately yes Area of fire grate in each boiler 43 sq ft No. and Description of safety valves to each boiler no direct spring Area of each valve 4.91 sq in Pressure to which they are adjusted 185 lb Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 24 Mean dia. of boilers 12-9 1/2 Length 10-0 Material of shell plates steel

Thickness 1/32 Range of tensile strength 28-32 Are they welded or flanged no Descrip. of riveting: cir. seams lap & R long. seams DRS-TR

Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 8 Lap of plates or width of butt straps 16 3/4

Per centages of strength of longitudinal joint rivets 89.5 plate 85.93 Working pressure of shell by rules 180.9 lb Size of manhole in shell 16x12

Size of compensating ring flange No. and Description of Furnaces in each boiler Three, plain Material steel Outside diameter 35 3/4

Length of plain part top 11 3/4 bottom — Thickness of plates crown 11 bottom 7 1/2 Description of longitudinal joint weld No. of strengthening rings —

Working pressure of furnace by the rules 188 lb Combustion chamber plates: Material steel Thickness: Sides 1/8 Back 3/4 Top 1/8 Bottom 1/8

Pitch of stays to ditto: Sides 10 1/2 x 8 3/8 Back 11 1/8 x 8 1/2 Top 10 1/2 x 8 3/8 If stays are fitted with nuts or riveted heads nut Working pressure by rules 181.1 lb

Material of stays steel Diameter at smallest part 1 1/8 Area supported by each stay 484 sq in Working pressure by rules 180.5 lb End plates in steam space: Material steel Thickness 1 1/8 Pitch of stays 33 1/2 x 18 1/2 How are stays secured DR & W Working pressure by rules 182.4 lb Material of stays steel

Diameter at smallest part 3.29 Area supported by each stay 434 3/4 sq in Working pressure by rules 195 lb Material of Front plates at bottom steel

Thickness 13/16 Material of Lower back plate steel Thickness 2 1/2 Greatest pitch of stays 14 1/8 x 8 1/2 Working pressure of plate by rules 181 lb

Diameter of tubes 3 1/4 Pitch of tubes 4 1/8 x 4 1/2 Material of tube plates steel Thickness: Front 13/16 Back 13/16 Mean pitch of stays 9 3/8

Pitch across wide water spaces 14 1/2 Working pressures by rules 215.7 lb Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8 x 2 1/8 Length as per rule 28 Distance apart 10 1/2 Number and pitch of Stays in each Two 8 3/8

Working pressure by rules 233.3 lb Superheater or Steam chest; how connected to boiler — Can the superheater be shut off and the boiler worked separately — Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet holes — Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —

If stiffened with rings — Distance between rings — Working pressure by rules — End plates: Thickness — How stayed — Working pressure of end plates — Area of safety valves to superheater — Are they fitted with easing gear —

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