

List of Spare Gear for the machinery of the
Twin Screw Motor Vessel "GRIPSHOLM". of Gothenburg.

Yard No. 999 by Messrs. Armstrong. Whitworth & Co. Ld. Newcastle.
Engines No. 1000 & 1001 by Messrs. Burmeister & Wain. Copenhagen.

Main Diesel Oil Engines:

- 2 cylinder covers for the top-ends complete with studs and nuts.
- 2 cylinder covers for the bottom-ends " " " " "
- 2 set of studs and nuts for one top cylinder cover
- 2 set of studs and nuts for one bottom ditto.
- 2 cylinder liners with lubricating arrangement attached complete.
- 2 cooling water jackets for cylinder liners.
- 1 piston with piston rod and liner for piston rod complete.
- 1 set of studs and nuts for one piston.
- 2 set of piston packing rings.
- 2 set of packing rings for the piston rod stuffing box.
- 4 scraping rings for the piston rod stuffing box.
- 12 exhaust valves with all mountings complete for the top-ends.
- 6 exhaust valve spindles complete for the top-end valves.
- 2 air inlet valves with all mountings complete for the top-ends.
- 2 starting air valves with all mountings complete for the " "
- 6 oil fuel injection valves with all mountings complete for the
top-ends.
- 3 oil fuel injection valve spindles for the top-end valves.
- 6 bottom parts of oil fuel injection valve chests for the top-
end valves.
- 12 exhaust valves with all mountings complete for the bottom-ends.
- 6 exhaust valve spindles complete for the bottom-end valves.
- 6 exhaust valve seats " " " " " "
- 6 exhaust valve discs for the bottom-end valves.
- 2 air inlet valves with all mountings complete for the bottom-ends

2 starting valves with all mountings complete for the bottom-ends.
 6 oil fuel injection valves with all mountings complete for the
 bottom-ends.
 3 oil fuel injection valve spindles for the bottom-end valves.
 6 bottom parts of oil fuel injection valve chests for the
 bottom-end valves.
 2 pair of main bearing brasses.
 8 studs with bolts for the main bearings.
 2 pair of connecting rod bottom-end brasses.
 4 connecting rod bottom-end bolts and nuts.
 4 pair of connecting rod top-end brasses.
 8 connecting rod top-end bolts and nuts.
 1 set of coupling bolts and nuts for the crank shafts.
 2 escape valves for the cylinder top-ends.
 2 ditto for the cylinder bottom-ends.
 2 roller with shafts for exhaust valve gear to the top-end valves.
 2 ditto ditto for air inlet valve gear to " " " "
 1 ditto do for starting valve gear to " " " "
 7 ditto ditto for oil fuel valve gear to " " " "
 2 do do for exhaust valve gear to the bottom-end
 valves.
 2 do do for air inlet valve gear to the " " "
 1 do do for starting valve gear to the " " "
 1 do do for oil fuel valve gear to the " " "
 2 pistons for the oil fuel pumps to the top-ends.
 2 ditto for the ditto to the bottom ends.
 2 delivery valves for the oil fuel pumps.
 2 suction valves for the oil fuel pumps.
 18 packing rings for the oil fuel pump pistons.
 2 telescope pipes for the piston oil cooling.
 2 flanges for do do.
 1 guide bush for do do.
 12 safety caps for the oil fuel injection valves.
 12 caps for the do do.
 6 safety caps for starting air piping.



2 spindles for the oil fuel overflow valves.
 One length of chain for the camshaft motion, and 10 links for same
 One chain wheel for the camshaft motion.
 One wheel for the chain leader.
 One wheel for the chain tightener.
 18 packing rings for the top fuel injection valve.
 18 " " " " bottom " "
 36 brass tubes for the fresh water cooler, 16 & 19 & 2152 m/m.
 34 " " " " oil cooler 8 & 11 & 1350 "
 A number of assorted rubber packing rings, packing material,
 bolts with nuts, oil gauge glasses, thermometers &c. and a
 number of pipes in suitable lengths with cones and unions.
 1 complete set of all springs used for one engine.
 for the fuel oil starting and injection air.

Auxiliary Diesel engines:

1 cylinder cover with cylinder liner and water jacket.
 1 pair of crank pin brasses with bolts and nuts.
 1 " " crosshead "
 1 " " main bearing brasses.
 1 " " " " " for compressor.
 2 Studs with nuts for main bearings.
 1 Piston complete with rod and packing rings.
 10 Piston packing rings.
 2 Scraperings.
 4 Exhaust valves complete.
 4 Spindles for do.
 4 Seats for do.
 4 Valve discs. for do.
 2 Air inlet valves complete.
 2 Starting air valves complete.
 4 Oil fuel injection valves complete.
 4 Spindles for do.
 4 Seats for do.

- 2 Escape valves complete for cylinders.
- 3 Rollers with shafts for valve gear.
- 1 Shaft for do.
- 6 Safety caps for the fuel injection valve.
- $\frac{1}{2}$ Set of all moving parts for fuel oil pump.
- 2 Tubes with packing rings for the piston cooling.
- 10 Studs with nuts for one cylinder cover.
- 2 Chains and 10 links for the valve gear.

compressor.

- 1 Pair of crank pin brasses with bolts for 3 cylinder engine.

1 " " " " " " " 4 " "

1 " " crosshead " " " " 3 " "

1 " " " " " " " 4 " "

7 HP piston packing rings)

1 " " scrape ")

5 IP " packing ") for the 3 " "

1 " " scrape ")

4 LP " packing ")

7 HP piston packing rings)

1 " " scrape ")

5 IP " packing ") for the 4 cyl. engine.

1 " " scrape ")

4 LP " packing ")

4 HP suction valves complete)

4 " discharge " ") for the 3 cyl. engine.

4 " " valve discs.)

4 " suction " ")

16 " " valves complete)

16 " discharge " ") for the 4 cyl. engine.

16 " " valve discs.)

16 " suction " ")

14 IP " valves complete.

14 " discharge " "



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14 IP discharge valve discs.
 14 " suction " "
 16 LP " valves complete.
 15 " discharge " "
 15 " " valve discs.
 16 " suction " "
 3 cooling coils for the HP cylinder.

1 lubricating oil filter.
 2 fuel oil filters.
 2 safety caps for the starting air pipes.
 1 complete set of all springs used for one 3 cyl. engine.
 1 " " " " " " " " 4 " "

A number of pipes in suitable lengths with cones and unions for the oil fuel, starting and injection air.

36 brass tubes for the fresh water cooler.
 34 " " " " oil cooler.
 12 " " " " LP air cooler.
 5 " " " " IP " "

Rubber packing rings, packing material, oil gauge glasses, pistons and ball valves for the sight feed lubricators, valve spindles and nutting plugs for the air receivers, thermometers &c &c.

Auxiliary machinery.

1 ball bearing for the 200 ts lubricating oil pump.
 1 roller " " " " " "
 4 filters for the lubricating oil filter.
 1 impeller with shaft for the 250 ts cooling water pump.
 2 ball bearings for do.
 1 chain coupling for do.
 1 impeller with shaft for the 200 ts cooling water pump.
 1 ball bearing for do.
 4 wings for the tank- & oil fresh transfer pump.



8 blocks for do.

1 Roller bearing for the 30 ts daily service oil fuel pump.

2 filters for the fuel oil filter.

1 thrust shoe for the thrust block.

1 Rotor for the 200 ts lubricating oil pump.

8 Wings for do.

1 Electromotor for the lubricating oil separator.

1 ball bearing and

1 set of coal brushes and brushholders for each size of
Electromotor used.

1 Anchor complete for the daily service oil fuel pump.

1 set brushes with brushholders for one dynamo.

1 " Anchor coils for one dynamo.

2 " shunt " " " "

2 " comp. " " " "

2 " interpole " " " "

1 " of coils, contacts and springs for one shunt field regulator.

*Examined on
board at 1000
L. M. Mungoch*