

No. 1778

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 1638 No. in Register Book 2897

S.S. "Uki"

Makers of Engines David Rowan & Co. Ltd

Works No. 440

Makers of Main Boilers (Same.)

Works No. 440



Makers of Donkey Boiler

Works No.

MACHINERY



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010502-010508-0020

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. *1638* No. in Register Book *2897*

Received at Head Office *June 1923*

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the *Single Triple* Screw Steamer

" *Uki* "

Official No.

Port of Registry *Sydney.*

Registered Owners

North Coast Steam Navigation
Co. Ltd., Sydney.

Engines Built by

David Rowan & Co., Ltd.

at

Elliot St. Glasgow.

Main Boilers Built by

(Same)

at

Donkey " "

at

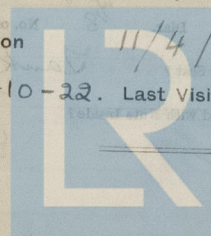
Date of Completion

11/4/23

First Visit *18-10-22.* Last Visit

11/4/23

Total Visits *40*



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RECIPROCATING ENGINES.

Work No. 440 No. of Sets 2 Description Triple expansion,
Surface condensing, twin screw.

No. of Cylinders each Engine 3 No. of Cranks 3 @ 120°
Diams. of Cylinders 10½", 16" and 26" Stroke 16"
Cubic feet in each L.P. Cylinder 4.92
Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cyl.? { Top and Bottom H.P.
Bottom M.P. and L.P.
" " " each Receiver? Top M.P. and L.P.

Type of H.P. Valves,

Piston

" M.P.
" L.P.

D-slide

" L.P.

" Valve Gear

Stephenson's link.

" Condenser

Surface.

Cooling Surface 300 sq. ft. each

Diameter of Piston Rods (plain part)

2¾"

Screwed part (bottom of thread)

1.84"

Material

I.S.

Diam. of Connecting Rods (smallest part)

2¾"

Material

I.S.

" Crosshead Guidebars

3½"

Length of Bearing

4½"

Material

Steel.

No. of Crosshead Bolts (each)

2

Diam. over Thread

1⅞"

Threads per inch

5

Material

Steel.

" Crank Pin

2

Diam. over Thread

1⅞"

Threads per inch

5

Material

Steel.

" Main Bearings

6

Lengths

6"

" Bolts in each

2

Diam. over Thread

1½"

Threads per inch

6

Material

Steel.

" Hoisting Power Rods, each Engine

38

Diam.

⅞"

No. of Metal Chocks

38

Are the Engines bolted to the Tank Top or to a Built Seat?

Tank top.

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside?

If not, how are they fitted?

Connecting Rods, Forged by

D. Rowan & Co. Ltd.

Piston

Crossheads,

Connecting Rods, Finished by

Piston

Crossheads,

Date of Harbour Trial

4/4/23

" Trial Trip

11/4/23

Trials run at

Firth of Clyde.

Were the Engines tested to full power under Sea-going conditions?

Yes.

If so, what was the I.H.P.?

491 (total.)

Revs. per min.

141

Pressure in L.P. Receiver, 180 lbs., and M.P., 52½ lbs., L.P., 8¾ lbs., Vacuum, 25¼ ins.

Speed on Trial

9½ knots.

If the Conditions on Trial were such that full power records were not obtained give the following estimated

data:—

Builders' estimated I.H.P.

500 (total)

Revs. per min.

162

Estimated Speed

H.P. cylinders tested

@ 270 lbs/□" hyd.

& stamped 4218

UW
H

Port.

23/1/23

Port.

12/1/23

Starb'd

25/1/23

Condensers ditto

@ 15 lbs/□" hyd.

Starb'd

UW
H

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SHAFTING.

Are the Crank Shafts Built or Solid?

Built

No. of Lengths in each

One

Angle of Cranks

120°

Diar. by Rule

4.99"

Actual

5"

In Way of Webs

5 1/4"

of Crank Pins

5"

Length between Webs

6"

Greatest Width of Crank Webs

9 3/4"

Thickness

3 1/4"

Least

"

"

"

"

Size

Diar. of Keys in Crank Webs

1" x 5/8"

Length

3 1/4"

Dowels in Crank Pins

3/4"

Length

1 3/4"

Screwed or Plain

Plain

No. of Bolts each Coupling

4

Diar. at Mid Length

1 1/2"

Diar. of Pitch Circle

8 1/4"

Greatest Distance from Edge of Main Bearing to Crank Web

1/4"

Type of Thrust Blocks

None - shoe

No.

"

Rings

3

Diar. of Thrust Shafts at bottom of Collars

5 1/4"

No. of Collars

3

"

"

Forward Coupling

5"

At Aft Coupling

5"

Diar. of Intermediate Shafting by Rule

(none)

Actual

No. of Lengths

No. of Bolts, each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

Diar. of Propeller Shafts by Rule

5.45"

Actual

5 5/8"

At Couplings

5"

Are Propeller Shafts fitted with Continuous Brass Liners?

NON - Continuous.

Diar. over Liners

6 1/2" forl. 6 5/8" aft.

Length of After Bearings

10" forl.; 1'-10" aft.

Of what Material are the After Bearings composed?

Lignum Vitae strips.

Are Means provided for lubricating the After Bearings with Oil?

No.

"

"

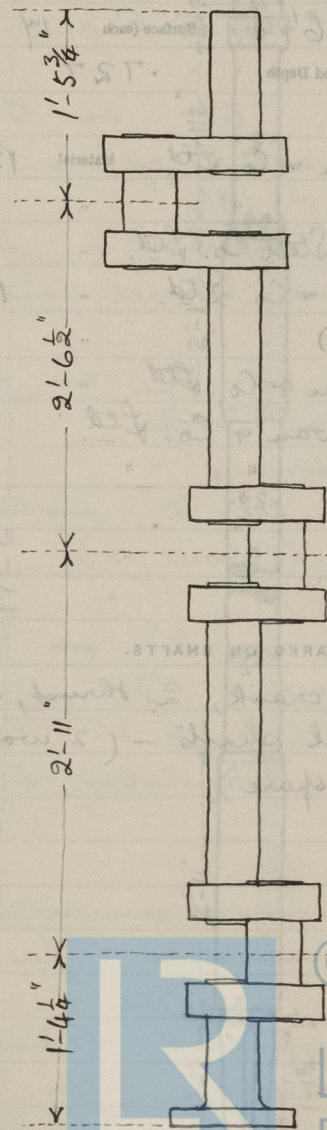
to prevent Sea Water entering the Stern Tubes?

No.

If so, what Type is adopted?

✓

SKETCH OF CRANK SHAFT.



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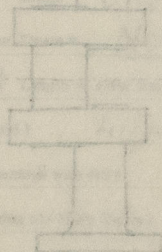
No. of Blades each Propeller 4 Fitted or Solid? Solid
 Material of Blades Cash iron Boss ditto.
 Diam. of Propellers 6'-6" Pitch 6'-9" Surface (each) 14 S. ft.
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth .727

Crank Shafts Forged by D. Rowan & Co. Ltd. Material Bloom
 " Pins " " " " " "
 " Webs " Leamingshire Steel Co. Ltd. " I.S.
 Thrust Shafts " D. Rowan & Co. Ltd. " Bloom.
 Intermed. " (none.) " "
 Propeller " D. Rowan & Co. Ltd. " "
 Crank " Finished by D. Rowan & Co. Ltd.
 Thrust " " " " "
 Intermed. " (none) " "
 Propeller " " " " "

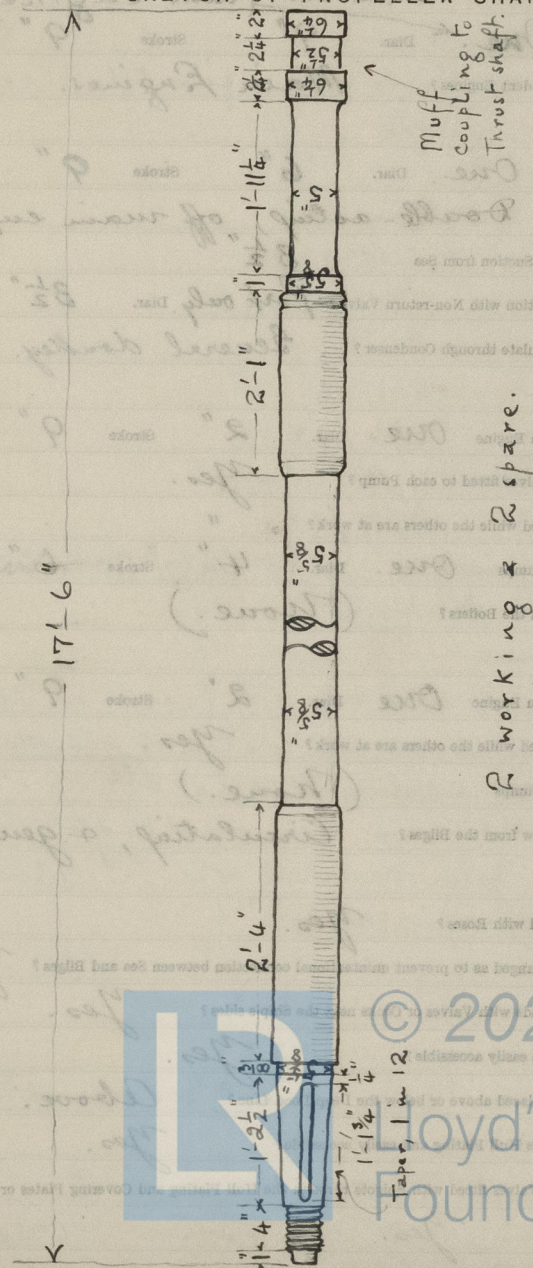
STAMP MARKS ON SHAFTS.

B.C.
 No. 6086
 JWH. JWH
 5/2/23

2 crank, 2 thrust, & 4
 tail shafts - (2 working &
 2 spare.)



SKETCH OF PROPELLER SHAFT.



PUMPS, ETC.

Quantities

(each engine.)

No. of Air Pumps

One

Diar.

9"

Stroke

9"

Worked by Main or Independent Engines?

Main Engines.

No. of Circulating Pumps

One

Diar.

6"

Stroke

9"

Type of

"

Double-acting, off main engines.

Diar. of

"

Suction from Sea

3½"

Has each Pump a Bilge Suction with Non-return Valve?

Port only

Diar.

3½"

What other Pumps can circulate through Condenser?

General donkey.

No. of Feed Pumps on Main Engine

One

Diar.

2"

Stroke

9"

Are Spring-loaded Relief Valves fitted to each Pump?

Yes.

Can one Pump be overhauled while the others are at work?

"

No. of Independent Feed Pumps

One

Diar.

4"

Stroke

6"

What other Pumps can feed the Boilers?

(None.)

No. of Bilge Pumps on Main Engine

One

Diar.

2'

Stroke

9"

Can one Pump be overhauled while the others are at work?

Yes.

No. of Independent Bilge Pumps

(None.)

What other Pumps can draw from the Bilges?

Circulating, & general

donkey.

Are all Bilge Suctions fitted with Roses?

Yes.

Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilges?

Yes.

Are all Sea Connections made with Valves or Cocks next the Ship's sides?

Yes.

Are they placed so as to be easily accessible?

Yes.

Are the Discharge Chests placed above or below the Deep Load Line?

Above.

Are they fitted direct to the Hull Plating and easily accessible?

Yes.

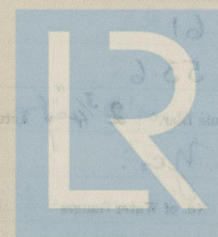
Are all Blow-off Cocks or Valves fitted with Spigots through the Hull Plating and Covering Plates or Flanges

on the Outside?

Yes.

BOILERS.

(Notes) 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



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BOILERS.

Works No. *440*

No. of Boilers *1* Type *Single marine fire tube, (Scotch.)*

Single or Double-ended *Single*

No. of Furnaces in each *3*

Type of Furnaces *Marison*

Date when Plan approved *10-10-22.*

Approved Working Pressure *180 lb/□"*

Hydraulic Test Pressure *320 "*

Date of Hydraulic Test *18/1/23.*

" when Safety Valves set *6/4/23*

Pressure at which Valves were set *185 lb/□"*

Date of Accumulation Test *6/4/23.*

Maximum Pressure under Accumulation Test *185 lb/□" (closed at*

System of Draught *Natural*

Can Boilers be worked separately? ☒

Makers of Plates *Gas. Dunlop & Co. Ltd. (except one shell & one front bottom end plate, made by Steel Co. of Scotland Ltd.)*

" Stay Bars *Lanarkshire Steel Co. Ltd.*

" Rivets *N. W. Rivet, Bolt & Nut Factory Ltd.*

" Furnaces *John Marshall & Co. Ltd. (Colville & Sons)*

Greatest Internal Diam. of Boilers *14'-0 3/4"*

" " Length " *10'-5 1/4"*

Square Feet of Heating Surface each Boiler *1861*

" " Grate " " *53.6*

No. of Safety Valves each Boiler *1 pair* Rule Diam. *2 3/4"* Actual *2 3/4"*

Are the Safety Valves fitted with Easing Gear? *Yes.*

No. of Pressure Gauges, each Boiler *One* No. of Water Gauges *2*

" Test Cocks " *2* " " Salinometer Cocks *One.*

148 lb/□"

A. Cockburn & Co., Glasgow.

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Are the Water Gauges fitted direct to the Boiler Shells or mounted on Pillars? *Pillars.*

Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes? *Direct.*

Are these Pipes connected to Boilers by Cocks or Valves? *✓*

Are Blow-off Cocks or Valves fitted on Boiler Shells? *Yes, valves.*

No. of Strakes of Shell Plating in each Boiler *One.*

" Plates in each Strake *2*

Thickness of Shell Plates Approved *~~1 1/8~~ 1 5/32"*

" " in Boilers *" (f.)*

Are the Rivets Iron or Steel? *Steel. (S.M.)*

Are the Longitudinal Seams Butt or Lap Joints? *Butt.*

Are the Butt Straps Single or Double? *Double.*

Are the Double Butt Straps of equal width? *Yes.*

Thickness of outside Butt Straps *4/8"*

" inside " *1"*

Are Longitudinal Seams Hand or Machine Riveted? *Machine.*

Are they Single, Double, or Treble Riveted? *Treble.*

No. of Rivets in a Pitch *5*

Diam. of Rivet Holes *1 1/4"* Pitch *8 7/8"*

No. of Rows of Rivets in Centre Circumferential Seams *✓*

Are these Seams Hand or Machine Riveted? *✓*

Diam. of Rivet Holes *✓* Pitch *✓*

No. of Rows of Rivets in Front End Circumferential Seams *2*

Are these Seams Hand or Machine riveted? *Hand.*

Diam. of Rivet Holes *1 3/16"* Pitch *3.25"*

No. of Rows of Rivets in Back End Circumferential Seams *2*

Are these Seams Hand or Machine Riveted? *Machine.*

Diam. of Rivet Holes *1 3/16"* Pitch *3.25"*

Size of Manhole in Shell *bottom (front) both 15" x 11" 14" x 13"*

Dimensions of Compensating Rings *2'-11" x 2'-4" x 1 5/32" (oval)*

Thickness of End Plates in Steam Space Approved *1 1/8"*

" " in Boilers *"*

Pitch of Steam Space Straps *18" x 18"*

Diam. of Straps Approved *1 1/8"*

" " in Boilers *"*

Material of " *Steel M.?*

How are Straps Secured? *inside outside*

Draw and Thickness of Loose Washers on End Plates *✓*

" Riveted " *✓*

" Double Straps " *✓*

Thickness of Middle Back End Plates Approved *1 1/8"*

" " in Boilers *"*

Thickness of Doublings in Wide Spaces between Flanges *✓*

Pitch of Straps at *18" x 18"*

Diam. of Straps Approved *1 1/8"*

" " in Boilers *"*

Material of " *Steel M.?*

Are Straps fitted with nuts outside? *✓*

Thickness of Back End Plates at Bottom Approved *1 1/8"*

" " in Boilers *"*

Pitch of Straps at Wide Spaces between Flanges *✓*

Thickness of Doublings at *✓*

← (Sketch see)

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LR

Maheil's door

Thickness of End Plates in Steam Space Approved

~~153~~ $1\frac{5}{32}$ "

" " " " in Boilers

"

Pitch of Steam Space Stays

 $2\frac{3}{4}$ " $19" \times 18"$ Diar. " " " " Approved ~~266~~ Threads per Inch

6

" " " " in Boilers

"

"

Material of " " "

S. M. Steel.

How are Stays Secured?

Nuts inside & outside.

Diar. and Thickness of Loose Washers on End Plates

✓

" " Riveted " " "

✓

Width " " Doubling Strips

✓

Thickness of Middle Back End Plates Approved

~~438~~ $\frac{3}{4}$ "

" " " " in Boilers

"

Thickness of Doublings in Wide Spaces between Fireboxes

✓

Pitch of Stays at

 $13\frac{1}{8}" \times 8\frac{1}{2}"$ Diar. of Stays Approved ~~134~~ Threads per Inch

10

" " in Boilers

"

"

Material "

S. M. Steel.

Are Stays fitted with Nuts outside?

Yes.

Thickness of Back End Plates at Bottom Approved

 $\frac{3}{4}$ "

" " " " in Boilers

"

Pitch of Stays at Wide Spaces between Fireboxes

✓

(see sketch) →

Thickness of Doublings in " "

✓

Thickness of Front End Plates at Bottom Approved

 $2\frac{1}{2}$ "

" " " " in Boilers

 $\frac{3}{8}$ "

No. of Longitudinal Stays in Spaces between Furnaces

3

(see sketch) →

Diar. of Stays Approved $2\frac{1}{2}" \times 2"$ Threads per Inch

" " " " in Boilers

Material "

Thickness of Front End Plates Approved

" " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in

Stay Tubes at

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back End Plates Approved

" " " " in Boilers

Pitch of Stay Tubes in Back End Plates

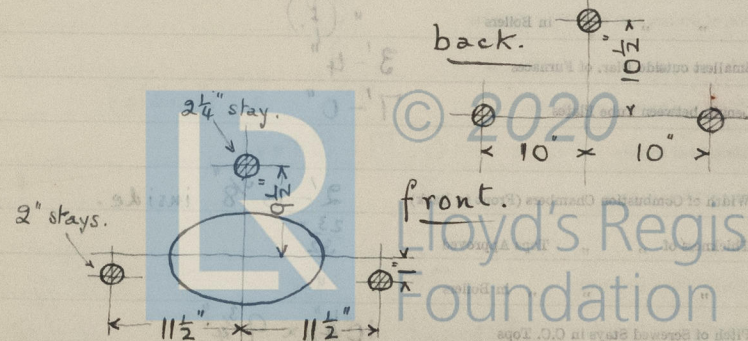
" " " "

Thickness of Stay Tubes

Plain "

Nominal Diar. of Tubes

Material



Diar. of Stays Approved $2\frac{1}{4}" \times 2"$ Threads per Inch 6

" " in Boilers "

Material " S. M. Steel.

Thickness of Front Tube Plates Approved

$\frac{27}{32}"$
 $\frac{7}{8}"$

" " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

$13\frac{1}{8}" \times 8\frac{3}{4}"$

Thickness of Doublings in " " "

$\frac{5}{16}"$

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End?

Yes.

Thickness of Back Tube Plates Approved

$\frac{23}{32}"$

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

$11\frac{1}{4}" \times 8\frac{3}{4}"$
 $4\frac{1}{2}" \times 4\frac{3}{8}"$

" Plain "

Thickness of Stay Tubes

$\frac{1}{4}"$ in nests, $\frac{5}{16}"$ marginal, $\frac{3}{8}"$

" Plain "

9 w.g.

External Diar. of Tubes

$3\frac{1}{4}"$

Material "

Lapwelded Iron.

Thickness of Furnace Plates Approved

$\frac{1}{2}"$

" " " in Boilers

" (f.)

Smallest outside Diar. of Furnaces

$3'-4"$

Length between Tube Plates

$7'-0"$

Width of Combustion Chambers (Front to Back)

$2'-6\frac{5}{8}"$ inside.

Thickness of " " Tops Approved

$\frac{23}{32}"$

" " " in Boilers

Pitch of Screwed Stays in C.O. Tops

$10\frac{1}{4}" \times 9\frac{3}{4}"$

01

Threads per Inch

$\frac{1}{4}"$

Diar. of Screwed Stays Approved

" " " in Boilers

S. M. Steel

$\frac{23}{32}"$

$\frac{7}{8}"$

Thickness of Combustion Chamber Ends Approved

" " " in Boilers

$10\frac{1}{4}" \times 9\frac{3}{4}"$

01

Threads per Inch

$\frac{1}{4}"$

Diar. of Screwed Stays in C.O. Tops

" " " in Boilers

S. M. Steel

$\frac{23}{32}"$

$\frac{7}{8}"$

Thickness of Combustion Chamber Ends Approved

" " " in Boilers

$10\frac{1}{4}" \times 9\frac{3}{4}"$

01

Threads per Inch

$\frac{1}{4}"$

Diar. of Screwed Stays in C.O. Tops

" " " in Boilers

S. M. Steel

top corner.

$\frac{23}{32}"$
 $\frac{7}{8}"$

Are all Screwed Stays fitted with Nuts inside C.O.?

Thickness of Combustion Chamber Bottoms

No. of Rivets over each Wing Chamber

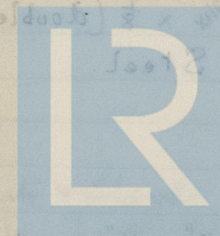
" " " " " " "

Depth and Thickness of Rivets

Material of Rivets

No. of Stays in each

Size of Lower Flange



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Diar. of Screwed Stays Approved $1\frac{3}{4}$ " Threads per Inch 10

" " " in Boilers "

Material " " S. M. Steel.

Thickness of Combustion Chamber Sides Approved $\frac{23}{32}$ "

" " " in Boilers "

Pitch of Screwed Stays in C.O. Sides $10\frac{1}{4}" \times 9\frac{3}{4}"$

Diar. " " Approved $1\frac{3}{4}$ " Threads per Inch 10

" " " in Boilers "

Material " " S. M. Steel.

Thickness of Combustion Chamber Backs Approved $\frac{21}{32}$ "

" " " in Boilers "

Pitch of Screwed Stays in C.O. Backs $9\frac{1}{4}" \times 8\frac{1}{2}"$

Diar. " " Approved $1\frac{5}{8}$ " Threads per Inch 10

" " " in Boilers "

Material " " S. M. Steel.

Are all Screwed Stays fitted with Nuts inside C.O.?

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber 3

" " " Centre " 2

Depth and Thickness of Girders $7\frac{3}{4}" \times \frac{7}{8}"$ (double).

Material of Girders S. M. Steel.

No. of Stays in each 2

No. of Tubes, each Boiler 253.

Size of Lower Manholes (2) front $15" \times 11"$

VERTICAL DONKEY BOILERS

No. of Boilers	Type
Grate Surface	Height
Height of Boiler Crown above Fire Grate	
Are Boiler Crown Flat or Dished?	
Internal Radius of Dished Boilers	Thickness of Plates
Description of Beams in Boiler Crown	Width of Overlap
Diar. of River Holes	Height of River Holes
Height of Firebox Crown above Fire Grate	Are Firebox Crown Flat or Dished?
Internal Radius of Dished Crown	Thickness of Plates
No. of Crown Stays	Material
External Diar. of Firebox at Top	Bottom
No. of Water Tubes	Thickness
Material of Water Tubes	
Size of Manhole in Shell	
Dimensions of Compensation Ring	
Heating Surface, each Boiler	Grate Surface

SUPERHEATERS

Description of Superheaters

When situated?

Which Boilers are connected to Superheaters?
Can Superheaters be shut off when Boilers are working?

No. of Safety Valves on each Superheater

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Stewart & Lloyd's Ltd
Chas. Mackie, Ltd. (doors.)

VERTICAL DONKEY BOILERS.

No. of Boilers	Type	
Greatest Int. Diar.	Height	
Height of Boiler Crown above Fire Grate		
Are Boiler Crowns Flat or Dished?		
Internal Radius of Dished Ends	Thickness of Plates	
Description of Seams in Boiler Crowns		
Diar. of Rivet Holes	Pitch	Width of Overlap
Height of Firebox Crowns above Fire Grate		
Are Firebox Crowns Flat or Dished?		
External Radius of Dished Crowns	Thickness of Plates	
No. of Crown Stays	Diar.	Material
External Diar. of Firebox at Top	Bottom	Thickness of Plates
No. of Water Tubes	Ext. Diar.	Thickness
Material of Water Tubes		
Size of Manhole in Shell		
Dimensions of Compensating Ring		
Heating Surface, each Boiler	Grate Surface	

SUPERHEATERS.

Description of Superheaters	
Where situated?	
Which Boilers are connected to Superheaters?	
Can Superheaters be shut off while Boilers are working?	
No. of Safety Valves on each Superheater	Diar.
Are " " fitted with Easing Gear?	
Date of Hydraulic Test	Test Pressure
Date when Safety Valves set	Pressure on Valves

MAIN STEAM PIPES

No. of Pipes	2	No. of Lengths	
Material	Steel		
Seams, Welded or Riveted	Welded		
Internal Diar.	3"		
Thickness	1/4"		
How are Flanges secured?	bolts & nuts		
Date of Hydraulic Test	11/11/28		
Test Pressure	240 lb/sq in		
	(23)		
No. of Lengths			
Material			
Seams, Welded or Riveted			
Internal Diar.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			
No. of Lengths			
Material			
Seams, Welded or Riveted			
Internal Diar.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			



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MAIN STEAM PIPES.

No. of Lengths	2			
Material	Steel			
Brazed, Welded or Seamless	Welded			
Internal Diam.	3"			
Thickness	$\frac{1}{4}$ "			
How are Flanges secured?	sc'd & exp'd			
Date of Hydraulic Test	4/4/23			
Test Pressure	540 lb./sq. (CSM)			
No. of Lengths				
Material				
Brazed, Welded or Seamless				
Internal Diam.				
Thickness				
How are Flanges secured?				
Date of Hydraulic Test				
Test Pressure				
No. of Lengths				
Material				
Brazed, Welded or Seamless				
Internal Diam.				
Thickness				
How are Flanges secured?				
Date of Hydraulic Test				
Test Pressure				

STEERING ENGINE
No. 1 Type 2 up horizontal steam
No. 2 Type 2 up horizontal steam
No. 3 Type 2 up horizontal steam
No. 4 Type 2 up horizontal steam
No. 5 Type 2 up horizontal steam
No. 6 Type 2 up horizontal steam
No. 7 Type 2 up horizontal steam
No. 8 Type 2 up horizontal steam
No. 9 Type 2 up horizontal steam
No. 10 Type 2 up horizontal steam
No. 11 Type 2 up horizontal steam
No. 12 Type 2 up horizontal steam
No. 13 Type 2 up horizontal steam
No. 14 Type 2 up horizontal steam
No. 15 Type 2 up horizontal steam
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No. 94 Type 2 up horizontal steam
No. 95 Type 2 up horizontal steam
No. 96 Type 2 up horizontal steam
No. 97 Type 2 up horizontal steam
No. 98 Type 2 up horizontal steam
No. 99 Type 2 up horizontal steam
No. 100 Type 2 up horizontal steam



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EVAPORATORS.

3352

No. 1 Type Vert. merchant service Tons per Day 4
 Makers Davie & Horne, Ltd. Johnstone.
 Working Pressure 25 lb/sq Test Pressure 50 lb/sq Date of Test 12/12/22.
 Date of Test of Safety Valves under Steam 11/4/23.

FEED WATER HEATERS.

No. One Type Direct contact
 Makers G. & J. Weir, Ltd.
 Working Pressure Test Pressure Date of Test

FEED WATER FILTERS.

No. One Type Pressure Size 1 1/2" inlet.
 Makers ~~R. Rowan & Co. Ltd.~~ Henry Watson & Son Ltd.
 Working Pressure 180 lb/sq Test Pressure Date of Test

STEERING ENGINE.

No. 1 Type, 2 cyl. horizontal steam. 2859 by
 J. Hastie & Co. Ltd. Greenock. (on bridge)

LIST OF DONKEY PUMPS.

General Service, 6 1/2" x 4" x 6", (Henry Watson & Son, Ltd.) draws from bilge main, indep. bilge, peaks, & sea. Discharges to deck, peaks, condensers, & o'board.

Sanitary, 4 1/2" and 3" x 4", (Watson) draws from sea; disch's to Sanitary tank (thro' refrig. condenser).

Indep. feed, 4" and 6" x 4", (Weir's) draws from heater, peaks, boiler, float tank, & f. water tank. Disch's to boilers (aux. feed check.)



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SPARE GEAR.

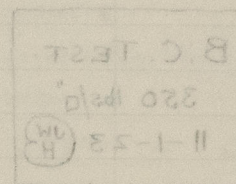
No. of Top End Bolts.	2	No. of Bot. End Bolts.	2	No. of Cylinder Cover Studs	6
" Coupling Bolts	4	" Main Bearing Bolts	2	" Valve Chest "	6
" Junk Ring Bolts	6	" Feed Pump Valves	2	" Bilge Pump Valves	2
" H.P. Piston Rings	2	" I.P. Piston Rings	3	" L.P. Piston Rings	3
" " Springs	✓	" " Springs	✓	" " Springs	✓
" Safety Valve "	1	" Fire Bars	1 set (for one furnace)	" Feed Check Valves	
" Piston Rods	✓	" Connecting Rods	✓	" Valve Spindles	✓
" Air Pump Rods	1 (steel)	" Air Pump Buckets	✓	" Air Pump Valves	✓
" Cir. "	✓	" Cir. "	✓	" Cir. "	✓
" Crank Shafts	✓	" Crank Pin Bushes	✓	" Crosshead Bushes	✓
" Propeller Shafts	2	" Propellers	2 (c.i.) (1 right, 1 left)	" Propeller Blades	✓
" Boiler Tubes	6 (Hain)	" Condenser Tubes	25	" Condenser Ferrules	50

OTHER ARTICLES OF SPARE GEAR:—

- 36 assorted bolts & nuts.
 3 round, 3 flat, iron bars, assorted.
 12 assorted studs & nuts,
 3 " iron plates.
 3 tube stoppers.
 2 3 valves, donkey feed pump.
 1 H.P. piston valve.

REFRIGERATORS.

No. of Machines	1	Capacity of each	1
Description	Single Cylinder vertical 3" x 6" Compressor		
No. of Steam Cylinders each Machine	1	No. of Compressors	1
Particulars of Points to compare with Refrigeration Plant and whether worked by Refrigerating Machine	No. of Cylinders 1		



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REFRIGERATORS. 594 Type D.s.

No. of Machines

Capacity of each

Makers

L. Sterue & Co. Ltd. Glasgow.

Description

Single cylinder vertical 5"x6" compressor, (E.4739) direct-coupled to single cyl. vertical steam engine by same makers.

No. of Steam Cylinders, each Machine

No. of Compressors

No. of Cranks

1 each.

Particulars of Pumps in connection with Refrigerating Plant and whether worked by Refrigerating Machines or Independently

Compressor marked

B.C. TEST

350 lbs/□"

11-1-23

JW
H

System of Refrigeration

Ammonia, direct expansion.

Insulation

Granulated cork.

Are ~~Drain and other~~ Regulating Valves placed so as to be accessible without entering the Insulated

Spaces?

Yes.

Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage?

(None.)

Are all Bilge, Sounding, and Air Pipes in Insulated Spaces properly insulated?

(None.)

Are Thermometer Tubes so arranged that Water cannot enter and freeze in them?

Yes.

Date of Test under Working Conditions

9th and 10th April, 1923.

Test commenced 2-30 p.m. Machine stopped 8-30 a.m. and rise of temperature taken at 10-30 a.m. Steam pressure 75 lbs/□" and revs. 180 per minute, throughout.

RESULTS OF TRIALS.

COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after 2 hours.
Butter chamber, of 2400 cub.ft.	50°F.	8°F.	18 hours.	3°F.

Additional spare gear; - 1 crank shaft for "Uluarra"; also 100 lbs spare liquid & 1 thermometer (for "Uki") and 1 ecc. strap for "Uluarra".

Articles of Spare Gear for Refrigerating Plant carried on board: - 1 crank shaft for enf.,

1 for compressor, 1 cover for compressor, 1 piston rod for enf., 1 piston for comp., 1 piston valve & spindle, 1 pr. main bearing bushes & studs, 1 set piston rod & 1 set conn. rod bolts & bushes, 1 ecc. strap & rod, 1 set comp. suction & del'y valves complete, 1 each size ammonia valve, 1 each kind press. gauge, Assorted lengths piping, screwed, with couplings, &c., assorted bolts, nuts, packing, jointing, rings, spanners, &c.

Direct-coupled to single cyl. steam eng.
by W. Sisson & Co. Ltd. Gloucester.

2203

ELECTRIC LIGHTING.

Installation Fitted by

Telford, Brier & Mackay, Ltd.

No. and Description of Dynamos

one 4 KW.

52548

Makers of Dynamos

(above)

Capacity

40 Amperes, at 100 Volts, 550/600 Revols. per Min.

Current Alternating or Continuous

Continuous.

Single or Double Wire System

Double.

Position of Dynamos

Starboard side eng-room platform.

Main Switch Board

" " " "

No. of Circuits to which Switches are provided on Main Switch Board

5

Particulars of these Circuits:—

Circuit.	Number of Lights.	Candle Power.	Current Required. Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
Aft	14	16	4	7/0.44	400 amps.	100%	600 Meg.
Midship	22	"	9	"	900 "	"	"
Navigation	8	various	4	"	400 "	"	"
For'd & Holds.	21	16	11	"	1100 "	"	"
Eng. & boilers.	12	"	6	"	600 "	"	"

Total No. of Lights

44

No. of Motors driving Fans &c.

(none)

No. of Heaters

(none.)

Current required for Motors and Heaters

Positions of Auxiliary Switch Boards, with No. of Switches on each

(none.)

Are Out-outs fitted as follows?—

On Main Switch Board, to Cables of Main Circuits

On Aux. " " each Auxiliary Circuit

Wherever a Cable is reduced in size

To each Lamp Circuit

To both Flow and Return Wires of all Circuits when the Double-Wire System is adopted

Are the Fuses of Standard Sizes?

Are all Switches and Out-outs constructed of Non-inflammable Material?

Are they placed so as to be always and easily accessible?

Smallest Single Wire used, No. 1.064 S.W.G., Largest, No. 1.064 S.W.G.

How are Conductors in Engine and Boiler Spaces protected?

" Saloons, State Rooms, &c., " ?

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp

(2) " " passing through Bunkers or Cargo Spaces

(3) " " Deck Beams or Bulkheads

W.T. packed glands.

Are all Joints in Cables properly soldered and thoroughly insulated so that the efficiency of the Cables is not impaired? (none.)

Are all Joints in accessible positions, none being made in Bunkers or Cargo Spaces? (none.)

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface?

Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously affected by them? Yes.

Have Tests been made to prove that this condition has been satisfactorily fulfilled? Yes.

Has the Insulation Resistance over the whole system been tested? Yes.

What does the Resistance amount to? ✓ Ohms.

Is the Installation supplied with a Voltmeter? Yes.

" " " an Ampere Meter? "

Date of Trial of complete Installation 11/4/23 Duration of Trial 6 hours.

Have all the requirements of Section 42 been satisfactorily carried out? Yes.



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GENERAL CONSTRUCTION.

Have the Machinery and Boilers been constructed in accordance with the requirements of the Rules and the

Approved Plans? *Yes.*

If not, give details of the points of difference, and state when these were sanctioned by the Chief

Surveyor. *Yes.*

Are the Engines, Motors, Main and Branch Cables, as placed in the Compartment, so placed as to be

protected by them? *Yes.*

Have Tests been made to prove that this condition has been satisfactorily fulfilled? *Yes.*

Has the Installation Resistance over the whole system been tested? *Yes.*

What does the Resistance amount to? *Yes.*

Is the Installation supplied with a Voltmeter? *Yes.*

Date of Trial of complete Installation *11/4/23*

Have all the requirements of Section 22 been satisfactorily carried out? *Yes.*

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and

trustworthy? *Yes.*

Is the Workmanship throughout thoroughly satisfactory? *Yes.*

The above correctly describes the Machinery of the S.S. *"UKI"*

as ascertained by *me* from personal examination

J. Wood Harrington.

Engineer Surveyor to the British Corporation for the

Survey and Registry of Shipping.

Fees—

MAIN BOILERS.

	£	s.	d.
H.S. 1861 Sq. ft.	11	8	"
G.S. 53.6 "	:	:	:

DONKEY BOILERS.

	£	s.	d.
H.S. ✓ Sq. ft.	:	:	:
G.S. ✓ "	:	:	:

ENGINES.

	£	s.	d.
L.P.C. 9.84 Cub. ft.	14	"	"
Testing, &c. ...	:	:	:
Expenses ...	:	:	:
Total ...	£	:	:

It is submitted that this Report be approved,

J. Wood Harrington
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *25th July 1923*

Fees advised

Fees paid



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Secretary.

Visits.

18-10-22.

6-11-22.

13-11-22

17-11-22

22-11-22

28-11-22. (W. Luke.)

29-11-22.

8-12-22 (W. Macfarlane, at Lloyd's Provins House.)

11-12-22.

19-12-22.

21-12-22 (Sterne & Co.)

26-12-22.

18-1-23

"

"

12-1-23

23-1-23

"

"

17-1-23

18-1-23

22-1-23

23-1-23

25-1-23.

29-1-23.

30-1-23

5-2-23

15-2-23.

20-2-23.

22-2-23.

5-3-23

8-3-23 (and ship)

14-3-23.

15-3-23 (relief)

16-3-23.

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