

# REPORT ON MACHINERY.

No. 5434

(Received at London Office 15th JUNE, 1882)

No. in Survey held at Glasgow  
Reg. Book.

Date, first Survey Sept 21 1881 Last Survey 14 June 1882

on the Screw Steamer "Heimdal"

Tons 1941  
1325

Master Munson

Built at Glasgow

When built 1882

Engines made at Glasgow

By whom made Walker Henderson & Co when made 1882

Boilers made at "

By whom made " when made 1882

Registered Horse Power 200

Owners Steam Ship Coy Ltd

Port belonging to Copenhagen

## ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting  
 Diameter of Cylinders 35" + 68" Length of Stroke 42" No. of Rev. per minute 30 Point of Cut off, High Pressure .6 Low Pressure .65  
 Diameter of Screw shaft 11 1/2" Diameter of Tunnel shaft 10 3/4" Diameter of Crank shaft journals 11 1/2" Diameter of Crank pin 11 1/2" size of Crank webs 14 1/2" x 4"  
 Diameter of screw 10 1/2" Pitch of screw 18 1/2" No. of blades four state whether moveable Yes total surface 66 1/2"  
 No. of Feed pumps two diameter of ditto 4 1/4" Stroke 21" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps two diameter of ditto 4 1/4" Stroke 21" Can one be overhauled while the other is at work Yes  
 Where do they pump from All compartments one 4 1/2" 3 1/2" x 10" Sea Ridge & Hotwell  
 No. of Donkey Engines two Size of Pumps one 10" x 4" x 12" Where do they pump from Water Ballast Tanks

Are all the bilge suction pipes fitted with roses Yes Are the roses always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes  
 No. of bilge injections One and sizes 4" Are they connected to condenser, or to circulating pump To Circulating  
 How are the pumps worked By Levers  
 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 Bilge pipes to stokehold + pipes to Ballast Tanks How are they protected By wood casing  
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times Yes  
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges Yes  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock On ship previous to being launched and in Dry Dock 29th May 1882  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper platform

## BOILERS, &c.—

Number of Boilers two Description Round Horizontal  
 Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs Date of test 22.4.82  
 Description of superheating apparatus or steam chest none  
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately Yes  
 No. of square feet of fire grate surface in each boiler 63 1/2 Description of safety valves Direct Spring  
 No. to each boiler two area of each valve 15.9 Are they fitted with easing gear Yes  
 No. of safety valves to superheater — area of each valve — are they fitted with easing gear —  
 Smallest distance between boilers and bunkers or woodwork about 12"  
 Diameter of boilers 15 1/2" Length of boilers 11.3" description of riveting of shell long. seams Double riveted circum. seams Double riveted  
 Thickness of shell plates 1 1/16" diameter of rivet holes 1 3/16" whether punched or drilled Drilled pitch of rivets 5 1/8"  
 Lap of plating Straps 1 1/4" x 1 1/16" per centage of strength of longitudinal joint 48% working pressure of shell by rules 98 lbs  
 Size of manholes in shell 1 1/4" x 1 1/2" size of compensating rings 5" x 3 1/4"  
 No. of Furnaces in each boiler three outside diameter 3.8" length, top 4.3" bottom 10.6"  
 Thickness of plates 1 1/16" description of joint double straps if rings are fitted cocks comb joint in centre greatest length between rings —  
 Working pressure of furnace by the rules 130 lbs taking it at half length  
 Combustion chamber plating, thickness, sides 1 1/16" back 1 1/16" top 1 1/16"  
 Pitch of stays to ditto sides 8 1/4" back 8 3/4" top 8 3/4"  
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 100 lbs  
 Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 95 lbs  
 End plates in steam space, thickness 1 1/16" pitch of stays to ditto 15" x 15 1/2" how stays are secured By double nuts  
 Working pressure by rules 90 lbs diameter of stays at smallest part 2 1/8" working pressure by rules 92 lbs  
 Front plates at bottom, thickness 1 1/16" Back plates, thickness 1 1/16" greatest pitch of stays 12" working pressure by rules 100 lbs

Form No. 8—2/10/80 2000.

GLS146-0436

5737. gls.

Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes 5" thickness of tube plates, front  $\frac{10}{16}$ " back  $\frac{7}{16}$ "  
 How stayed *By Tubes* pitch of stays  $15 \times 15$ " width of water spaces  $6\frac{1}{2}$ "  
 Diameter of Superheater or Steam chest \_\_\_\_\_ length \_\_\_\_\_  
 Thickness of plates \_\_\_\_\_ description of longitudinal joint \_\_\_\_\_ diameter of rivet holes \_\_\_\_\_ pitch of rivets \_\_\_\_\_  
 Working pressure of shell by rules \_\_\_\_\_ Diameter of flue \_\_\_\_\_ thickness of plates \_\_\_\_\_  
 If stiffened with rings \_\_\_\_\_ distance between rings \_\_\_\_\_ Working pressure by rules \_\_\_\_\_  
 End plates of superheater, or steam chest; thickness \_\_\_\_\_ How stayed \_\_\_\_\_  
 Superheater or steam chest; how connected to boiler \_\_\_\_\_

DONKEY BOILER—

Description *Round Horizontal*

Made at *Glasgow* By whom made *Walker, Henderson* when made *1882*

Where fixed *On Upper Deck* working pressure *60 lbs* Tested by hydraulic pressure to *120 lbs* No. of Certificate *844*

Fire grate area *18 ft<sup>2</sup>* Description of safety valves *Direct Spring* No. of safety valves *One* area of each *9.6"*

If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*

Diameter of donkey boiler *8.3"* length *8 ft<sup>2</sup>* description of riveting *Double riveted*

thickness of shell plates *8/16"* diameter of rivet holes *1 3/16"* whether punched or drilled *Drilled*

pitch of rivets *3"* lap of plating *6"* per centage of strength of joint *73%*

thickness of crown plates \_\_\_\_\_ stayed by *Combustion Chamber plating 7/16" Stays 1/2" dia 9x9" pitch 7 units*

Diameter of furnace, *3' 9"* bottom \_\_\_\_\_ length of furnace *5' 6"*

thickness of plates *8/16"* description of joint *Double Straps* End plates *7/16" Stays 1/2" dia 12x12" bolts*

thickness of furnace crown plates \_\_\_\_\_ stayed by \_\_\_\_\_

Working pressure of shell by rules *63 lbs* working pressure of furnace by rules *41 lbs*

diameter of uptake \_\_\_\_\_ thickness of plates \_\_\_\_\_ thickness of water tubes \_\_\_\_\_

The foregoing is a correct description,

*Walker, Henderson & Co* Manufacturer.

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

*These Engines & Boilers are of good workmanship and now in good order & safe working condition and eligible in my opinion to be noted in the Register Book* **Lloyd M.C.**  
**6.82**

*The engines & boiler of this vessel are fitted in accordance with the Rules submitted that she be classed & have the inspection & Lloyd's M.C. 6.82 recorded*  
 D.S.  
 15/6/82

The amount of Entry Fee .. £ 3: 0: 0 received by me,  
 Special .. £ 30: 0: 0  
 Certificate (if required) .. £ 0: 0: 0 5/6/1882  
 To be sent as per margin. £ 33: 0: 0  
 (Travelling Expenses, if any, £ \_\_\_\_\_)

Committee's Minute

Friday, 16th June, 1882.

*Lloyd's*

*James Mellison*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping,  
 Clyde District

Lloyd's Register Foundation

# REPORT ON MACHINERY.

No. 5434 (Received at London Office 15th JUNE, 1882)  
 No. in Survey held at Glasgow Date, first Survey Sept 21 1881 Last Survey 14 June 1882  
 Reg. Book. on the Screw Steamer "Heimdal" Tons 1941  
 Master Munson Built at Glasgow When built 1882  
 Engines made at Glasgow By whom made Walker Henderson & Co when made 1882  
 Boilers made at " By whom made " when made 1882  
 Registered Horse Power 200 Owners Steam Ship Coy Trja Port belonging to Copenhagen

## ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting  
 Diameter of Cylinders 35" + 68" Length of Stroke 42" No. of Rev. per minute 30 Point of Cut off, High Pressure .6 Low Pressure .65  
 Diameter of Screw shaft 11 1/2" Diameter of Tunnel shaft 10 3/4" Diameter of Crank shaft journals 11 1/2" Diameter of Crank pin 11 1/2" size of Crank webs 14 1/2" x 4"  
 Diameter of screw 10 1/2" Pitch of screw 18 1/2" No. of blades four state whether moveable Yes total surface 66 1/2"  
 No. of Feed pumps two diameter of ditto 4 1/4" Stroke 21" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps two diameter of ditto 4 1/4" Stroke 21" Can one be overhauled while the other is at work Yes  
 Where do they pump from All compartments one 4 1/2" 3 1/2" x 10" Sea ridge & Hotwell  
 No. of Donkey Engines two Size of Pumps one 10" x 4" x 12" Where do they pump from Water Ballast Tanks

Are all the bilge suction pipes fitted with roses Yes Are the roses always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes  
 No. of bilge injections One and sizes 4" Are they connected to condenser, or to circulating pump To Circulating  
 How are the pumps worked By Levers  
 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 Bilge pipes to stokehold + pipes to Ballast Tanks How are they protected By wood casing  
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times Yes  
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges Yes  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock On ship previous to being launched and in Dry Dock 29th May 1882  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper platform

## BOILERS, &c.—

Number of Boilers two Description Round Horizontal  
 Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs Date of test 22.4.82  
 Description of superheating apparatus or steam chest none  
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately Yes  
 No. of square feet of fire grate surface in each boiler 63 1/2 Description of safety valves Direct Spring  
 No. to each boiler two area of each valve 15.9 Are they fitted with easing gear Yes  
 No. of safety valves to superheater — area of each valve — are they fitted with easing gear —  
 Smallest distance between boilers and bunkers or woodwork about 12"  
 Diameter of boilers 15 1/2" Length of boilers 11.3" description of riveting of shell long. seams Double riveted circum. seams Double riveted  
 Thickness of shell plates 1 1/16" diameter of rivet holes 1 3/16" whether punched or drilled Drilled pitch of rivets 5 1/8"  
 Lap of plating Straps 1 1/4" x 1 1/16" per centage of strength of longitudinal joint 48% working pressure of shell by rules 98 lbs  
 Size of manholes in shell 1 1/4" x 1 1/2" size of compensating rings 5" x 3 1/4"  
 No. of Furnaces in each boiler three outside diameter 3.8" length, top 4.3" bottom 10.6"  
 Thickness of plates 1 1/16" description of joint double straps if rings are fitted cocks comb joint in centre greatest length between rings —  
 Working pressure of furnace by the rules 130 lbs taking it at half length  
 Combustion chamber plating, thickness, sides 1 1/16" back 1 1/16" top 1 1/16"  
 Pitch of stays to ditto sides 8 3/4" back 8 3/4" top 8 3/4"  
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 100 lbs  
 Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 95 lbs  
 End plates in steam space, thickness 1 1/16" pitch of stays to ditto 15" x 15 1/2" how stays are secured By double nuts  
 Working pressure by rules 90 lbs diameter of stays at smallest part 2 1/8" working pressure by rules 92 lbs  
 Front plates at bottom, thickness 1 1/16" Back plates, thickness 1 1/16" greatest pitch of stays 12" working pressure by rules 100 lbs

Form No. 8—2/10/80 2000.



GLS146-0436