

Rpt. 4.

REPORT ON MACHINERY.

No. 2913.

Date of writing Report July 8th 1920 When handed in at Local Office

Received at London Office

FRI. AUG. 20 1920

Port of Kobe

No. in Survey held at Osaka + Imoshima

Date, First Survey 12th Dec. 1919Last Survey 24th May 1920

1920

Reg. Book. on the Steel Single Screw Steamer "HAYRE MARU"

(Number of Visits 37)

Gross 5821.20

Net 3588.12

Master S. Saito

Built at Imoshima

By whom built The Osaka Iron Works

When built 1920

Engines made at Osaka

By whom made

Osaka Iron Works, Ltd.

Imoshima branch

Boilers made at do

By whom made

do

when made 1920

Registered Horse Power

Owners The Osaka Shosen Kaisha, Ltd.

Port belonging to Osaka

Nom. Horse Power as per Section 28 559.3

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted yes

ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders Three

No. of Cranks 3

Dia. of Cylinders 26½": 44½": 74½"

Length of Stroke 51"

Revs. per minute 79.5

Dia. of Screw shaft

as per rule 15.41"

Material of Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes

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 capped or protected between the liners

Length of stern bush 5'-6½"

Dia. of Tunnel shaft as per rule 14.02"

as fitted 14½"

Dia. of Crank shaft journals as per rule 14.72"

as fitted 14½"

Dia. of Crank pin 14½"

Size of Crank webs 9½"x21½"

Dia. of thrust shaft under

collars 14½"

Dia. of screw 18'-3"

Pitch of Screw 18'-3"

No. of Blades 4

State whether moveable yes

Total surface 1000'

No. of Feed pumps 2

Diameter of ditto 4"

Stroke 27"

Can one be overhauled while the other is at work yes

No. of Bilge pumps 2

Diameter of ditto 4½"

Stroke 27"

Can one be overhauled while the other is at work yes

No. of Donkey Engines Three

Sizes of Pumps

Weir Feed - 8"x10½"x21" dupl.

Ballast - 9½"x12"x10"

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two @ 3½"

In Deep tank two @ 3½"

No. of Bilge Injections 1

sizes 9"

Connected to condenser, or to circulating pump

Circ. pp.

Is a separate Donkey Suction fitted in Engine room & size yes 3½"

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 yes

Are all connections with the sea direct on the skin of the ship yes

Are they Valves or Cocks

Larger valves. Smaller cocks.

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 Telemotor pipe & Voice tube

How are they protected

Covered with wood & iron bands

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

Is the Screw Shaft Tunnel watertight yes

Is it fitted with a watertight door yes

worked from Engine Room Grating

BOILERS, &c.—(Letter for record S.)

Manufacturers of Steel Michale St. Ordnance Co. Cambria St. Co. Am. Spiral Pipe Wks.

Total Heating Surface of Boilers 7988.40

Is Forced Draft fitted yes

No. and Description of Boilers Three Single Ended

Working Pressure 200 lbs.

Tested by hydraulic pressure to 400 lbs.

Date of test 17+20/3/20

No. of Certificate

17-20/3-20

Can each boiler be worked separately yes

Area of fire grate in each boiler 61.10

No. and Description of Safety Valves to

each boiler Two Spring Loaded

Area of each valve 7.0680

Pressure to which they are adjusted 205 lbs.

Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork about 2'-2"

Mean dia. of boilers 15'-0"

Length 12'-0"

Material of shell plates Steel

Thickness 1½"

Range of tensile strength 28-32 tons

Are the shell plates welded or flanged no

Descrip. of riveting: cir. seams Double riveted

long. seams

Double riveted

Double straps

Diameter of rivet holes in long. seams 1½"

Pitch of rivets 9½", 4½"

Lap of plates or width of butt straps 1'-10"x1½"(max)

Per centages of strength of longitudinal joint

rivets 88.7

plate 84.8

Working pressure of shell by rules 228 lbs.

Size of manhole in shell 12"x16"

Size of compensating ring 34"x38"x1½"

No. and Description of Furnaces in each boiler 3 Morrison's

Material Steel

Outside diameter 48¾"

Length of plain part

Thickenss of plates 21/32"

Description of longitudinal joint Weld

No. of strengthening rings

Working pressure of furnace by the rules 219 lbs.

Combustion chamber plates: Material Steel

Thickness: Sides 1/16"

Back 1/16"

Top 1/16"

Bottom 1/16"

Pitch of stays to ditto: Sides 8½"x8½"

Back 8½"x9"

Top 8"x9"

If stays are fitted with nuts or riveted heads nuts

Working pressure by rules 213 lbs.

Material of stays Steel

Area at smallest part 2.10"

Area supported by each stay 76.50"

Working pressure by rules 247 lbs.

End plates in steam space:

Material Steel

Thickness 1/32"

Pitch of stays 18"x20"

How are stays secured Double nuts + washers

Working pressure by rules 214 lbs.

Material of stays Steel

Area at smallest part 7.660"

Area supported by each stay 18"x20"

Working pressure by rules 221 lbs.

Material of Front plates at bottom Steel

Thickness ¾"

Material of Lower back plate Steel

Thickness ¾"

Greatest pitch of stays 14½"

Sec. stay

Working pressure of plate by rules 200 lbs.

Diameter of tubes 3"

Pitch of tubes 48"x44"

Material of tube plates Steel

Thickness: Front ¾"

Back ¾"

Mean pitch of stays 8¾"

Pitch across wide water spaces 13¾" (double)

Working pressures by rules 200 lbs.

Girders to Chamber tops: Material Steel

Depth and

thickness of girder at center 10½"x2"

Length as per rule 34½"

Distance apart 9"

Number and pitch of stays in each 3 @ 8"

Working pressure by rules 249 lbs.

Steam dome: description of joint to shell

%

of strength of joint

Diameter

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet holes

Pitch of rivets

Working pressure of shell by rules

Crown plates

Thickness

How stayed

SUPERHEATER. Type

Date of Approval of Plan

Tested by Hydraulic Pressure to

Date of Test

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Diameter of Safety Valve

Pressure to which each is adjusted

Is Easing Gear fitted

IS A DONKEY BOILER FITTED?

No

If so, is a report now forwarded?

✓

SPARE GEAR. State the articles supplied.

1 propeller shaft with nut.
2 Connecting rod top end bolts + nuts.
2 Connecting rod bottom bolts + nuts.
1 Set Coupling bolts.
1 Set of feed + bilge pump valves.
1 Set piston packing rings + springs.
a quantity of assorted bolts + nuts.
2 propeller blades.
1 Set Crank pin brasses.
1 Set crosshead brasses.
1 M.F. Valve spindle.
a quantity of spare gear for auxiliary engines.
Iron of various sizes.

The foregoing is a correct description,

OSAKA IRON WORKS, LTD.,

R. Terashima

Manufacturer.

Dates of Survey while building
During progress of work in shops - 1919 Dec. 13, 18, 22; 1920 Jan. 13, 17, 22, 26, 29, 30; Feb. 3, 7, 9, 12, 17, 20; Mar. 3, 7, 20; Apr. 12, 13, 15;
During erection on board vessel - Apr. 21, 23, 30; May 4, 5, 8, 13, 19, 24.
Total No. of visits 37.

Is the approved plan of main boiler forwarded herewith

yes

" " " donkey " " " " ✓

Dates of Examination of principal parts—Cylinders 15-4-20 Slides 15-4-20 Covers 15-4-20 Pistons 17-2-20 Rods 3-2-20 etc.
Connecting rods 18-3-20 Crank shaft 12-2-20 Thrust shaft 4-2-20 Tunnel shafts 22-1-20 Screw shaft 4-2-20 Propeller 21-4-20
Stern tube 16-4-20 Steam pipes tested 4-5-20 Engine and boiler seatings 1-5-20 Engines holding down bolts 8-5-20
Completion of pumping arrangements 23-5-20 Boilers fixed 3-5-20 Engines tried under steam 15-5-20
Completion of fitting sea connections 23-5-20 Stern tube 18-4-20 Screw shaft and propeller 20-4-20
Main boiler safety valves adjusted 13-5-20 Thickness of adjusting washers Lock nuts.

Material of Crank shaft Steel Identification Mark on Do. Lloyd's 1471 1472 1473 1474 1475 1476 1477 1478 1479 1480 1481 1482 1483 1484 1485 1486 1487 1488 1489 1490 1491 1492 1493 1494 1495 1496 1497 1498 1499 1500 1501 1502 1503 1504 1505 1506 1507 1508 1509 1510 1511 1512 1513 1514 1515 1516 1517 1518 1519 1520 1521 1522 1523 1524 1525 1526 1527 1528 1529 1530 1531 1532 1533 1534 1535 1536 1537 1538 1539 1540 1541 1542 1543 1544 1545 1546 1547 1548 1549 1550 1551 1552 1553 1554 1555 1556 1557 1558 1559 1560 1561 1562 1563 1564 1565 1566 1567 1568 1569 1570 1571 1572 1573 1574 1575 1576 1577 1578 1579 1580 1581 1582 1583 1584 1585 1586 1587 1588 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 1600 1601 1602 1603 1604 1605 1606 1607 1608 1609 1610 1611 1612 1613 1614 1615 1616 1617 1618 1619 1620 1621 1622 1623 1624 1625 1626 1627 1628 1629 1630 1631 1632 1633 1634 1635 1636 1637 1638 1639 1640 1641 1642 1643 1644 1645 1646 1647 1648 1649 1650 1651 1652 1653 1654 1655 1656 1657 1658 1659 1660 1661 1662 1663 1664 1665 1666 1667 1668 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