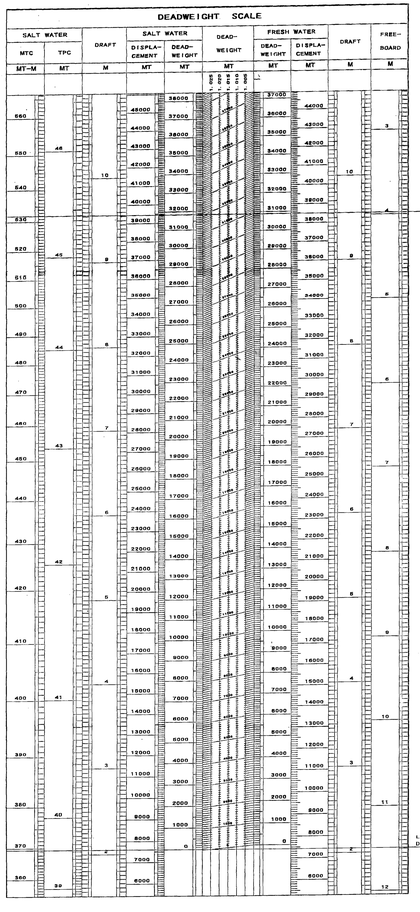
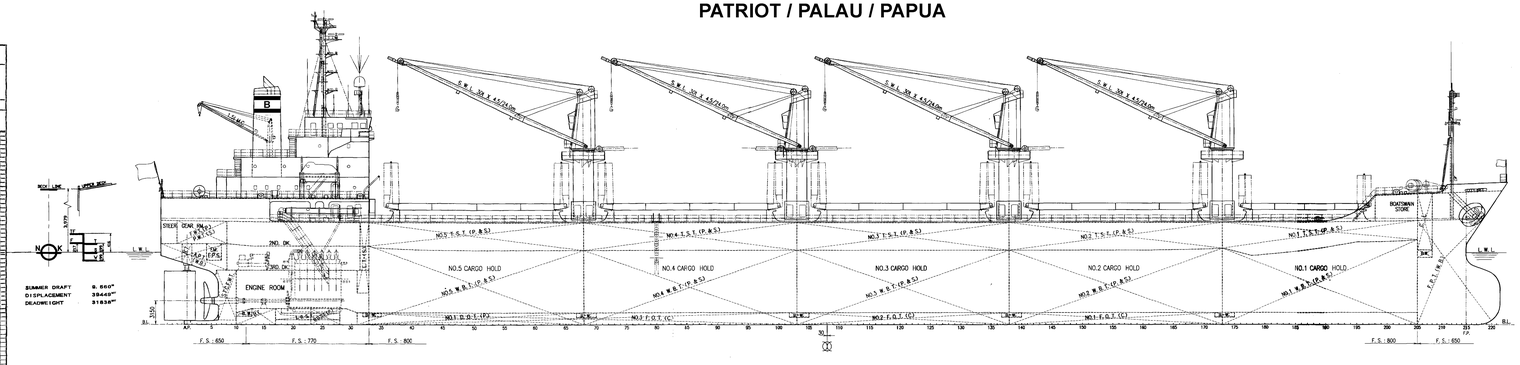
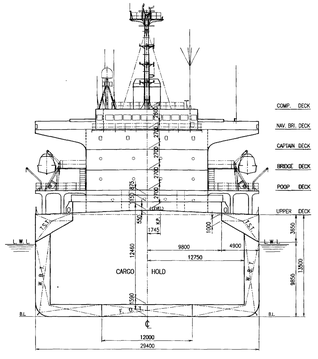
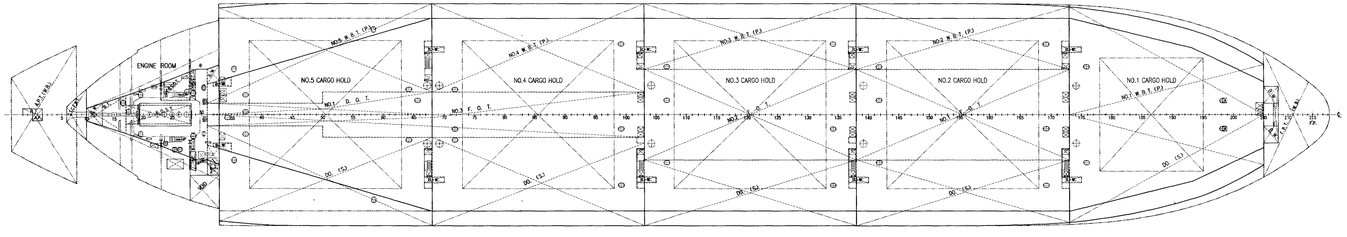
CAPACITY PLAN

PATRIOT / PALAU / PAPUA

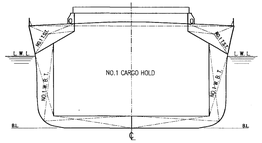




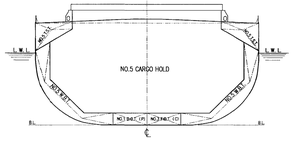




NO.1 HOLD SEC.



NO.5 HOLD SEC.



CARGO HOLD (GRAIN)		1 cub. ft = 0.028317 cub. m					
NAME OF HOLD	LOCATION	FULL CAPACITY (cub. m)			・G	KG
		HOLD	HATCH	TOTAL	(m)	(m)
NO.1 CARGO HOLD	173 - 205	5692.49	253.72	5918.21	-62.95	7.88
NO.2 CARGO HOLD	138 - 173	8424.32	505.89	8930.21	-37.83	7.95
NO.3 CARGO HOLD	103 - 138	8424.32	505.89	8930.21	-8.83	7.95
NO.4 CARGO HOLD	68 - 103	8424.32	505.89	8930.21	18.17	7.95
NO.5 CARGO HOLD	33 - 68	7747.14	505.89	8253.03	45.57	8.28
CARGO HOLD GRAIN TOTAL		38682.59	2277.28	40959.87	-8.34	8.01

CARGO HOLD (BALE)		1 cub. ft = 0.028317 cub. m				
NAME OF HOLD	LOCATION	FULL CAPACITY (cub. m)			・G	KG
		HOLD	HATCH	TOTAL	(m)	(m)
NO.1 CARGO HOLD	173 - 205	5590.55	253.72	5844.27	-63.02	7.85
NO.2 CARGO HOLD	138 - 173	8110.53	505.89	8616.42	-37.50	7.95
NO.3 CARGO HOLD	103 - 138	8112.29	505.89	8618.18	-9.50	7.95
NO.4 CARGO HOLD	68 - 103	8112.29	505.89	8618.18	18.50	7.95
NO.5 CARGO HOLD	33 - 68	7477.33	505.89	7983.22	45.97	8.28
CARGO HOLD BALE TOTAL		37402.99	2277.28	39680.27	-8.22	8.00

WATER BALLST TANK			1 cub. ft = 0.028317 cub. m SPECIFIC GRAVITY = 1.025 t/cub. m				
NAME OF TANKS		LOCATION	FULL CAPACITY			・G	KG
			cub. m	cub. ft	weight(t)	(m)	(m)
FORE PEAK TANK	C	205 - F.P.	720.28	25438	738	-80.88	7.02
NO.1 WATER BALLAST TANK	P	173 - 205	840.55	29684	862	-64.04	3.88
NO.1 WATER BALLAST TANK	S	173 - 205	840.55	29684	862	-64.04	3.88
NO.2 WATER BALLAST TANK	P	138 - 173	806.46	28480	827	-37.58	3.70
NO.2 WATER BALLAST TANK	S	138 - 173	806.46	28480	827	-37.58	3.70
NO.3 WATER BALLAST TANK	P	103 - 138	831.56	29365	852	-9.91	3.76
NO.3 WATER BALLAST TANK	S	103 - 138	831.56	29365	852	-9.91	3.76
NO.4 WATER BALLAST TANK	P	68 - 103	948.34	33490	972	17.84	3.40
NO.4 WATER BALLAST TANK	S	68 - 103	947.17	33449	971	17.86	3.40
NO.5 WATER BALLAST TANK	P	31 - 68	833.43	29432	854	45.78	3.87
NO.5 WATER BALLAST TANK	S	31 - 68	833.43	29432	854	45.78	3.87
NO.1 TOP SIDE TANK	P	173 - 205	295.93	10447	303	-62.80	12.41
NO.1 TOP SIDE TANK	S	173 - 205	295.93	10447	303	-62.80	12.41
NO.2 TOP SIDE TANK	P	138 - 173	311.51	11001	319	-37.81	12.31
NO.2 TOP SIDE TANK	S	138 - 173	311.51	11001	319	-37.81	12.31
NO.3 TOP SIDE TANK	P	103 - 138	315.92	11157	324	-9.97	12.30
NO.3 TOP SIDE TANK	S	103 - 138	315.92	11157	324	-9.97	12.30
NO.4 TOP SIDE TANK	P	68 - 103	315.91	11156	324	18.03	12.30
NO.4 TOP SIDE TANK	S	68 - 103	315.91	11156	324	18.03	12.30
NO.5 TOP SIDE TANK	P	33 - 68	313.02	11054	321	45.92	12.31
NO.5 TOP SIDE TANK	S	33 - 68	313.02	11054	321	45.92	12.31
AFT PEAK TANK	C	A.E. - 8	211.83	7481	217	82.14	9.48
WATER BALLAST GRAND TOTAL			12556.00	443410	12870	-11.33	6.13

FRESH WATER TANK			1 cub. ft = 0.028317 cub. m SPECIFIC GRAVITY = 1.000 t/cub. m				
NAME OF TANKS		LOCATION	FULL CAPACITY			・G	KG
			cub. m	cub. ft	weight(t)	(m)	(m)
FRESH WATER TANK	P	-2 ~ 8	80.28	2835	80	81.70	12.40
POTABLE WATER TANK	S	-2 ~ 8	80.28	2835	80	81.70	12.40
FRESH WATER TOTAL			160.56	5670	161	81.70	12.40

FUEL OIL TANK (FILLING RATIO = 90 %)			1 cub. ft = 0.028317 cub. m SPECIFIC GRAVITY = 0.970 t/cub. m				
NAME OF TANKS		LOCATION	FULL CAPACITY			・G	KG
			cub. m	cub. ft	weight(t)	(m)	(m)
NO.1 FUEL OIL TANK	C	138 - 173	524.72	18530	458	-37.84	0.79
NO.2 FUEL OIL TANK	C	102 - 138	523.55	18489	457	-9.81	0.79
NO.3 FUEL OIL TANK	C	31 - 103	364.48	12871	318	25.44	0.79
H.F.O. SERVICE TANK	S	28 - 32	26.87	949	23	62.34	10.26
H.F.O. SETTLING TANK	S	28 - 32	28.14	994	25	62.34	10.46
FUEL OIL TOTAL			1467.76	51833	1281	-6.44	1.15

DIESEL OIL TANK (FILLING RATIO = 90 %)			1 cub. ft = 0.028317 cub. m SPECIFIC GRAVITY = 0.850 t/cub. m				
NAME OF TANKS		LOCATION	FULL CAPACITY			・G	KG
			cub. m	cub. ft	weight(t)	(m)	(m)
NO.1 DIESEL OIL TANK	P	31 - 68	102.70	3627	79	44.32	0.79
D.O. SERVICE TANK	S	23.5 - 28.5	12.67	447	10	66.19	11.64
DIESEL OIL TOTAL			115.37	4074	89	46.72	1.98

LUBRICATING OIL TANK			1 cub. ft = 0.028317 cub. m SPECIFIC GRAVITY = 0.900 t/cub. m				
NAME OF TANKS		LOCATION	FULL CAPACITY			・G	KG
			cub. m	cub. ft	weight(t)	(m)	(m)
LUB. OIL SUMP. TANK	C	17 - 28	18.80	657	17	68.35	1.13
M/E L.O. STORAGE TANK	S	13.5 - 17	15.18	536	14	73.75	11.78
M/E L.O. SETTLING TANK	S	19 - 22.5	15.41	544	14	71.87	11.66
NO.1 CYL. O. STORAGE TANK	P	14 - 17	14.24	503	13	73.51	11.81
NO.2 CYL. O. STORAGE TANK	P	9 - 12.5	14.24	503	13	77.00	11.61
G/E LUB. OIL STOR. TANK	S	8.5 - 11	2.47	87	2	77.55	11.70
G/E LUB. OIL SETT. TANK	S	8.5 - 11	2.47	87	2	77.55	11.70
M/E CYL.O. DAY TANK	P	17.5 - 18.5	0.64	23	1	71.73	11.21
S/T L.O. GRAVITY TANK	S	8.5 - 9.3	0.19	6	0	78.30	12.25
LUBRICATING OIL TOTAL			83.43	2946	75	72.90	9.32

OTHER TANKS			1 cub. ft = 0.028317 cub. m SPECIFIC GRAVITY = 1.000 t/cub. m				
NAME OF TANKS		LOCATION	FULL CAPACITY			・G	KG
			cub. m	cub. ft	weight(t)	(m)	(m)
BILGE SEP. OIL TANK	P	23 - 28	15.65	560	16	65.61	1.29
BILGE TANK	C	10 ~ 17	24.26	857	24	74.16	1.10
S/T COOLING F.W.T.	C	A.E. ~ 10	22.29	787	22	76.40	5.00
SLUDGE TANK	S	24 - 27	2.19	77	2	65.86	5.70
STUFF. BOX DRAIN TANK	P	24 - 27	2.08	73	2	65.81	2.65
F.O. DRAIN TANK	S	29 - 30	0.56	20	1	62.42	2.61
F.W. HYDRO. TANK	P	18.5 - 19.5	1.11	39	1	70.81	8.19
P.W. HYDRO. TANK	P	18.5 - 19.5	0.56	20	1	70.81	7.89
CASCADE TANK	P	30.5 - 32	1.39	49	1	61.30	8.21
WASTE O. SETTLING TANK	S	9 ~ 11	1.35	48	1	77.38	11.90
WASHING OIL TANK	P	21 ~ 22	0.35	12	0	69.02	11.41
COOLING F.W.EXP. TANK	S	21.5 ~ 22.5	1.26	44	1	68.36	15.88

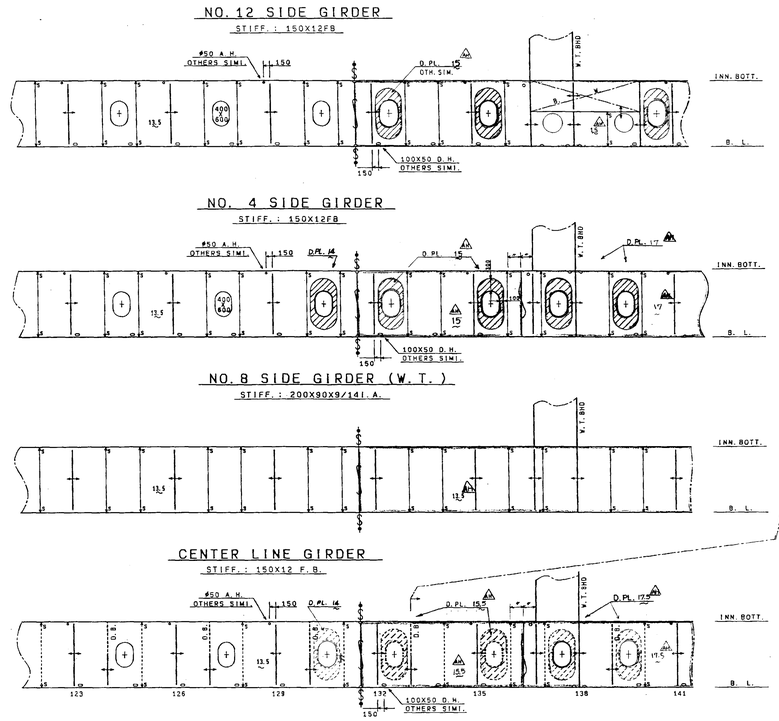
PRINCIPAL PARTICULARS

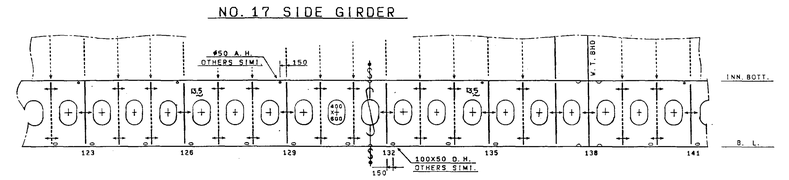
LENGTH (O.A.)		176.85	m
LENGTH (P.P.)		168.00	m
BREADTH (MLD.)		29.40	m
DEPTH (MLD.)		13.50	m
DRAFT (SUMMER EXT.)		9.560	m
DEADWEIGHT (AT SUMMER)		31,838	t
INTERNATIONAL GROSS TONNAGE		19,795	t
INTERNATIONAL NET TONNAGE		11,034	t
MAIN ENGINE	MITSUBISHI-6UEC52LA	X 1	SET
M.C.R.	6,620 kW (9,000 PS)	X 130.0	rpm
N.O.R.(85% M.C.R.)	5,627 kW (7,650 PS)	X 123.1	rpm
SERVICE SPEED		14.0	kts
TRIAL MAX. SPEED		16.32	kts
COMPLEMENTS		21	P
CLASSIFICATIONS	NK, NS*,(BULK CARRIER) ,(PSCM),MNS*		

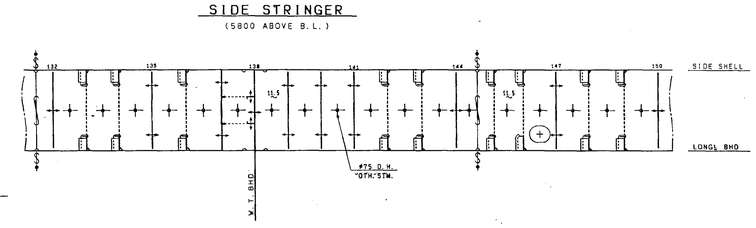
THE HAKODATE DOCK CO., LTD.
HAKODATE SHIPYARD HAKODATE, JAPAN

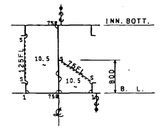
SNO. 784	
CAPACITY PLAN AND DEADWEIGHT SCALE	
FINISHED PLAN	
SCALE	1/200
THE HAKODATE DOCK CO., LTD. HAKODATE SHIPYARD HAKODATE JAPAN	
SHIP DESIGN DEPARTMENT HULL DESIGN SECTION	
APPROVED	
CHECKED	
CHECKED	
DRAWN	
DATE	MAR. 26 , 2002
SECTION NO. / SNO. 784	DRAWING NO. / C-7/F-0

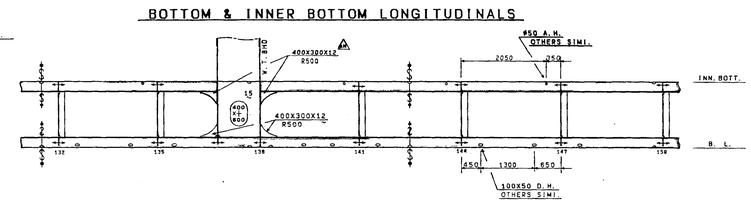
ITEM No. 6



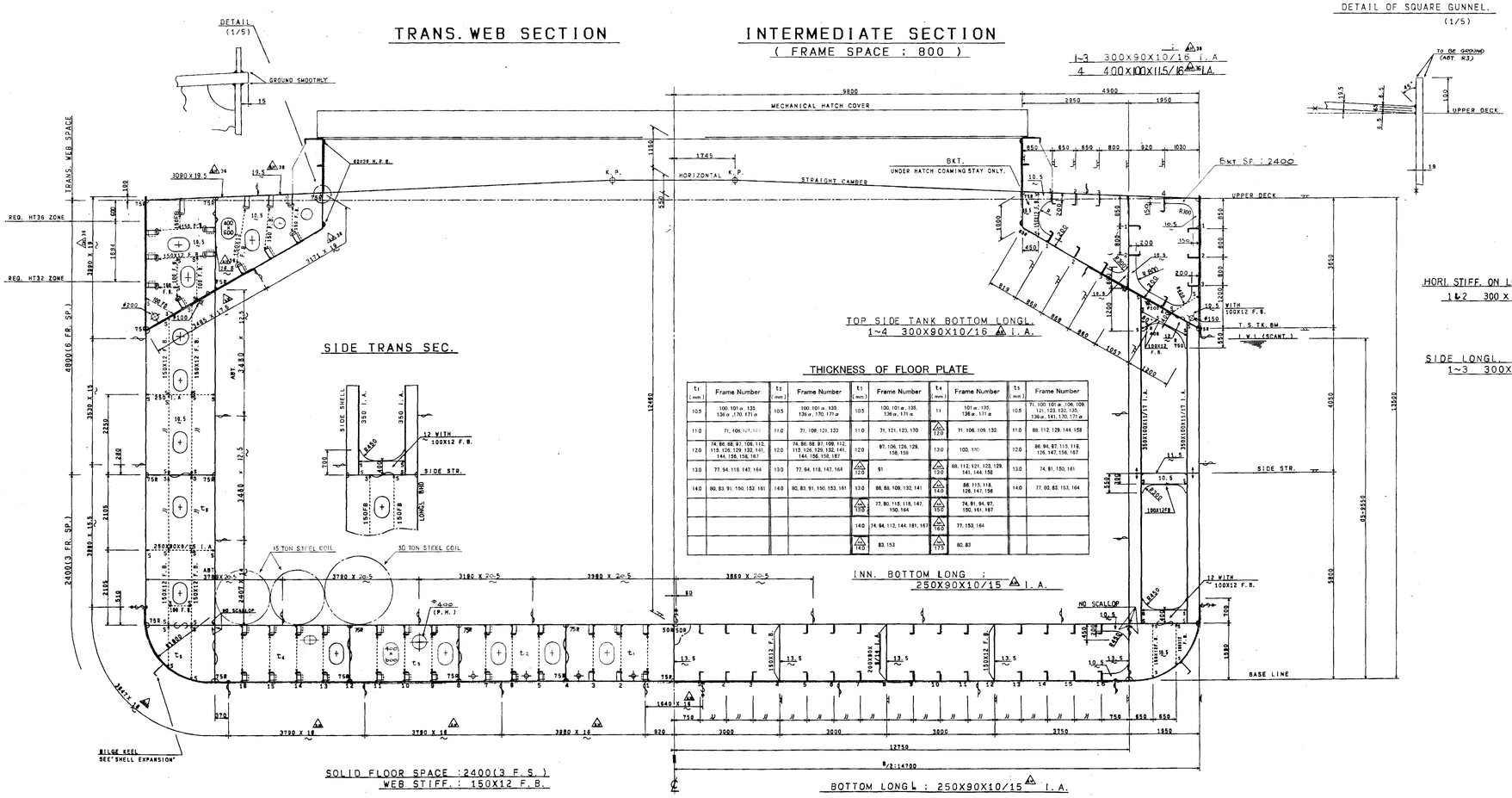








DETAIL OF SQUARE GUNNEL.
(1/5)



THICKNESS OF FLOOR PLATE

t1 (mm)	Frame Number	t2 (mm)	Frame Number	t3 (mm)	Frame Number	t4 (mm)	Frame Number	t5 (mm)	Frame Number
10.5	100, 101 α, 135, 136 α, 170, 171 α	10.5	100, 101 α, 135, 136 α, 170, 171 α	10.5	100, 101 α, 135, 136 α, 171 α	11	101 α, 135, 136 α, 171 α	10.5	71, 100, 101 α, 106, 109, 121, 123, 132, 135, 136 α, 141, 170, 171 α
11.0	71, 106, 121, 123	11.0	71, 106, 121, 123	11.0	71, 121, 123, 170	△ 120	71, 106, 109, 132	11.0	88, 112, 129, 144, 158
12.0	74, 86, 88, 97, 109, 112, 115, 126, 129, 132, 141, 144, 156, 158, 167	12.0	74, 86, 88, 97, 109, 112, 115, 126, 129, 132, 141, 144, 156, 158, 167	12.0	97, 106, 126, 129, 156, 158	13.0	100, 170	12.0	86, 94, 97, 115, 118, 126, 147, 156, 167
13.0	77, 94, 118, 147, 164	13.0	77, 94, 118, 147, 164	△ 120	91	△ 130	88, 112, 121, 123, 129, 141, 144, 158	13.0	74, 91, 150, 161
14.0	80, 83, 91, 150, 153, 161	14.0	80, 83, 91, 150, 153, 161	13.0	86, 88, 109, 132, 141	△ 140	88, 115, 118, 126, 147, 156	14.0	77, 80, 83, 153, 164
				△ 130	77, 80, 115, 118, 147, 150, 164	△ 150	74, 91, 94, 97, 150, 161, 167		
				14.0	74, 94, 112, 144, 161, 167	△ 160	77, 153, 164		
				△ 140	83, 153	△ 170	80, 83		

CLASS.
NIPPON KAIJI KYOKAI, NS*, "BULK CARRIER", MNS*

PRINCIPAL DIMENSIONS.

LENGTH	(L. W. L.)	L. L. W. L.	= 171.45 m
LENGTH	(B. P.)	L. B. P.	= 168.00 m
LENGTH	(96 % L. W. L.)	0.96L. W. L.	= 164.59 m
BREADTH	(MOULDED)	B	= 29.40 m
DEPTH	(MOULDED)	D	= 13.50 m
DRAFT	(DESIGN MOULDED)	d_{DESIGN}	= 9.54 m
DRAFT	(SCANTLING MOULDED)	$d_{SCANT.}$	= 9.55 m
BLOCK COEFFICIENT		Cb	= 0.8135 (LPP. $d_{SCANT.}$)
MAX. SEA SPEED		$V_{SCANT.}$	= 15.1 knots

SCANTLING BASE

(1) CARGO HOLD
- (A) DESIGN STOWAGE FACTOR : 47 FT³/LT (γ = 0.806 t/m³)
- (B) NO. 1, 2, 4 AND 5 HOLD FULL AND NO. 3 HOLD SLACK
  STOWAGE FACTOR : 42 FT³/LT (d = 9.55 m)
- (C) NO. 1, 3 AND 5 HOLD FULL AND NO. 2 AND 4 HOLD EMPTY
  STOWAGE FACTOR : 42 FT³/LT (d = 8.72 m)
- (D) NO. 2 AND 4 HOLD FULL AND NO. 1, 3 AND 5 HOLD EMPTY
  STOWAGE FACTOR : 42 FT³/LT (d = 7.42 m)

(2) ON TANK TOP
- (A) UNIFORM LOAD : 111.8 kN/m²
- (B) LOCAL STRENGTH : 225.6 kN/m² FOR INNER BOTTOM PLATE & LONGI.
- (C) STEEL COIL
  - 15 t × 2 LAYERS (φ1.5 m × L 1.5 m) OR
  - 30 t × 1 LAYER (φ1.9 m × L 1.5 m) (WITHOUT KEY COIL)
  - DUNNAGE SIZE : b 130 mm × t 30 mm × 3 ROWS (IN EITHER CASE)

(3) ON UPPER DEK
UNIFORM LOAD 39.2 kN/m² (EXCLUDE BETWEEN HATCH PART)

(4) ON HATCH COVER
- (A) NO. 1 HATCH : UNIFORM LOAD OF 20.4 kN/m²
- (B) NO. 2, 3, 4 AND 5 HATCH : UNIFORM LOAD OF 17.2 kN/m²

QUALITY OF MATERIAL

MARK	QUALITY (NK GRADE)	COLOR	REMARK
NO MARK t ≦ 12.5	KA	——	KAM
NO MARK t > 12.5	KA	——	KAS
△ 32	KA32	BLUE	HIGHER TENSILE STEEL
△ 36	KA36	GREEN	〃
△ 36	KD36	RED	HIGHER TENSILE STEEL

MECHANICAL PROPERTIES OF HIGHER TENSILE STEEL
MINIMIM YIELD STRESS
σy = 315 kN/mm² FOR KA32
σy = 355 kN/mm² FOR KA36, KD36

GENERAL NOTES :~

1. STRUCTURES ARE SYMMETRICAL ABOUT CENTER LINE OF SHIP UNLESS OTHERWISE NOTED.
2. ALL SCANTLING AND DIMENSIONS ARE SHOWN IN MILLI-METERS EXCEPT AS SPECIALLY NOTED.
3. 2000 NK RULE IS APPLIED TO THIS SHIP.

S. No. 784

MIDSHIP SECTION

PATRIOT / PALAU / PAPUA

FINISHED PLAN

APPROVED		SCALE	1/50
CHECKED	S. Warita	THE HAKODATE DOCK CO., LTD. HAKODATE SHIPYARD — HAKODATE JAPAN —	
CHECKED	T. Kaneko	SHIP DESIGN DEPARTMENT HULL DESIGN SECTION	
DRAWN	H. Sakikawa	SECTION No.	S. No. 784
DATE	MAR. 5. 2002	DRAWING No.	H - 1

ITEM No. 19