

REPORT ON MACHINERY.

No. 10656

MON. MAY 13 1920

Received at London Office

Date of writing Report 17.4.20 When handed in at Local Office 27.4.20 Port of MIDDLEBORO
 No. in Survey held at Middleborough Date, First Survey Feb. 26. 1919 Last Survey 3 April 1920
 Reg. Book. S.S. Aster ex "War Succor" (Number of Visits 21)
 on the S.S. Aster ex "War Succor"
 Master A. Lunn Built at Middleborough By whom built When built
 Engines made at Newcastle By whom made Parsons Marine Steam Turbine Co when made 1920
Glasgow by Babcock & Wilcox & erected by do do (No. 405) do do at Middleborough made 1920
 Boilers made at Glasgow By whom made do do (No. 405) do do at Middleborough made 1920
 Registered Horse Power Edoarda Mayya Port belonging to Saona
 Shaft Horse Power at Full Power 2900 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

See Spec. Rept. No. 12581.
 TURBINE ENGINES, &c. Description of Engines Geared turbines No. of Turbines 2
 Diameter of Rotor Shaft Journals, H.P. 4 1/2" L.P. 4 1/2" Diameters of Pinion Shafts 1st gear 4 1/2" 2nd gear 9"
 Diameters of Journals 1st 4 1/2" 2nd 9" Distance between Centres of Bearings 1st 2' 3" 2nd 3' 10 1/2" Diameter of Pitch Circles 1st 6' 29" 2nd 13' 55"
 Diameters of Wheel Shafts 1st 9" 2nd 14 3/4" Distance between Centres of Bearings 1st 2' 2" 2nd 3' 9 1/2" Diameter of Pitch Circle of Wheels 1st 49' 6 1/2" 2nd 76' 59"
 Width of Face 1st 24 1/2" 2nd 15" Diameter of Thrust Shaft under Collars 14 3/4" Diameter of Tunnel Shaft as per rule 13' 76"
 No. of Screw Shafts none Diameter of same as per rule 15' 15" Diameter of Propeller 17' 9" Pitch of Propeller 16' 6"
 No. of Blades 4 State whether Moveable No Total Surface 100 sq Diameter of Rotor Body H.P. 22' 30" L.P. 22' 30" astern
 Thickness at Bottom of Groove, H.P. Solid L.P. Solid Astern Solid Revs. per Minute at Full Power, Turbine 3500 Propeller 18' 1/2" 18' 3/4" 20"

PARTICULARS OF BLADING.

	H. P. Impulse			L. P. Reaction			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	<u>1 x 1 1/16</u>	<u>29 1/4 x 29 9/16</u>	<u>2</u>	<u>2 1/8"</u>	<u>26 1/4"</u>	<u>2</u>	<u>Impulse 1 1/4 x 2 29 1/2 x 30 1/4</u>	<u>2</u>	
2ND	<u>3/4"</u>	<u>29"</u>	<u>1</u>	<u>2 5/8"</u>	<u>27 1/4"</u>	<u>2</u>	<u>L.P. astern</u>		
3RD	<u>1"</u>	<u>29 1/4"</u>	<u>1</u>	<u>3 1/4"</u>	<u>28 1/2"</u>	<u>2</u>	<u>Impulse 2 1/4"</u>	<u>30 1/8"</u>	<u>1</u>
4TH	<u>1 3/8"</u>	<u>29 5/8"</u>	<u>1</u>	<u>2 3/8"</u>	<u>34 3/4"</u>	<u>1</u>	<u>2nd do 4 1/8"</u>	<u>32"</u>	<u>1</u>
5TH	<u>1 7/8"</u>	<u>30 1/8"</u>	<u>1</u>	<u>2 7/8"</u>	<u>35 3/4"</u>	<u>1</u>	<u>1st Reaction 1 3/4"</u>	<u>23 1/2"</u>	<u>1</u>
6TH	<u>2 1/2"</u>	<u>31 3/4"</u>	<u>1</u>	<u>3 1/2"</u>	<u>37"</u>	<u>1</u>	<u>2nd do 2 1/2"</u>	<u>25"</u>	<u>1</u>
7TH				<u>4 1/4"</u>	<u>38 1/2"</u>	<u>3</u>	<u>3rd do 3 1/2"</u>	<u>27"</u>	<u>3</u>
8TH									

No. and size of Feed pumps 2 @ 11 1/2" x 8" x 24"No. and size of Bilge pumps 1 @ 7" x 8" x 12" & 1 @ 10 1/2" x 14" x 24"No. and size of Bilge suction in Engine Room 1 @ 3 1/2" x 2 @ 2 1/2" in Engine room wellIn Holds, &c. Fore holds 6 @ 3 1/2", deep tank 2 @ 3 1/2"after holds 4 @ 3 1/2" Tunnel well 1 @ 2 1/2" centrifugalNo. of Bilge Injections 1 sizes 14" Connected to condenser or to circulating pump Yes Is a separate Donkey Suction fitted in Engine Room & size 1 @ 8" 2 @ 3 1/2"Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible YesAre all connections with the sea direct on the skin of the ship Remains on skin Are they Valves or Cocks BothAre 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 belowAre 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 YesWhat pipes are carried through the bunkers Suctions to forward holds How are they protected below casingAre all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times YesAre the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges YesIs the Screw Shaft Tunnel watertight See hull report Is it fitted with a watertight door Yes worked from Shellin deck levelSee Gls. Report No. 38662.BOILERS, &c. (Letter for record S) Manufacturers of Steel Gibb & Sons & Steel Co. of ScotlandTotal Heating Surface of Boilers 96366 Is Forced Draft fitted Yes No. and Description of Boilers Three Babcock & WilcoxWorking Pressure 200 Tested by hydraulic pressure to 250 Date of test 30 March 1920 No. of Certificate 6108Can each boiler be worked separately Yes Area of fire grate in each boiler 85 3/4 sq ft No. and Description of Safety Valves toeach boiler 2 direct spring Area of each valve 9.62" Pressure to which they are adjusted 205 Are they fitted with easing gear YesSmallest distance between boilers or uptakes and bunkers or woodwork 5' 3" Mean dia. of boilers 4' 0" Length 16' 1 1/2" Material of shell plates SteelThickness 9/16 x 1 1/16 Range of tensile strength 28-32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams DR laplong. seams T.R.S Butt Diameter of rivet holes in long. seams 29/32 Pitch of rivets 3.537 Lap of plates or width of butt straps 4 1/4"rivets 46.7 Working pressure of shell by rules 238 Size of manhole in shell 15" x 11"Per centages of strength of longitudinal joint plates 74.4Size of compensating ring 18 x 28 3/4 x 22 1/4 No. and Description of Furnaces in each Boiler Material Outside diameter MaterialLength of plain part top Thickness of plates crown Description of longitudinal joint bottom No. of strengthening rings bottomWorking pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top BottomPitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveled heads Working pressure by rules End plates in steam spaceMaterial of stays Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom End plates in steam spaceMaterial Steel Thickness 13/16 Pitch of stays How are stays secured Working pressure by rules 240 Material of stays Material of staysDiameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottomThickness Material of Lower back plate Thickness 17/32 Greatest pitch of stays None Working pressure of plate by rules Working pressure of plate by rulesDiameter of tubes 19/16-3 7/8 Pitch of tubes 2 3/4 x 2 5/8 Material of tube plates Steel Thickness: Front 1 1/16 Back Mean pitch of staysPitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth andthickness of girder at centre Length as per rule Distance apart Number and pitch of stays in eachWorking pressure by rules Steam dome: description of joint to shell % of strength of joint Mean pitch of staysThickness of shell plates 3/4" Material Steel Description of longitudinal joint Diameter of rivet holes Pitch of rivets Pitch of rivetsWorking pressure of shell by rules Crown plates: Thickness How stayed How stayed

