

8 7 6 5 4 3 2 1

NOTES:

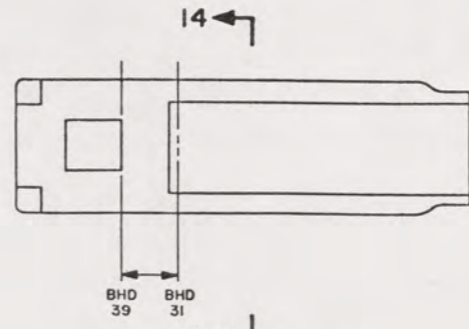
1. RELOCATE EXISTING DECK FITTING AND EXPANSION TANK TO POSITION SHOWN. PROVIDE OPENING AND HOLES FOR HARDWARE IN DECK AND SECURE WITH EXISTING HARDWARE. PLUG ORIGINAL HOLES WATERTIGHT.
2. TEMPLATE ALL WORK FROM LCM-8 AND EQUIPMENT.
3. EQUIPMENT AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH USCG AND ABS REGULATIONS.
4. REPAIR ALL PAINT DAMAGED BY THIS INSTALLATION AND PAINT ALL NEW STEEL IN ACCORDANCE WITH U.S. ARMY TECHNICAL BULLETIN TB43-0144.
5. MATERIAL ORDERED ON THIS DRAWING IS NOT INTENDED TO BE RESTRICTIVE. SUBSTITUTION OF EQUAL QUALITY MATERIAL MAY BE MADE EXCEPT ITEMS MARKED GFE.
6. SLIGHT DEVIATIONS FROM DIMENSIONS SHOWN ARE PERMISSIBLE TO SUIT ACTUAL CONDITIONS FOUND ABOARD THE VESSEL.
7. COMPONENTS SHOWN BY SOLID, HEAVY LINES ARE NEW AND ARE TO BE INSTALLED IN ACCORDANCE WITH THIS DRAWING. PHANTOM LINES INDICATE EXISTING COMPONENTS INSTALLED BY DRAWINGS REFERENCED AS NOTED.
8. WELDING AND BRAZING REQUIREMENTS SHALL BE IN ACCORDANCE WITH NAVSEA STD ITEM NO. 009-12.
9. PIPING SHALL BE SUITABLY SECURED BY PIPE HANGERS TO PREVENT VIBRATION AND PROTECT AGAINST DAMAGE IN ACCORDANCE WITH HAVSHIPS 804-1385781.
10. PIPING SYSTEMS SHALL BE THOROUGHLY CLEANED BY FLUSHING WITH THE MEDIUM FOR WHICH THE SYSTEM IS INTENDED.
11. ALL THREADED PIPE JOINTS SHALL BE ASSEMBLED USING ANTISEIZE TAPE M-10. PIPING SHALL BE TESTED HYDROSTATICALLY WITH WATER AND ALL JOINTS INSPECTED FOR TIGHTNESS IN ACCORDANCE WITH LCM-8 INSTALLATION INSTRUCTIONS: 55-1905-217-1.
12. IDENTIFY PIPING SYSTEM IN ACCORDANCE WITH TB43-0144.
13. BULKHEAD PENETRATIONS SHALL BE IN ACCORDANCE WITH NAVSHIPS 810-2145801. PENETRATIONS NO LONGER USED SHALL BE CLOSED OFF WATERTIGHT.
14. REMOVE EXISTING BULKHEAD PENETRATION FITTING AND PROVIDE NEW FITTINGS ACCORDING TO VIEW 10-C AT SAME EXISTING LOCATION.
15. INSIDE DIAMETER OF P-6 TO BE BORED TO SUIT OUTSIDE DIAMETER OF FITTING F-4 AND BRAZED IN PLACE.
16. UNLESS OTHERWISE SHOWN, PIPING ARRANGEMENT FOR BOTH PORT AND STARBOARD ENGINES WILL BE THE SAME.
17. PIPES OR HOSES OBSCURED BY FLOOR PLATING OR ENGINE ROOM EQUIPMENT SHALL BE IDENTIFIED BY (COPPER, BRASS, CRES) TAGS IN ACCORDANCE WITH MIL-STD-130. TERMINATIONS AND USE SHALL BE CLEAR.

REFERENCE DRAWINGS APPLICABLE TO HULL NUMBERS 8540 THRU 8560 AND 8580 THRU 8618		
NO.	DRAWING NO.	TITLE
1	145-4510945	LCM-8 MOD-1 SYSTEM ENGINE COOLING
2	145-4681045	LCM-8 MOD-1 USAT 1 SYSTEM ENGINE COOLING
3	145-4510321	BULKHEAD AND TRANSOM
4	145-4510916	DECK PLATING

REFERENCE DRAWINGS APPLICABLE TO HULL NUMBERS 8520 THRU 8539		
NO.	DRAWING NO.	TITLE
1	209-2534213	LCM-8 MOD-1 SYSTEM ENGINE COOLING
2	145-4681045	LCM-8 MOD-1 USAT 1 SYSTEM ENGINE COOLING
3	145-2534195	BULKHEAD AND TRANSOM
4	145-2534202	DECK PLATING

SHEETS		STATUS OF REVISIONS				
3	2	ZONE	LTR	DESCRIPTION	DATE	APPROVED

YARD	NO.	QTY	DESCRIPTION	COMPL.	MATERIAL
YARD	M-13	8	ANGLE, 1 1/2" X 1 1/2" X 1/4" X 6 1/2" L	ASTM A36	STL
YARD	M-12	16	MS35842-14 CLAMP, HOSE, LOW PRESSURE, 2 9/16"-3 1/2" RANGE		CRES
YARD	M-11	76W	12 HOSE, 3 1/4" ID X 6" L (GATES)	COML	RUBBER
YARD	M-10	SIZE 11	AR TAPE, ANTI-SEIZE (SEE NOTE 11)	MIL-T-27730	RUBBER
YARD	M-9	M18C510	AR SHEET, 1/8" X 1" AR L	ASTM D2000	RUBBER
YARD	M-8	80996	FIG. 138 AR CLAMP, PIPE, 3" IPS CD PL, 1/2" PIPE THREAD (GRINNELL)	COML	MI
YARD	M-7	24161	35W HOSE, 2 1/2" ID X 5" L (GATES)	COML	RUBBER
YARD	M-6	24161	76W HOSE, 3 1/2" ID X 3" L (GATES)	COML	RUBBER
YARD	M-5	MS35842-15	64 CLAMP, HOSE, LOW PRESSURE, 3 5/16"-4 1/4" RANGE		CRES
YARD	M-4	MS35842-12	8 CLAMP, HOSE, LOW PRESSURE, 1 1/16"-2" RANGE		CRES
YARD	M-3	24161	35W HOSE, 1 5/16" ID X 6" L (GATES)	COML	RUBBER
YARD	M-2	24161	75W HOSE, 1 1/2" ID X 6" L (GATES)	COML	RUBBER
YARD	M-1	MS35842-11	8 CLAMP, HOSE, LOW PRESSURE, 1 1/16"-1 1/4" RANGE		CRES
GFE	V-2	12168	T-413-B 2 VALVE, SWING CHECK, CLASS 125, 1" IPS THD (NIBCO)	COML	BRONZE
GFE	V-1	12168	S-413-B 2 VALVE, SWING CHECK, 125 LB SWP, 3" C X C (NIBCO)	COML	BRONZE
YARD	F-8	72423	5528-040 2 UNION, FEMALE, 1/4" SIZE, FF X MALE THD W/SB RING (FLAGG)	COML	BRONZE
YARD	F-7		ALLOY NO. OPTL 4 REDUCING COUPLING, C X C, 3" X 2 1/2"	ANSI B16.22	CU ALY
YARD	F-6		4 COUPLING, 1/2" IPS, CL 125	ANSI B16.15	BRONZE
YARD	F-5		2 ELBOW, 45°, 1" IPS, CL 125	ANSI B16.15	BRONZE
YARD	F-4		25 ELBOW, 90°, 3" STD WATER TUBE SIZE, C X C	ANSI B16.18	CU ALY
YARD	F-3	M1183/11-35A3	2 UNION ELBOW, 90°, 1" IPS W/SB RING	MIL-F-1183/11	BRONZE
YARD	F-2	M1183/5-01A	2 ELBOW, 90°, 1/4" IPS W/SB RING	MIL-F-1183/5	BRONZE
YARD	F-1		2 ELBOW, 90°, STREET, 1" IPS, CL 125	ANSI B16.15	BRONZE
YARD	P-10	UNS C12000-061	AR SMLS COPPER PIPE, 1/2" IPS, REGULAR	ASTM B42	CU ALY
YARD	P-9	MS1846-24	2 NIPPLE, SHORT, 1/4" IPS		BRASS
YARD	P-8	TY AND GR OPTL	AR PIPE, BLACK, 1/2" IPS X SCHED 40 TOE	ASTM A53	STL
YARD	P-7	UNS C12000-050	4 SMLS COPPER WATER TUBE, 2 1/2" STD SIZE X .095 WALL X 3" L	ASTM B88	CU ALY
YARD	P-6	UNS C12000-061	4 SMLS COPPER PIPE, 3" IPS, REGULAR X 1 3/4" L	ASTM B42	CU ALY
YARD	P-5	GR 1026, TY 5	6 TUBE, 3 1/8" OD X 2.75 ID	ASTM A513	STL
YARD	P-4	UNS C12000-050	AR SMLS COPPER WATER TUBE, 3" STD SIZE X .072 WALL	ASTM B88	CU ALY
YARD	P-3	UNS C12000-061	AR SMLS COPPER PIPE, 1" IPS, REGULAR	ASTM B42	CU ALY
YARD	P-2	COPPER NO. OPTL	AR THREADLESS COPPER PIPE, 1" IPS X .065 WALL	ASTM B302	CU ALY
YARD	P-1	COPPER NO. OPTL	AR THREADLESS COPPER PIPE, 1/4" IPS X .065 WALL	ASTM B302	CU ALY



KEY VIEW 6-A
SCALE NONE

THIS DRAWING APPLIES TO HULL NUMBERS 8520 THROUGH 8560 AND 8580 THROUGH 8618 ONLY

PARTS LIST		DATE	
UNLESS OTHERWISE SPECIFIED DIM/TOLERANCES ARE: .000 IN.	ONE PLACE (.1)	2	22 OCT 86
TWO PLACE (.01)	2		
THREE PLACE (.001)	2		
ANGLES	2		
DO NOT SCALE THIS DRAWING			
FOR INTERPRETATION OF DRAWING 800-STD-100 APPLIES			
REMOVE BURS AND SHARP EDGES	TO		
BREAK SHARP EDGES	FILLET RADIUS	TO	
MATERIAL			

DESIGN APPROVAL	DATE	SCALE	FSCN	DWG NO.
APPROVED FOR PROCUREMENT	15 NOV 87	A1 97403		13226E9469
		SCALE 3/4" = 1'-0"		SHEET 1 OF 3

U.S. ARMY
BELVOIR RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER
FORT BELVOIR, VIRGINIA 22060-8406

LCM-8, MOD-1, MODIFICATION TO ENGINE COOLING SYSTEM

8 7 6 5 4 3 2 1

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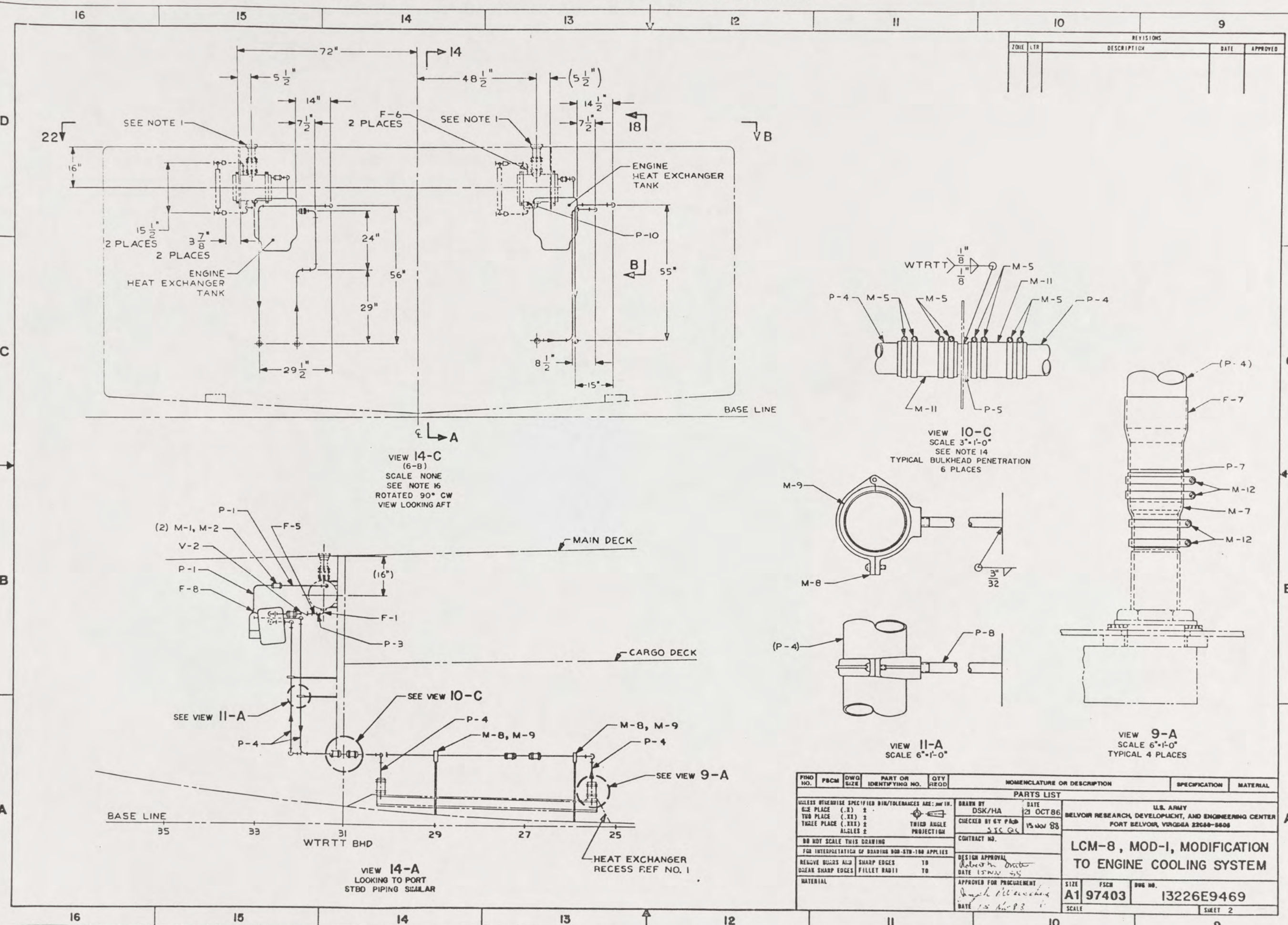
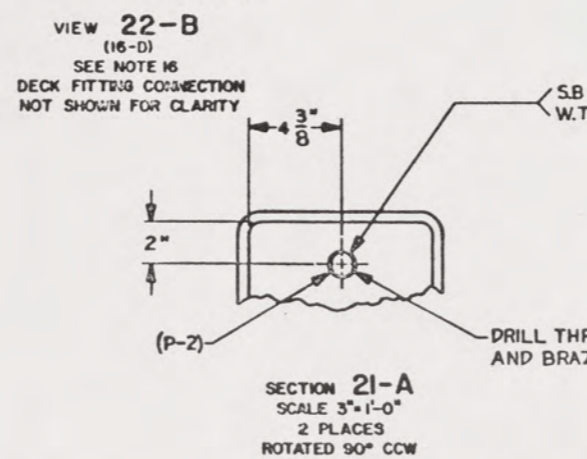
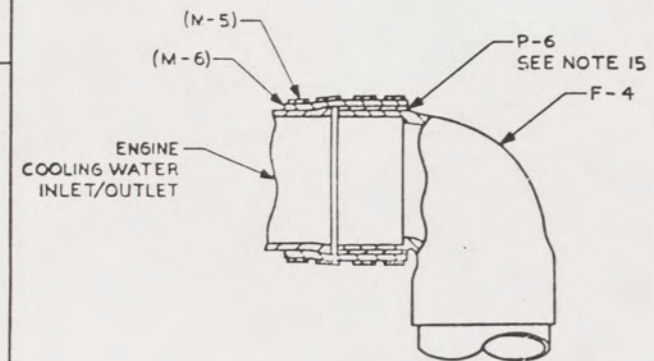
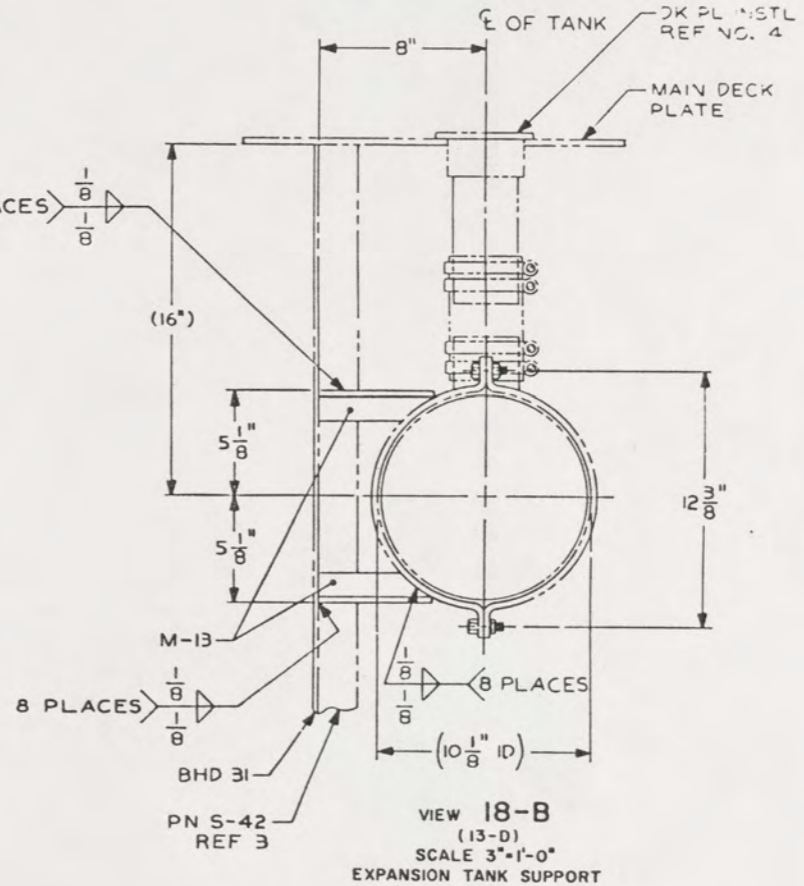
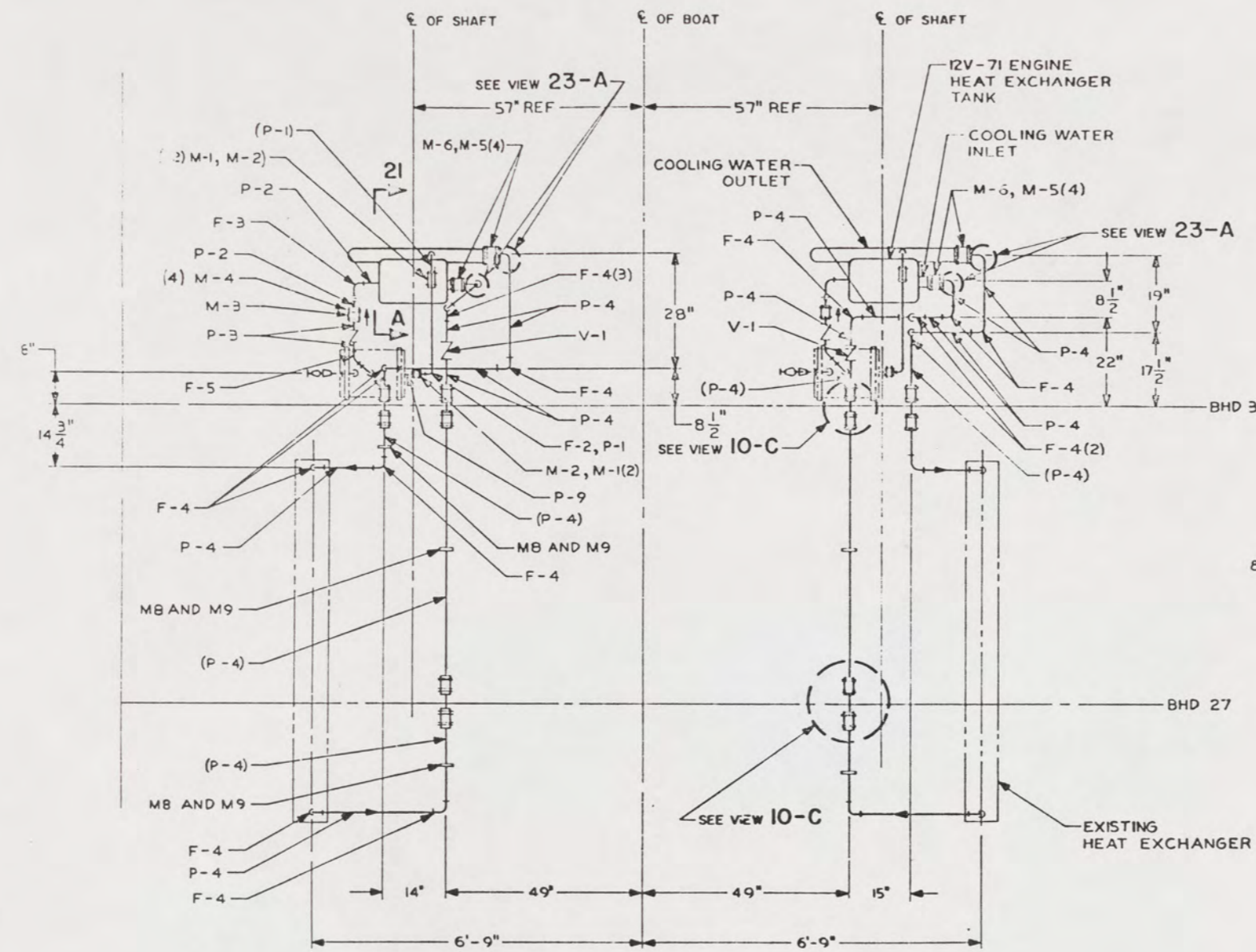


FIG. NO.	PSCN	DWG. SIZE	PART OR IDENTIFYING NO.	QTY. REQD.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	MATERIAL
PARTS LIST							
UNLESS OTHERWISE SPECIFIED DIM/TOLERANCES ARE: .001 IN.				DRAWN BY DSK/HA		DATE 21 OCT 86	
E-Z PLACE (.X) ±				CHECKED BY GT PAB		DATE 15 NOV 88	
TUB PLACE (.XX) ±				TRIM ANGLE PROJECTION			
TRAIL PLACE (.XXX) ±							
ALLES ±							
DO NOT SCALE THIS DRAWING							
FOR INTERPRETATION OF DRAWING 900-STR-100 APPLIES							
REMOVE BURRS AND SHARP EDGES TO				DESIGN APPROVAL		DATE 15 NOV 88	
CLEAN SHARP EDGES FILLET RADIUS TO				APPROVED FOR PROCUREMENT		DATE 15 NOV 88	
MATERIAL				DATE 15 NOV 88			
						U.S. ARMY BELVOIR RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER FORT BELVOIR, VIRGINIA 22060-5600	
						LCM-8, MOD-1, MODIFICATION TO ENGINE COOLING SYSTEM	
		SIZE A1		PSCN 97403		DWG. NO. 13226E9469	
		SCALE				SHEET 2	

24 23 22 21 20 19 18 17

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



VIEW 22-B
(16-D)
SEE NOTE 16
DECK FITTING CONNECTION
NOT SHOWN FOR CLARITY

SECTION 21-A
SCALE 3\"/>

VIEW 18-B
(13-D)
SCALE 3\"/>

VIEW 23-A
SCALE NONE
4 PLACES

PART NO.	QTY	PART OR IDENTIFYING NO.	QTY REQD	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	MATERIAL
PARTS LIST						
UNLESS OTHERWISE SPECIFIED DIM/TOLERANCES ARE: .001 IN.	DRAWN BY	DATE	U.S. ARMY			
0.125 PLACE (.125) 2	DSK/HA	21 OCT 86	BELVOIR RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER			
1/16 PLACE (.031) 2	CHECKED BY	15 NOV 86	PORT BELVOIR, VIRGINIA 22060-8408			
3/32 PLACE (.094) 2	DATE	15 NOV 86	CONTRACT NO.			
ANGLES 2	THIRD ANGLE PROJECTION		DESIGN APPROVAL			
DO NOT SCALE THIS DRAWING			DATE 15 NOV 86			
FOR INTERPRETATION OF DRAWING BDD-STR-188 APPLIES			APPROVED FOR PROCUREMENT			
REMOVE BURRS AND BREAK SHARP EDGES	SHARP EDGES TO	TO	DATE	DATE	DATE	DATE
WATER/IL	FILLET R:0.01	TO	DATE	DATE	DATE	DATE
APPROVED FOR PROCUREMENT			DATE	DATE	DATE	DATE
DATE 15 NOV 86			DATE	DATE	DATE	DATE
SIZE A1			FSC 97403	DUC NO. 13226E9469		SCALE
SCALE			SHEET 3		SHEET 3	

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