

Operators Manual

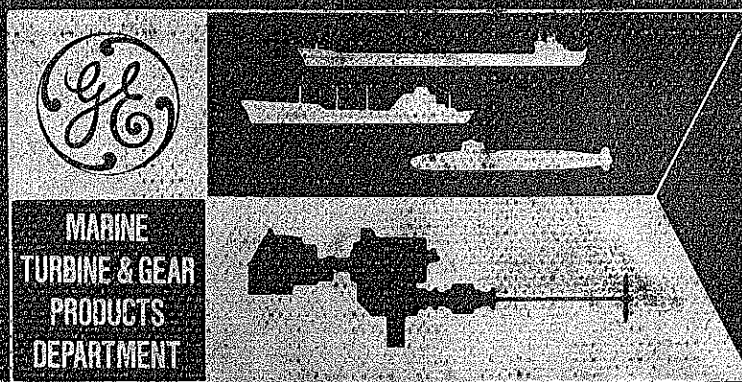
PROPULSION TURBINES AND GEARS

ENG

18

SUN SHIPBUILDING AND DRY DOCK COMPANY

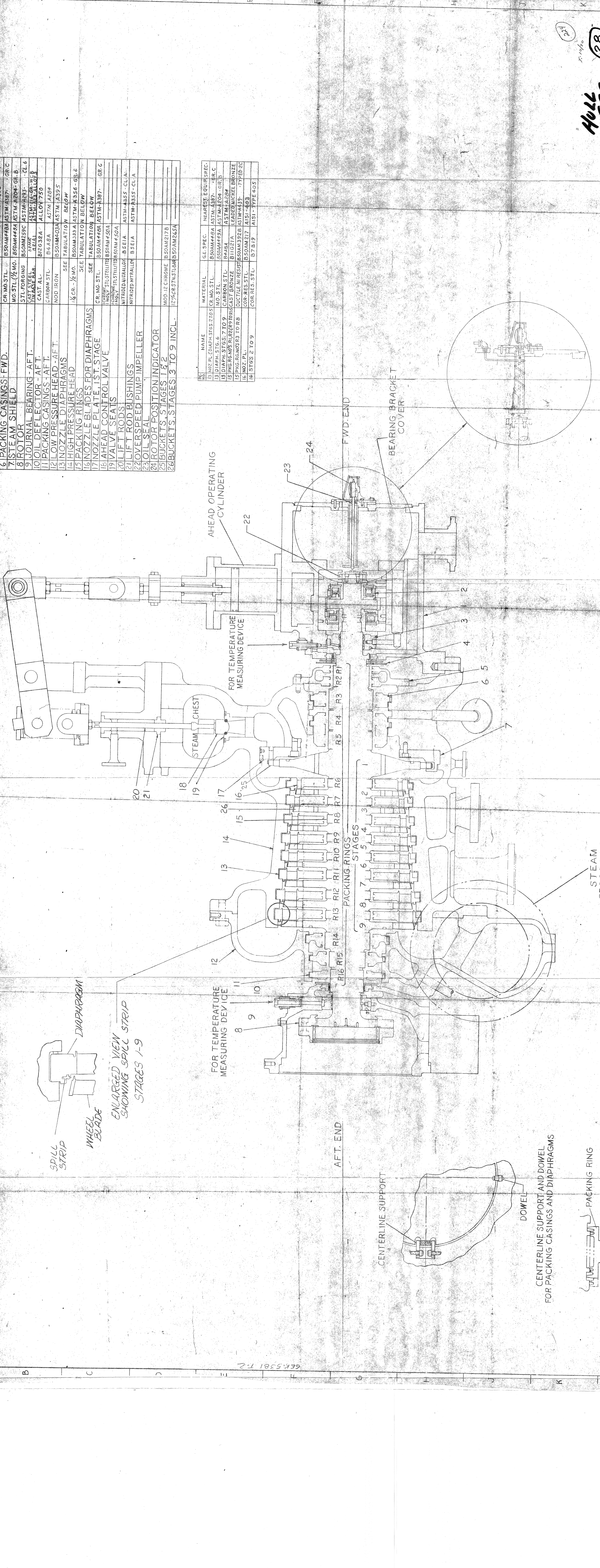
GEK-42462



GENERAL  ELECTRIC[®]

NO.	NAME	MATERIAL	GE. SPEC.	NEAREST EQUIV. SPEC.
1	BEARING BRACKET - FWD.	CARBON STEEL	B446A	ASTM-A 284
2	THRUST BEARING	CAST AL.	B12B32A	ASTM-A 284
3	JOURNAL BEARING - FWD.	CAST AL.	B12B32A	ASTM-A 284
4	OIL DEFLECTOR - FWD.	CAST AL.	B12B32A	ASTM-A 284
5	PACKING BOX - FWD.	MOD. IRON	B50AM4036A	ASTM-A 395
6	PACKING CASINGS - FWD.	CR. MO. STL.	B50AM4424A	ASTM-A 397
7	STEAM SHIELD	MOD. STL. (1/2 MO.)	B50AM4424A	ASTM-A 397
8	ROTOR	STEEL FORGING	B50AM259C	ASTM-A 293
9	JOURNAL BEARING - AFT.	CAST AL.	B12B32A	ASTM-A 284
10	OIL DEFLECTOR - AFT.	CAST AL.	B12B32A	ASTM-A 284
11	PACKING CASINGS - AFT.	MOD. IRON	B50AM4036A	ASTM-A 395
12	LOW PRESSURE HEAD - AFT.	SEE TABULATION	SEE TABULATION	SEE TABULATION
13	NOZZLE DIAPHRAGMS	SEE TABULATION	SEE TABULATION	SEE TABULATION
14	HIGH PRESSURE HEAD	SEE TABULATION	SEE TABULATION	SEE TABULATION
15	PACKING RINGS	SEE TABULATION	SEE TABULATION	SEE TABULATION
16	NOZZLE BLADES FOR DIAPHRAGMS	SEE TABULATION	SEE TABULATION	SEE TABULATION
17	NOZZLE PLATE, 1ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
18	AHEAD CONTROL VALVE	MOD. STL.	B50AM259C	ASTM-A 293
19	VALVE SEATS	MOD. STL.	B50AM259C	ASTM-A 293
20	LIFT RODS	MOD. STL.	B50AM259C	ASTM-A 293
21	LIFT ROD BUSHINGS	MOD. STL.	B50AM259C	ASTM-A 293
22	OVERSPEED PUMP IMPELLER	MOD. STL.	B50AM259C	ASTM-A 293
23	OIL SEAL	MOD. STL.	B50AM259C	ASTM-A 293
24	ROTOR POSITION INDICATOR	MOD. STL.	B50AM259C	ASTM-A 293
25	BUCKETS, STAGES 1 & 2	MOD. 12 CHROME	B50AM217B	
26	BUCKETS, STAGES 3 TO 9 INCL.	12% CR. STL.	B50AM217B	

NO.	NAME	MATERIAL	GE. SPEC.	NEAREST EQUIV. SPEC.
15	NOZZLE PLATE, 1ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
16	NOZZLE PLATE, 2ND STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
17	NOZZLE PLATE, 3RD STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
18	NOZZLE PLATE, 4TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
19	NOZZLE PLATE, 5TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
20	NOZZLE PLATE, 6TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
21	NOZZLE PLATE, 7TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
22	NOZZLE PLATE, 8TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
23	NOZZLE PLATE, 9TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
24	NOZZLE PLATE, 10TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
25	NOZZLE PLATE, 11TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
26	NOZZLE PLATE, 12TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
27	NOZZLE PLATE, 13TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
28	NOZZLE PLATE, 14TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
29	NOZZLE PLATE, 15TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
30	NOZZLE PLATE, 16TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
31	NOZZLE PLATE, 17TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
32	NOZZLE PLATE, 18TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
33	NOZZLE PLATE, 19TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
34	NOZZLE PLATE, 20TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
35	NOZZLE PLATE, 21ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
36	NOZZLE PLATE, 22ND STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
37	NOZZLE PLATE, 23RD STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
38	NOZZLE PLATE, 24TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
39	NOZZLE PLATE, 25TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
40	NOZZLE PLATE, 26TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
41	NOZZLE PLATE, 27TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
42	NOZZLE PLATE, 28TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
43	NOZZLE PLATE, 29TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
44	NOZZLE PLATE, 30TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
45	NOZZLE PLATE, 31ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
46	NOZZLE PLATE, 32ND STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
47	NOZZLE PLATE, 33RD STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
48	NOZZLE PLATE, 34TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
49	NOZZLE PLATE, 35TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
50	NOZZLE PLATE, 36TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
51	NOZZLE PLATE, 37TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
52	NOZZLE PLATE, 38TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
53	NOZZLE PLATE, 39TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
54	NOZZLE PLATE, 40TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
55	NOZZLE PLATE, 41ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
56	NOZZLE PLATE, 42ND STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
57	NOZZLE PLATE, 43RD STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
58	NOZZLE PLATE, 44TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
59	NOZZLE PLATE, 45TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
60	NOZZLE PLATE, 46TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
61	NOZZLE PLATE, 47TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
62	NOZZLE PLATE, 48TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
63	NOZZLE PLATE, 49TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
64	NOZZLE PLATE, 50TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
65	NOZZLE PLATE, 51ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
66	NOZZLE PLATE, 52ND STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
67	NOZZLE PLATE, 53RD STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
68	NOZZLE PLATE, 54TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
69	NOZZLE PLATE, 55TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
70	NOZZLE PLATE, 56TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
71	NOZZLE PLATE, 57TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
72	NOZZLE PLATE, 58TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
73	NOZZLE PLATE, 59TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
74	NOZZLE PLATE, 60TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
75	NOZZLE PLATE, 61ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
76	NOZZLE PLATE, 62ND STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
77	NOZZLE PLATE, 63RD STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
78	NOZZLE PLATE, 64TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
79	NOZZLE PLATE, 65TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
80	NOZZLE PLATE, 66TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
81	NOZZLE PLATE, 67TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
82	NOZZLE PLATE, 68TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
83	NOZZLE PLATE, 69TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
84	NOZZLE PLATE, 70TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
85	NOZZLE PLATE, 71ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
86	NOZZLE PLATE, 72ND STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
87	NOZZLE PLATE, 73RD STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
88	NOZZLE PLATE, 74TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
89	NOZZLE PLATE, 75TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
90	NOZZLE PLATE, 76TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
91	NOZZLE PLATE, 77TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
92	NOZZLE PLATE, 78TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
93	NOZZLE PLATE, 79TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
94	NOZZLE PLATE, 80TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
95	NOZZLE PLATE, 81ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
96	NOZZLE PLATE, 82ND STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
97	NOZZLE PLATE, 83RD STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
98	NOZZLE PLATE, 84TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
99	NOZZLE PLATE, 85TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
100	NOZZLE PLATE, 86TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
101	NOZZLE PLATE, 87TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
102	NOZZLE PLATE, 88TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
103	NOZZLE PLATE, 89TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
104	NOZZLE PLATE, 90TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
105	NOZZLE PLATE, 91ST STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
106	NOZZLE PLATE, 92ND STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
107	NOZZLE PLATE, 93RD STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
108	NOZZLE PLATE, 94TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
109	NOZZLE PLATE, 95TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
110	NOZZLE PLATE, 96TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
111	NOZZLE PLATE, 97TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
112	NOZZLE PLATE, 98TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
113	NOZZLE PLATE, 99TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387
114	NOZZLE PLATE, 100TH STAGE	CR. MO. STL.	B50AM446A	ASTM-A 387



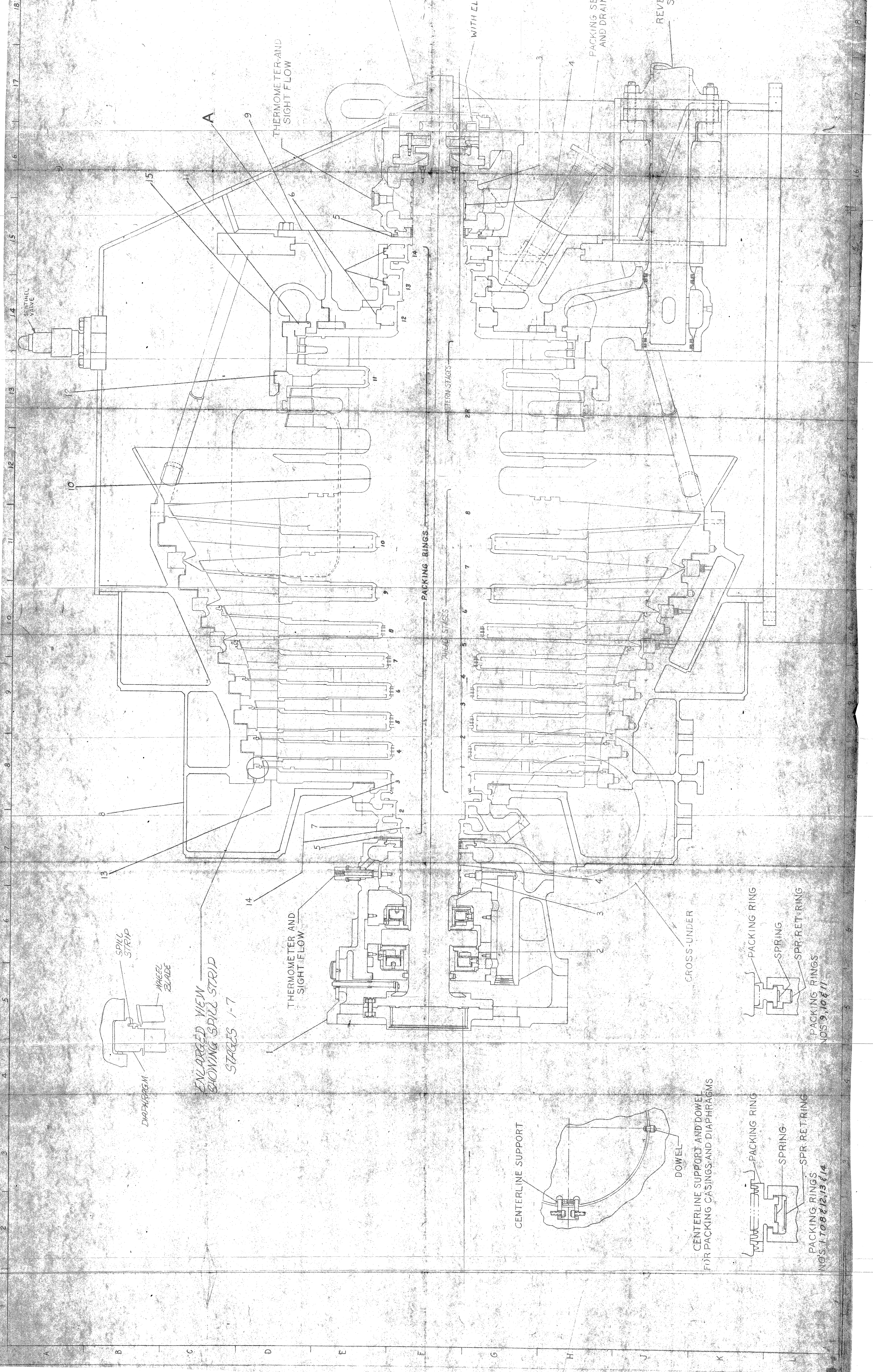
Hull 666
 28
 GENERAL ELECTRIC
 DEPT. OF ELECTRICITY
 CROSS SECTION ASSEMBLY
 H.P. UNIT
 CONTRACT NO. 7547E18
 SHEET NO. 20

SIGATURES
 DESIGNED BY
 DRAWN BY
 CHECKED BY
 MATERIAL (G.M. PARSONS)
 G.E.

8 1/2 x 11 1/2 879-1 P. 252986-1
 IN THE SUPPLEMENT TO 1000

ROTOR ELECTRONIC POSITION DETECTOR
 (INTERCHANGEABLE WITH PT-24 ABOVE
 WHEN REQUIRED)

NO.	NAME	MATERIAL	GE. SPEC.	NEAREST EQUIV. SPEC.	REV. NO.	REVISIONS	DATE APPROVED
1	BEARING BRACKET	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	A	DESIGNED BY: [unclear]	1/10/52
2	LINKING END (LEFT)	STEEL PLATE	SAASR	ASTM-A36	B	DESIGNED BY: [unclear]	1/10/52
3	LINKING END (RIGHT)	STEEL PLATE	SAASR	ASTM-A36	B	DESIGNED BY: [unclear]	1/10/52
4	PACKING BOX	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	C	DESIGNED BY: [unclear]	1/10/52
5	PACKING BOX	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	C	DESIGNED BY: [unclear]	1/10/52
6	PACKING BOX	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	C	DESIGNED BY: [unclear]	1/10/52
7	PACKING BOX	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	C	DESIGNED BY: [unclear]	1/10/52
8	PACKING BOX	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	C	DESIGNED BY: [unclear]	1/10/52
9	PACKING BOX	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	C	DESIGNED BY: [unclear]	1/10/52
10	ROTOR	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	D	DESIGNED BY: [unclear]	1/10/52
11	ROTOR	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	D	DESIGNED BY: [unclear]	1/10/52
12	ROTOR	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	D	DESIGNED BY: [unclear]	1/10/52
13	ROTOR	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	D	DESIGNED BY: [unclear]	1/10/52
14	ROTOR	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	D	DESIGNED BY: [unclear]	1/10/52
15	ROTOR	DUCTILE IRON CASTINGS	BSMAM424	ASTM-A352	D	DESIGNED BY: [unclear]	1/10/52



#1219

HULL 666

(23)

T. 0. 0. 0.

GENERAL ELECTRIC

M. S. T. G. S. DEPT. LOCAL M. M. B. S.

P. 666 B. 1. B. 370. 0. 2.

CROSS SECTION ASSEMBLY

L.P. UNIT

MAIN ENGINE EXPECTED OPERATING PERFORMANCE

SUN TYPE No. 1
 30000 SHP - 128 rpm
 845.3 PSIG - 905°F - 1.5 IN. HG. A.

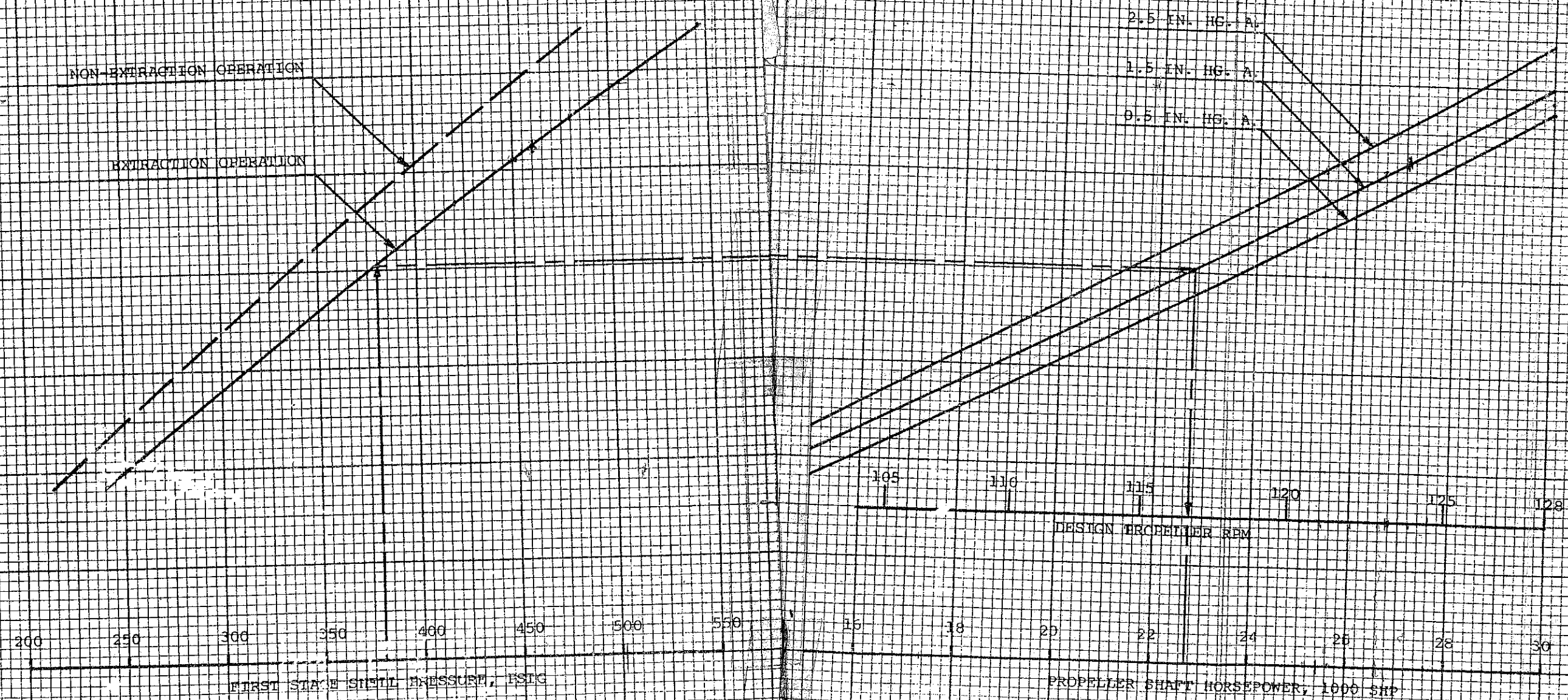
Approximate Max. Extractions at Max. Power

First Extraction (HP)	7000 LB/HR
Second Extraction (CO)	18900 LB/HR
Third Extraction (LP)	16100 LB/HR

gear tooth load factors are based
 on 234.4 bHP per prop. RPM. To
 maintain proper gear tooth life, the
 loading should not be exceeded.

NOTES:

1. Extraction flows are approximately proportional to SHP output.
2. Change in input due to 25°F change in initial superheat and/or 5% change in throttle pressure is negligible.



7/17/75
 7-17-75-167T
 REV 5-26-75-167T

4038111-200218

GEK-42462

**PROPULSION
TURBINES AND GEARS**

SUN SHIPBUILDING AND DRY DOCK COMPANY

SUN P.O.

J-37086-2

J-43282-2

SUN HULL

666

670

MARINE TURBINE & GEAR PRODUCTS DEPARTMENT
GENERAL ELECTRIC COMPANY
LYNN, MASS.

GENERAL  ELECTRIC

CONTENTS

SECTION I, DESCRIPTION OF TURBINES

General Description.	GEK-19392
High-Pressure and Low-Pressure Turbines.	GEK-19393
Steam Nozzles.	GEK-19352
Shaft Packing Rings.	GEK-19353
Rotors	GEK-19354
Journal Bearings	GEK-25734
Thrust Bearings.	GEK-19356
Rotor Position Indicator	GEK-19357
Steam Strainers.	GEK-19358

SECTION 2, DESCRIPTION OF SYSTEMS

Lube and Control Oil System.	GEK-19391
Overspeed Governor System.	GEK-19399
Shaft Sealing System	GEK-19363
Throttle Control System.	GEK-19394

SECTION 3, OPERATION

Design Conditions and Operating Limitations.	GEK-35390
Preparation for Getting Underway	GEK-19396
Operation of the Turbines.	GEK-25738
Monitoring While Underway.	GEK-19377
Emergency Operation on One Turbine	GEK-19368
Emergency-Bar Operation of Steam Control Valves.	GEK-19397
Trouble Analysis Guide	GEK-19371

SECTION 4, MAINTENANCE

Preventive Maintenance	GEK-19372
Corrective Maintenance	GEK-35403

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

5385

CONTENTS (CONT'D)

SECTION 5, SPARE PARTS AND TOOLS

Refer to this section for the lists of spare parts for the turbines and accessory equipment, and also for the list of special tools.

SECTION 6, ACCESSORY EQUIPMENT

Refer to this section for equipment furnished with the turbines but which was manufactured by companies other than the General Electric Company, Lynn, Mass., U.S.A.

TURBINE SERIAL NUMBERS

H.P. TURBINE

200324

200414

L.P. TURBINE

200325

200415

42462 SN

DRAWINGS

- T-1 Outline
- T-2 Assembly of High-Pressure Turbines
- T-3 Assembly of Low-Pressure Turbines
- T-4 Clearance Diagram, High-Pressure Turbine
- T-5 Clearance Diagram, Low-Pressure Turbine
- T-6 Thrust Bearing, High-Pressure Turbine
- T-7 Thrust Bearing, Low-Pressure Turbine
- T-8 Lube and Control Oil Diagram
- T-9 Seal and Drain Diagram
- T-10 Steam Seal Regulator
- T-11 Mechanism for Steam Control Valves
- T-12 Control Setting Diagram
- T-13 Ahead Steam Control Valves
- T-14 Astern Steam Control Valves
- T-15 Lifting Arrangement, High-Pressure Turbine
- T-16 Lifting Arrangement, Low-Pressure Turbine
- T-17 Bolt and Stud Tightening Chart
- T-18 Rebabbiting drawing H.P. Turbine Fwd.
- T-19 Rebabbiting drawing H.P. Turbine Aft
- T-20 Rebabbiting drawing L.P. Turbine Fwd.
- T-21 Rebabbiting drawing L.P. Turbine Aft.

GENERAL DESCRIPTION

The Outline drawing shows the arrangement of the main propulsion machinery.

The propulsion turbines consist of a high-pressure turbine and a low-pressure turbine located side by side and connected by a steam crossunder pipe. The rotors of the turbines are connected to the pinions of the double-reduction gear, which reduces the speeds of the turbines to the propeller shaft speed.

The Outline drawing shows the seating plan for the turbines as well as the pipe connections to external sources.

If either the high-pressure turbine or the low-pressure turbine becomes inoperative for any reason, the crossunder piping between the turbines can be rearranged to permit emergency operation on one turbine.

The turbines are equipped with speed-limiting devices which hold the turbine speed at a govern-

ing point if overspeed should occur. See the Control Setting Diagram, and the description of the Overspeed Governor System.

A low bearing-oil-pressure switch is installed in the oil feed line to the bearings. This switch senses a pressure drop in the bearing feed line and actuates to close the steam control valves when the pressure drops to a value where the bearings would not be protected. See the Lube and Control Oil Diagram.

An exhaust sentinel valve is located on top of the exhaust casing of the low-pressure turbine. This valve gives an audible alarm when the exhaust pressure becomes too high. This is not a relief valve.

In case of failure of the control oil system the ahead and astern valves may be operated manually in order to control the movement of the ship. See Section 3, OPERATION.

HIGH-PRESSURE AND LOW-PRESSURE TURBINES

HIGH-PRESSURE TURBINE

The high-pressure turbine casing consists of two halves, upper and lower, and has a metal-to-metal steam joint the entire length of the horizontal centerline (see drawing, Assembly of High-pressure Turbine). The upper halves of both the forward and aft bearing brackets can be removed for access to the journal bearings and thrust bearing. The upper halves of both the forward and aft packing boxes can also be removed to inspect the outer rings of packing, and also to provide access to the balance grooves in the shoulders of the rotor. Openings are provided in the lower-half casing for the extraction of steam.

The steam chest, which contains the ahead steam control valves, is integral with the upper half of the casing. The chest has flanged openings at each end; one opening is the steam inlet from the strainer, while the other opening allows steam flow to the astern valve. See the Outline drawing for these connections.

LOW-PRESSURE TURBINE

The low-pressure turbine, like the high-pressure turbine, has a metal-to-metal steam joint

the entire length of the horizontal centerline (See drawing, Assembly of Low-Pressure Turbine). The forward and aft bearing brackets, as well as the forward and aft packing boxes also have metal-to-metal horizontal joints.

The ahead steam inlet is located in the lower half, aft end, of the turbine casing. This inlet is connected to the exhaust of the high-pressure turbine by the crossover pipe. See the Outline drawing for the arrangement of this piping.

The astern steam inlet, allows steam to flow to the steam ring of the reversing element. The exhaust connection from the turbine is bolted to the main condenser.

Astern Steam Ring

The steam ring for the astern element is an inner casing located in the forward end of the low-pressure turbine. The steam ring consists of an upper-half and lower-half casting with an annular chamber through which the steam flows to both the upper and lower halves of the astern nozzle plate. The steam ring is bolted together at its horizontal joint, and is centerline supported in the turbine casing.