LIST OF OPENINGS & APPENDAGES BELOW DWL

NO.	DESCRIPTION	SIZE	FORWARD OF SRP (M)	(FT/IN)	OUTBOARD OF ℄ (M)	(FT/IN)
1	DEPTH SOUNDER TRANSDUCER	22mm (0.9") DIA.	35191	115/2	ON CENTER-LINE	
2	SPEED LOG (DOLOG SONIC)	152mm (7.5") DIA.	18855	123/6/8	ON CENTER-LINE	
3	MAIN SEA INLET	518mm (20.75") DIA.	28551	93/9/7	1610mm (77.50") P. & S.	
4	ANCILLARY SEA INLET (N.A.)	1700mm (5.31') X 280mm (11.02")	29531	97/3/5	950mm (37.40") P.	
5	MAIN EXHAUST OUTLET (S.V.P.)	509mm (20.00") EL. PIPE	27731	90/9/3	1395mm (54.11") P. & S.	
6	MAIN SEA INLET	518mm (20.75") DIA.	28551	93/3/5	1620mm (63.8") P. & S.	
7	MAIN EXHAUST OUTLET (A.V.R.)	509mm (20.00") ELI. PIPE	27651	87/6/5	1610mm (142.13") P. & S.	
8	OUTBOARD SHAFT STERN TUBE	330mm (12.99") ELI. PIPE	13531	44/4/11	310mm (12.2") P. & S.	
9	ANCILLARY SEA INLET (N.A.)	1700mm (5.31') X 280mm (11.02")	16331	53/6/15	700mm (27.50") P.	
10	INBOARD SHAFT STERN TUBE	330mm (12.99") ELI. PIPE	10831	35/5/7	933mm (36.73") P. & S.	
11	OUTBOARD SHAFT STRUT (FWD)	600mm (23.6") X 640mm (21.26")	2091	39/7/15	3195mm (125.8") P. & S.	
12	OUTBOARD SHAFT STRUT (INTER.)	545mm (21.46") X 491mm (19.06")	861	28/1/11	2274mm (89.5") P. & S.	
13	INBOARD SHAFT STRUT (INTER.)	545mm (21.46") X 484mm (19.06")	861	28/1/11	862mm (34.2") P. & S.	
14	OUTBOARD SHAFT STRUT (AFT)	1000mm (39.4") X 484mm (19.06")	2760	90/10/2	2324mm (91.5") P. & S.	
15	INBOARD SHAFT STRUT (AFT)	1000mm (39.4") X 484mm (19.06")	2760	90/10/2	803mm (31.65") P. & S.	
16	CATHODIC PROTECTION UNIT (FWD)	3225mm (126.98") DIA.	3865	127/10/2	545mm (21.50") P. & S.	
17	CATHODIC PROTECTION UNIT (AFT)	3225mm (126.98") DIA.	13505	507/0/7	780mm (30.71") P. & S.	
18	REFERENCE ELECTRODE (FWD)	220mm (8.60") DIA.	26131	85/3/6	1200mm (47.24")	
19	REFERENCE ELECTRODE (A.T.)	220mm (8.60") DIA.	3330	10/9/3	1500mm (59.05")	
20	AUX. MACHY SPACE (REV. AFT)	355mm (13.98") X 355mm (13.98")	34716	113/10/14	500mm (19.65") P.	
21	PORPOISE/SONAR	222mm (8.75") DIA.	32680	107/2/2	ON CENTER-LINE	

TABLE OF DISPLACEMENT & OTHER PROPERTIES OF DOCKING

DISPL.	TOTAL LOS	LOT	TP	VT	DRAFT FT
	11,338 S	8,703 A	4.30	12.3	4
14.05	11,579 A	18,513 A	7.64	24.1	5
23.43	11,208 A	18,972 A	7.08	40.9	6
318.44	13,015 A	19,356 A	7.40	79.7	7
408.55	13,522 A	14,201 A	7.58	312.2	8
500.00	12,184 A	7,592 A	7.75	95.3	9
594.72	12,030 A	9,400 A	7.95	97.6	10

LOADING CONDITIONS

ITEM	MAX. DEEP	TRIALS	LIGHT
DISPLACEMENT (LT)	38,159		32,334
T.P.I. (T/CM)	7.59		7.35
M.C.T. (MT)	70.01		70.96
LCB (FT)	14.32		13.65
DRAFT AFT (FT)	9.067		8.445
DRAFT FWD (FT)	9.535		8.524

BULKHEAD OFFSET m/m.

FRAME NO.	HALF BREADTHS 1.0M W.L.	2.0M W.L.	3.0M W.L.	4.0M W.L.	DECK @ SIDE	DESIGNED WATER LINE	HEIGHTS ABOVE BASE LINE 1.0M W.L.	2.0M W.L.	3.0M W.L.	DECK @ SIDE
4	588	1679	2092	3085	340	1679	1129	2583	3886	4937
22	1780	2455	3197	3605	3662	2453	1873	4434	2743	4860
25	2228	3305	3775	3	3802	3328	523	843	1343	4577
26	2502	3515	3	3790	3782	3777	880	920	1093	1434
29	1366	3060	3833	3825	3825	3590	950	935	1188	1330

BULKHEAD OFFSET ft./in./1/16 ins.

FRAME NO.	HALF BREADTHS 1.0M W.L.	2.0M W.L.	3.0M W.L.	4.0M W.L.	DECK @ SIDE	DESIGNED WATER LINE	HEIGHTS ABOVE BASE LINE 1.0M W.L.	2.0M W.L.	3.0M W.L.	DECK @ SIDE
4	02/10/13	05/05/02	07/08/15	10/09/04		05/03/12	03/08/07	08/08/11	12/08/05	15/10/02
22	04/11/04	08/02/10	09/05/03	11/06/01	12/02/07	08/06/10	02/02/03	04/05/04	05/02/00	15/04/02
25	07/07/10	10/11/01	12/02/12	13/04/07	12/04/02	01/11/07	01/08/08	03/09/03	05/05/01	14/10/02
26	08/02/04	12/02/06	12/04/03	13/04/13	12/04/02	12/02/05	02/02/07	03/08/05	03/01/02	14/05/02
29	05/02/07	11/09/03	13/03	13/10/02	13/10/12	11/06/03	03/01/08	03/04/13	03/11/12	14/02/08

TRIM BY STERN

TRIM	HEIGHT BELOW BASE LINE FOR 2" CLEARANCE OF PROPELLER (ONE BLADE DOWN)
0	1'-9 3/4"
0.5	1'-2 15/16"
1.0	1'-8 5/16"
1.5	1'-8 5/16"
2.0	[illegible]
2.5	2'-1 [illegible]/8"
3.0	2'-4 3/8"

BEARING ON BLOCKS

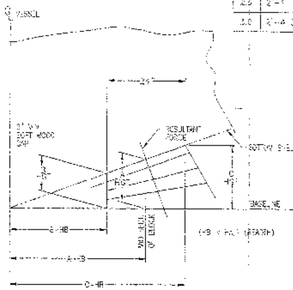
SUPPORT	BEARING ON SHELL PL. SHOT SPACING
SIDE BLOCKS NET BEARING AREA (3'x3'-0"x24")	0.912 SQ. M. +2.0 SQ. FT.
KEEL BLOCKS NET BEARING AREA (1'x3'x2'x2')	22.846 SQ. M. 157.5 SQ. FT.
TOTAL BEARING	23.758 SQ. M. 205.5 SQ. FT.
BEARING PER SQ. M. BLOCKING	18.99 LB.
BEARING PER SQ. FT. BLOCKING	1.88 L. TONS
FULL LOAD DISPLACEMENT = 38,159 TONS = 897,927 LBS.	

PRINCIPAL DIMENSIONS:

LENGTH OVERALL	54,200MM	178'-0 1/8"
LENGTH BETWEEN PERPENDICULARS	48,000MM	157'-6 3/4"
BEAM MOULDED	7,062MM	23'-0 3/4"
DEPTH MOULDED	3,100MM	10'-1 9/16"
DRAFT ON DOCKING	2,900MM	9'-6 3/4"
DIST. OVER PROPELLERS	2,350MM	7'-8 1/4"
HALF WIDTH OF KEEL	75MM	3"

NOTES:

1) THE BLOCKING SHOWN ON THIS PLAN IS THAT REQUIRED FOR DOCKING UNDER ORDINARY UNFAVORED CONDITIONS.
2) IN DETERMINING THE HEIGHT OF KEEL BLOCKS, CARE IS TO BE TAKEN THAT PROPELLERS AND OTHER UNPROTECTED PARTS ARE NOT ENGAGED.
3) THE TOTAL LOADING FOR A DOCKING DRAFT CALCULATIONS INDICATE THAT THE DOCKING SHOULD BE DONE WITH A SLOPED TO AVOID EXCESSIVE MAXIMUM STRESSES. (SEE DOCKING PLAN FOR DETAILS, PROVIDED IN THIS MANUAL ASSUMING A SLOPED KEEL LINE.
4) KEEL BLOCKS AT 0 & 2 (AFTER DOCKING) WILL SHALL BE SET IN PLACE AFTER THE SHIP HAS LANDED ON THE REMAINING KEEL BLOCKS.
5) KEEL BLOCKS SHALL BE ARRANGED IN PAIRS CONSISTING OF 1 KEEL (12" X 12" HARD WOOD) TIMBERS MOUNTED WITH 2" SOFT WOOD CAP, LONGITUDINAL SPACING 6'-0" CENTER TO CENTER, AFT OF FR 20. BLOCK SIZE = 48" X 36" (21 FR 15-20 & FR 27-45). BLOCK SIZE = 42" X 24" (7 FR 20 & AFT OF FR 45). BLOCK SIZE = 48" X 24" (FR 15-20 & FR 27-45).
6) SIDE BLOCKS SHOWN IN ALL THREE DOCKING POSITIONS. LOCATION DIMENSION GIVEN FOR POSITION 1. POSITION 2 IS 6'0" FWD OF POSITION 3 IS 5'-0" (24") AFT OF 1. BLOCK SIZE 18" (FORE & AFT) X 24" (ATHWARTSHIPS).
7) THE STATION REFERENCE POINT (SRP) IS THE AFT EDGE OF THE MAIN DECK.



DETAIL 19-D
TYP TRANSVERSE SECTION SHOWING DOCKING BLOCKS

TABLE OF OFFSETS FOR SIDE DOCKING BLOCKS

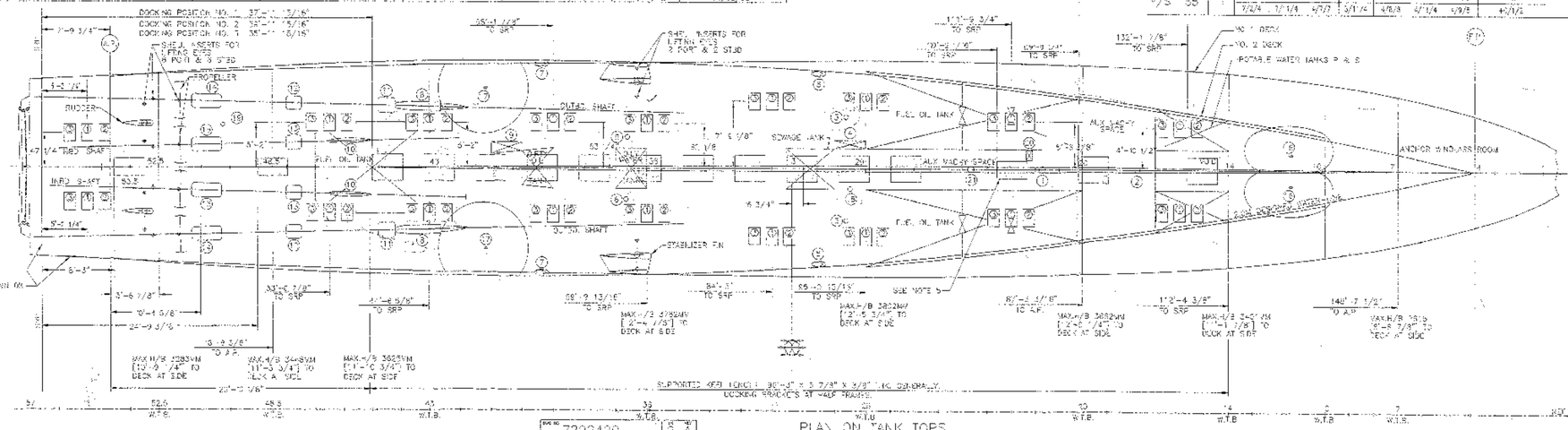
NO. 2 DOCKING POSITION – CENTER OF NO. 9 BLOCK POSITIONED @ 25'-6" (7.77M) FROM SRP

SIDE OF VESSEL	FR. OF SRP	BLOCK NO.	FWD OF SRP	POINT "B" HB	POINT "B" HOT	POINT "A" HB	POINT "A" HOT	POINT "C" HB	POINT "C" HOT	LONGITUDINAL LEVEL IN 16'
			M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)
P/S	18	9	40140 (131/4/0)	1150 (3/10/7)	1070 (3/6/2)	1485 (4/10/7)	1363 (4/6/7)	1790 (5/7/8)	1737 (5/6/5)	+34 (+2/1/2)
P/S	23	9	34890 (114/5/12)	1350 (4/5/3)	790 (2/7/2)	880 (3/0/3)	895 (3/2/12)	1991 (6/6/6)	1214 (3/11/13)	-13 (-0/0/4)
P/S	29	7	29860 (97/9/15)	2080 (6/9/2)	892 (2/11/1)	2365 (7/9/2)	1258 (4/1/3)	2670 (8/7/6)	1285 (4/1/12)	-19 (-0/0/5)
P/S	32	5	28590 (93/8/1)	2080 (6/9/2)	806 (2/7/1)	2360 (7/8/2)	910 (2/11/13)	2670 (8/7/6)	1005 (3/3/0)	-2 (-0/0/1)
P/S	36	5	21862 (71/8/3)	1275 (4/2/3)	706 (2/3/4)	1580 (5/2/7)	718 (2/3/7)	1885 (6/2/3)	752 (2/5/7)	-1 (-0/0/4)
P/S	39	4	8590 (28/1/7)	1301 (4/3/4)	825 (2/7/1)	1635 (5/3/4)	835 (2/8/4)	1911 (6/3/4)	857 (2/7/3)	-3 (-0/0/5)
P/S	43	3	14130 (46/8/1)	1275 (4/2/3)	95 (3/7/7)	1575 (5/2/0)	077 (2/7/3)	1880 (6/2/3)	1005 (3/3/9)	-2 (-0/0/1)
P/S	46.5	2	10000 (32/8/14)	1275 (4/2/3)	1058 (3/5/4)	1575 (5/2/0)	1375 (4/5/7)	23 (0/0/1)	1885 (6/2/3)	-11 (-0/0/4)
P/S	55	1	2190 (7/2/4)	595 (1/11/4)	1405 (4/7/7)	1200 (3/11/4)	1432 (4/8/8)	1505 (4/11/4)	1450 (4/9/8)	498 (+0/1/2)

TABLE OF OFFSETS FOR SIDE DOCKING BLOCKS

NO. 1 DOCKING POSITION – CENTER OF NO. 9 BLOCK POSITIONED @ 33'-6" (10.21M) FROM SRP

SIDE OF VESSEL	FR. OF SRP	BLOCK NO.	FWD OF SRP	POINT "B" HB	POINT "B" HOT	POINT "A" HB	POINT "A" HOT	POINT "C" HB	POINT "C" HOT	LONGITUDINAL LEVEL IN 16'
			M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)	M/M (FT/IN/1/16)
P/S	16	9	39620 (129/9/1)	1190 (3/11/7)	941 (3/1/1)	1485 (4/10/7)	1210 (3/11/10)	1790 (5/8/8)	1223 (4/0/15)	-44 (-2/2/5)
P/S	23	8	33490 (109/10/12)	1301 (4/3/3)	720 (2/4/15)	880 (3/0/3)	920 (3/1/4)	1990 (6/6/3)	1090 (3/7/3)	-3 (-0/0/5)
P/S	29	7	28620 (93/6/15)	2080 (6/9/2)	850 (2/7/7)	2360 (7/8/2)	990 (3/3/0)	2670 (8/7/6)	1145 (3/8/2)	-1 (-0/0/5)
P/S	32	5	25070 (82/2/1)	2080 (6/9/2)	767 (2/5/7)	2365 (7/8/2)	663 (2/1/0)	2670 (8/7/6)	1277 (4/2/3)	+2 (+0/0/8)
P/S	36	5	20257 (66/5/7)	1275 (4/2/3)	737 (2/4/3)	1580 (5/2/7)	778 (2/5/6)	1885 (6/2/3)	810 (2/6/7)	-7 (-0/0/3)
P/S	39	4	17371 (56/11/1)	1301 (4/3/4)	841 (2/7/6)	1635 (5/3/4)	870 (2/8/7)	1911 (6/3/4)	889 (2/8/6)	-8 (-0/0/3)
P/S	43	3	12914 (42/3/6)	1275 (4/2/3)	886 (2/9/1)	1575 (5/2/0)	1022 (3/3/4)	1880 (6/2/3)	1047 (3/4/1)	-2 (-0/0/1)
P/S	46.5	2	9472 (31/1/6)	1275 (4/2/3)	1065 (3/5/6)	1575 (5/2/0)	1114 (3/6/2)	1880 (6/2/3)	1129 (3/7/1)	-14 (-0/0/4)
P/S	55	1	972 (3/2/2)	595 (1/11/4)	1350 (4/4/3)	1200 (3/11/4)	1345 (4/4/1)	1505 (4/11/4)	1370 (4/5/3)	+26 (+0/1/2)



PLAN ON TANK TOPS

7292420	2 A	4 10711	055-7292420