

## GENERAL NOTES

- THIS SHIP SHALL BE CONSTRUCTED ACCORDING TO ABS 2001 UNDER 90 METER RULES AS AMENDED AND USCG 1999 CFR. THE SHIP SHALL BE CLASSIFIED **A1** **AMS**, **ACCU**, **DPS-1**, UNRESTRICTED SERVICE, ICE CLASS CO AND ABS RECORD OF NOTATION, CRC FOR COMPLIANCE WITH ABS GUIDE FOR CERTIFICATION OF CRANES (INCLUDING THE REQUIREMENTS OF API 20). THE SHIP SHALL BE CONSTRUCTED AND CERTIFICATED IN ACCORDANCE WITH 46 CFR, SUBCHAPTER U.
- THE PRINCIPAL CHARACTERISTICS OF THIS VESSEL ARE LISTED AS FOLLOWS:  
LENGTH OVERALL: 63.6 M  
LENGTH BP: 58.0 M  
BEAM: 15.0 M  
DRAFT: 5.9 M (CENTERBOARD UP)  
MOLDED DEPTH: 9.65 M  
ESTIMATED TONNAGE: 2100
- PIPING SYSTEM SYMBOLS USED ON THIS DIAGRAM CONFORM TO MARITIME ADMINISTRATION STANDARDS.
- ALL PIPING MATERIALS AND WORKMANSHIP TO BE IN ACCORDANCE WITH ABS & USCG RULES AND REGULATIONS.
- ALL PIPING TO HAVE SUFFICIENT FLEXIBILITY TO PREVENT OVER STRESSING OF PIPING MATERIALS, LEAKAGE OF JOINTS OR DISTORTION OF CONNECTED EQUIPMENT.
- PIPING SHALL BE ARRANGED SO THAT IT WILL NOT NORMALLY BE SUBJECT TO MECHANICAL INJURY AND TO PRECLUDE ITS USE FOR OTHER PURPOSES SUCH AS GRABRODS, STEPPING POINTS AND HANDRAILS.
- ALL WELDING AND BRAZING IS TO BE IN ACCORDANCE WITH ABS & USCG REQUIREMENTS.
- WHERE REQUIRED, RESILIENT HANGERS SHALL BE INSTALLED BETWEEN RESILIENTLY MOUNTED EQUIPMENT AND THE FIRST RIGID PENETRATION.
- AUXILIARY SEAWATER COOLING PUMPS ARE ARRANGED TO OPERATE AS PRIMARY AND STAND-BY PUMPS. PUMP LOW PRESSURE SWITCHES SHALL ALARM IN THE EDS.
- MEANS SHALL BE PROVIDED FOR VENTING PUMPS TO THE NEAREST BILGE WELL IF POSSIBLE.
- INCORPORATED ECP 56, THAW ECP 56 LAYER TO VIEW CHANGES.
- M279 ABS APPROVAL DATE 10/30/02.

1 1.3-1.2-4

## COMPONENT LIST

ITEM NUMBER	SIZE	SERVICE	DESCRIPTION/TYPE	REMARKS
524-VL-01	125	AUX SEAWATER	VALVE, GATE	
524-VL-02	125	AUX SEAWATER	VALVE, GATE	
524-VL-03	125	AUX SEAWATER	VALVE, WAFFER SWING CHECK	
524-VL-04	125	AUX SEAWATER	VALVE, WAFFER SWING CHECK	
524-VL-05	125	AUX SEAWATER	VALVE, BUTTERFLY, LUG TYPE	
524-VL-06	125	AUX SEAWATER	VALVE, BUTTERFLY, LUG TYPE	
524-VL-07	40	AUX SEAWATER	VALVE, GLOBE	
524-VL-08	40	AUX SEAWATER	VALVE, GLOBE	
524-VL-09	15	AUX SEAWATER	VALVE, BALL	
524-VL-10	15	AUX SEAWATER	VALVE, BALL	
524-VL-11	65	AUX SEAWATER	VALVE, GATE	
524-VL-12	65	AUX SEAWATER	VALVE, GLOBE	
524-VL-13	100	AUX SEAWATER	VALVE, BUTTERFLY, LUG TYPE	
524-VL-14	100	AUX SEAWATER	VALVE, GLOBE	
524-VL-15	100	AUX SEAWATER	VALVE, BUTTERFLY, LUG TYPE	
524-VL-16	100	AUX SEAWATER	VALVE, GLOBE	
524-VL-17	25	AUX SEAWATER	VALVE, BALL	
524-VL-18	25	AUX SEAWATER	VALVE, GLOBE	
524-VL-19	25	AUX SEAWATER	VALVE, BALL	
524-VL-20	25	AUX SEAWATER	VALVE, GLOBE	
524-VL-21	25	AUX SEAWATER	VALVE, BALL	
524-VL-22	25	AUX SEAWATER	VALVE, GLOBE	
524-VL-23	125	AUX SEAWATER	VALVE, GAG SCUPPER	REMOTE OPERATED (POSITIVE CLOSING)
524-VL-24	50	AUX SEAWATER	VALVE, BALL	
524-VL-25	50	AUX SEAWATER	VALVE, BALL	
524-VL-26	50	AUX SEAWATER	VALVE, BALL	
524-VL-27	50	AUX SEAWATER	VALVE, BALL	
524-VL-28	50	AUX SEAWATER	VALVE, BALL	NORMALLY CLOSED
524-VL-29	50	AUX SEAWATER	VALVE, BALL	
524-VL-30	50	AUX SEAWATER	VALVE, BALL	
524-VL-31	15	AUX SEAWATER	VALVE, BALL	
524-VL-32	15	AUX SEAWATER	VALVE, BALL	
524-VL-33	65	AUX SEAWATER	VALVE, GAG SCUPPER	REMOTE OPERATED (POSITIVE CLOSING)
524-VL-34	65	AUX SEAWATER	VALVE, THERMOSTATIC, 3-WAY	METRIC, P/N M900T-250-FL-3W
524-VL-35	15	AUX SEAWATER	VALVE, BALL	
524-VL-36	25	AUX SEAWATER	VALVE, CHECK	
524-VL-37	25	AUX SEAWATER	VALVE, CHECK	
524-VL-38	15	AUX SEAWATER	VALVE, BALL	
524-VL-39	40	AUX SEAWATER	VALVE, BALL	
524-VL-40	40	AUX SEAWATER	VALVE, GLOBE	
524-VL-41	15	AUX SEAWATER	VALVE, BALL	
524-VL-42	15	AUX SEAWATER	VALVE, BALL	
524-VL-43	15	AUX SEAWATER	VALVE, BALL	
524-VL-44	15	AUX SEAWATER	VALVE, BALL	
524-VL-45	15	AUX SEAWATER	VALVE, BALL	
524-VL-46	15	AUX SEAWATER	VALVE, BALL	
524-VL-47	20	AUX SEAWATER	VALVE, BALL	
524-VL-48	20	AUX SEAWATER	VALVE, GLOBE	
524-VL-49	20	AUX SEAWATER	VALVE, GLOBE	
524-VL-50	25	AUX SEAWATER	VALVE, BALL	
524-VL-51	25	AUX SEAWATER	VALVE, GLOBE	
524-PI-01	15	AUX SEAWATER	PRESSURE INDICATOR	0-4 BAR
524-PI-02	15	AUX SEAWATER	PRESSURE INDICATOR	0-4 BAR
524-PI-03	15	AUX SEAWATER	PRESSURE INDICATOR	0-6 BAR
524-PI-04	15	AUX SEAWATER	PRESSURE INDICATOR	0-6 BAR
524-PI-05	15	AUX SEAWATER	PRESSURE INDICATOR	VENDOR FURNISHED
524-PI-06	15	AUX SEAWATER	PRESSURE INDICATOR	VENDOR FURNISHED
524-PI-07	15	AUX SEAWATER	PRESSURE INDICATOR	VENDOR FURNISHED
524-PI-08	15	AUX SEAWATER	PRESSURE INDICATOR	VENDOR FURNISHED
524-PI-09	15	AUX SEAWATER	PRESSURE INDICATOR	0-6 BAR
524-PI-10	15	AUX SEAWATER	PRESSURE INDICATOR	0-6 BAR
524-PS-01		AUX SEAWATER	PRESSURE SWITCH	SET @ 1 BAR, SEE REF 7
524-PS-02			NOT USED	
524-PM-31	100 X 125	AUX SEAWATER	PUMP, SEAWATER COOLING	2, 1800 RPM 110M <sup>2</sup> /HR, TDH = 13.8M. SEE REF 6
524-PM-114	50x50	AUX SEAWATER	PUMP, EJECTOR	(1 FURNISHED WITH EACH WATER MAKER) 15 M <sup>3</sup> /HR TDH = 42 M. SEE REF 6

## LINE NO. IDENTIFICATION

123-AB-XX  
COMPONENT NUMBER  
COMPONENT TYPE (SEE COMPONENT LIST)  
COMPONENT SWS

## COMPONENT NO. IDENTIFICATION

## MATERIAL SCHEDULE

PIPING SYSTEM	PIPE		TAKEDOWN JOINTS 4		VALVES 1,2,3		FITTINGS		MAXIMUM WORKING CONDITIONS	
	SIZE	MATERIAL	MATERIAL	BOLTING	TYPE	BODY	TRIM	TYPE & MATERIAL	SYSTEM	PRESSURE
										TEMP
AUXILIARY SEAWATER COOLING	65 & BELOW	CNA 90-10, ASTM B 466 OR B 467, CLASS 200 WELDED OR SEAMLESS	UNION'S, BRONZE, ASTM B61 OR B62, SOCKET WELD, ML-F-1183	BOLTS AND STUDS STEEL ASTM A307 OR B ANSI B18.2.1	GATE, GLOBE, ANGLE, CHECK, BALL, BUTTERFLY	BRONZE, SWDGD OR THD ASTM S981/S962, ALL 125# MIN.	BRONZE, ASTM B61 OR B62	CNA 90-10, SWLD, 400# ASTM B-369, IN ACCORDANCE WITH NAVSEA'S DWG NO. 803-6397430	AUXILIARY SEAWATER COOLING	2.6 BAR ASW SYS/ 4.1 BAR EJECTOR SYS
	65 & ABOVE		FLANGES, 150#, CNA 90-10, ML-F-20042 MODIFIED FOR SOCKET WELD, IN ACCORDANCE WITH NAVSEA'S DWG NO. 810-4715319	NUTS STEEL ASTM A563 OR A ANSI B18.2.2		BRONZE, ASTM B61 OR B62 ALL 125# MIN. FLANGED		FITTINGS, BUTTWELD, CLASS 200 CNA 90-10, ASTM B 466, IN ACCORDANCE WITH BUSHIPS DWG 810-13858800		50°C
			FLANGES, 150#, CNA 90-10, ML-F-20042 MODIFIED FOR SOCKET WELD, IN ACCORDANCE WITH NAVSEA'S DWG NO. 810-4715319	CRES TO BE USED WHEN EXPOSED TO WEATHER OR SALTWATER			* SEA VALVES SHALL HAVE MONEL TRIM			

## MATERIAL NOTES:

- GAUGE STOP BALL VALVES SHALL BE 2 PIECE BRONZE CAT. A.
- 50 AND BELOW FITTINGS MAY BE ELASTIC STRAIN PRELOAD (ESP) CU-IN, 17 BAR RATING, WITH ABS TYPE APPROVAL AND USCG ACCEPTANCE.
- ALL RESILIENT SEATED VALVES TO BE USCG CATEGORY A.
- GASKETED, MECHANICALLY ATTACHED FITTING WITH 301 TOOL STEEL ANCHOR RINGS, 316Ti STAINLESS STEEL HOUSING AND LOCKING BAR, 316 ALLEN HEX HEAD BOLTS, "C" SHAPED PRESSURE RESPONSIVE EPODE GASKET, WITH ABS AND USCG APPROVAL.

## COMPONENT LIST

ITEM NUMBER	SIZE	SERVICE	DESCRIPTION/TYPE	REMARKS
524-HA-01	125	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-02	125	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-03	80	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-04	50	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-05	50	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-06	25	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-07	25	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-08	25	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-09	25	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-10	25	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-11	25	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-12	25	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-13	25	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-14	100	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-15	100	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-16	100	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-17	100	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-18	20	AUX SEAWATER	ASSEMBLY, HOSE	ABS APPROVED TYPE IAW SAE J-1942 NAVSEA S6430-AE-TED-010
524-HA-19	40	AUX SEAWATER	ASSEMBLY, HOSE	
524-HA-20	40	AUX SEAWATER	ASSEMBLY, HOSE	
524-HA-21	25	AUX SEAWATER	ASSEMBLY, HOSE	VENDOR FURNISHED
524-HA-22	25	AUX SEAWATER	ASSEMBLY, HOSE	VENDOR FURNISHED

## CONVERSION TABLE

STANDARD ENGLISH NOM. PIPE SIZE UNITS (IN)	METRIC NOM. PIPE SIZE UNITS (MM)
1/2 IN	15 MM
3/4 IN	20 MM
1 IN	25 MM
1 1/4 IN	32 MM
1 1/2 IN	40 MM
2 IN	50 MM
2 1/2 IN	65 MM
3 IN	80 MM
4 IN	100 MM
5 IN	125 MM
6 IN	150 MM
8 IN	200 MM
10 IN	250 MM
12 IN	300 MM
14 IN	350 MM
16 IN	400 MM

## CONVERSION TABLE

STANDARD ENGLISH PRESSURE UNITS (PSI)	METRIC PRESSURE UNITS (BAR)
50 PSI	3.44 BAR
100 PSI	6.89 BAR
150 PSI	10.34 BAR
200 PSI	13.79 BAR
300 PSI	20.68 BAR
400 PSI	29.58 BAR
500 PSI	34.47 BAR
1000 PSI	68.95 BAR
2000 PSI	137.70 BAR
3000 PSI	206.86 BAR

AS-BUILT

AS-BUILT

## APPLICABILITY BLOCK

JOB: M282 HULL: 1953  
JOB: M283 HULL: 1956  
JOB: M284 HULL: 1957

VT Halter Marine, Inc.  
USCG APPROV  
8/12/03  
CHECKED BY: RGH 8/15/03  
APPROVED BY: DMR 9/15/03

HULL NO. 38486  
CAGE CODE 38486  
SCALE 00-104  
NONE

TITLE  
AUX. SEAWATER COOLING  
SYSTEM DIAGRAM

JOB NO. M282  
ITEM 524  
DELIVERABLE FP23  
SHEET 001  
REV 07

FILE FP23-001-00  
SHEET 1 OF 2

DOCUMENT DISTRIBUTION RECORD											
ISSUE DATE	1	2	3	4	5	6	7	8	9	10	11
REV #	0	1	2	3	4	5	6	7			
NOAA	1	1	1								
PROG MGR	1	1									
PROJ ENG	1	1									
HMP PC	12	12	12	12	1	1	1	1			
NOISE CNTRL (R/N)	1	1	1								
CHAND LLC	1	1	1								
JOINER	0	0									
HVAC	1	1									
PROP SSV	0	0									
TRAWL SSV	1	1									
PRODUCTION DESIGN	1	1	1	1	1	1	1	1			
HGP PC	1	1	1	1	1	1	1	1			
ISSUED BY	DRD	DRD	DRD	DRD	DRD	DRD	DRD	DRD			

DWG NO. M282-524-FP23 SH. 1

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