

22 MAR 1930

SPARE GEAR

FOR

ENGINE NO:963.

- D.O. = DRAWING OFFICE
- E.S. = ENGINE SHOP & STORES.
- B.S. = BOILER SHOP & STORES.

NOTE:-

ALL SPARE GEAR TO BE FITTED TO PLACE.



ENGINE ESTIMATING DEPT



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SPARE GEAR.

1.

- 0.0. 1/3 Crank Shaft
- 0.0. 1 Piston rod, complete with top and bottom nut.
- 0.0. 1 Tail end shaft, complete with liner and nut.
- 0.0. 1 pair Bottom end bushes, fitted with white metal
- 0.0. 2 Bronze propeller blades
- 0.0. 1 Valve rod for H.P. and I.P. valve, complete with top and bottom washer, keep, top and bottom brass with bolts and nuts, valve nuts, oil cup etc:
- 0.0. 1 Valve rod for L.P. valve, complete as above and with nut for balance piston.
- 0.0. 1 Head valve plate
- 0.0. 6 Head valve guards
- 0.0. 6 sets Head valve discs (3 discs to a set)
- 0.0. 2 - Bilge pump rods
- 0.0. 4 - Valve Discs
- 0.0. 4 - Valve Seats
- 0.0. 1 - Relief valve spring
- 0.0. 2 Main bearing bolts with top and bottom nuts, 3.3/4" dia 4'11.3/8" overall length.
- 0.0. 2 Top end bolts and nuts, 3.1/4" dia. 21.15/16" overall length.
- 0.0. 2 Bottom end bolts & nuts, 4.3/8" dia. - 2 ft. 8.7/8 ins overall length.
- 0.0. 6 Coupling bolts for crank shaft, 3.1/4" dia. (screwed portion) 12" overall length.
- 0.0. 6 " " " tunnel shafts
- S. 18 Bolts and nuts, finished, assorted for engines.
- S. 100 Bolts and nuts, assorted (black)
- S. 18 Bolts and nuts, brass
- 0.0. 9 Propeller blade studs and nuts 3" dia. 9.25/32 overall length.
- 0.0. 100 Brass ferrules for condenser
- 0.0. 50 Condenser Tubes
- 0.0. 100 Condenser packings or equivalent cond.
- S. 1 cwt. Ingot of Stone's Navy white bronze.
- S. 5 Bars of round iron, one of each 1/2, 5/8, 3/4, 7/8 and 1 ins.

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2.

- 2 Steel bars,  $7/8$ " 4 feet long.
- 3 cwt. Plates of iron, assorted  $1/16$ ,  $1/8$ ,  $1/4$  and  $3/8$ "
- 12 Junk ring tap bolts,  $1.1/4$ " dia.  $4.3/8$ " overall length.
- 6 H.P. Piston valve collar set bolts,  $3/4$ " dia.  $2.3/8$ " overall length.
- ~~1 set Packing rings and springs, complete for H.P. Piston valve i.e. one for top and one for bottom (Lockwood & Carlisle).~~
- 1 H.P. piston ring complete with springs (Lockwood & Carlisle)
- 1 I.P. piston ring complete with springs (Wm. Buckley & Co.)
- 1 L.P. " " " " " " " "
- 12 Wearing rings with garter springs for piston rod packing  
Copeland patent metallic packing.
- 6 Wearing rings with garter springs for valve rod packing  
Copeland patent metallic packing.
- 6 Holding down bolts,  $1.1/2$ " dia. abt.  $9.1/2$ " long, with top and bottom nut.
- 6 Cylinder cover studs and nuts.
- 6 Valve chest cover studs and nuts,  $1.3/8$  ins. dia.  $5.1/8$ " long.
- 6 Tap bolts for L.P. Slide valve, false face,  $5/8$ " dia.  
 $2.3/16$ " overall length.



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3.

- 100 Fire Bars.
- 1 set "Trident" bars for one furnace.
- 8 Wing bars, 4 right and 4 left.
- 18 Boiler Tubes
- 20 Retarders for boiler tubes
- 6 Furnace door baffles
- 12 Furnace front side baffles (6 right hand - 6 left hand)
- 3 Furnace front crown baffles
- 1 Furnace front, complete with door, ash-pit door, valves etc
- 2 Patterns of fire bars
- 2 " " wing bars
- 2 " " baffle plates, (one right hand one left hand).
- 6 Feed check valves
- 24 Gauge glasses.



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4.

For Forced Draught Fan. (Jas: Howden & Co.)

- 1 Piston
- 1 Piston rod with slipper crosshead brasses and bolts.
- 1 Valve spindle with nuts.
- 1 Spring for relief valve

For Circulating Pump. (Matthew Paul & Co.)

- 1 Piston with ring
- 1 Piston rod with slipper.
- 1 Valve spindle
- 1 Spring for escape valve
- 1 Gunmetal impeller and bronze spindle.

For Main Feed Pumps (G. & J. Weir Ltd.)

- 1 set Suction and discharge group valves for one pump
- 1 Steam slide valve chest (complete)
- 1 Piston rod and pump rod with crosshead and nuts complete.
- 1 Auxiliary slide valve spindle.

For Ballast Pump. (J.H. Carruthers & Co.)

- 1 Piston rod
- 1 Pump rod
- 1 Valve spindle.
- 2 Dexine rings
- 4 Pump valves

For General Service Pump.(J.H. Carruthers & Co.)

- 1 Piston rod
- 1 Pump rod
- 1 Valve spindle
- 1 set Ebonite rings (4 in number)
- 4 Pump valves.

For Winch Condenser Circulating Pump.(J.H. Carruthers & Co.)

- 1 Piston rod
- 1 Pump rod
- 1 Valve spindle
- 2 Dexine rings
- 4 Pump valves.



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For Harbour Feed Pump. (Frank Pearn & Co.Ltd).

- 1 Piston rod with piston and rings
- 1 Pump rod with bucket and rings
- 1 Valve spindle
- 1 Suction valve and seat
- 1 Delivery " " "
- 4 Auxiliary piston rings
- 4 Packing rings
- 1 Spring for relief valve.

For Fresh Water Pump. (Frank Pearn & Co.Ltd.)

- 1 Piston rod with piston rings, complete with ram.
- 2 Complete valves and seats.
- 1 Valve spindle
- 1 Valve spindle

For Superheaters. (Superheater Co.Ltd).

- 36 Blind caps for superheater headers
- 18 Dogs for superheater headers.
- 18 Studs " " "

For Diamond Blowers.

- 2 Back end type "Diamond" blowers to suit 14.1/2" long x 3" intl. dia. tubes.
- 1 " " " " " blower " " 15.3/8" long x 3" intl. dia. tubes.
- 2 Spindles and forks for centre furnaces
- 4 " " " " wing "
- 18 Jets

For Exhaust Steam Feed Heater. (Liverpool Engg. & Condr. Co.Ltd.)

- 12 Heater tubes
- 1 Spring for relief valve.



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6.

For H.P. Steam Feed Heater. (Liverpool Engg. & Condr. Co.Ltd).

12 Heater tubes

1 Spring for relief valve.

For Feed Water Filter. (Liverpool Engg. & Condr. Co.Ltd.).

1 set Perforated mild steel frames (enough to fill one compartment).

2 sets Filter cloths (one set would fill one compartment).

For Feed Make-up Filter. (Hocking & Co.Ltd.)

1 Filtering bag (complete)

For Ash Hoist. (Crompton).

3 Rubber piston cups

For Water Gauge Mountings. (Dewrance & Co.)

24 Patent round box Woodite conical packing rings.

For Combined Regulating, Throttle & Emergency Valve.  
(Cockburn).

1 Diaphragm.

For Evaporator & Pump. (Andrew & Cameron).

1 Spring for Safety valve

1 " " Relief valve



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7.

SPRINGS.

- 1 Spring for H.P. Cylinder relief valve. E.N. 13, 14
- 1 " " I.P. " " " E.N. 15, 16
- 1 " " I.P. Valve casing relief valve E.N. 17.
- 1 " " L.P. Cylinder and Valve casing relief valve E.N. 18,19,20.
- 1 " " Governor gear, E.N. 22
- 1 " " Starting valve E.N. 23
- 1 " " Bilge pump delivery valves, E.N. 32
- 2 " " Safety valves
- 1 " " Superheater safety valves
- 1 " " Feed discharge, E.F.D. 5, 6
- 1 " " Ballast pump discharge, E.B. 9
- 1 " " Refrig: circ: conns. E.B. 73.
- 1 " " Atmospheric exhaust, E.E.1

4 Spring for reducing valves i.e.

- One for { Steam to circulating pump E.S. 8
- { " " refriq: machinery E.S. 11
- { " " steering gear E.S. 12
- { " " dynamo engine E.S. 13
- { " " galley E.S. 15

One for steam to engine room auxiliaries E.S. 10

One " " " winches E.S. 14

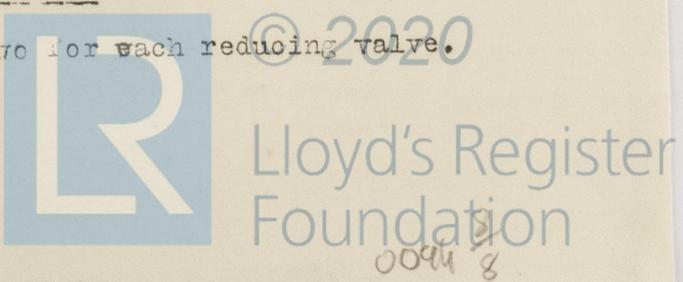
One " " " bath, E.S. 16

3 Springs for relief valves i.e. one for each of the following:-

- Steam to winches E.S.14
- " " galley E.S.15
- " " bath E.S.16

For Reducing Valves.

16 Rubber diaphragms i.e. two for each reducing valve.



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