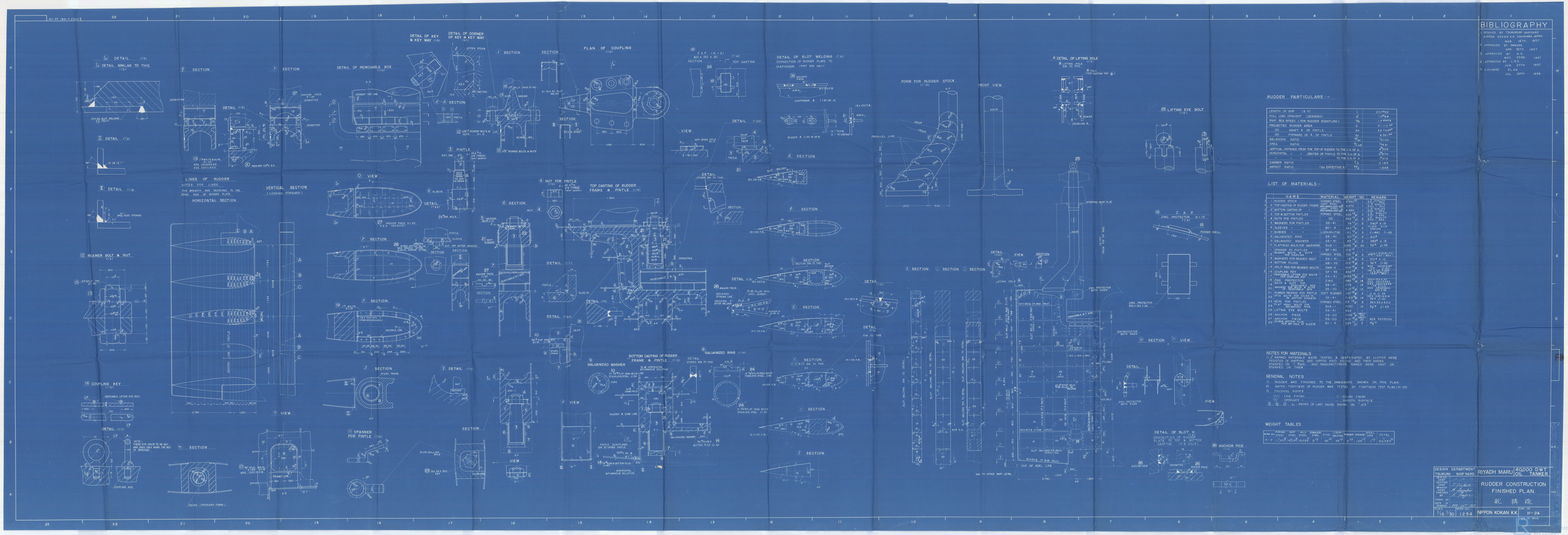

BIBLIOGRAPHY

1. DESIGNED BY TSURUMI SHIPYARD NIPPON KOKAN K.K. YOKOHAMA JAPAN. MAR. 18TH. 1957.
2. APPROVED BY OWNERS. APR. 30TH. 1957.
3. APPROVED BY N.K. MAY 8TH. 1957.
4. APPROVED BY N.K. JUN. 27TH. 1957.
5. FINISHED PLAN. JUL. 30TH. 1958.

RUDDER PARTICULARS :-

LENGTH OF SHIP (B.P)	L	210	M
FULL LOAD DRAUGHT (DESIGNED)	d	10.94	M
MAX. SEA SPEED (FOR RUDDER DEANTLING)	Vs	16	KNOTS
PROJECTED RUDDER AREA	A	31.10	M²
DO ABAFT ℄ OF PINTLE	Aa	28.74	M²
DO FORWARD OF ℄ OF PINTLE	Af	2.36	M²
BALANCING RATIO	Af/Aa	0.120	
AREA RATIO	Aa/Ld	0.137	
VERTICAL DISTANCE FROM THE TOP OF RUDDER TO THE C.G OF A		4.209	M
HORIZONTAL " " CENTER OF PINTLE TO THE C.G OF A		0.670	M
" " " " TO THE C.G OF A		0.173	M
CARRIER RATIO		0.183	
ASPECT RATIO (No EFFECTIVE 5)	Ae/Ae	1.948	

LIST OF MATERIALS:-

	NAME	MATERIAL	WEIGHT	NO	REMARK
1	RUDDER STOCK	FORGED STEEL	2.700	1	1.5 × 0.72
2	TOP CASTING OF RUDDER FRAME	ACCORDING TO JIS G5102	2.670	1	1.5 × 0.72
3	BOTTOM CASTING OF "	ACCORDING TO JIS G5102	4.480	1	1.5 × 0.72
4	TOP & BOTTOM PINTLES	FORGED STEEL	3.00	2	1.5 × 0.72
5	NUTS FOR PINTLES	DO	48.2	2	1.5 × 0.72
6	WASHERS FOR PINTLES	SS-41	74	2	140 × 4.5
6	SLEEVES " "	BC-4	12.4	2	140 × 11.5
7	RUBBER " "	LEDUCO-TUBE	13	2	140 × 7.25
8	GALVANIZED RING	SS-41	3.0	2	410
9	GALVANIZED WASHERS	SS-41	8.0	2	480 × 15
10	FLATHEAD BOLTS FOR WASHERS	SUS-1	0.058	20	16 × 2.78
11	SPANNER FOR PINTLES	SF-40	10.0	1	
12	REAMER BOLTS & NUTS	FORGED STEEL	114	8	45 × 1.5 (PITCH)
13	WASHERS FOR REAMER BOLT	SS-41	0.4	8	50 × 2.5
14	BOTTOM PLUGS	NB-35	0.14	8	16 × 2.00
15	SPLIT PINS FOR REAMER BOLTS	RWM-12	0.4	8	4.5 × 100 (COTTER)
16	COUPLING KEY	SF-55	43.2	1	140 × 90 × 1000
17	REMOVABLE LIFTING EYE BOLTS	SS-41	1.85	2	100 × 1.5
18	ZINC PROTECTOR	ZINC	0.08	4	100 × 100 × 8
19	BOLTS & NUTS FOR PINTLES	SS-41	0.15	14	M20 × 2.5 (PITCH)
20	WASHERS FOR BOLTS & NUTS	SS-41	0.15	14	22 × 3.5 × 2.5
21	RUBBER PACKING FOR PINTLE	SOFT RUBBER	0.5	2	KEY SECTION
22	STUD BOLTS FOR PINTLE	SS-41	0.43	18	M16 × 80 × 1.5
23	KEYS FOR PINTLES	FORGED STEEL	2.9	2	39 × 55 × 300
24	FLAT HEAD BOLTS FOR DIAPHRAGM	SUS-1	0.08	20	16 × 2 × 45
25	LIFTING EYE BOLTS	SS-41	1.85	2	M100
26	ANCHOR PIECE	SS-00	0.5	4	100 × 100 × 100
27	ANCHOR PIECE	SS-00	0.5	4	100 × 100 × 100
28	STUD BOLTS & NUTS FOR OIL HOLE OF SLEEVE	BC-4	0.04	12	M8 × 1.25 KES 3205-00

NOTES FOR MATERIALS

1) ALL MARKED MATERIALS WERE TESTED & CERTIFICATED BY LLOYD'S WERE REGISTER OF SHIPPING AND SUPPOSE FACT SHEETS AND THEIR MARKS STAMPED ON 1. SHAFT. AND MANUFACTURER'S NAMES WERE CAST ON THEM.

GENERAL NOTES

1) RUDDER WAS FINISHED TO THE DIMENSIONS SHOWN ON THIS PLAN.
2) WATER-TIGHTNESS OF RUDDER WAS TESTED BY TIGHTNESS TEST PLAN (H-26)
3) FINISHING MARKS
" : FINE FINISH " : SMOOTH FINISH
" : ORDINARY " : ROUGH SURFACE
N1, N2, N3, N4 : MARKS OF LAST GAUGE SHOWN ON "JES".

WEIGHT TABLES

	FORGED STEEL	CAST STEEL	MILD STEEL	GALVANIZED STEEL	ZINC	LIQUIDS	RUBBER	BRONZE	STEEL WIRE	TOTAL
H-2	10.470	4.150	4.622	2.7	0.4	0.7	2.7	1.2	1.7	40.787

DESIGN DEPARTMENT TSURUMI SHIP YARD	RIYADH MARU	40,000 D.W.T. OIL TANKER
DRAWN BY Y. TAKAHASHI	RUDDER CONSTRUCTION FINISHED PLAN.	
TRACED BY Y. TAKAHASHI	舵構造	
CHECKED BY M. Sugiyama		
APPROVED BY M. Sugiyama		
DATE OF ISSUE JAN. 15 1960	SCALE 1/50	DRAWING NO. H-24
DATE 15/1/60	1254	NIPPON KOKAN K.K.

FINISHED PLAN
TO LLOYD'S REGISTER
OF SHIPPING

S.S. "RIYADH MARU"
as Built
YKA.F.E. Rpt. No. 2711

RECORDS DEPT.
LONDON.

12

LLOYD'S REGISTER
K. Hakano
27-9-58
YOKOHAMA
OF SHIPPING

Rudder Construction

NIPPON STEEL TUBE CO. LTD
TSURUMI SHIPYARD
12 SEP 1958
YOKOHAMA JAPAN

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