

REPORT ON BOILERS.

No. 8491.

Received at London Office - 3 SEP 1924

Date of writing Report 1st Sept 1924 When handed in at Local Office 2nd Sept 1924 Port of Dundee
 No. in Survey held at Dundee Date, First Survey 26th February 1924 Last Survey 24th June 1924
 Reg. Book. on the Main Boilers nos 459 & 460 for Lt. "RYDAL FORCE" (Number of Visits 25) Gross 1100.92 Tons
 Net 550.48
 Master Built at Dundee By whom built Caledon & B. Co. 11291 When built 1924
 Engines made at Glasgow (Coatbridge) By whom made W. Beardmore & Co. Ltd. when made 1924
 Boilers made at Dundee By whom made Cooper & Gray Ltd. when made 1924
 Registered Horse Power Owners W. S. Kenneough & Co. Port belonging to Whitehaven

MULTITUBULAR BOILERS—MAIN, AUXILIARY OR DONKEY.—Manufacturers of Steel W. Beardmore & Co. Ltd. 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

Letter for record S Total Heating Surface of Boilers 2760 Is forced draft fitted No No. and Description of Boilers Two single ended, multitubular Working Pressure 180 lbs Tested by hydraulic pressure to 320 lbs Date of test 24-6-24
 No. of Certificate 1005 Can each boiler be worked separately Yes Area of fire grate in each boiler 4.9 No. and Description of Safety valves to each boiler Two spring loaded Area of each valve 4.9 Pressure to which they are adjusted 185 lbs
 Are they fitted with easing gear Yes In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 12-6" Length 10-0"
 Material of shell plates S Thickness 1 1/32" Range of tensile strength 28-32 tons Are the shell plates welded or flanged No
 Descrip. of riveting: cir. seams L.D.R. long. seams T.R. DR Straps Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 1/2"
 Gap of plates or width of butt straps 16 3/4" Per centages of strength of longitudinal joint 95.0 Working pressure of shell by rules 180 lbs
 Size of manhole in shell 16" x 12" Size of compensating ring 32 1/2" x 28 1/2" x 1 1/32" No. and Description of Furnaces in each boiler 2 plain Material S Outside diameter 45 1/4" Length of plain part 69 Thickness of plates 25 1/32"
 Description of longitudinal joint weld No. of strengthening rings none Working pressure of furnace by the rules 182 Combustion chamber plates: Material S Thickness: Sides 2 1/32" Back 2 3/32" Top 2 1/32" Bottom 2 1/32" Pitch of stays to ditto: Sides 9 1/2" x 9" Back 9 3/5" x 8 1/25"
 Top 1 1/8" x 9" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 181 Material of stays S Diameter at smallest part 1.73 Area supported by each stay 82 1/25 Working pressure by rules 183 End plates in steam space: Material S Thickness 1 1/32"
 Pitch of stays 18 1/2" x 16 1/2" How are stays secured D.N.T.W Working pressure by rules 181 Material of stays S Diameter at smallest part 5 1/5
 Area supported by each stay 305 2/5 Working pressure by rules 180 Material of Front plates at bottom S Thickness 7/8" Material of lower back plate S Thickness 3/4" Greatest pitch of stays 13 1/2" x 8 1/4" Working pressure of plate by rules 193 Diameter of tubes 3 1/2"
 Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates S Thickness: Front 7/8" Back 3/4" Mean pitch of stays 10 1/2" Pitch across wide water spaces 14 1/4" + 1/2" doubling Working pressures by rules 193 Girders to Chamber tops: Material S Depth and thickness of girder at centre 8 x 1 1/2" Length as per rule 28 27/32" Distance apart 9" Number and pitch of Stays in each 2 @ 9 1/2"
 Working pressure by rules 181 Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked separately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes
 If stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes
 Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

The foregoing is a correct description,
 For COOPER & GRAY LIMITED. Manufacturer.

Dates of Survey: During progress of work in shops - FEB. 26, MAR. 4, 10, 19, 26, 24, APR. 2, 8, 15, 14, 21, 28 Is the approved plan of boiler forwarded herewith DIRECTOR
 while building: During erection on board vessel - MAY 5, 8, 11, 14, 16, 21, 29, JUN. 1, 6, 10, 16, 18, 24 Total No. of visits 25

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been built under special survey and in accordance with the Rules and approved plan, the materials and workmanship are sound & good. On completion it was tested by water pressure to 320 lbs per square inch & found tight & satisfactory in all respects.

Survey Fee ... £ 14 : 18 : When applied for. 2 - 9 - 1924
 Travelling Expenses (if any) £ : : When received. 10 - 1924
 Engineer's Surveyor to Lloyd's Register of British and Foreign Shipping.
W. S. Kenneough