

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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The 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.

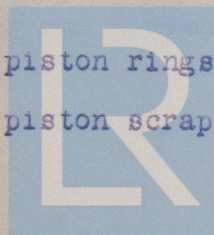
8 " " " " piston rings.

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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3.

- 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.

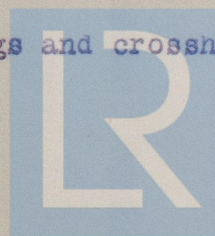
Auxiliary oil engines:-

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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4.

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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5.

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.

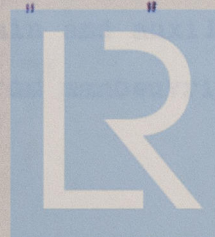
Ballast pump:-

1 suction valve disc with seat and spring complete.

1 delivery " " " " " "

1 spring for escape valve.

1 roller bearing.



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6.

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:-

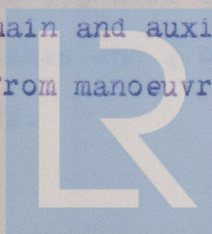
- 3 L.P. piston rings.
- 7 H.P. piston rings.
- 2 springs for safety valves.

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



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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:-

- $\frac{1}{2}$  set of valve discs with seats and springs.

Propeller and Shaft:-

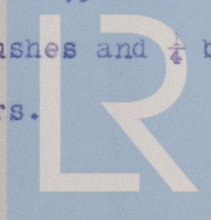
- 1 cast iron propeller.
- 1 propeller shaft with key and nut.

For the 365 K.W. Generators:-

- 1 set of carbon brushes.
- $\frac{1}{4}$  set of brush holders.

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

- 1 set of carbon brushes and  $\frac{1}{4}$  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  $\frac{1}{4}$  brush holders for each of the 3 H.P. electro motors.



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8.

7 ball bearings suitable for the various sizes used.

A quantity of fuses, switches, contact fingers, lamps, lamp holders, fittings etc. suitable for the electric installation.

For the electro motor working the oil pump to the electro hydraulic steering gear:-

1 armature with shaft complete.

1 set of carbon brushes.

$\frac{1}{2}$  set of brush holders.



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One 7.5 HP " " " " working the "Glacia" patent refrigerating machine to the insulated provisions  
One 2.5 HP " " " " working to air pump to the auxiliaries.



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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