

BILL OF MATERIAL				BILL OF MATERIAL			
PC No.	QTY	SIZE	DESCRIPTION	PC No.	QTY	SIZE	DESCRIPTION
P1	3	3"	PIPE GALV. ST. SCH. 40 BMS	P1	3	3"	PIPE GALV. ST. SCH. 40 BMS
P2	390	4"	ASTM A 53 GR. B	P2	390	4"	ASTM A 53 GR. B
P3	85	3"		P3	85	3"	
P4	180	2 1/2"		P4	180	2 1/2"	
P5	130	2"		P5	130	2"	
P6	60	1 1/2"		P6	60	1 1/2"	
P7	630	4"	PIPE GALV. ST. SCH. 40	P7	630	4"	PIPE GALV. ST. SCH. 40
P8	370	4"	SMLS ASTM A 53 GR. B	P8	370	4"	SMLS ASTM A 53 GR. B
P9	55	2"	SMLS ASTM A 53 GR. B	P9	55	2"	SMLS ASTM A 53 GR. B
P10	15	1 1/2"		P10	15	1 1/2"	
P11	7	5"	PIPE GALV. ST. SCH. 40 BMS	P11	7	5"	PIPE GALV. ST. SCH. 40 BMS
F1	2	6"	90° ELBOW L.B.W. GALV. ST.	F1	2	6"	90° ELBOW L.B.W. GALV. ST.
F2	12	4"	ST. SCH. 40 ASTM A 234	F2	12	4"	ST. SCH. 40 ASTM A 234
F3	2	3"		F3	2	3"	
F4	17	2 1/2"		F4	17	2 1/2"	
F5	8	2"		F5	8	2"	
F6	8	1 1/2"		F6	8	1 1/2"	
F7	2	6 x 4"	CONG. RED. B.W. GALV. ST.	F7	2	6 x 4"	CONG. RED. B.W. GALV. ST.
F8	1	4 x 1 1/2"		F8	1	4 x 1 1/2"	
F9	1	3 x 1 1/2"		F9	1	3 x 1 1/2"	
F10	65	4"	90° ELBOW L.B.W. GALV. ST.	F10	65	4"	90° ELBOW L.B.W. GALV. ST.
F11	5	2 1/2"	ST. SCH. 180 ASTM A 234	F11	5	2 1/2"	ST. SCH. 180 ASTM A 234
F12	1	2"		F12	1	2"	
F13	1	1 1/2"	90° ELBOW L.B.W. GALV. ST.	F13	1	1 1/2"	90° ELBOW L.B.W. GALV. ST.
F14	4	1/4"	COUPLING 90° GALV. ST.	F14	4	1/4"	COUPLING 90° GALV. ST.
F15	4	1/4"	ASTM A-47	F15	4	1/4"	ASTM A-47
F16	4	1/4"	PIPE NIPPLE 90° GALV. ST.	F16	4	1/4"	PIPE NIPPLE 90° GALV. ST.
F17	4	1/4"	SCH. 40 ASTM A 120	F17	4	1/4"	SCH. 40 ASTM A 120
F18	4	1/4"	PRESSURE GAUGE, 150 PSI	F18	4	1/4"	PRESSURE GAUGE, 150 PSI
F19	4	1/4"	ASHROFT 1/2-1010	F19	4	1/4"	ASHROFT 1/2-1010
F20	4	1/4"	SEE SPECIFICATIONS	F20	4	1/4"	SEE SPECIFICATIONS
F21	4	1/4"	DIPLO 150 PSI H.M.S.	F21	4	1/4"	DIPLO 150 PSI H.M.S.
F22	4	2"		F22	4	2"	
F23	2	2"		F23	2	2"	
F24	3	4"	MEYASCO DECK DRAIN B.W.	F24	3	4"	MEYASCO DECK DRAIN B.W.
F25	2	2 1/2"	MEYASCO DECK DRAIN B.W.	F25	2	2 1/2"	MEYASCO DECK DRAIN B.W.
F26	2	2 1/2"	MEYASCO DECK DRAIN B.W.	F26	2	2 1/2"	MEYASCO DECK DRAIN B.W.
F27	2	2 1/2"	MEYASCO DECK DRAIN B.W.	F27	2	2 1/2"	MEYASCO DECK DRAIN B.W.
F28	2	2 1/2"	MEYASCO DECK DRAIN B.W.	F28	2	2 1/2"	MEYASCO DECK DRAIN B.W.
F29	2	2 1/2"	MEYASCO DECK DRAIN B.W.	F29	2	2 1/2"	MEYASCO DECK DRAIN B.W.
F30	2	2 1/2"	MEYASCO DECK DRAIN B.W.	F30	2	2 1/2"	MEYASCO DECK DRAIN B.W.
F31	2	2 1/2"	MEYASCO DECK DRAIN B.W.	F31	2	2 1/2"	MEYASCO DECK DRAIN B.W.
F32	2	2 1/2"	MEYASCO DECK DRAIN B.W.	F32	2	2 1/2"	MEYASCO DECK DRAIN B.W.

HALTER MARINE 504-246-8700
PRAGER MACHINE 504-824-2363

REVISIONS		DESCRIPTION		DATE	
1	1	ADDED FINISH F23 THRU F27 IN BILL OF MATERIAL		1/10/70	
2	2	CHG. TANK ORIENTATION AS PER CAPACITY TABLE - AS BUILT		1/13/70	
3	3	FINAL AS BUILT		1/14/70	

APPROVALS		FCC	
ABS 2-25-73		OFFICE COPY	
USCG		USCG	
U.S. NAVAL SHIP SYSTEMS COMMAND			
WASHINGTON D.C. 20360			
OCEANOGRAPHIC RESEARCH SHIP			
AGOR (UTILITY) CLASS			
HALTER MARINE SERVICES, INC.			
P.O. BOX 26286 NEW ORLEANS, LA. 70129			
BILGE BALLAST & FIRE PIPING			
SECTIONS, DETAILS & BILL OF MATL			
SCALE	NOTED	DATE	12-1-72
DRAWN BY	BERNARD	CHK'D BY	JONAS
HALTER	2187	HALTER	2187
HULL NO.	376	JOB NO.	2188
NAVSHP NO.	AGOR 21-508-506	REV.	2

00033

BILL OF MATERIAL				BILL OF MATERIAL			
PC No.	QTY	SIZE	DESCRIPTION	PC No.	QTY	SIZE	DESCRIPTION
F17	4	1/4"	ANGLE BRK. ASHROFT 1/2-1010	F17	4	1/4"	ANGLE BRK. ASHROFT 1/2-1010
F18	1	5 x 1 1/2"	90° REDUCING ELBOW L.B.W.	F18	1	5 x 1 1/2"	90° REDUCING ELBOW L.B.W.
F19	1	4 x 2 1/2"	GALV. ST. SCH. 40 ASTM A 234	F19	1	4 x 2 1/2"	GALV. ST. SCH. 40 ASTM A 234
S-1	4	4"	CONC. RED. B.W. GALV. ST.	S-1	4	4"	CONC. RED. B.W. GALV. ST.
S-2	4	4"	SIMPLEX STRAINER FLD GALV. ST.	S-2	4	4"	SIMPLEX STRAINER FLD GALV. ST.
V-1	2	6"	MONEL TRIM, 150° BZ. 150°	V-1	2	6"	MONEL TRIM, 150° BZ. 150°
V-2	16	4"	GATE VALVE FLD 150° BZ. 150°	V-2	16	4"	GATE VALVE FLD 150° BZ. 150°
V-3	1	2"	ANGLE VALVE FLD 150° BZ. 150°	V-3	1	2"	ANGLE VALVE FLD 150° BZ. 150°
V-4	2	4"	MONEL TRIM, 150° BZ. 150°	V-4	2	4"	MONEL TRIM, 150° BZ. 150°
V-5	4	2 1/2"	MONEL TRIM, 150° BZ. 150°	V-5	4	2 1/2"	MONEL TRIM, 150° BZ. 150°
V-6	2	2"	ANGLE VALVE FLD 150° BZ. 150°	V-6	2	2"	ANGLE VALVE FLD 150° BZ. 150°
V-7	6	1 1/2"	MONEL TRIM, 150° BZ. 150°	V-7	6	1 1/2"	MONEL TRIM, 150° BZ. 150°
V-8	2	4"	SWING CHECK VALVE FLD BZ. 150°	V-8	2	4"	SWING CHECK VALVE FLD BZ. 150°
V-9	2	2 1/2"	GATE VALVE FLD 150° BZ. 150°	V-9	2	2 1/2"	GATE VALVE FLD 150° BZ. 150°
F1-1	2	6"	FLANGE 150° BZ. 150° GALV. ST.	F1-1	2	6"	FLANGE 150° BZ. 150° GALV. ST.
F1-2	96	4"	ASTM A 181 GR. 1	F1-2	96	4"	ASTM A 181 GR. 1
F1-3	14	2 1/2"		F1-3	14	2 1/2"	
F1-4	6	2"		F1-4	6	2"	
F1-5	2	2 1/2"	BLIND FLG. 150° F.F. GALV. ST.	F1-5	2	2 1/2"	BLIND FLG. 150° F.F. GALV. ST.
B-1	16	3/4"	ST. SCH. 40 ASTM A 234	B-1	16	3/4"	ST. SCH. 40 ASTM A 234
B-2	82	3/8"	EXHAUSTS ASTM A 53 GR. B	B-2	82	3/8"	EXHAUSTS ASTM A 53 GR. B
B-3	24	5/8"	ROCK BOLT 1/2" DIA. W/ HEX. NUTS	B-3	24	5/8"	ROCK BOLT 1/2" DIA. W/ HEX. NUTS
F1-6	1	4"	BLIND FLG. 150° F.F. GALV. ST.	F1-6	1	4"	BLIND FLG. 150° F.F. GALV. ST.
G-1	2	1/6"	FACE FOR PC. VALVE 2	G-1	2	1/6"	FACE FOR PC. VALVE 2
G-2	96	1/6"	GASKETS CRANITE FULL	G-2	96	1/6"	GASKETS CRANITE FULL
G-3	14	1/6"	GASKETS CRANITE FULL	G-3	14	1/6"	GASKETS CRANITE FULL
G-4	3	1/6"	FACE FOR PC. VALVE 3	G-4	3	1/6"	FACE FOR PC. VALVE 3
F20	13	4"	180° RETURN B.W. GALV. ST.	F20	13	4"	180° RETURN B.W. GALV. ST.
F21	1	1/2"	PLATE ST. 15 3/4" WIDE 18-5"	F21	1	1/2"	PLATE ST. 15 3/4" WIDE 18-5"
F22	2	3/8"	PLATE ST.	F22	2	3/8"	PLATE ST.
F23	2	1/2"	9" DIA. X 1/2" I.D.	F23	2	1/2"	9" DIA. X 1/2" I.D.
V-10	26	4"	INTERNATIONAL SHORE CO. VALVE 150° BZ. 150°	V-10	26	4"	INTERNATIONAL SHORE CO. VALVE 150° BZ. 150°
F21	1	5 x 4"	WELDONETS SCH. 40 GALV. ST.	F21	1	5 x 4"	WELDONETS SCH. 40 GALV. ST.
F22	1	5 x 4"	WELDONETS SCH. 40 GALV. ST.	F22	1	5 x 4"	WELDONETS SCH. 40 GALV. ST.
F23	4	5 x 2"	TEE B.W. GALV. ST. SCH. 40	F23	4	5 x 2"	TEE B.W. GALV. ST. SCH. 40
F24	2	5 x 2"	TEE B.W. GALV. ST. SCH. 40	F24	2	5 x 2"	TEE B.W. GALV. ST. SCH. 40
F25	1	6 x 6 x 4"	SMLS. ASTM A 234	F25	1	6 x 6 x 4"	SMLS. ASTM A 234
F26	9	4 x 4 x 4"	TEE B.W. GALV. ST. SCH. 40	F26	9	4 x 4 x 4"	TEE B.W. GALV. ST. SCH. 40
F27	18	4 x 4 x 4"	SMLS. ASTM A 234	F27	18	4 x 4 x 4"	SMLS. ASTM A 234
F28	1	4 x 4 x 4"	TEE B.W. GALV. ST. SCH. 40	F28	1	4 x 4 x 4"	TEE B.W. GALV. ST. SCH. 40
F29	1	4 x 4 x 4"	SMLS. ASTM A 234	F29	1	4 x 4 x 4"	SMLS. ASTM A 234
F30	1	4 x 4 x 4"	TEE B.W. GALV. ST. SCH. 40	F30	1	4 x 4 x 4"	TEE B.W. GALV. ST. SCH. 40
F31	1	3 x 3 x 3"	SMLS. ASTM A 234	F31	1	3 x 3 x 3"	SMLS. ASTM A 234
F32	2	3 x 3 x 3"	TEE B.W. GALV. ST. SCH. 40	F32	2	3 x 3 x 3"	TEE B.W. GALV. ST. SCH. 40

STEERING COMP. BRANCH SUCT.

$d = 1" + \sqrt{\frac{S(B+D)}{1500}}$
 $d = 1" + \sqrt{\frac{10(36+15)}{1500}}$
 $d = 1" + 1.042"$
 $d = 2.042"$ REQ'D BY RULE
 $d = 1.58"$ REQ'D BY RULE
 $d = 1.58"$ REQ'D BY RULE
U.S.C.G.
USE 2"

PASSAGEWAY BRANCH SUCT.

$d = 1" + \sqrt{\frac{S(B+D)}{1500}}$
 $d = 1" + \sqrt{\frac{10(36+15)}{1500}}$
 $d = 1" + 1.042"$
 $d = 2.042"$ REQ'D BY RULE
 $d = 1.58"$ REQ'D BY RULE
 $d = 1.58"$ REQ'D BY RULE
U.S.C.G.
USE 2"

ENGINE ROOM BRANCH SUCT.

$d = 1" + \sqrt{\frac{S(B+D)}{1500}}$
 $d = 1" + \sqrt{\frac{10(36+15)}{1500}}$
 $d = 1" + 1.042"$
 $d = 2.042"$ REQ'D BY RULE
 $d = 1.58"$ REQ'D BY RULE
 $d = 1.58"$ REQ'D BY RULE
U.S.C.G.
USE 2"

ENGINE ROOM BILGE PUMP SUCT.

$d = 1" + \sqrt{\frac{S(B+D)}{1500}}$
 $d = 1" + \sqrt{\frac{10(36+15)}{1500}}$
 $d = 1" + 1.042"$
 $d = 2.042"$ REQ'D BY RULE
 $d = 1.58"$ REQ'D BY RULE
 $d = 1.58"$ REQ'D BY RULE
U.S.C.G.
USE 2"

