

List of Spare Gear for the Machinery of

Twin Screw Motor Tank Vessel "GARONNE" of Oslo.

Messrs. Burmeister & Wain's Yard No. 594.

" " " Main Eng. Nos. 1927 & 1928.

" " " Aux. " " 1929 & 1930.

Copenhagen Report No.

Main Diesel oil engines:-

1 cylinder cover complete with studs and nuts, tap bolts etc.

for fastening of valves, cylinder liners, water jackets etc.

1 complete set of studs and nuts for one cylinder cover.

1 cylinder liner.

1 safety valve complete for cylinder cover.

1 safety valve disc.

6 springs for safety valves.

3 trunk pistons with piston rings complete.

36 piston rings.

5 piston scraping rings.

1 telescopic cooling pipe for pistons with packing rings etc.

Oil fuel injection valves:-

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

6 valve spindles and discs.

6 bottom parts for the valve chests.

6 valve springs.

12 safety caps.

1 ball push spindle with nut etc.

1 spindle for overflow valves.

1 guide roller with bolt and ball bearing for valve lifting gear.



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Air inlet valves:-

- 1 air inlet valve complete with springs etc. ready for use.
- 1 valve spindle and disc.
- 12 valve springs.
- 1 ball push spindle with nut.
- 1 guide roller with bolt etc. for the valve lifting gear.

Exhaust valves:-

- 12 exhaust valves complete with springs etc. ready for use.
- 3 valve spindles complete.
- 6 valve discs.
- 6 steel nuts for valve discs.
- 6 bottom parts for valve chests.
- 1 valve spring.
- 2 ball push spindles with nuts etc.
- 1 guide roller with bolt.
- 3 thermometer connection for cooling water.

Starting air valves:-

- 1 starting air valve complete with springs etc. ready for use.
- 1 starting air valve chest.
- 12 valve springs.
- 1 ball push spindle with nuts.
- 1 guide roller with bolt for the valve lifting gear.
- 12 safety caps for starting air line.

Oil fuel pressure pump:-

- 4 plunger pistons.
- 4 bushes for plunger pistons.
- 1 suction valve complete.
- 1 delivery " "
- 6 springs for suction valves.
- 6 " " delivery "
- 4 non-return valves complete.



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6 springs for non-return valves.

1 spring for escape valve.

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.

1 pair of crosshead bearing gudgeon brasses.

1 crosshead bearing gudgeon pin.

4 chain links suitable for the chain to cam shaft gearing.

2 set of bolts and nuts for crank shaft coupling.

1 set of bolts and nuts for intermediate shaft coupling.

Main engine bilge pumps:-

1 suction valve complete with seat, spring etc. ready for use.

1 delivery valve complete with seat, spring etc. ready for use.

1 spring for escape valve.

Main air compressors.

1 pair of main bearing brasses.

4 main bearing bolts and nuts.

1 pair of crank pin bearing brasses.

2 crank pin bearing bolts and nuts.

1 pair of crosshead bearing gudgeon brasses.

8 L.P. piston rings.

10 M.P. " "

1 M.P. " scraping ring.

18 H.P. " rings.

1 H.P. " scraping ring.

5 L.P. suction valves complete with seats, springs etc. ready
for use.

4 L.P. delivery do.

1 M.P. suction valve

do.

do.

do.

do.

do.

do.

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4.

1 M.P. delivery valve complete with seats, springs etc. ready for use.

2 H.P. suction valves do. do. do. do.

2 H.P. delivery " do. do. do. do.

5 L.P. suction valve discs.

4 L.P. delivery " "

1 M.P. suction " "

1 M.P. delivery " "

2 H.P. suction " "

2 H.P. delivery " "

5 L.P. suction valve springs.

4 L.P. delivery " "

1 M.P. suction " "

1 M.P. delivery " "

2 H.P. suction " "

2 H.P. delivery " "

1 spring for safety valve on the valve chest.

1 H.P. air cooling coil with flange and union ready for use.

6 brass tubes for the L.P. air coolers.

6 " " " " M.P. " "

A number of springs suitable for the various sizes used at the main engines and the main air compressors.

A number of assorted india rubber packing rings suitable for the various sizes used at the main engines and air compressors.

Auxiliary Diesel oil engines:-

1 combined cylinder cover and liner complete with all studs and nuts for fastening of valves, water jackets etc.

1 cooling water jacket for cylinder liner.

1 complete set of studs and nuts for one cylinder cover.

1 safety valve complete for cylinder covers.

1 trunk piston complete with piston rings.

6 piston rings.



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5.

2 piston scraping rings.

Oil fuel injection valves:-

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

1 valve spindle and disc.

1 bottom part for the valve chest.

2 valve springs.

4 safety caps.

1 guide roller with bolt for the valve lifting levers.

Air inlet valves:-

1 air inlet valve complete with spring etc. ready for use.

1 valve spindle with disc.

4 valve springs.

1 guide roller with bolt for the valve lifting levers.

Exhaust valves.

4 exhaust valves complete with springs etc. ready for use.

4 valve spindles with discs.

4 bottom parts for valve chests.

4 valve springs.

1 guide roller with bolt for the valve lifting levers.

Starting air valves:-

1 starting air valve complete with spring etc. ready for use.

2 valve springs.

1 guide roller with bolt for the valve lifting levers.

Oil fuel pressure pumps:-

3 plunger pistons.

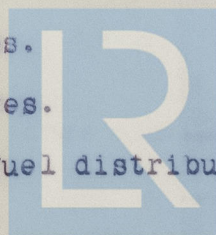
3 suction valves.

3 delivery valves.

3 springs for suction valves.

3 " " delivery valves.

3 valve discs for the oil fuel distributors.



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6.

3 valve springs for the oil fuel distributors.

1 guide rod for the pump pistons.

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 gudgeon bush.

1 crosshead bearing gudgeon pin.

Auxiliary air compressors:-

2 pair of crank bearing brasses.

2 crank pin bearing bolts.

1 crosshead bearing gudgeon bush.

8 L.P. piston rings.

10 M.P. piston rings.

6 M.P. piston scraping rings.

14 H.P. piston rings.

3 L.P. suction valves complete with seats, springs etc. ready
for use.

2 L.P. delivery	do.	do.	do.	do.	do.
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1 M.P. suction	do.	do.	do.	do.	do.
----------------	-----	-----	-----	-----	-----

1 M.P. delivery	do.	do.	do.	do.	do.
-----------------	-----	-----	-----	-----	-----

1 H.P. suction	do.	do.	do.	do.	do.
----------------	-----	-----	-----	-----	-----

1 H.P. delivery	do.	do.	do.	do.	do.
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3 L.P. suction valve discs and springs.

2 L.P. delivery	"	"	"	"
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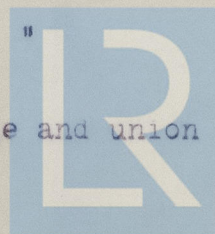
1 M.P. suction	"	"	"	"
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1 M.P. delivery	"	"	"	"
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1 H.P. suction	"	"	"	"
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1 H.P. delivery	"	"	"	"
-----------------	---	---	---	---

1 H.P. air cooling coil with flange and union ready for use.



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A number of springs suitable for the various sizes used at the auxiliary engines and auxiliary air compressors.

A number of assorted india rubber packing rings suitable for the various sizes used at the auxiliary engines and auxiliary air compressors.

8 valve spindles suitable for the valves on the high pressure injection air receivers.

1 spring for the safety valve on starting air receiver.

A quantity of "Krupps", "Paragon", "Palmetto", "Klingerit" and "Fiber" packing material.

Various lengths of steel and copper pipes of each size used for the fuel delivery and injection air pipes to the main and auxiliary power cylinders and the air delivery from the main and auxiliary compressors to the receivers with cone-ends, flanges, unions etc. suitable for each.

A quantity of assorted bolts and nuts.

Ballast pump:-

½ set of suction and delivery valves.

1 spring for escape valve.

Bilge and Sanitary pump:-

1 suction valve with seat, spindle and spring.

1 delivery " " " " " "

1 spring for escape valve.

1 ball bearing.

Cooling water pumps:-

1 leather sheave.

2 ball bearings.

Lubricating oil pumps:-

1 set of cog wheels.

1 roller bearing.



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1 spring for escape valve.

Lubricating oil cooler.

20 brass tubes.

1 filter basket.

Oil fuel transfer pump:-

1 filter basket.

1 spring for escape valve.

Steam driven oil fuel transfer pump:-

$\frac{1}{2}$ set of valves complete.

Auxiliary condenser:-

15 condenser tubes with screw ferrules.

Circulating pump:-

1 set of valves complete.

Donkey Boilers:-

4 plain boiler tubes.

4 stay tubes.

1 valve disc for the feed check valves.

1 safety valve spring.

6 water guage glasses and 12 packing rings.

Oil burning arrangement to the donkey boilers:-

Oil fuel pressure pumps:-

1 pair of crank pin bearing brasses.

2 crank pin bearing bolts.

1 pair of crosshead bearing brasses.

1 set of piston rings.

Oil fuel burner:-

1 oil burner complete.

36 mouth pieces for the burner.



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36 atomizers.

1 spring for the safety valve on the oil line.

Donkey boiler feed pumps:-

1 set of valves with springs complete.

1 spring for escape valves.

1 propeller shaft with nut and key.

2 cast iron propellers.

66 K.W. Generators:-

1 set of carbon brushes.

1 set of brush holders.

Electro Motors:-

1 set of carbon brushes, 1 set of brush holders and 1 ball bearing
for one motor of each size of the following:-

the 40 H.P. motor working the cooling water and lubricating oil
pump,

the 9 H.P. motors working the ballast pump, bilge and sanitary
pump and the oil fuel transfer pump,

the 8 H.P. motors working the turning gear to main engines,

the 3 H.P. motor " " oil fuel purifier,

the 2 H.P. " " lubricating oil purifier.

A quantity of assorted electric fittings, fuses, contact fingers,
switches, lamps, lampholders, Edisons tools etc. suitable for
the electric installation.

1 armature with shaft complete, 1 set of carbon brushes and

1 set of brush holders for the electro motor working the oil pump
for hydraulic steering gear.



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