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ENGINES NO. 492.

*Spare Gear*

- H.P. & I.P. or L.P. 1st Reduction Wheel complete.
- H.P. or L.P. 2nd " Spindle "
- H.P. & I.P. 1st " Pinion "
- L.P. 1st Reduction Pinion complete.
- Blading in finished lengths with packing and shrouding complete.
- Spare Bearing Bushes for Main Gear Wheel and Pinion sufficient to replace all bushes in one gear case. ✓
- Spare Bushes for Turbines sufficient to replace all working bushes in one H.P., one I.P. and one L.P. Turbine ✓
- Spare Carbon Gland Segments to replace those in one H.P. Turbine, one I.P. Turbine and one L.P. Turbine. ✓
- Bolts and Nuts for each size of Rotor, Main Gear Wheel and Pinion Bearings. ✓
- Set I.P. & L.P. Flexible Coupling Bolts and Nuts. ✓
- Set of Studs and Nuts for one propeller blade.
- Condenser Tube Ferrules.
- Condenser Tubes for Main Condensers.
- " " " Auxiliary Condensers
- Escape Valve Spring for each size fitted.
- Studs and Nuts for Condenser Doors.
- Main Thrust Pad Pieces, sufficient for one Ahead surface. ✓
- " " Block Adjusting Liners, two in number for each liner fitted. ✓
- Turbine Thrust Block Adjusting Liners, one in number for each liner fitted. ✓
- Set Pad Pieces for Turbine Thrust Block. ✓
- 10 of total number of Bolts, Studs and Nuts for turbine and gear case casing and covers. ✓
- Set Springs for Turbine Glands, complete for H.P., I.P. & L.P. ✓
- Complete Sets of Turbine Blading Tools.
- Oil Cooler Tubes.
- Set Shaft Coupling Bolts and Nuts. ✓
- Spare Propeller Shaft, with nut, cased with wood to be supplied as arranged by the Owner.

~~Main thrust block pad pieces, sufficient for one ahead surface.~~

~~Thrust block adjusting liners, two in number for each liner fitted.~~

~~Turbine thrust block adjusting liners for each liner fitted.~~

~~1 Set pad pieces for turbine thrust blocks.~~

~~1 - 10th of total number of bolts, studs and nuts for turbine casings and covers.~~

~~1 Set springs for turbine glands, complete for H.P., I.P., L.P.~~

~~2 Complete sets of turbine blading tools.~~

SPARE GEAR FOR AUXILIARIES.-

All spares to be carried on board to be ordered by the Builders, and those for shore stock will be ordered by the Owners.

TURBO FEED PUMP.

To be carried on board.

1 Pump impeller ✓

1 Set of pump packing rings. ✓

1 Restriction plug for front end cover. ✓

1 Set bearings complete ✓

1 non-corrodible shaft sleeve. ✓

1 Set of carbon packing segments, with sleeves and springs complete. ✓

1 steam valve and seat ✓

1 Spring for each fitted ✓

2 Sets of soft packing for all stuffing boxes. ✓

DIRECT ACTING FEED PUMPS.-

To be carried on board

1 Set of suction valves with springs. ✓

1 Set of discharge valves with springs. ✓

3 Ebonite pump bucket rings ✓

1 Set of steam piston rings ✓

1 Set of spanners in rack ✓

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To be stored on shore.

- 5 Steam pistons, with rings complete
- 5 Pump buckets, with rings complete
- 5 Piston and pump rods, with crossheads and nuts complete.
- 5 steam valve chests complete

FORCED LUBRICATION PUMPS.-

To be carried on board

- 2 Sets of suction valves, with springs. ✓
- 2 Sets of discharge valves, with springs. ✓
- 2 Sets of steam piston rings. ✓
- 1 Set of spanners in rack ✓

To be stored on shore.

- 10 Steam pistons, with rings complete ✓
- 10 Pump buckets complete ✓
- 10 Mild steel piston and pump rods, with crossheads complete ✓
- 10 Steam valve chests complete ✓

MAIN CIRCULATING PUMPS (TURBO).-

To be carried on board

- 2 Pump impellers
- 2 Sets of bearings complete
- 2 Sets of shaft sleeves
- 1 Steam valve and seat
- 1 Set of carbon packing segments, complete for 1 pump
- 2 Sets of springs
- 2 Sets of soft packing.
- 2 Sets of copper washers.

BALLAST PUMPS (STEAM AND MOTOR DRIVEN).-

To be carried on board

- 1 Set of rubber valves
- 1 Set of brass valve guards.
- 1 Set of brass valve studs
- 1 Set of spanners in rack.



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To be stored on shore.

- 5 steam pistons, complete with rings
- 5 steam piston rods and nuts
- 10 Pump buckets, complete with rings.
- 5 Pump bucket rods and nuts, for steam pumps.
- 5 Pump bucket rods and nuts, for motor driven pumps.
- 5 Steam slide valves
- 5 Steam valve spindles
- 5 Special brass pump chamber liners.
- 3 Rocking shafts (long)
- 3 Rocking shafts (short)
- 5 Main bearing bushes for motor-driven pumps.
- 5 Connecting rod top end bushes for motor-driven pumps.
- 5 Connecting rod bottom end bushes, for motor driven pumps.
- 5 Spare armatures for motor-driven pumps

BILGE PUMPS.

To be carried on board.

- 1 Set of Spalners in rack

To be stored on shore.

- 5 Steam pistons and rods complete
- 5 Water pistons and rods complete with rings.
- 5 Steam slide valves and spindles, complete with nuts.
- 5 Sets of pump valves and guards complete
- 3 Pump chamber liners
- 3 Rocking shafts

BILGE PUMP (EMERGENCY - MOTOR-DRIVEN).

To be carried on board.

- 1 Set of pump valves and guards complete
- 1 Set of spanners in rack.

To be stored on shore.

- 5 Connecting rods with brasses complete
- 5 Pump chamber liners
- 5 Pump buckets and rods complete
- 5 Spare armatures for motors.



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FRESH WATER AND WASHING WATER PUMPS.-

To be carried on board

- 1 Set of rubber valves and gun metal valve guards.
- 1 set of spanners in rack

To be stored on shore

- 10 Piston rods, complete with pistons, rings and nuts.
- 10 M.B. pump rods, complete with G.M. plungers, ebonite rings and nuts.
- 10 Slide valves
- 10 valve spindles, with nuts
- 5 gun metal liners
- 5 Rocking shafts

AUXILIARY CIRCULATING PUMP.-

To be carried on board

- 1 Pair crosshead brasses, with bolts and nuts
- 1 Pair crank pin brasses, with bolts and nuts
- 1 Set of spanners in rack

To be stored on shore

- 2 Impellers
- 4 Impeller shafts
- 4 Crank shafts
- 5 Pistons, with rings and piston rods with caps, bolts and slippers but without brasses.

To be stored on shore.

- 5 Slide valves, with spindles
- 5 eccentric rods and straps complete

EVAPORATING PLANT.-

To be carried on board

- 1 Set of coils, with couplings and nuts for one evaporator
- 1 - 20th of the total number of distiller tubes, with the necessary ferrules and grommets.

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OIL FUEL INSTALLATION.-

To be carried on board.

- 1 Set of strainer bags for each suction strainer
- 1 Set of strainer bags for each discharge strainer
- 1 Set of thermometers (i.e. 1 spare thermometer for each working thermometer.)
- 36 Burner bodies
- 36 Burner caps
- 180 Burner nozzles
- 180 Burner diaphragms
- 3 Auxiliary oil heaters, with steam raising burner, thermometer holders and brass cased thermometer and the necessary flexible tubing for connecting to the distributing valve boxes.
- 1 Expander for heater tubes
- 1 Tool for cleaning burners
- 1 Set of spanners for oil fuel pumps

OIL FUEL TRANSFER PUMP AND OIL FUEL BILGE WELL PUMP.

To be carried on board

- 1 Set of suction valves and springs for 1 pump
- 1 Set of discharge valves and spring for 1 pump
- 1 Set of steam piston rings for 1 pump
- 1 Set of spanners in rack

To be stored on shore

- 5 Steam pistons, with rings complete
- 5 Pump buckets complete
- 5 Piston rods and pump rods, with crossheads complete
- 5 Steam valve chests with valves complete

FORCED DRAUGHT FANS.

To be carried on board

- 1 Armature for motor

SUPERHEATERS.-

To be carried on board

- 20 per cent. of total number of jointing washers
- 10 per cent. of blank plugs for closing holes in headers.

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5 per cent. of studs and nuts

2 per cent of dogs or clamps

CLOSED FEED SYSTEM.

To be carried on board

Air Ejectors.

1 first-stage steam nozzle.

1 second-stage steam nozzle.

1 Valve seat, with valve stud, nut and guard.

Water Extraction Pumps.

2 ~~A~~ Pump Impeller *complete*

2 Sets ball bearings

1 Steam valve and seat

2 Sets of shaft sleeves

1 Set carbon packing segments. with springs/ complete for 1 pump.

2 Sets of springs for all parts.

Heater Condenser.

Half the total number of tubes fitted

Half the total number of ferrules fitted

Half the total number of grommets for ferrules.

Supplementary Feed Valves.

2 Sets of cup leathers.

2 Steel springs

Overflow Valve.

1 Cup leather

1 Steel spring

Main Surface Feed Water Heater.

Half the total number of tubes fitted.

Quarter the total number of ferrules fitted

Half the total number of grommets for ferrules.

REFRIGERATING/



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REFRIGERATING MACHINERY.-

To be carried on board.

- 4 Compressor piston rings
- 48 Special metal rings for compressor gland
- 6 Lubricator gland leathers
- 6 Lubricator piston leathers
- 1 Piston and rod, with rings for compressor.
- 2 Delivery valves, seats, and springs for compressor
- 2 Suction valves, seats and springs for compressor.
- 6 Additional springs for ditto.
- 2 CO<sup>2</sup> stop valves
- 1 CO<sup>2</sup> regulator valve spindle
- 1 CO<sup>2</sup> pressure gauge
- 1 Spring balance
- 1 Hose for warming gas bottles
- 1 Pair of crank pin bolts and nuts
- 1 Pair of main bearing bolts and nuts
- 1 Crankshaft
- 12 Chamber thermometers
- 3 Brass cased thermometers
- 6 Safety discs
- 2 Sets of copper joint rings for compressor.
- 1 Set of copper joint rings for remaining joints
- 1 Guide for grinding in compressor valves
- 1  $\frac{1}{8}$  in. CO<sup>2</sup> valve
- 3 Spare pips for ditto
- 1 fitted box, with hasp and padlock, for compressor piston rod valves, etc.
- 1 Rawhide pinion for motor.

ELECTRICAL/



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ELECTRICAL SPARES FOR REFRIGERATING MACHINERY.

	For 20 B.H.P Motors for Machines.	For 4½ B.H.P Motors for Brine Pumps	For 2¼ B.H.P Motor for Brine Pump	For 3¼ B.H.P Motor for Water Pump.
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ure	1	1	1	1
f bearing bushes	1	1	1	1
of brush holders	1	1	1	1
f carbon brushes	1	1	1	1



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