

**BILL OF MATERIAL**

PC QAN	NO.	SIZE	DESCRIPTION	QTY	UNIT	DATE	REVISION
P1	12	12"	PIPE, GALV. ST. SCH. 40 SMLS. 35% BS.	1	FT.		
P2	14	4"	PIPE, GALV. ST. SCH. 40 SMLS. 35% BS.	1	FT.		
P3	4	5"	PIPE, GALV. ST. SCH. 40 SMLS. 35% BS.	1	FT.		
P4	2 1/2	4"	PIPE, GALV. ST. SCH. 40 SMLS. 35% BS.	1	FT.		
P5	10	3"	PIPE, GALV. ST. SCH. 40 SMLS. 35% BS.	1	FT.		
P6	1/2	2"	PIPE, GALV. ST. SCH. 40 SMLS. 35% BS.	1	FT.		
P7	1/2	1"	PIPE, GALV. ST. SCH. 40 SMLS. 35% BS.	1	FT.		
P8	1/2	1/2"	PIPE, GALV. ST. SCH. 40 SMLS. 35% BS.	1	FT.		
P9	1/2	1/2"	PIPE, GALV. ST. SCH. 40 SMLS. 35% BS.	1	FT.		
F-1	15	4"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-2	15	4"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-3	8	4"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-4	9	2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-5	12	2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-6	6	2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-7	4	2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-8	4	2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-9	2	1"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-10	12	1"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-11	2	1"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-12	6	1"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-13	16	1/2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-14	4	1/2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-15	4	1/2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-16	4	1/2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-17	2	1/2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-18	4	1/2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-19	2	1/2"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
V-1	10	4"	VALVE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
V-2	1	4"	VALVE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
V-3	2	3"	VALVE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
V-4	4	2"	VALVE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
V-5	2	1"	VALVE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
V-6	4	1/2"	VALVE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
B	1	1/2"	BOLTS, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		
F-11	24	4"	FLANGE, 1/2" DIA. 1/2" DIA. 1/2" DIA. 1/2" DIA.	1	PC.		

**REVISIONS**

NO.	DATE	DESCRIPTION
1	11-11-72	REVISED TO SHOW...
2	11-11-72	REVISED TO SHOW...
3	11-11-72	REVISED TO SHOW...
4	11-11-72	REVISED TO SHOW...
5	11-11-72	REVISED TO SHOW...

**APPROVALS**

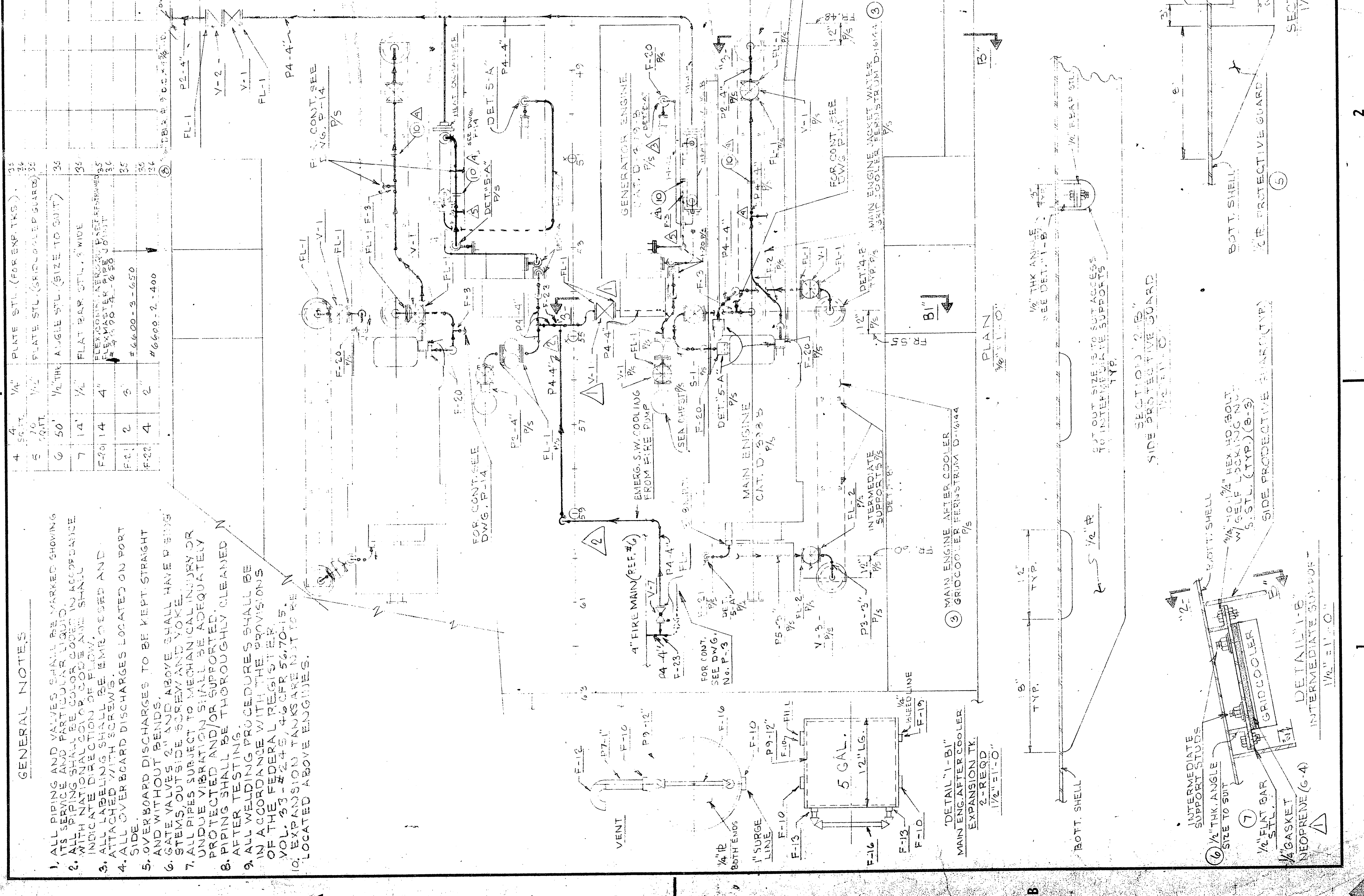
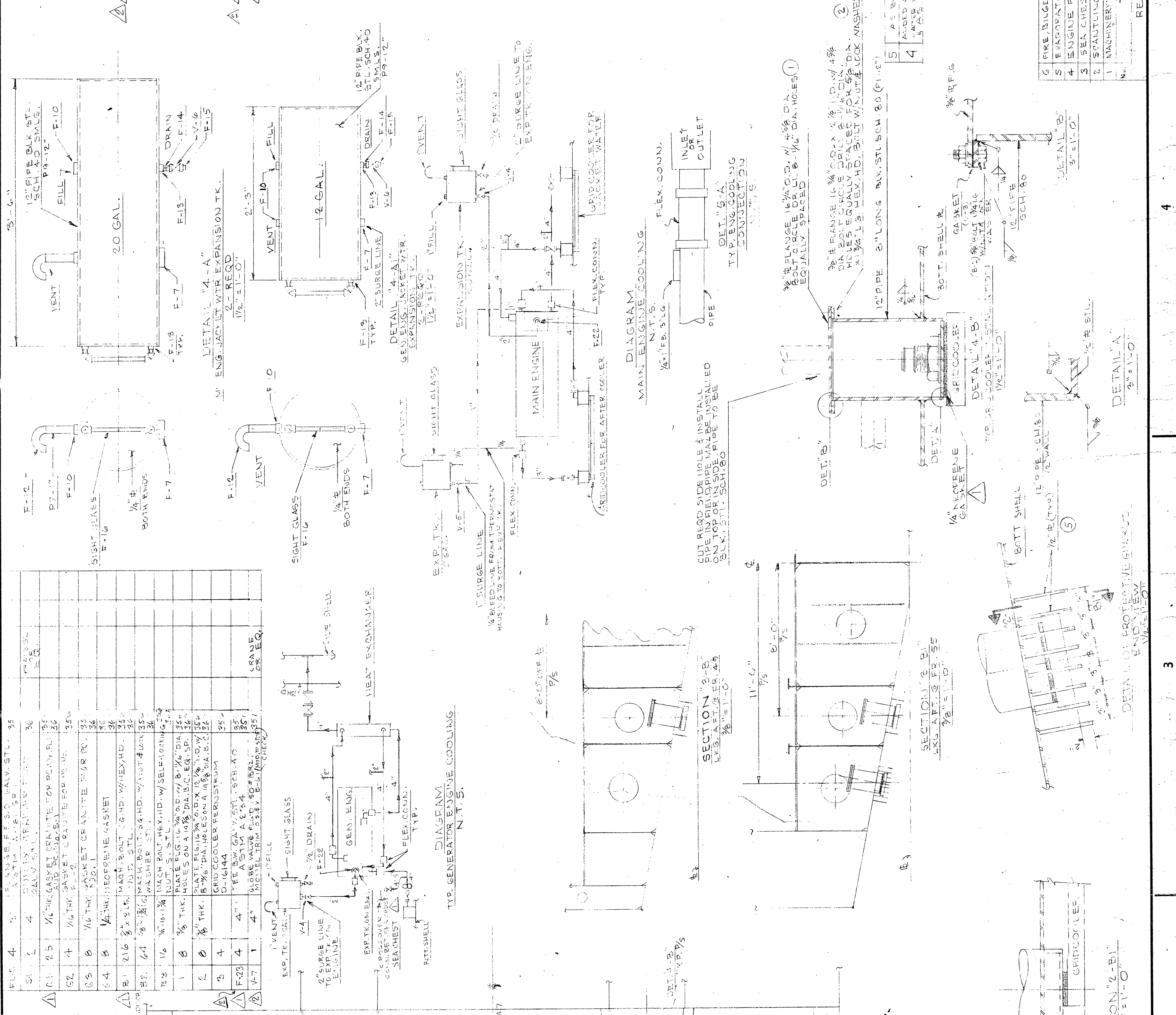
USCG  
FCC

**U.S. NAVAL SHIP SYSTEMS COMMAND**  
WASHINGTON D.C. 20380

**OCEANOGRAPHIC RESEARCH SHIP**  
**AGOR (UTILITY) CLASS**

**HALTER MARINE SERVICES, INC.**  
P.O. BOX 29286 NEW ORLEANS, LA. 70129

**SCALE:** DRAWN BY: JOWEES  
CHECKED BY: JOWEES  
DATE: 11-11-72  
JOB NO. 2195  
HULL NO. 375  
NAVSHIP NO. AGOR-21-209-001  
REV. 4



**GENERAL NOTES**

1. ALL PIPING AND VALVES SHALL BE VARIETY SHOWING.
2. ALL PIPING SHALL BE COLOR CODED IN ACCORDANCE WITH NATIONAL COLOR CODE AND SPECIFICATIONS.
3. INDICATE DIRECTION OF FLOW BY ARROWS.
4. ALL OVERBOARD DISCHARGES TO BE KEPT STRAIGHT AND WITHOUT BENDS.
5. GATE VALVES 2" AND ABOVE SHALL HAVE P-SHIPS.
6. STEMS OUTSIDE SCREW AND WRENCH OR UNDER BUSHING SHALL BE KEPT STRAIGHT AND PROTECTED AND/OR SUPPORTED ADEQUATELY.
7. PIPING SHALL BE THOROUGHLY CLEANED AFTER TESTING.
8. ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE FEDERAL REGISTER, VOL. 33 - 2245, 46 CFR 52.70-1'S.
9. EXPANSION TANKS ARE LOCATED ABOVE ENGINES.