MATERIAL SCHEDULE

PIPING SYSTEM	PIPE		TAKEDOWN JOINTS			VALVES		FLEX CONN'S	FITTINGS TYPE & MATERIAL	MAX WORKING CONDITIONS			REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY	TRIM			SYSTEM	PRESSURE	TEMP	
FIREMAIN AND BILGE (USCG CLASS II PIPING)	2" AND BELOW	CARBON STEEL, ASTM A53 OR ASTM A106, GR B, SCH 80 ANSI B36.10 SEAMLESS OR ERW	STEEL UNION, ASTM A105 MSS-SP-83, CLASS 3000 SOCKET WELD	N/A	N/A	BALL, CHECK: THREADED OR FLANGED, STEEL, ASTM A105 OR A216 GR WCB, ANSI B16.34 NPT, CLASS 150	BRONZE, 316 STAINLESS STEEL, OR SAME AS BODY	NONE	STEEL, ASTM A105 OR A234, GR WPB, ANSI B16.11, CLASS 3000, NPT OR SOCKET WELD	FIREMAIN & BILGE	60 PSI	100 °F	SEE GEN NOTE 6
	2-1/2" AND ABOVE		STEEL FLANGE, ASTM A105 OR A216, GR WCB, ASME B16.5, CLASS 150, SLIP-ON OR WELD NECK	INORGANIC FIBER, GARLOCK 5500 OR EQUAL	BOLTS: STEEL ASTM A307, ANSI B18.2.1 GR B NUTS: STEEL ASTM A563, ANSI B18.2.2 GR A	BUTTERFLY: FLANGED, WAFER OR LUG STEEL, ASTM A105 OR A216 GR WCB, ANSI B16.34, CLASS 150 MSS-SP-67	MONEL STEM AND DISK, BUNA-N SEAT, RENEWABLE		STEEL, ASTM A234, GR WPB, ANSI B16.9, AND B16.28, SCH 80, BUTTWELD				

EQUIPMENT LIST (OR EQUAL)

ID	QTY	DESCRIPTION	CAPACITY/RATING	MFR AND PART NO.	REMARKS
521-01	1	FIRE PUMP	50 GPM @ 60 PSI	AMPCO RC2 2X2C (OR EQUAL)	480VAC/3PH, 5 HP, 3500 RPM, NIAB, SELF-PRIMING
521-02	1	BILGE PUMP	50 GPM @ 60 PSI	AMPCO RC2 2X2C (OR EQUAL)	480VAC/3PH, 5 HP, 3500 RPM, NIAB, SELF-PRIMING
521-03	2	SIMPLEX BASKET STRAINER, 2-1/2"	1/4" PERFORATIONS	EATON MODEL 72 (OR EQUAL)	CARBON STEEL HOUSING WITH DRAIN, MONEL BASKET
521-04	1	BILGE MANIFOLD	-	-	SHIPYARD TO DEVELOP

FIRE STATIONS

NO	LOCATION	HOSE LENGTH (FT)	HOSE SIZE (INCH)	REMARKS
01	UPPER DECK	50	1-1/2"	INTERIOR FIRE HYDRANT, SEE REF 2 FOR LOCATION
02	MAIN DECK	50	1-1/2"	EXTERIOR FIRE HYDRANT, SEE REF 2 FOR LOCATION
03	MAIN DECK	50	1-1/2"	EXTERIOR FIRE HYDRANT, SEE REF 2 FOR LOCATION

PIPING SYMBOL LIST

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
———	PIPE (NEW)	X"	DIRECTION OF FLOW ARROW WITH PIPE SIZE
	VALVE, BALL	B	VALVE, BUTTERFLY
	THREE-WAY BALL VALVE		REDUCER, CONCENTRIC
	FOOT VALVE		MANIFOLD, STOP CHECK VALVES
	OVERBOARD DISCHARGE		PUMP, CENTRIFUGAL
VP	GAGE, VACUUM & PRESSURE, LOCAL READING	P	GAGE, PRESSURE, LOCAL READING
B	BASKET STRAINER		SEACHEST

GENERAL NOTES

1. PIPING SYSTEM DESIGN, MATERIAL, INSTALLATION, TESTING AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH U.S. COAST GUARD REQUIREMENTS.
2. THIS DRAWING IS A DIAGRAMMATIC ILLUSTRATION OF A PIPING SYSTEM. PIPING ARRANGEMENTS WITHIN THE VESSEL SHALL BE DEVELOPED BY THE CONTRACTOR. DIAGRAM DATA SHALL BE CONFIRMED BY THE CONTRACTOR BASED ON THE ACTUAL PIPING ARRANGEMENTS AND MANUFACTURER'S CERTIFIED DATA FOR EQUIPMENT SELECTED.
3. SYSTEM INSTALLATION SHALL PERMIT CLEAR PASSAGE ALONG WALKWAYS AND LADDERWAYS; CLEAR ACCESS FOR OPERATION AND ROUTINE MAINTENANCE; CLEAR ACCESS TO ALL DOORS, HATCHES AND OPENINGS; AND, AS MUCH AS IS PRACTICABLE, BE FREE OF INTERFERENCE TO THE READY REMOVAL OF EQUIPMENT AND COMPONENTS USING PIPING TAKEDOWN JOINTS.
4. BULKHEAD AND DECK PIPING PENETRATIONS SHALL MAINTAIN THE WATERTIGHT, FUMETIGHT AND FIRE RATING OF THE BOUNDARY PER REGULATORY BODY REQUIREMENTS. REINFORCING PENETRATION SLEEVES SHALL BE FITTED TO MAINTAIN STRUCTURAL INTEGRITY OF THE BOUNDARY.
5. SYSTEM INSTALLATION SHALL COMPLY WITH THE FOLLOWING ASTM SHIPBUILDING AND MARINE TECHNOLOGY STANDARDS:
   a. RIGID PIPE HANGERS SHALL BE IN ACCORDANCE WITH ASTM F708. EXCEPTION: PARAGRAPH 1.3 IS NOT APPLICABLE.
   b. INSTRUMENTATION PIPING ASSEMBLIES SHALL BE IN ACCORDANCE WITH ASTM F721. EXCEPTION: INSTALL 1/2-INCH ROOT VALVE WITH ≤ 4 INCH STAND-OFF.
   c. VALVE LABEL PLATES SHALL BE IN ACCORDANCE WITH ASTM F992. INSTALL TYPE 1, GRADE E, CLASS 2, LETTER SIZE 2, PLATE SIZE TO SUIT.
   d. SUCTION STRAINER BOXES SHALL BE IN ACCORDANCE WITH ASTM F986. INSTALL TYPE 1 OR 2 TO SUIT ARRANGEMENTS.
   e. OVERBOARD DISCHARGE CONNECTIONS SHALL BE IN ACCORDANCE WITH ASTM F994. INSTALL TYPE IV.
   f. ALL DECK AND WATERTIGHT BULKHEAD PENETRATIONS SHALL HAVE REINFORCING SLEEVES.
6. ALL RESILIENTLY SEATED VALVES SHALL BE USCG CATEGORY A.
7. ALL WELDING IS TO BE IN ACCORDANCE WITH USCG.
8. BILGE LINES PIERCING THE COLLISION BULKHEAD MUST BE FITTED WITH A SCREW-DOWN VALVE LOCATED ON THE FORWARD SIDE OF THE COLLISION BULKHEAD AND OPERABLE FROM THE WEATHER DECK.

USCG CALCULATION

46 CFR SUBCHAPTER T, 181.300 (b)

1. "ON A VESSEL OF MORE THAN 19.8 METERS (65 FEET) IN LENGTH, THE MINIMUM CAPACITY OF THE FIRE PUMP MUST BE 189 LITERS (50 GALLONS) PER MINUTE AT A PRESSURE OF NOT LESS THAN 414 kPa (60 PSI) AT THE PUMP OUTLET."

THE SPECIFIED PUMP HAS AN OUTLET PRESSURE OF AT LEAST 60 PSI AT 50 GPM AT THE PUMP OUTLET.

REVISIONS

ZONE	REV	DESCRIPTION	DATE

REFERENCES

1. GLOSTEN FILE NO. 17097.02-832-01: TECHNICAL SPECIFICATIONS
2. GLOSTEN DWG. NO. 17097.02-070-01: GENERAL ARRANGEMENT
3. GLOSTEN DWG. NO. 17097.02-533-01: SANITARY AND POTABLE WATER

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GUEMES ISLAND FERRY REPLACEMENT
FIREMAIN AND BILGE
GENERAL NOTES, LIST OF SYMBOLS AND EQUIPMENT

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Scale	Drawing Number	Sheet	of	Revision
NO SCALE	17097.02-521-01	1	2	P0

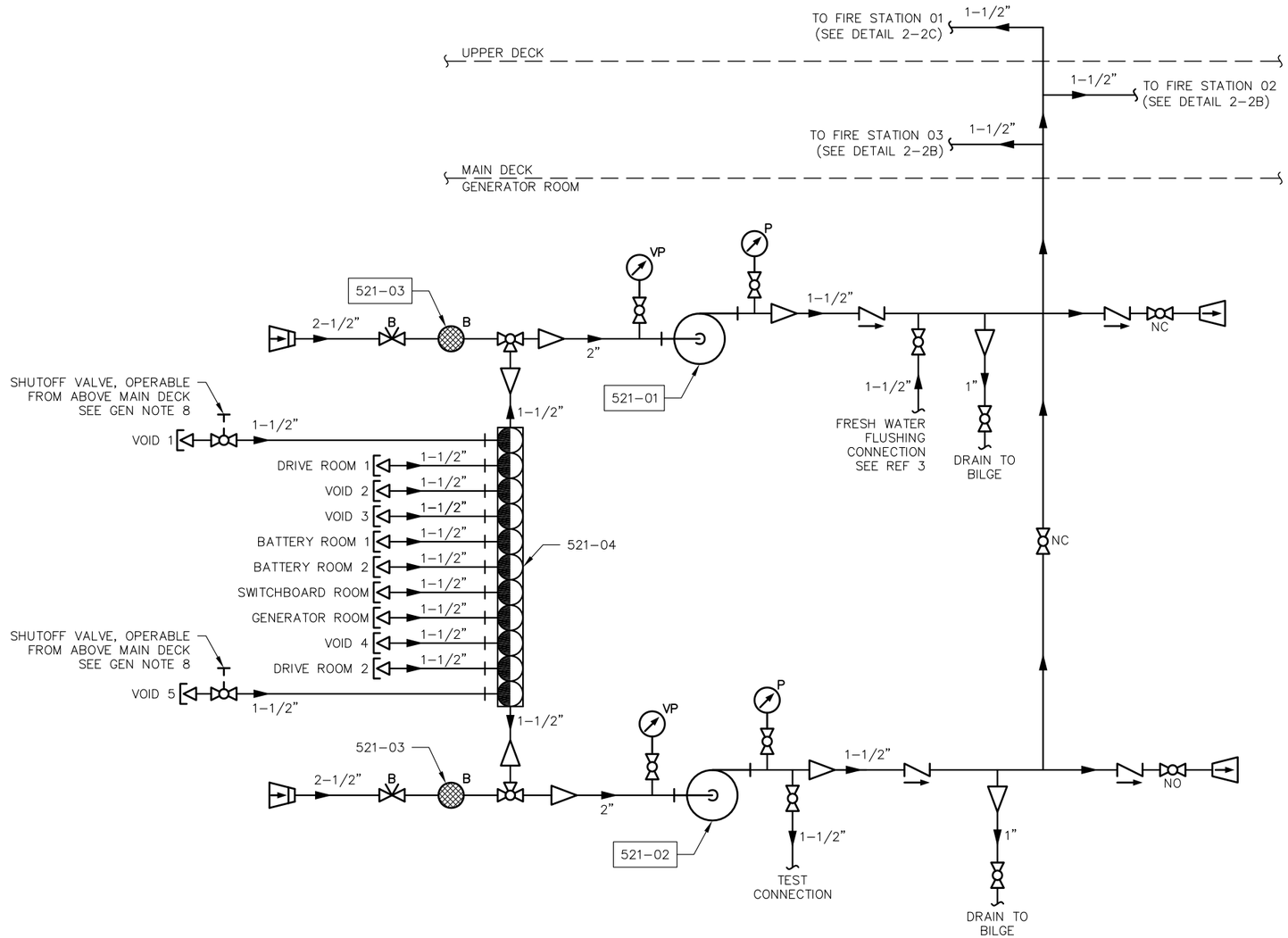
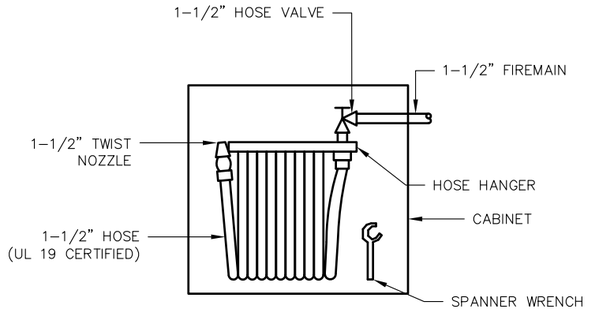
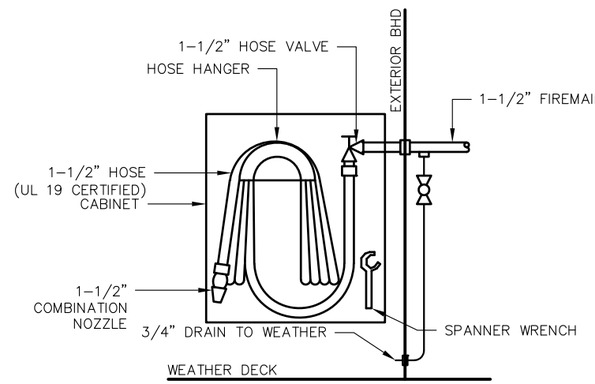


DIAGRAM 2-5A
FIREMAIN AND BILGE SYSTEM
ENGINE ROOM



DETAIL 2-2C
TYPICAL INTERIOR FIRE STATION



DETAIL 2-2B
TYPICAL EXTERIOR FIRE STATION

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