

List of Spare Gear

for the machinery of the Screw Motor Vessel "EUROPA" of Copenhagen.

Messrs. A/S. Burmeister & Wain's Yard No. 581.

" " " " Main Eng. No. 1852
" " " " Aux. Eng. Nos. 1853, 54 & 55

Copenhagen Report No. 8517.

Main Diesel oil engine:-

Cylinders:-

- 1 top cylinder cover complete with studs and nuts, top screws, caps etc.
- 1 bottom do. do. do. do. do.
- 1 set of studs and nuts for one cylinder cover.
- 2 safety valves complete.
- 6 safety valve springs.

Pistons:-

- 1 piston with piston rings complete.
- 2 set of piston rings.
- 2 " " piston scraping rings.
- 1 piston rod complete with nut, key, pipes etc.
- 1 cooling sleeve for piston rod.
- 6 piston rod packing rings.
- 2 " " scraping rings.

Starting air valves:-

- 2 starting air valves complete with springs etc. ready for use.
- 1 " " valve spindle.
- 12 valve springs.
- 6 safety discs.
- 12 safety caps.



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To auxiliary machinery comprising.

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Oil fuel injection valves:-

7 oil fuel injection valves for top complete with springs etc. ready for use.

7 do. do. for bottom do. do. do.

3 valve spindles with bushes, pipes, push spindles etc. for top.

3 do. do. do. do. for bottom.

18 atomizer discs with caps.

3 spindles for overflow valves.

45 Bellville valve springs.

6 push spindles complete.

Oil fuel injection pumps:-

1 oil fuel injection pump with springs etc. complete ready for use.

6 oil fuel injection pump pistons with pump barrel and bushes.

6 " " " " slide valves with valve chests, bushes, levers, links etc. complete.

6 oil fuel injection pump suction valves complete.

6 oil fuel pressure pipes with flanges complete from the fuel pump to the injection valves.

6 springs for suction valves.

6 " " manometer valves.

6 " " the pump levers.

2 push quenchers.

3 oil filters.

1 guide roller with ball bearing complete for the pump lever.

Exhaust slide valve pistons:-

3 top exhaust slide valve pistons with piston rings complete.

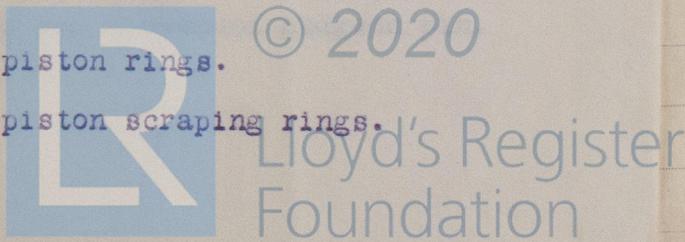
8 " " " " piston rings.

1 " " " " piston scraping ring.

3 bottom exhaust slide valve pistons with piston rings etc. complete.

6 bottom exhaust slide valve piston rings.

4 " " " " piston scraping rings.



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- 2 telescopic pipes with stuffing boxes.
- 2 " " " " " " " " and ball connections.

Exhaust slide valve motions:-

- 2 pair of main bearing brasses.
- 2 main bearing studs and nuts.
- 1 pair of crank pin bearing brasses.
- 2 crank pin bearing bolts and nuts.
- 2 connecting rod top end bearing bushes.
- 1 chain for the exhaust slide valve motion drive.
- 1 chain for the cam shaft drive.

Brasses, studs and bolts:-

- 1 pair of main bearing brasses.
- 2 main bearing studs and nuts.
- 1 pair of crank pin bearing brasses.
- 2 crank pin bearing bolts and nuts.
- 2 pair of crosshead bearing brasses.
- 4 crosshead bearing bolts and nuts.
- 2 set of bolts and nuts for crank shaft coupling.
- 1 " " " " " " for one intermediate shaft coupling.
- 1 thrust block collar.
- A number of springs of each size and design used.
- A number of india rubber packing rings of each size and design used.

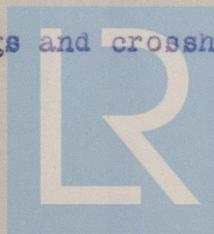
Auxiliary oil engines:-

Cylinders:-

- 1 set of studs and nuts for one cylinder cover.
- 1 safety valve complete.
- 6 safety valve springs.

Pistons:-

- 1 trunk piston with piston rings and crosshead gudgeon pin.
- 14 piston rings.
- 2 piston scraping rings.



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Starting air valves:-

- 1 starting air valve complete with springs etc. ready for use.
- 6 valve springs.

Oil fuel injection valves:-

- 10 oil fuel injection valves complete with springs, filters etc. ready for use.
- 5 valve spindles with bushes, spindle pipes etc.
- 48 Belleville valve springs.

Oil fuel injection pumps:-

- 1 oil fuel injection pump complete with manometer-valve, springs etc. ready for use.
- 6 pump pistons with pump barrel and bushes.
- 6 pump slide valves with valve chests, levers, links etc. complete
- 6 suction valves with springs complete.
- 6 oil fuel pressure pipes with flanges complete from the fuel pumps to the injection valves.
- 12 do. do. do. do. do.
- 1 spring for suction valves.
- 1 " for manometer valves.
- 1 guide roller with bolt for the pump lever.
- 10 links for the chain drive.

Exhaust slide valve pistons:-

- 6 exhaust slide valve pistons complete.
- 12 " " " piston rings.
- 3 " " " piston scraping rings.

Scavenge pumps:-

- 3 ball bearings.
- 1 roller bearing.

Governors:-

- 1 spring for governor.
- 1 ball bearing.



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Brasses, studs and bolts.

2 pair of main bearing brasses.

2 main bearing studs and nuts.

1 pair of crank pin bearing brasses.

2 crank pin bearing bolts and nuts.

1 crosshead bearing bush.

A number of springs of each size and design used.

A number of india rubber packing rings of each size and design used.

Rotary scavenge blowers for the main engine.

3 roller bearings.

1 ball bearing.

1 felt ring for the rotor shafts.

Cooling water pumps for the main engine.

4 ball bearings.

Fresh cooling water cooler:-

40 brass tubes.

Lubricating oil pumps:-

1 rotor wing with 2 guide blocks complete.

1 roller bearing.

1 ball bearing.

1 spring for the safety valve.

Lubricating oil coolers:-

60 brass tubes.

1 filter basket.

Ballast pump:-

1 suction valve disc with seat and spring complete.

1 delivery " " " " " " " "

1 spring for escape valve.

1 roller bearing.



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Bilge and Sanitary pumps:-

- 3 suction valve discs with seats and springs complete.
- 3 delivery " " " " " " " "
- 1 spring for escape valve.

Oil fuel transfer pump:-

- 1 spring for safety valve.

Fresh water pump:-

- 1 ball bearing.
- 1 spring for safety valve.

Manoeuvring air compressor:-

- 4 L.P. piston rings.
- 5 H.P. piston rings.
- 1 H.P. piston scraping ring.
- 2 springs for H.P. suction valves.
- 2 " " H.P. delivery "
- 1 " " safety valves.
- 6 brass tubes for air coolers.

Small auxiliary air compressor:-

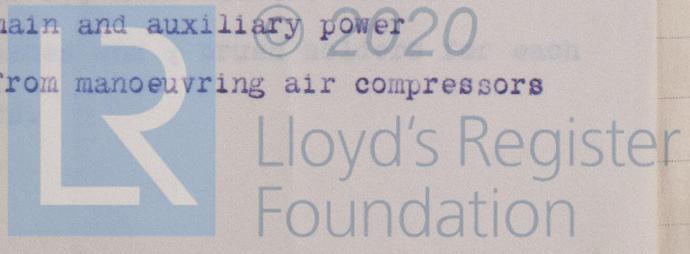
- 3 L.P. piston rings.
- 7 H.P. piston rings.
- 2 springs for safety valves.

Starting air receivers:-

- 1 spring for the safety valves.

General:-

- A quantity of assorted bolts and nuts.
- A quantity of "Krupp's", "Paragon", "Palmetto", "Klingerit" and "Fiber" packing material.
- Lengths of pipes of each size used for the fuel delivery and injection pressure pipes to the main and auxiliary power cylinders, and the air delivery from manoeuvring air compressors



The auxiliary machinery comprising:

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to the receivers with unions, flanges etc. suitable for each.

Oil fired donkey boiler:-

- 1 safety valve spring.
- 2 feed check valve discs.
- 6 water gauge glasses and
- 12 packing rings for same.
- 3 oil burners.
- 2 air radiators for oil burners.

Exhaust gas fired donkey boiler:-

- 1 safety valve spring.
- 1 feed check valve disc.
- 1 plain tube.
- 6 water gauge glasses and
- 12 packing rings for same.

Donkey boiler feed pump:-

- 1/2 set of valve discs with seats and springs.

Propeller and Shaft:-

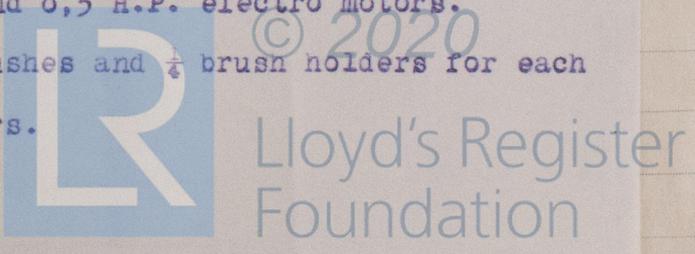
- 1 cast iron propeller.
- 1 propeller shaft with key and nut.

For the 365 K.W. Generators:-

- 1 set of carbon brushes.
- 1/4 set of brush holders.

For the electro motors working the various auxiliary pumps, air compressors etc:-

- 1 set of carbon brushes and 1/4 set of brush holders for each of the 140 H.P., 90 H.P., 50 H.P., 30 H.P., 15 H.P., 12 H.P., 5 H.P., 2 H.P., 1,3 H.P. and 0,5 H.P. electro motors.
- 1 armature, 1 set of carbon brushes and 1/4 brush holders for each of the 3 H.P. electro motors.



List of Spare Gear for Machinery of
Motor Vessel "EUROPA" of Copenhagen
Burmeister & Wain's Yard No: 581
" - " Engine No: 1852

Copenhagen Report No: 8517.



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