

REPORT ON MACHINERY.

No. 183

No. in Survey held at
Reg. Book.

Dundee

Date, first Survey 2nd January Last Survey 11th September 1882

(Received at London Office 2nd OCT. 1882)

on the *ISS "Ayrshire"*

Master *L. B. Smith*

Built at *Dundee*

When built *1882*

Tons *486.08*

Engines made at *Dundee*

By whom made *Pearce Bros* when made *1882*

Boilers made at *Dundee*

By whom made *Pearce Bros* when made *1882*

Registered Horse Power *90*

Owners *Ayrshire Steam Navigation Co* Port belonging to *Ardrrossan*

ENGINES, &c.—

Description of Engines *Compound Sml Cyl direct acting surface condensing*
 Diameter of Cylinders *23" x 45"* Length of Stroke *30"* No. of Rev. per minute *80* Point of Cut off, High Pressure *1/2* Low Pressure *1/2*
 Diameter of Screw shaft *8 1/2"* Diameter of Tunnel shaft *8 1/2"* Diameter of Crank shaft journals *8 1/2"* Diameter of Crank pin *8 1/2"* size of Crank webs *6 x 9"*
 Diameter of screw *1 1/4"* Pitch of screw *14 x 0"* No. of blades *4* state whether moveable *Sml* total surface *34 feet*
 No. of Feed pumps *two* diameter of ditto *4 1/2"* Stroke *16"* Can one be overhauled while the other is at work *Yes*
 No. of Bilge pumps *two* diameter of ditto *4 1/2"* Stroke *16"* Can one be overhauled while the other is at work *Yes*
 Where do they pump from *all compartments and one from sea and Tanks*
 No. of Donkey Engines *one* Size of Pumps *8 1/2" x 10" x 5"* Where do they pump from *Tanks, sea and*
all compartments Hotwell to boilers on Deck this ship side &
 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 *3 1/2"* Are they connected to condenser, or to circulating pump *Circulating*
 How are the pumps worked *by levers from after engine crosshead*
 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 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 *before launch*

BOILERS, &c.—

Number of Boilers *one* Description *Circular Tubular*
 Working Pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* Date of test *18th July 1882*
 Description of ~~superheating apparatus~~ or steam chest *horizontal drum*
 Can each boiler be worked separately *—* Can the superheater be shut off and the boiler worked separately *—*
 Area of square feet of fire grate surface in each boiler *62 feet* Description of safety valves *Direct spring load 9.16.*
 No. of safety valves to each boiler *two* area of each valve *14-19"* Are they fitted with easing gear *Yes*
 area of safety valves to superheater *—* area of each valve *—* are they fitted with easing gear *—*
 Smallest distance between boilers and bunkers or woodwork *6"*
 Diameter of boilers *12' 6"* Length of boilers *9' 9"* description of riveting of shell long. seams *Lap double R* circum. seams *Lap D.R*
 Thickness of shell plates *7/8"* diameter of rivet holes *1 1/8"* whether punched or drilled *drilled* pitch of rivets *4 1/2"*
 Thickness of plating *7 3/4" x 5 1/4"* per centage of strength of longitudinal joint *73 x 72%* working pressure of shell by rules *79 lbs*
 Diameter of manholes in shell *12" x 16"* size of compensating rings *4" x 4" x 3"*
 No. of Furnaces in each boiler *three* outside diameter *36"* length, top *6' 9"* bottom *9' 0"*
 Thickness of plates *7/6"* description of joint *welded* if rings are fitted *flanged* greatest length between rings *4' 6"*
 Working pressure of furnace by the rules *105 between flanges*
 Thickness of combustion chamber plating, thickness, sides *7/6"* back *7/6"* Centre box *1/2"* top *7/6"*
 Diameter of stays to ditto sides *8" x 8"* back *8" x 8"* Centre box *9 1/2" x 9 1/2"* top *8" x 8"*
 Are stays fitted with nuts or riveted heads *Nuts both ends* working pressure of plating by rules *84 lbs Centre 85 lbs*
 Diameter of stays at smallest part *1 1/2" x 1 1/2"* working pressure of ditto by rules *5120 lbs or 1 1/2" B.T.*
 Thickness of plates in steam space, thickness *7/6"* pitch of stays to ditto *16" x 16"* how stays are secured *thru 2019*
 Working pressure by rules *92 lbs* diameter of stays at smallest part *2 1/2"* working pressure by rules *523*
 Thickness of plates at bottom, thickness *4"* Back plates, thickness *4"* greatest pitch of stays *10" x 9 1/2"* working pressure by rules *523*

DUN 108-0028

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{1}{2} \times 4\frac{1}{2}$ " thickness of tube plates, front $\frac{4}{16}$ " back $\frac{4}{16}$ "
 How stayed *tubes nut* pitch of stays $13\frac{1}{2} \times 13\frac{1}{2}$ " width of water spaces $1\frac{1}{2}$ "
 Diameter of ~~Superheater~~ Steam chest $3\frac{1}{2}$ " length $6\frac{1}{2}$ "
 Thickness of plates $\frac{1}{2}$ " description of longitudinal joint *Lap S.R.* diameter of rivet holes $\frac{7}{8}$ " pitch of rivets $3\frac{1}{2}$ "
 Working pressure of shell by rules $17\frac{1}{2}$ lb Diameter of flue $4\frac{1}{2}$ " thickness of plates $\frac{1}{2}$ "
 If stiffened with rings \checkmark distance between rings \checkmark Working pressure by rules \checkmark
 End plates of ~~superheater~~ steam chest; thickness $\frac{4}{16}$ " How stayed *3 bolt stays 14" the end shut*
~~Superheater~~ steam chest; how connected to boiler *by malleable neck riveted to shells*
DONKEY BOILER— Description *one round vertical*
 Made at *Dundee* By whom made *Pearce Bros* when made *1882*
 Where fixed *Slopehold* working pressure *80 lb* Tested by hydraulic pressure to *160 lb* No. of Certificate *191*
 Fire grate area *11 feet* Description of safety valves *Direct S.Z.* No. of safety valves *one* area of each *7"*
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler $4\frac{1}{2}$ " length $10\frac{1}{2}$ " description of riveting *Lap double riveted*
 thickness of shell plates $\frac{7}{16}$ " diameter of rivet holes $\frac{3}{4}$ " whether punched or drilled *punched*
 pitch of rivets $2\frac{1}{2}$ " lap of plating $4\frac{1}{2} \times 2\frac{1}{2}$ " per centage of strength of joint *70 & 82 %*
 thickness of crown plates $\frac{5}{8}$ " stayed by *5 Russel stays from sides of boiler*
 Diameter of furnace, top $3\frac{1}{4}$ " bottom $3\frac{1}{4}$ " length of furnace $5\frac{1}{2}$ "
 thickness of plates $\frac{7}{16}$ " description of joint *Lap single riveted*
 thickness of furnace crown plates $\frac{7}{16}$ " stayed by *disks*
 Working pressure of shell by rules *86 lb* working pressure of furnace by rules *81 lb*
 diameter of uptake $1\frac{3}{4}$ " thickness of plates $\frac{3}{8}$ " thickness of water tubes $\frac{5}{16}$ "

The foregoing is a correct description,

Pearce Brothers Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *The Machinery of this*
has been built in accordance with the requirements
of the Rules and to plans of boilers submitted for the
for the Committee's approval dated 12/1/82 the water
and workmanship are of the best description. the
safety valves have been tested by steam and
to a working pressure of 80 lb per square inch. and
the machinery seen at work and all found satisfactory
and in my opinion are in good and safe working
order and eligible to be entered with the distinctive
mark of Lloyd's M.C. in red

It is submitted that this
is eligible to have
the certificate of L.M.C.
recorded on 2/10/82

The amount of Entry Fee .. £ 2 : 0 : 0 received by me,
 Special *W.C.* .. £ 13 : 10 : 0
 Certificate (if required) .. £ : 2 : 6 15.9 1882
 To be sent as per margin.
 Expenses, if any, £

(Travelling
 Committee's Minute
 Comm.

Tuesday, 31 October, 1882.

John Sturrock
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping
Dundee & District