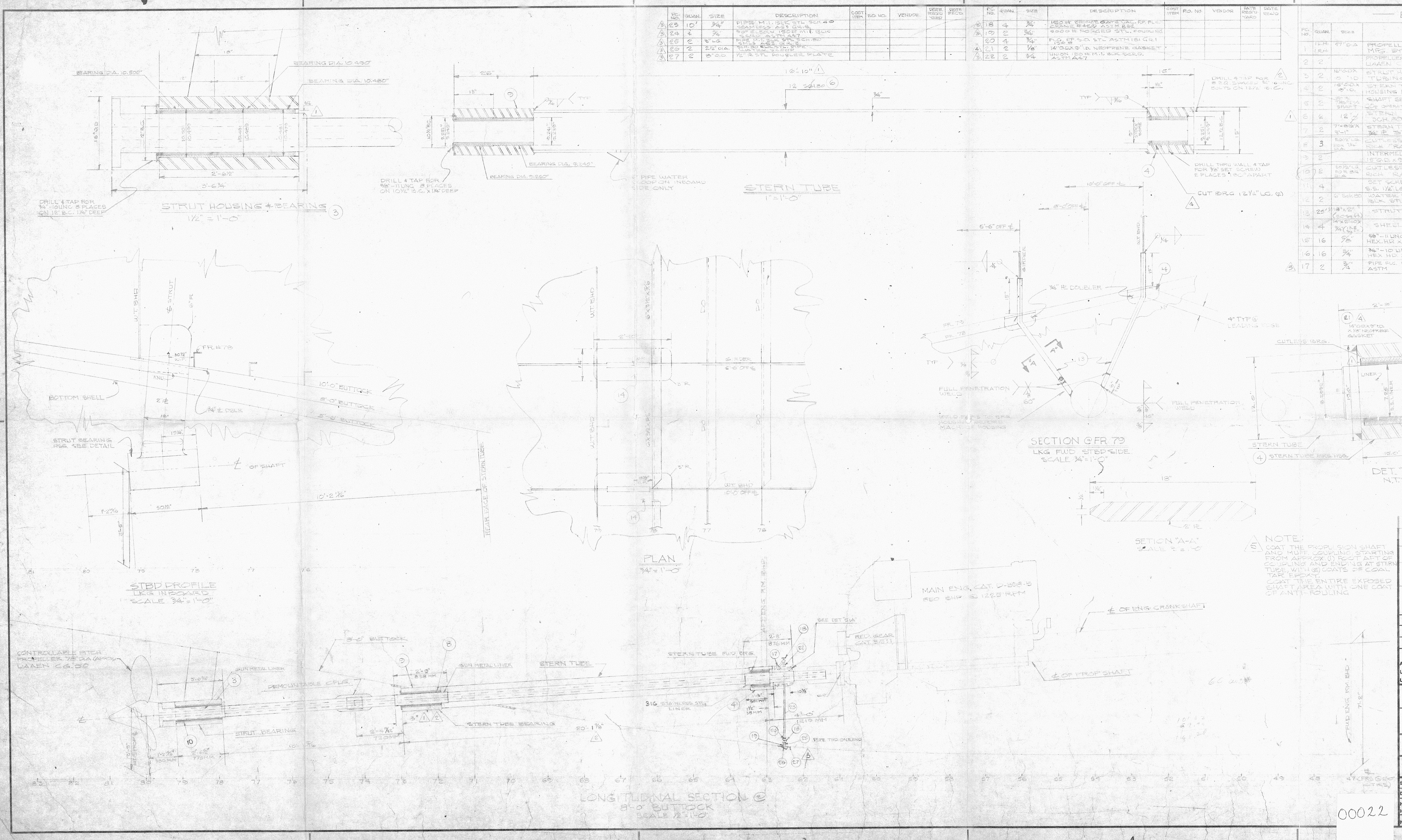
PC. NO.	QUAN.	SIZE	DESCRIPTION	COST ITEM	P.O. NO.	VENDOR	DATE REQ'D YARD	DATE RECD
23	10'	3/4"	PIPE, M.I. BLK STL SCH 40 SEAMLESS A53 GR.B.					
24	4	3/4	NOT E. SOW 150# M.I. BLK SEAMLESS ASTM					
25	2	8" LG.	PIPE M.I. BLK STL SCH.80 SEAMLESS ASTM A53					
26	2	2 1/2 DIA.	1/4" THK. STL. PLATE WATER SCOOP					
27	2	8" O.D.	1/2" A.T.S.L. DOUBLER PLATE					

PC. NO.	QUAN.	SIZE	DESCRIPTION	COST ITEM	P.O. NO.	VENDOR	DATE REQ'D YARD	DATE RECD
18	4	3/4"	150# FF FLANGE SCH 40 ASTM A181 GR.1					
19	2	3/4"	3000# FORGED STL. COUPLING					
20	4	3/4"	FLG. 150# S.O. STL ASTM181 GR.1					
21	2	1/8"	14" O.D. x 3" I.D. NEOPRENE GASKET					
22	2	3/4"	UNION 3000# M.I. BLK FORGED ASTM A47					

BILL OF MATERIALS

PC. NO.	QUAN.	SIZE	DESCRIPTION	COST ITEM	P.O. NO.	VENDOR	DATE REQ'D YARD	DATE RECD
1	1 LH 1 RH	77" D.A.	PROPELLER, 5 BLADE 55" MFG. BY LIAAEN (P.R.N.)			PROPULSION SYSTEMS INC.		
2	2		PROPELLER SHAFT MFG BY LIAAEN - TUSK SHIELD			PROPULSION SYSTEMS INC.		
3	2	16" DOCK O.D.	STRUT HOUSING MECH. TUBING					
4	2	19" O.D. x 9" I.D.	STERN TUBE BEARING HOUSING MECH. STL TUBING					
5	2	20 1/2" SHAFT	SHAFT SEAL - FACE TYPE (OP. OPERATED (BULLFIN SEALS)			SYNTRON MARINE		
6	2	12"	STERN TUBE STL PIPE SCH. 80 16.10# LG.					
7	2	7'-8 1/2" x 3'-1"	STERN TUBE COVE, SEE DET. 3/4" ⊕ STL					
8	3	20 1/2" x 24 1/4" DIA.	CUTLESS BEARING & P.B. SEE DET. "A"					
9	2		INTERMEDIATE BRG HOUSING 15" O.D. x 9" I.D. x 26 1/2" LG.					
10	2	20 1/2" x 20 1/2" DIA.	CUTLESS BEARING & P.B. SEE RICH. "A" AIO"					
11	4		SET SCREWS 3/8"-16 UNC S.S. 1/2" LG. CONE PT.					
12	2	6" SCH 80	WATER SCOOP - CUT FROM BLK. STL. PIPE					
13	25	8" x 2" (20 cm x 5 cm)	STRUT PLATE					
14	4	4" x 2" x 10" (10 cm x 5 cm)	SHELL DELR.					
15	16	5/8"	5/8"-11 UNC MACH. BOLTS HEX. HD x 1 5/8" LONG S.STL					
16	16	3/4"	3/4"-10 UNC MACH. BOLTS HEX HD x 1 3/8" LG S.S.					
17	2	3/4"	PIPE FLG. F.F. 150# M.I. BLK ASTM					



SYM	DESCRIPTION	DATE	BY
5	ADDED SHAFT COATING NOTE	7/11/73	KDK
4	ADDED NEOPRENE GASKET BETWEEN SHAFT SEAL & FWD STERN TUBE BRG HSG ADDED FWD STERN TUBE BRG DIM	5/6/73	KDK
3	ADDED FWD CUTLESS BRG LUBRICATING WATER PIPING SYSTEM & S.C.M.	2/20/73	KDK
2	REV S.S. LINER IN WAY OF STERN TUBE BRG HSG REV DIM OF STERN TUBE FROM 8'-0 (17.8M) TO 8'-1 1/2" REV NOTE TO DRILLING FOR STERN TUBE BRG HSG	4/6/73	KDK
1	REV SHAFT LINER POSITION IN WAY OF INTERMEDIATE BRG HSG REV DIM OF SHAFT LINER IN WAY OF STERN TUBE BRG HSG. ADD NOTE TO DRILL SYNTRON SEAL FWD STERN TUBE BRG HSG	6/7/73	KDK

REVISIONS

N.O. 12-13-72

APPROVALS

ABS 3-15-73

USCG

USPHS

OFFICE COPY

U.S. NAVAL SHIP SYSTEMS COMMAND
WASHINGTON D.C. 20360

OCEANOGRAPHIC RESEARCH SHIP
AGOR (UTILITY) CLASS

HALTER MARINE SERVICES, INC.
P.O. BOX 29266 NEW ORLEANS, LA. 70129

PROP SHAFT ARRANGEMENT & STRUT DETAILS

SCALE-	NOTED	DATE	12-2-72	HALTER DWG. NO.
DRAWN BY-		CK'D BY	JOWERS	M-17
HALTER HULL NO.	375 & 376	HALTER JOB NO.	2187-2188	
NAVSHIPS NO.	AGOR 21-603-112			REV. 5

00022

GYRE-0184