ALASKA LEGISLATURE COMMITTEE FILES 1983-1984 8672

3197 ST SB 217

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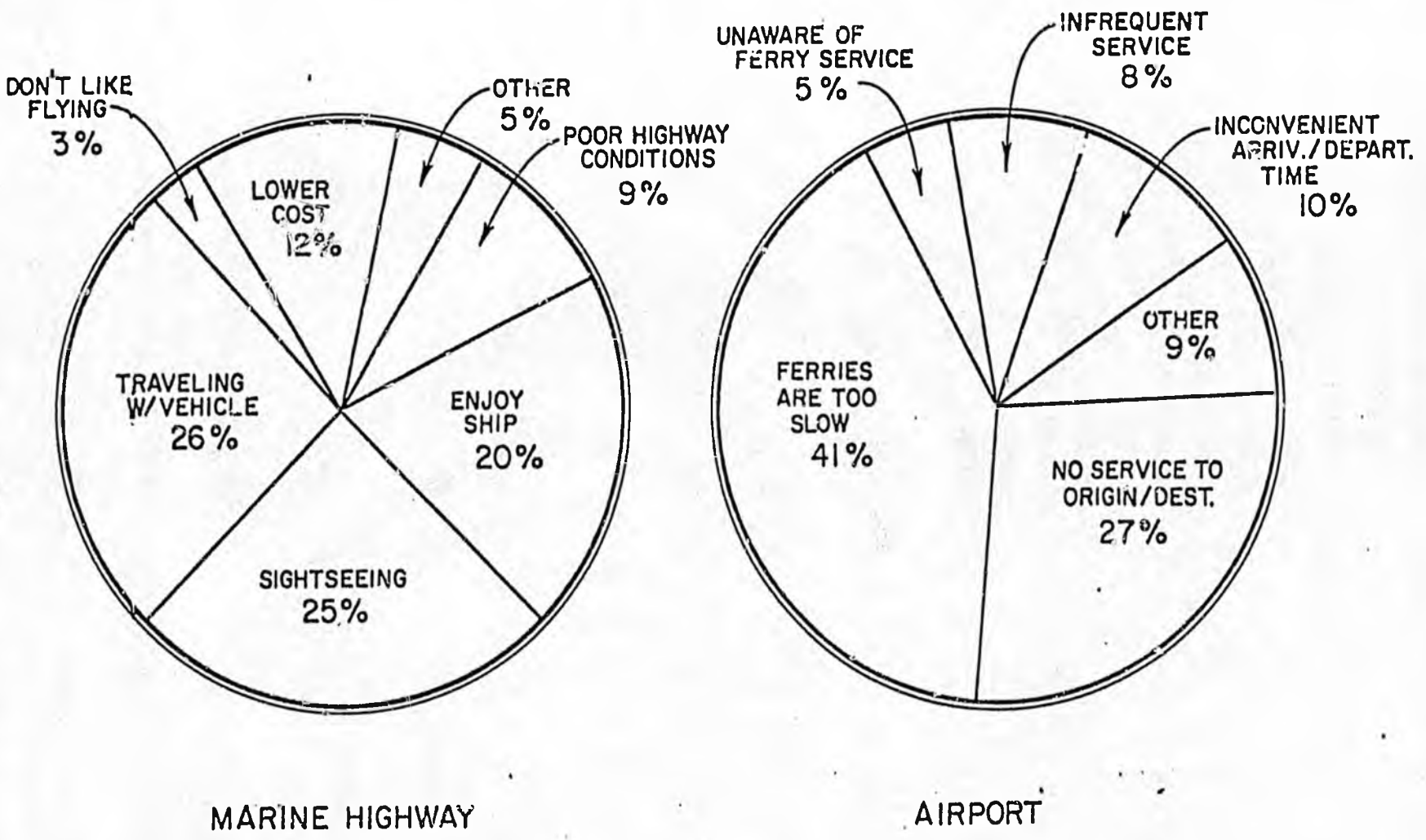

MARINE HIGHWAY

AIRPORT

FIGURE 14 REASON FOR SELECTING MODE

the longest distance to travel, had the most comments on the speed of the ferries. Sitka had the highest response for infrequent service (since it is often bypassed) and inconvenient arrival/departure times (because of the problem with the tides).

Customer Satisfaction (Table 41)

Marine Highway passengers gave high grades to the various components of the system. Their answers are summarized in Figure 15 and described below:

- Reservation service was rated good or excellent by 86 percent of those who responded. The lowest rate was 81 percent at Seattle.

- Check in service was rated good or excellent by 83 percent of those responded. The lowest rate was 80 percent at Auke Bay.

- Ninety-two percent of all passengers rated vessel appearance as good or excellent, with the Aurora and LeConte receiving lows of 82 and 79 percent, respectively. These vessels received about a 10 percent higher response in the "fair" category than the Mainline vessels. This makes sense since these are the "feeder" ferries and have fewer conveniences.

- Meal service was rated good or excellent by 73 percent of all passengers, with the Columbia high at 81 percent and the LeConte low at 63 percent.

- Evaluation of crews was good or excellent by 92 percent of all passengers, with the LeConte low at 83 pecent.

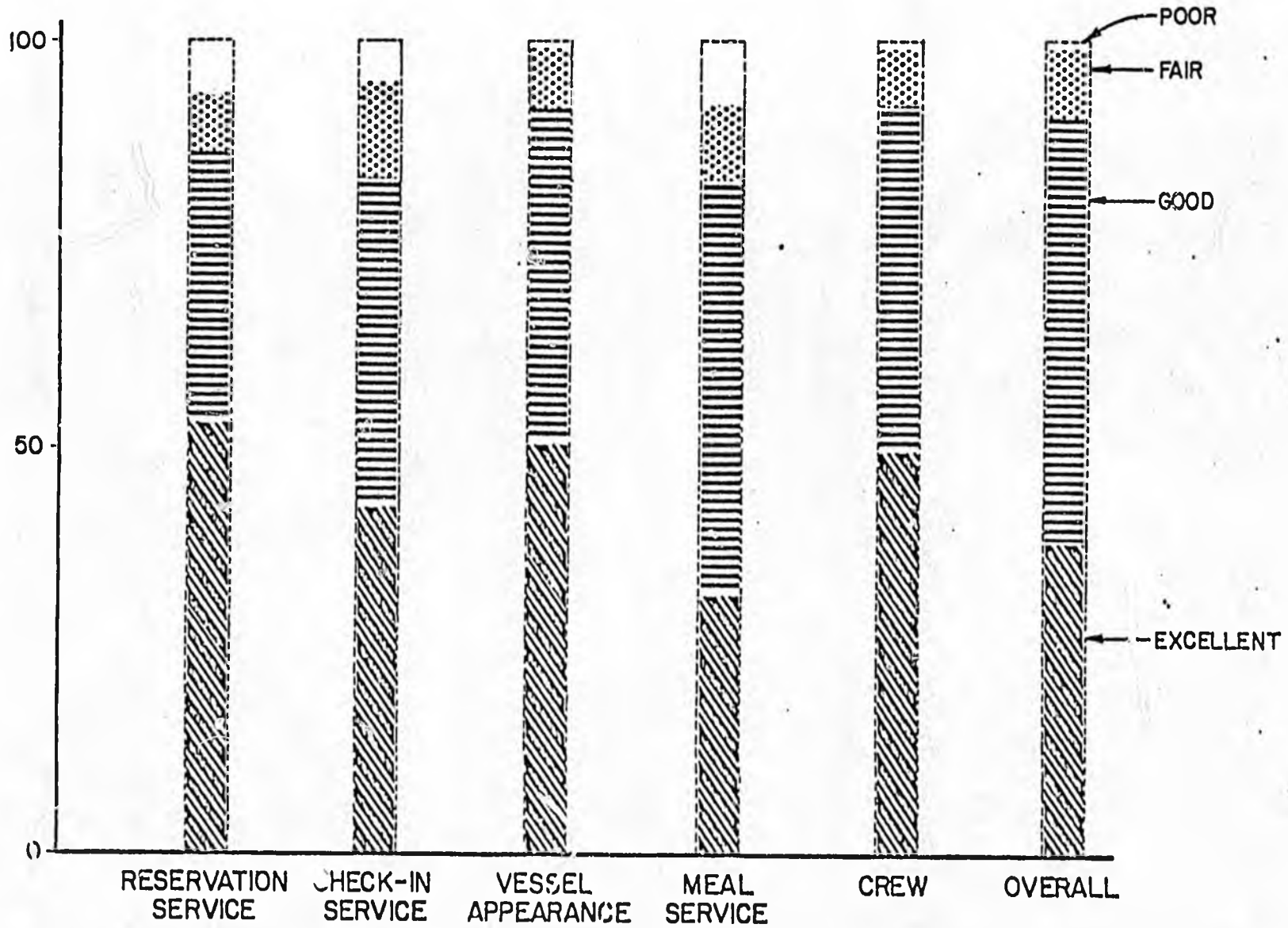

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FIGURE 15 CUSTOMER SATISFACTION-MARINE HIGHWAY SYSTEM

- Ninety-one percent of all passengers gave an overall evaluation of good or excellent for the Marine Highway System.

Highway Border Survey

Trip purpose for highway travelers is summarized by month and by border station (Tables 3 and 6). Predictably, 61 percent of total crossings were for tourism/recreation. Forty-five percent of those interviewed live in S.E. Alaska, interior Alaska or Carcross. This makes sense since many residents of either area often cross the border for weekend trips.

Table 10 summarizes residence by month of survey. Seventy-two percent of those crossings surveyed occurred during the peak seven months of May and July.

The most frequent place visited besides Haines and Skagway, where the surveys were conducted, was Juneau. No other location generated significant response (see Table 13).

The reliability of data from the Border Crossing survey is far lower than the other two surveys. Less than one half of one percent of border crossings for the year (October, 1981 to September, 1982) were surveyed as shown below:

City	No. of Crossings	No. Surveyed
Haines	18,091	79
Skagway	14,905	62

FARE AND REVENUE ANALYSIS

TRIP TIME/COST COMPARISON
(1983 COSTS)

JUNEAU - SKAGWAY

	JETFOIL			FERRY (AUKE BAY)			AIRLINE	
	TIME	COST		TIME	COST		TIME	COST
CHECKIN	0:20	--	CHECKIN	0:05	00	CHECKIN	0:05	00
FOOD (1)	--	$ 1.50						
JETFOIL	3:30	$45.00	TAXI/BUS(2)	0:20/0:35	$6.00	TAXI/BUS	0:15	$10.00/$5.00
	3:50	$46.50	TRANSFER	0:20	00	TRANSFER	0:30	--
			FERRY	6:15	$22.00	AIR	0:55	$70.00
			FOOD	--	$3.00		1:45	$80.00/$75.00
				7:00/7:15	$31.00			

JUNEAU - HAINES

	JETFOIL			FERRY (AUKE BAY)			AIRLINE	
	TIME	COST		TIME	COST		TIME	COST
CHECKIN	0:20	00	CHECKIN	0:05	--	CHECKIN	0:05	--
FOOD (1)	--	$ 1.25						
JETFOIL	2:25	$40.00	TAXI/BUS(2)	0:20/0:35	$6.00	TAXI/BUS	0:15	$10.00/$5.00
	2:45	$41.25	TRANSFER	0:20	--	TRANSFER	0:30	--
			FERRY	5:30	$15.00	AIR	0:30	$60.00
			FOOD (1)	--	$2.75	TAXI	0:20	--
			TRANSFER	0:20	--		1:40	$70.00/$65.00
			TAXI/BUS	0:10	$3.50			
				7:15/7:30	$27.25			

(1) $.50/HOUR (2) 1/2 TAXI

TRIP TIME/COST COMPARISON
(1983 COSTS)

JUNEAU - ANGOON

JETFOIL	TIME	COST
CHECKIN	0:20	--
FOOD (1)	--	$ 3.00
JETFOIL	6:45	$35.00
	7:10	$38.00

FERRY (AUKE BAY)	TIME	COST
CHECKIN	0:05	--
TAXI/BUS (2)	0:20/0:35	$6.00
TRANSFER	0:20	--
FERRY	9:00	$15.00
FOOD (1)	--	$4.50
	9:45/10:00	$25.50

AIRLINE	TIME	COST
CHECKIN	0:05	--
TAXI/BUS	0:15	$10.00/$5.00
TRANSFER	0:30	--
AIR	0:40	$57.00
	1:30	$67.00/$62.00

JUNEAU - SITKA

JETFOIL	TIME	COST
CHECKIN	0:20	--
FOOD (1)	--	$ 2.00
JETFOIL	4:05	$50.00
	4:25	$52.00

FERRY (AUKE BAY)	TIME	COST
CHECKIN	0:05	--
TAXI/BUS(2)	0:20/0:35	$6.00
TRANSFER	0:20	--
FERRY	12:00/16:00	$22.00
FOOD (1)	--	$6.00
TRANSFER	0:20	--
TAXI/BUS(2)	0:10	$6.50/$2.50
	13:15/17:30	$40.50/36.50
1/2 CABIN		$14.00
		$54.50/$50.50

AIRLINE	TIME	COST
CHECKIN	0:05	--
TAXI/BUS	0:15	$10.00/$5.00
TRANSFER	0:30	--
AIR	0:30	$54.00
FOOD	--	--
TRANSFER	0:20	--
TAXI/BUS	0:10	$5.00/$2.50
	1:50	$69.00/$61.50

$.50/HR (2) 1/2 TAXI

TRIP TIME/COST COMPARISON
(1983 COSTS)

UNEAU - WRANGELL

JETFOIL	TIME	COST
CHECKIN	0:20	--
FOOD (1)	--	$ 2.00
JETFOIL	4:30	$55.00
	4:50	$57.00

FERRY (CITY)	TIME	COST
CHECKIN	0:20	--
FERRY	12:00	$33.00
FOOD (1)	--	$6.00
	12:20	$39.00
	(26:00 VIA SITKA)	

AIRLINE	TIME	COST
CHECKIN	0:05	--
TAXI/BUS	0:15	$10.00/$5.00
TRANSFER	0:30	--
AIR	0:30/1:30	$75.00
TRANSFER	0:20	--
TAXI	0:10	$3.00
	1:50/2:50	$88.00/$83.00

JUNEAU - HOONAH

JETFOIL	TIME	COST
CHECKIN	0:20	--
FOOD	--	$ 1.00
JETFOIL	1:50	$30.00
	2:10	$31.00

FERRY (AUKE BAY)	TIME	COST
TAXI/BUS(2)	0:20	$6.00
CHECKIN	0:20	--
FERRY	4:15	$12.00
FOOD (1)	--	$2.00
	4:55	$20.00

AIRLINE	TIME	COST
CHECKIN	0:05	--
TAXI/BUS	0:15	$10.00/$5.00
TRANSFER	0:30	--
AIR	0:20	$45.00
	1:10	$55.00/$50.00

$.50/HOUR (2) 1/2 TAXI

TRIP TIME/COST COMPARI[illegible]
(1983 COSTS)

JUNEAU - PETERSBURG

	JETFOIL TIME	JETFOIL COST		FERRY (CITY) TIME	FERRY (CITY) COST		AIRLINE TIME	AIRLINE COST
CHECKIN	0:20	--	CHECKIN	0:20	--	CHECKIN	0:05	--
FOOD (1)	--	$ 1.00						
JETFOIL	2:45	$45.00	FERRY	6:15/8:00	$22.00	TAXI/BUS	0:15	$10.00/$5.00
	3:05	$46.00	FOOD (1)	--	$3.50	TRANSFER	0:30	--
				6:35/8:20	$25.50	AIR	0:30/1:30	$67.00
						TRANSFER	0:20	--
						TAXI	0:05	$6.50
				(24:00 VIA SITKA)			1:45/2:45	$83.50/$78.50

JUNEAU - KETCHIKAN

	JETFOIL TIME	JETFOIL COST		FERRY (CITY) TIME	FERRY (CITY) COST		AIRLINE TIME	AIRLINE COST
CHECKIN	0:20	--	CHECKIN	0:20	--	CHECKIN	0:05	--
FOOD (1)	--	$ 4.00						
JETFOIL	8:55	$75.00	FERRY	18:00/20:00	$49.00	TAXI/BUS	0:15	$10.00/$5.00
	9:15	$79.00	FOOD (1)	--	$ 9.50	TRANSFER	0:30	--
				18:20/20:20	$58.50	AIR	0:50/2:20	$82.00
			+ 1/2 CABIN	--	$19.50	TRANSFER	0:30	$7.00
				18:20/20:20	$78.00	FERRY	0:10	--
				(35:00 VIA SITKA)			2:20/3:50	$99.00/$94.00

(1) $.50/HOUR

TRIP TIME/COST COMPARISON
(1983 COSTS)

CHIKAN - CRAIG/KLAWOCK

JETFOIL			FERRY			AIRLINE		
	TIME	COST		TIME	COST		TIME	COST
CHECKIN	0:20	--	CHECKIN	0:20	--	CHECKIN	0:20	--
BUS TO HOLLIS	0:45	$10.00	BUS TO HOLLIS	0:45	$10.00	AIR	0:40	$57.00
			FOOD (1)	--	$ 1.00			
JETFOIL	1:05	$25.00	FERRY	2:45	$11.00		1:00	$57.00
	2:10	$35.00		3:50	$22.00			

CHIKAN - WRANGELL

JETFOIL			FERRY			AIRLINE		
	TIME	COST		TIME	COST		TIME	COST
CHECKIN	0:20	--	CHECKIN	0:20	--	CHECKIN	0:05	--
FOOD (1)	--	$ 2.00						
JETFOIL	2:30/3:55	$40.00	FERRY	6:30	$18.00	FERRY & BUS	0:30	$7.00
	2:40/4:15	$42.00	FOOD	--	$3.00	TRANSFER	0:30	--
				6:50	$21.00	AIR	0:25	$64.00
						TAXI	0:10	$3.00
							1:40	$74.00

) $.50/HOUR

CONVENTIONAL FERRY BOAT VEHICLE FARES/DISTANCES

MET/WGL	GLB/SGY	SGY/GLB	SGY/HNH	HNH/PEL	MET/HOL
KETCHIKAN	JUNEAU	JUNEAU	JUNEAU	JUNEAU	KETCHIKAN
$18 (16 N.M.)	$65 (89 N.M.)	$48	$48 (94 N.M.)	$45 (76 N.M.)	$18 (16 N.M.)
METLAKATLA	GLACIER BAY	HAINES	HAINES	EXCURSION INLET	METLAKATLA
$18 (16 N.M.)	$65 (89 N.M.)	$19	$19 (14 N.M.)	$20 (17 N.M.)	$18 (16 N.M.)
KETCHIKAN	JUNEAU	SKAGWAY	SKAGWAY	HOONAH	KETCHIKAN
$31 (39 N.M.)	$48 (94 N.M.)	$19	$19 (14 N.M.)	$30 (35 N.M.)	$31 (39 N.M.)
HOLLIS	HAINES	HIANES	HAINES	ELFIN COVE	HOLLIS
$58 (94 N.M.)	$19 (14 N.M.)	$48	$48 (94 N.M.)	$22 (24 N.M.)	$31 (39 N.M.)
WRANGELL	SKAGWAY	JUNEAU	JUNEAU	PELICAN	KETCHIKAN
$58 (94 N.M.)	$19 (14 N.M.)	$65	$36 (71 N.M.)	$44 (59 N.M.)	$18 (16 N.M.)
HOLLIS	HAINES	GLACIER BAY	HOONAH	HOONAH	METLAKATLA
$31 (39 N.M.)	$48 (94 N.M.)	$65	$36 (71 N.M.)	$20 (17 N.M.)	$18 (16 N.M.)
KETCHIKAN	JUNEAU	JUNEAU	JUNEAU	EXCURSION INLET	KETKCHIKAN
$18 (16 N.M.)				$45 (76 N.M.)	$31 (39 N.M.)
METLAKATLA				JUNEAU	HOLLIS
$18 (16 N.M.)					$31 (39 N.M.)
KETCHIKAN					KETCHIKAN
L FARE/					
HICLE $250	$264	$264	$206	$226	$196
L DISTANCE 330 N.M.	394 N.M.	394 N.M.	358 N.M.	304 N.M.	220 N.M.

HICLES LESS THAN 19-FEET IN LENGTH.

CONVENTIONAL FERRYBOAT VEHICLE* FARES/DISTANCE

	HNH/SIT	SIT/HNH	2 SGY	KAK/WGL	JNU/KTN	KTN/JNU
	JUNEAU	JUNEAU	JUNEAU	JUNEAU	JUNEAU	KETCHIKAN
	$36 (71 N.M.)	$71	$48 (94 N.M.)	$71 (91 N.M.)	$71 (108 N.M.)	$18
	HOONAH	SITKA	HAINES	KAKE	PETERSBURG	METLAKATLA
	$38 (48 N.M.)	$39	$19 (14 N.M.)	$40 (66 N.M.)	$33 (41 N.M.)	$18
	TENAKEE	ANGOON	SKAGWAY	PETERSBURG	WRANGELL	KETCHIKAN
	$30 (35 N.M.)	$30	$19 (14 N.M.)	$33 (41 N.M.)	$58 (94 N.M.)	$31
	ANGOON	TENAKEE	HAINES	WRANGELL	HOLLIS	HOLLIS
	$39 (66 N.M.)	$38	$48 (94 N.M.)	$33 (41 N.M.)	$31 (39 N.M.)	$58
	SITKA	HOONAH	JUNEAU	PETERSBURG	KETCHIKAN	WRANGELL
	$71 (161 N.M.)	$36	$48 (94 N.M.)	$40 (66 N.M.)	$18 (16 N.M.)	$33
	JUNEAU.	JUNEAU	HAINES	KAKE	METALKATAL	PETERSBURG
			$19 (14 N.M.)	$71 (91 N.M.)	$18 (16 N.M.)	$71
			SKAGWAY	JUNEAU	KETCHIKAN	JUNEAU
			$19 (14 N.M.)			
			HAINES			
			$48 (94 N.M.)			
			JUNEAU			
)TAL FARE/VEHICLE	$214	$214	$268	$288	$229	$229
)TAL DISTANCE	381 N.M.	381 N.M.	432 N.M.	396 N.M.	314 N.M.	314 N.M.

/EHICLES LESS THAN 19-FEET IN LENGTH.

EQUIVALENT CONVENTIONAL FERRYBOAT VEHICLE* FARES/DISTANCES

WEEKLY JETFOIL SUMMER SCHEDULE

	BOAT #1			BOAT #2			BOAT #3		
	ROUTE	FARE	DISTANCE	ROUTE	FARE	DISTANCE	ROUTE	FARE	DISTANCE
MONDAY	HNH/SIT	$214	381 N.M.	SIT/HNH	$214	381 N.M.	JNU/KTN	$229	314 N.M.
TUESDAY	SGY/GLB	$264	394 N.M.	GLB/SGY	$264	394 N.M.	MET/WGL	$250	330 N.M.
WEDNESDAY	HNH/SIT	$214	381 N.M.	SIT/HNH	$214	381 N.M.	KTN/JNU	$229	314 N.M.
THURSDAY	HNH/PEL	$226	304 N.M.	KAK/WGL	$288	396 N.M.	2 SGY	$268	432 N.M.
FRIDAY	HNH/SIT	$214	381 N.M.	SIT/HNH	$214	381 N.M.	JNU/KTN	$229	314 N.M.
SATURDAY	SIT/HNH	$214	381 N.M.	KAK/WGL	$288	396 N.M.	MET/WGL	$250	330 N.M.
SUNDAY	SGY/GLB	$264	394 N.M.	GLB/SGY	$264	394 N.M.	KTN/JNU	$229	314 N.M.
TOTALS		$1,610	2,616 N.M.		$1,746	2,723 N.M.		$1,684	2,348 N.M.
TOTAL FOR SUMMER			$5,040			7,687 N.M.			

*VEHICLES LESS THAN 19-FEET IN LENGTH.

EQUIVALENT CONVENTIONAL FERRY BOAT VEHICLE* FARES/DISTANCES
WEEKLY JETFOIL WINTER SCHEDULE

	BOAT #1			BOAT #2		
	ROUTE	FARE	DISTANCE	ROUTE	FARE	DISTANCE
MONDAY	HNH/SIT	$214	381 N.M.	JNU/KTN	$229	314 N.M.
TUESDAY	SGY/HNH	$206	358 N.M.	KTN/JNU	$229	314 N.M.
WEDNESDAY	SIT/HNH	$214	381 N.M.	KAK/WGL	$286	396 N.M.
THURSDAY	SGY/HNH	$206	358 N.M.	JNU/KTN	$229	314 N.M.
FRIDAY	HNH/SIT	$214	381 N.M.	MET/HOL	$196	220 N.M.
SATURDAY	HNH/PEL	$226	304 N.M.	KNT/JNU	$229	314 N.M.
SUNDAY	SIT/HNH	$214	381 N.M.	OFF		
TOTAL		$1,494	2,544 N.M.		$1,400	1,872 N.M.
TOTAL FOR WINTER		$2,894	4,416 N.M.			

*VEHICLES LESS THAN 19-FEET IN LENGTH

AVERAGE JETFOIL VEHICLE* FARE/NAUTICAL MILE

	SUMMER SCHEDULE		WINTER SCHEDULE	
	TOTAL FARE	TOTAL DISTANCE	TOTAL FARE	TOTAL DISTANCE
SERVICE PER WEEK	$5,040	7,687 N.M.	$2,894	4,416 N.M.
TIMES 26 WEEKS OF SERVICE	X 26	X 26	X 26	X 26
TOTAL HALF YEAR	$131,040	199,826 N.M.	$75,244	114,816 N.M.

TOTAL ANNUAL CONVENTIONAL FERRY VEHICLE FARE	$206,284
PLUS 50% PREMIUM FOR JETFOIL SERVICE	$103,142
TOTAL ANNUAL JETFOIL VEHICLE FARE	$309,426
DIVIDE BY TOTAL ANNUAL VEHICLE DISTANCE	÷ 314,678 N.M.
AVERAGE JETFOIL VEHICLE* FARE/NAUTICAL MILE	$.983/N.M.

*VEHICLES LESS THAN 19-FEET IN LENGTH.

CAPACITY SHARE ANALYSIS
1986 - SOUTHEAST ALASKA

ROUTE	PEAK SEASON (APRIL - SEPTEMBER) JETFOIL	AIR	FERRY	WINTER (OCTOBER - MARCH) JETFOIL	AIR	FERRY	TOTAL YEAR JETFOIL	AIR	FERRY
JUNEAU - SKAGWAY:									
JUNEAU-HAINES	42,100	51,200	138,200	14,000	21,200	42,900	56,100	72,400	181,800
CAPACITY SHARE %	18%	22%	60%	18%	27%	55%	18%	23%	59%
HAINES - SKAGWAY	42,100	40,900	138,200	14,000	15,200	42,900	56,100	56,100	181,800
CAPACITY SHARE %	19%	18%	63%	19%	21%	60%	19%	19%	62%
JUNEAU - SITKA:									
JUNEAU - SITKA	24,600	32,100	23,400	20,000	32,100	16,900	44,600	64,200	40,300
CAPACITY SHARE %	31%	40%	29%	29%	47%	24%	30%	43%	27%
JUNEAU - HOONAH	16,500	40,000	3,000	14,000	20,000	3,000	32,000	60,000	6,000
CAPACITY SHARE %	29%	67%	4%	38%	53%	9%	33%	61%	6%
JUNEAU - ANGOON	2,700	2,700	1,500	2,000	1,800	1,500	4,700	4,500	3,000
CAPACITY SHARE %	39%	39%	22%	38%	34%	28%	39%	37%	24%
JUNEAU - TENAKEE	2,700	2,700	1,200	2,000	1,800	1,200	4,700	4,500	2,400
CAPACITY SHARE %	41%	41%	18%	40%	36%	24%	41%	39%	20%
SITKA - HOONAH	500	--	700	400	--	700	900	--	1,400
CAPCITY SHARE %	42%		58%	36%		64%	39%		61%
SITKA - ANGOON	3,600	5,000	3,200	3,100	1,700	3,200	6,700	6,700	6,400
CAPACITY SHARE %	31%	42%	27%	39%	21%	40%	34%	34%	32%
SITKA - TENAKEE	1,100	1,700	200	1,100	1,700	200	2,200	3,400	400
CAPACITY SHARE %	37%	57%	6%	37%	57%	6%	37%	57%	6%
JUNEAU - PELICAN:									
JUNEAU - EXCURSION INLET	700	1,200		700	800		1,400	2,000	
CAPACITY SHARE %	37%	63%		47%	53%		41%	59%	
JUNEAU - PELICAN	3,100	5,400		3,100	3,600		6,200	9,000	
CAPACITY SHARE %	37%	63%		46%	54%		41%	59%	
JUNEAU - ELFIN COVE	700	1,200		700	800		1,400	2,000	
CAPACITY SHARE %	37%	63%		47%	54%		41%	59%	

CAPACITY SHARE ANALYSIS
1980 - SOUTHEAST ALASKA

ROUTE	PEAK SEASON (APRIL - SEPTEMBER) JETFOIL	AIR	FERRY	WINTER (OCTOBER - MARCH) JETFOIL	AIR	FERRY	TOTAL YEAR JETFOIL	AIR	FERRY
JUNEAU - KETCHIKAN:									
JUNEAU-KAKE	5,500	5,400	3,000	3,000	3,600	2,000	8,500	9,000	5,000
CAPACITY SHARE %	40%	39%	21%	35%	42%	23%	38%	40%	22%
JUNEAU - PETERSBURG	18,000	13,800	45,000	10,000	8,000	22,000	28,000	21,800	67,000
CAPACITY SHARE %	23%	18%	59%	25%	20%	55%	24%	19%	57%
JUNEAU - WRANGELL	5,000	4,200	10,500	3,500	4,200	5,400	8,800	8,400	15,900
CAPACITY SHARE %	25%	21%	54%	27%	32%	41%	26%	26%	46%
KAKE - PETERSBURG	5,500	5,100	3,000	3,000	3,400	2,000	8,500	8,500	5,000
CAPACITY SHARE %	40%	38%	22%	36%	41%	23%	39%	39%	22%
PETERSBURG - WRANGELL	10,000	8,000	24,000	4,500	5,000	8,100	14,500	13,000	32,100
CAPACITY SHARE %	24%	19%	57%	26%	28%	46%	24%	22%	54%
JUNEAU - KETCHIKAN	6,500	22,000	51,000	4,500	20,000	22,000	11,000	42,000	73,000
CAPACITY SHARE %	8%	24%	68%	10%	43%	47%	9%	33%	58%
KETCHIKAN - PETERSBURG	7,000	14,400	28,500	3,000	3,000	14,200	10,000	17,600	42,700
CAPACITY SHARE %	14%	29%	57%	15%	16%	69%	14%	25%	61%
KETCHIKAN - WRANGELL	14,000	10,200	36,000	7,000	6,500	13,200	21,000	16,700	49,200
CAPACITY SHARE %	23%	17%	60%	26%	24%	50%	24%	19%	57%
KETCHIKAN - HOLLIS	14,000	48,000	26,000	14,000	17,600	26,000	28,000	65,600	52,000
CAPACITY SHARE %	16%	55%	29%	24%	31%	45%	[illegible]	45%	36%
KETCHIKAN - METLAKATLA	56,000	46,000	20,000	56,000	28,000	16,000	112,000	74,000	36,000
CAPACITY SHARE %	46%	38%	16%	56%	28%	16%	51%	33%	16%
JUNEAU - GUSTAVUS	28,080	64,500					28,080	64,500	
CAPACITY SHARE %	30%	70%					30%	70%	

JETFOIL PASSENGER LOAD FACTOR ON ROUTE SEGMENTS

1986 - SOUTHEAST ALASKA

MEDIUM SCENARIO

ROUTE	PEAK SEASON (APRIL - SEPTEMBER) TOTAL JETFOIL PASSENGERS	JETFOIL PAX/TRIP	JETFOIL LOAD FACTOR	OFF-PEAK SEASON (OCTOBER - MARCH) TOTAL JETFOIL PASSENGERS	JETFOIL PAX/TRIP	JETFOIL LOAD FACTOR
JUNEAU - SKAGWAY						
JUNEAU - HAINES	17,628	57	42%	5,292	51	38%
HAINES - SKAGWAY	12,390	40	29%	2,537	24	18%
JUNEAU - GUSTAVUS	13,061	63	47%	--	--	--
JUNEAU - PELICAN[1/]						
JUNEAU-EXCURSION INLET	3,964	76	57%	1,805	69	51%
EXCURSION INLET-HOONAH	3,702	71	53%	1,630	63	46%
HOONAH - ELFIN COVE	901	35	26%	565	44	32%
ELFIN COVE - PELICAN	901	35	26%	565	44	32%
PELICAN - HOONAH	901	35	26%	565	44	32%
JUNEAU - SITKA						
JUNEAU - HOONAH	16,010	88	65%	6,349 [2/]	61	45%
HOONAH - TENAKEE	6,970	38	28%	3,717	35	26%
TENAKEE - ANGOON	6,155	34	25%	3,347	31	23%
ANGOON - SITKA	8,704	48	36%	3,948	38	28%
SITKA - JUNEAU	10,305	57	42%	5,156	50	37%

1/ JUNEAU - HOONAH (VIA PELICAN) ASSUMES 17% OF TOTAL JUNEAU - HOONAH TRAFFIC IN PEAK SEASON AND 8.5% IN OFF PEAK.

2/ JUNEAU - HOONAH (VIA SITKA) ASSUMES 41.5% OF TOTAL JUNEAU - HOONAH TRAFFIC IN PEAK SEASON AND 45.75% IN OFF PEAK SEASON. SEE PAGE 238 FOR MORE DETAILS.

JETFOIL PASSENGER LOAD FACTOR ON ROUTE SEGMENTS
1986 - SOUTHEAST ALASKA
MEDIUM SCENARIO

ROUTE	PEAK SEASON (APRIL - SEPTEMBER) TOTAL JETFOIL PASSENGERS	JETFOIL PAX/TRIP	JETFOIL LOAD FACTOR	OFF-PEAK SEASON (OCTOBER - MARCH) TOTAL JETFOIL PASSENGERS	JETFOIL PAX/TRIP	JETFOIL LOAD FACTOR
JUNEAU - HOONAH (AND RETURN DIRECT)	--	--	--	2,859 3/	27	20%
JUNEAU - WRANGELL 4/						
JUNEAU - KAKE	3,360	32	24%	1,956	25	19%
KAKE - PETERSBURG	4,532	44	32%	2,311	30	22%
PETERSBURG - WRANGELL	1,336	13	10%	760	10	7%
JUNEAU - KETCHIKAN						
JUNEAU-PETERSBURG 4/	3,606	35	26%	2,854	27	20%
PETERSBURG-WRANGELL	3,449	33	27%	2,730	26	19%
WRANGELL - HOLLIS	2,879 5/	28	21%	2,790 6/	27	20%
HOLLIS-KETCHIKAN	7,040 5/	68	50%	4,084 6/	42	39%
KETCHIKAN - METLAKATLA	15,620	36	28%	11,136	36	26%
KETCHIKAN-WRANGELL 5/						
KETCHIKAN - HOLLIS	5,373	52	38%	--	--	--
HOLLIS - WRANGELL	1,212	12	9%	--	--	--
KETCHIKAN - HOLLIS (AND RETURN DIRECT)	--	--	--	3,002 6/	29%	21%
TOTAL:	149,999	442,260	34%	69,966	268,515	26%

3/ JUNEAU - HOONAH DIRECT ASSUMED 45.75% OF TOTAL JUNEAU - HOONAH TRAFFIC.

4/ JUNEAU - PETERSBURG & WRANGELL, AND PETERSBURG - WRANGELL ASSUMED 50% VIA KAKE AND 50% DIRECT SERVICE IN PEAK SEASON AND 43% VIA KAKE AND 57% DIRECT IN OFF PEAK SEASON.

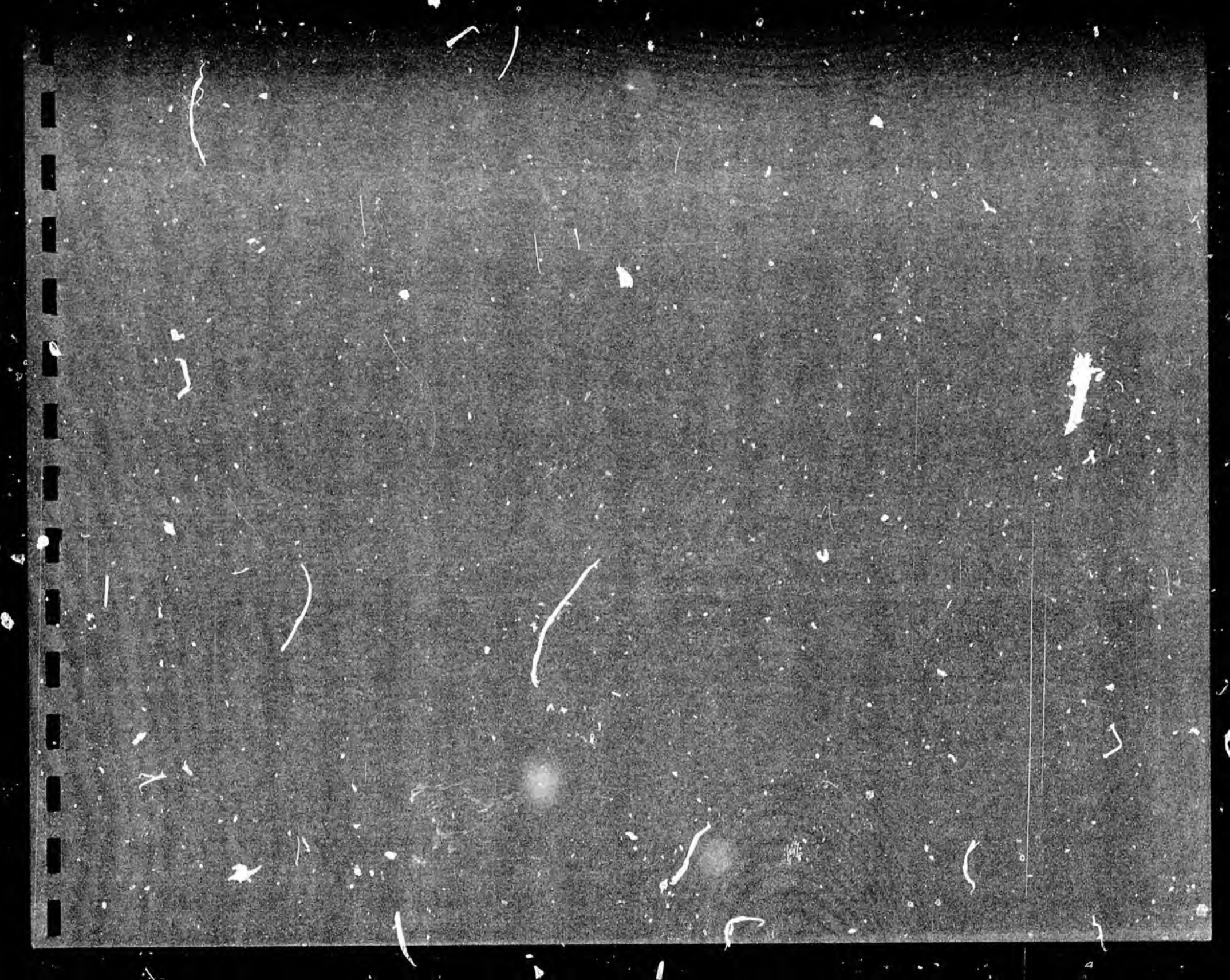
5/ KETCHIKAN - HOLLIS & WRANGELL ASSUMED 50% ON JUNEAU - KETCHIKAN RUN AND 50% ON KETCHIKAN - WRANGELL RUN IN PEAK SEASON.

6/ KETCHIKAN - HOLLIS ASSUMED 30% ON JUNEAU - KETCHIKAN RUN AND 70% DIRECT IN OFF PEAK SEASON.

TYPICAL JETFOIL TRIP

JUNEAU --▷ SITKA --▷ ANGOON --▷ TENAKEE --▷ HOONAH --▷ JUNEAU

ROUTE SEGMENT	PASSENGER ORIGIN - DESTINATION	PEAK SEASON PASSENGERS PER TRIP	PEAK SEASON % OF MARKET	OFF PEAK SEASON PASSENGERS PER TRIP	OFF PEAK SEASON % OF MARKET
JUNEAU - SITKA	JUNEAU - SITKA	54	70%	47	70%
	JUNEAU - ANGOON	3	30%	3	30%
		57		50	
		(42% L.F.)		(37% L.F.)	
SITKA - ANGOON	JUNEAU - ANGOON	3	30%	3	30%
	SITKA - ANGOON	20	100%	13	100%
	SITKA - JUNEAU	23	30%	20	30%
	SITKA - HOONAH	2	100%	2	100%
		48		38	
		(36% L.F.)		(28% L.F.)	
ANGOON - TENAKEE	SITKA - TENAKEE	3	100%	3	100%
	ANGOON - JUNEAU	6	70%	6	70%
	SITKA - JUNEAU	23	30%	20	30%
	SITKA - HOONAH	2	100%	2	100%
		34		31	
		(25% L.F.)		(23% L.F.)	
TENAKEE - HOONAH	ANGOON - JUNEAU	6	70%	6	70%
	SITKA - JUNEAU	23	30%	20	30%
	TENAKEE - JUNEAU	7	100%	7	100%
	SITKA - HOONAH	2	100%	2	100%
		38		35	
		(28% L.F.)		(26% L.F.)	
HOONAH - JUNEAU	ANGOON - JUNEAU	6	70%	6	70%
	SITKA - JUNEAU	23	30%	20	30%
	TENAKEE - JUNEAU	7	100%	7	100%
	HOONAH - JUNEAU	52	83%	27	45.75%
		88		60	
		(65% L.F.)		(44% L.F.)	



BOEING MARINE SYSTEMS
A DIVISION OF THE BOEING COMPANY

February 7, 1983

The Honorable D. A. Casey
Commissioner
Department of Transportation
and Public Facilities
State of Alaska
Pouch Z
Juneau, Alaska 99811

Dear Sir:

We are pleased to offer three Boeing jetfoils customized to what we believe are specific State of Alaska's transportation requirements. The deliveries are ASD Seattle, as follows:

#1 August 1985
#2 April 1986
#3 August 1986

The customized configuration is defined in the enclosed attachment. The not to exceed prices are as follows:

(3) Customized Jetfoils	$46.1 M
Boat Optional Equipment Allowance	4.5 M
Initial Spares & Product Support Equipment	3.5 M
Contingency	.9 M
	$55.0 M

Prices are quoted in 1982 dollars and will be subject to escallation incurred to time of delivery and local and state taxes. A complete proposal and specification will be available March 1, 1983.

The product support services included are operating crew and maintenance training and initial onsite technical support. The jetfoil will be constructed to ABS standards and will have U.S. Coast Guard approval.

The shore terminal and related facilities capital and equipment are not included in the above boat prices.

We look forward to working with you and developing a jetfoil configuration that is satisfactory to the State of Alaska. Definitive contract signing is proposed for July 1, 1983.

Very truly yours,

P. J. Baumgaertner

P. J. Baumgaertner
Regional Director of Sales
M.S. 61-50
P. O. Box 3707
Seattle, Washington 98120

THE BOEING COMPANY

CODE IDENT. NO. 81205

THIS DOCUMENT IS:

CONTROLLED BY JETFOIL Customer Engineering (H-7540)

ALL REVISIONS TO THIS DOCUMENT SHALL BE APPROVED BY THE ABOVE ORGANIZATION PRIOR TO RELEASE.

PREPARED UNDER ☐ CONTRACT NO.

☐ IR&D

☒ OTHER

DOCUMENT NO. D320-52034-1 MODEL 929-1XX

TITLE JETFOIL BOAT FOR STATE OF ALASKA

ORIGINAL RELEASE DATE 9 March 1983

ISSUE NO. TO

PROPRIETARY DATA

ADDITIONAL LIMITATIONS IMPOSED ON THIS DOCUMENT WILL BE FOUND ON A SEPARATE LIMITATIONS PAGE

2055R

PREPARED BY	L. F. Newstrum	H7540	9 MAR 1983
SUPERVISED BY	E. M. Parsons	H-7540	9 Mar 83
APPROVED BY	R. L. Rich	H 7500	8/9/83

THE BOEING COMPANY

ACTIVE SHEET RECORD

SHEET NO.	REV LTR	ADDED SHEETS				SHEET NO.	REV LTR	ADDED SHEETS			
		SHEET NO.	REV LTR	SHEET NO.	REV LTR			SHEET NO.	REV LTR	SHEET NO.	REV LTR
1						46					
2						47					
3						48					
4						49					
5						50					
6						51					
7						52					
8						53					
9						54					
10						55					
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45											

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVAL

TABLE OF CONTENTS

LIST OF FIGURES

1.0 GENERAL DESCRIPTION

1.1 TYPE AND PURPOSE

The boat defined by this specification shall be a Boeing Model 929-1XX JETFOIL boat intended for use by the State of Alaska, Department of Transportation, on domestic routes within the United States. The boat shall conform to the General Arrangement (Figure 1-1) included herein. It shall be an all aluminum hull two-deck submerged-foil waterjet-propelled hydrofoil designed for the transport of passengers and their baggage and and for cargo.

1.2 SELLER'S NAME AND MODEL NUMBER

THE BOEING COMPANY; BOEING MODEL 929-1XX JETFOIL PASSENGER BOAT

1.3 CAPACITIES FOR CREW, PASSENGERS AND BAGGAGE, AND CARGO

1.3.1 CREW

Captain	1
First Officer	1
Cabin Attendants/Deckhands	3
Total	5

1.3.2 PASSENGERS

Upper Deck Cabin:	104
Main Deck Forward Cabin:	31
Total Seating Capacity	135

Refer to Interior Arrangement Drawing (Figure 1-2)

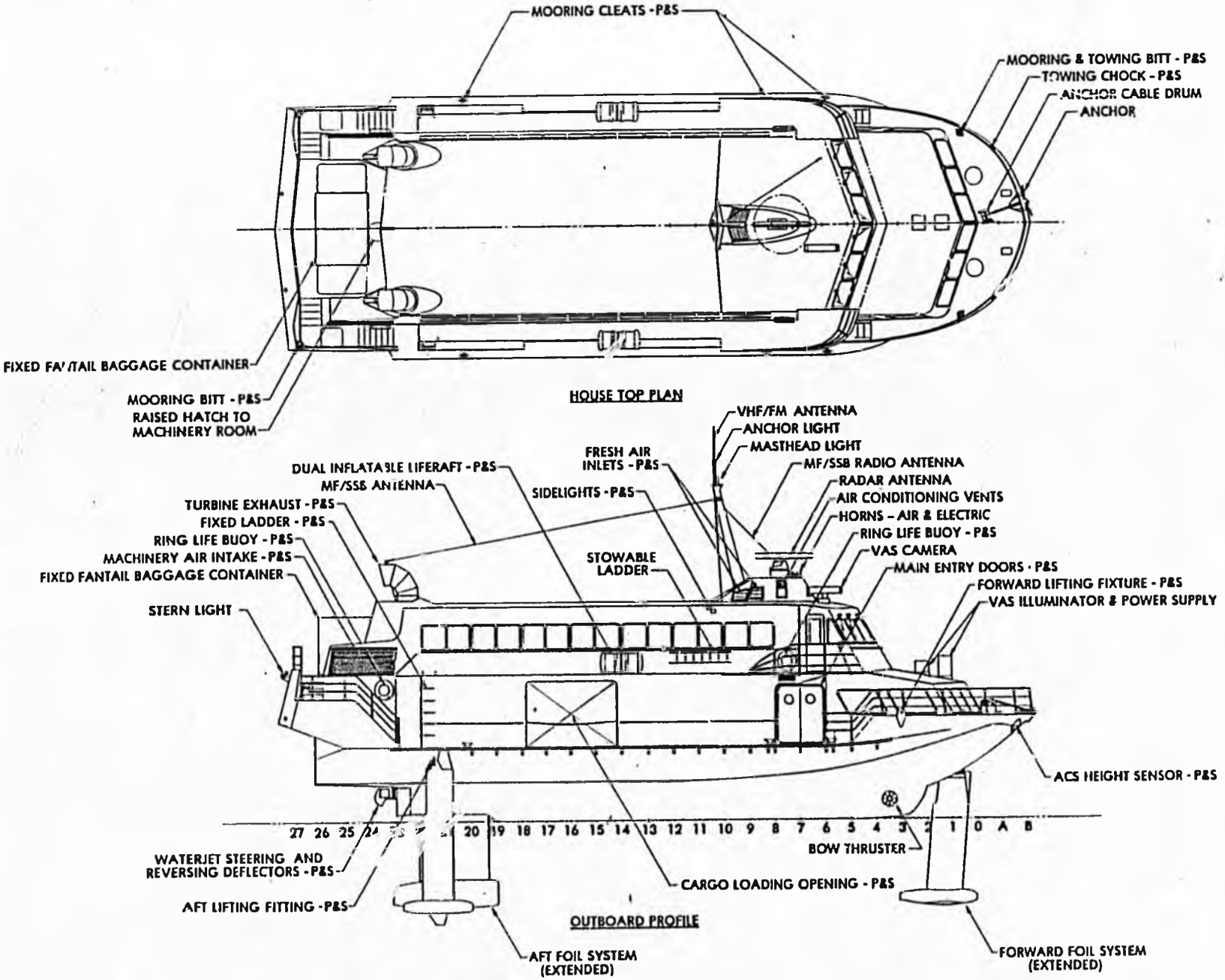
1.3.3 DIFFERENCES FROM MODEL 929-117

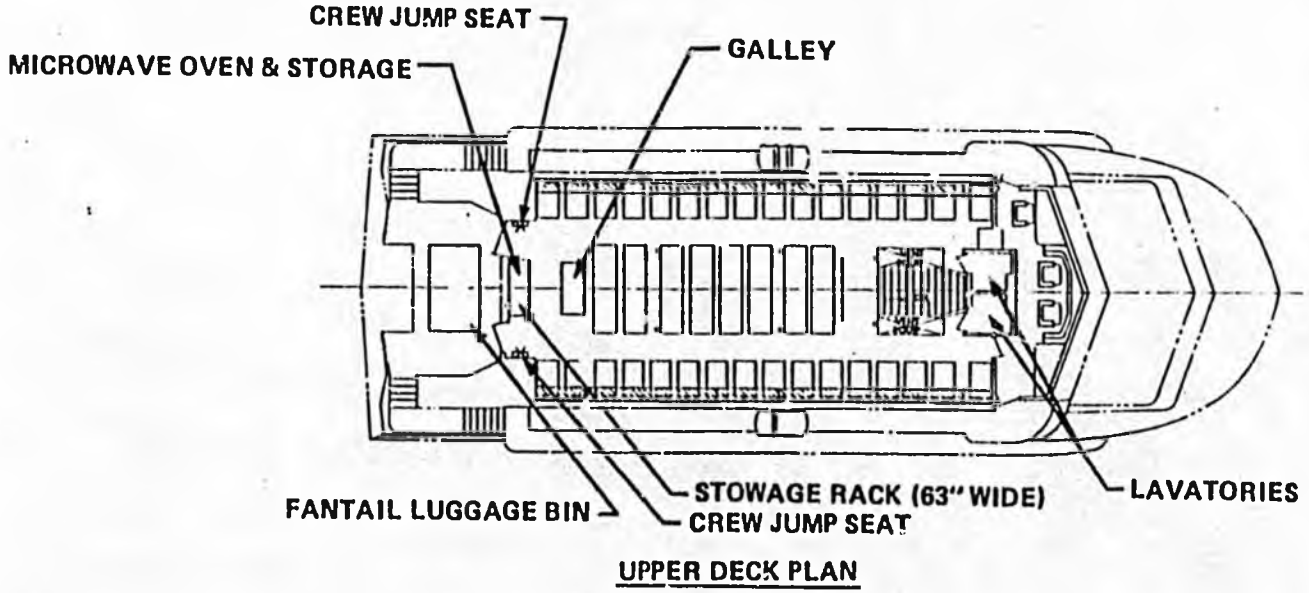
The boats defined by this specification are based on the Model 929-117 JETFOIL Boats. Modifications have been incorporated to provide the capability to carry cargo on the lower deck. The passenger accommodations have also been modified to provide additional baggage stowage and food and beverage service. Modifications have also been incorporated to enhance the operability of the boat at reduced temperatures and in reduced visibility. These differences from the Model 929-117 design are summarized in Sections 14 and 15 of this specification. Figure 1-2 shows the interior arrangement.

1.4 DEFINITIONS

1.4.1 SCOPE

The terms, abbreviations, acronyms, and symbols used in this specification shall have meanings as defined below.


MOORING CLEATS - P&S
MOORING & TOWING BITT - P&S
TOWING CHOCK - P&S
ANCHOR CABLE DRUM
ANCHOR
FIXED FANTAIL BAGGAGE CONTAINER
MOORING BITT - P&S
RAISED HATCH TO MACHINERY ROOM
HOUSE TOP PLAN
VHF/FM ANTENNA
ANCHOR LIGHT
MASTHEAD LIGHT
FRESH AIR INLETS - P&S
MF/SSB RADIO ANTENNA
DUAL INFLATABLE LIFERAFT - P&S
MF/SSB ANTENNA
SIDELIGHTS - P&S
RADAR ANTENNA
AIR CONDITIONING VENTS
TURBINE EXHAUST - P&S
FIXED LADDER - P&S
HORNS - AIR & ELECTRIC
RING LIFE BUOY - P&S
MACHINERY AIR INTAKE - P&S
STOWABLE LADDER
VAS CAMERA
FIXED FANTAIL BAGGAGE CONTAINER
MAIN ENTRY DOORS - P&S
FORWARD LIFTING FIXTURE - P&S
STERN LIGHT
VAS ILLUMINATOR & POWER SUPPLY
ACS HEIGHT SENSOR - P&S
27 26 25 24 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 A B
BOW THRUSTER
WATERJET STEERING AND REVERSING DEFLECTORS - P&S
CARGO LOADING OPENING - P&S
AFT LIFTING FITTING - P&S
OUTBOARD PROFILE
AFT FOIL SYSTEM (EXTENDED)
FORWARD FOIL SYSTEM (EXTENDED)



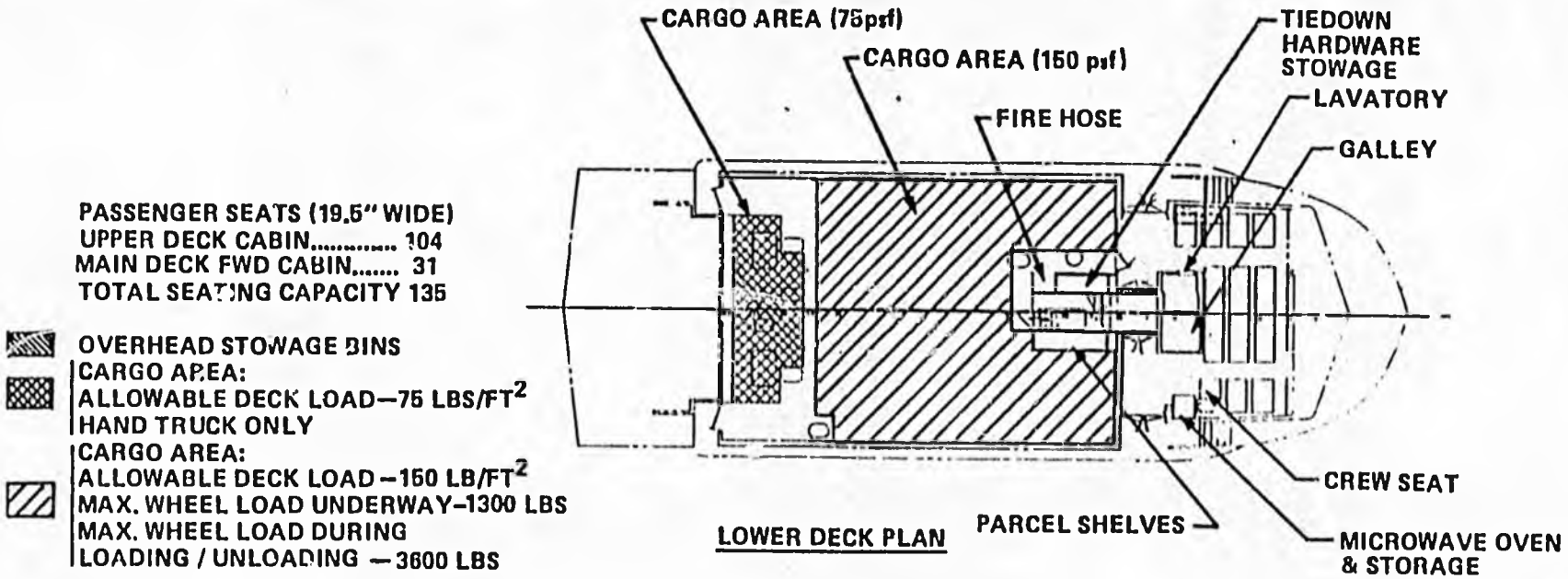


Figure 1–2 Interior Arrangement

1.4.2 TERMS

Approved	Denotes approval by ABS, USCG, or other designated agency as applicable
Boeing	The Boeing Company
Boat or JETFOIL	Boeing Model 929-1XX JETFOIL passenger boat (JETFOIL is a registered trademark)
Buyer	The purchaser of the boat described in this specification
Nautical Mile	6080 feet (1853 meters)
Purchase Agreement	The contract relating to the acquisition of the boat described herein
Ton	Long ton (2240 pounds)

1.4.3 ABBREVIATIONS AND ACRONYMS

ABS	American Bureau of Shipping
AC	Alternating Current
ACS	Automatic Control System
BFE	Buyer Furnished Equipment
CFR	Code of Federal Regulations
DC	Direct Current
FM	Frequency Modulated
GAL or GALS	U.S. Gallon(s)
GPM	U.S. Gallons Per Minute
IMCO	Inter-Governmental Maritime Consultative Organization (now known as IMCO)
KVA	Kilovolt-Amperes
KW	Kilowatt
LBS	Pounds
L.T.	Long Tons (2240 lbs)
MF	Medium Frequency
P&S	Port and Starboard
PSI	Pounds per square inch
PSIG	Pounds per square inch gauge
RPM	Revolutions per minute
SOLAS	Safety-of-Life At Sea
SSB	Single Side-Band
USCG	United States Coast Guard
VAC	Volts Alternating Current
VDC	Volts Direct Current
VHF	Very High Frequency

1.4.4 SYMBOLS

°F	Degrees Fahrenheit
@	at
'	feet
"	inches

1.4.5 UNITS OF WEIGHTS AND MEASURES

All placards, nameplates, signs, stencils, instructions, and manuals shall be in the English language and in the following units unless otherwise stated in this specification:

Dimensions	Units
Linear	inches, feet, nautical miles
Area	square inches, square feet
Volume	cubic inches, cubic feet
Liquid Measure	fluid ounces, U.S. gallons
Weight	ounces, pounds, long tons
Speed	knots
Temperature	degrees Fahrenheit
Pressure	pounds per square inch

1.5 WEIGHTS TERMINOLOGY

Buyer (Customer) Fixed Weight:

The weight of all Buyer selected standard options and unique options as listed in Sections 14 and 15 of this specification.

Deadweight:

The weight of crew, passengers, baggage, cargo, onboard stores, and usable fuel. See paragraph 3.1.

1.6 PRINCIPAL DIMENSIONS - NOMINAL

Hull length, overall, foils down	90 feet (27.43 meters)
Overall length, foils up	100 feet (30.48 meters)
Hull length, waterline	78.7 feet (23.98 meters)
Hull beam, maximum	30 feet (9.14 meters)
Hullborne navigational draft, foils extended*	17.2 feet (5.24 meters)
Hullborne navigational draft, foils retracted*	6.6 feet (2.00 meters)
Full load displacement	Less than 117 long tons

*Approximate; actual draft is to be determined by deadweight survey.

2.0 DESIGN, MANUFACTURING, & DELIVERY REQUIREMENTS

2.1 BUYER REQUIREMENTS

This specification describes a Boeing Model 929-1XX JETFOIL Passenger Boat, USCG certified for domestic use, with ABS classification. Buyer requirements relating to specific boat configuration details have been incorporated and are listed in sections 14 and 15 of this specification when they differ from the standard Model 929-117 JETFOIL configuration.

2.2 PURCHASE AGREEMENT

In the event of any conflict or discrepancy between this contract specification and the Purchase Agreement, the terms specified in the Purchase Agreement shall govern.

2.3 SUPPLEMENTAL SPECIFICATIONS

In the event of any conflict or discrepancy between this specification and any supplemental specifications identified herein, the terms specified in this contract specification shall govern.

2.4 CERTIFICATION

Inspection for certification of each boat shall be accomplished in accordance with the Purchase Agreement.

2.5 REGULATORY REQUIREMENTS

The Model 929-1XX JETFOIL shall be designed to meet the criteria specified for United States Coast Guard 46CFR, Subchapter T,"Small Passenger Vessels" and for American Bureau of Shipping aluminum vessels under 61 meters in length. The Inter-Governmental Marine Consultative Organization Resolution A-373(X) "Code of Safety for Dynamically Supported Craft" shall be used as a guideline. *

2.6 JETFOIL ENVIRONMENTAL DESIGN CONDITIONS

The boat and all Boeing-furnished equipment shall function satisfactorily under conditions of atmospheric ambient air temperatures from +0°F to +100°F, seawater temperatures from +28°F to +80°F, and standard sea level atmospheric pressure.

2.7 INSPECTIONS AND TESTS

A system of inspection covering all materials, fabrication methods, and finished parts shall be maintained. Inspection and testing of materials, structural fabrication, and parts shall be in accordance with standards and procedures established by Boeing, which shall be available for Buyers' review.

2.8 HEALTH CERTIFICATES

A certificate of sanitary construction issued by the United States Public Health Service shall be obtained and installed in a location visible to passengers.

2.9 IDENTIFICATION

The Boeing name shall be displayed on the outside of the boat in such a manner that the words shall be easily discernible by passengers waiting to board. Such display shall be consistent with the decorative scheme and shall not conflict with the Buyer's name or markings.

2.10 PERFORMANCE ESTIMATES AND DEMONSTRATIONS

Appendix I provides performance estimates for the boat and the performance demonstrations that are to be conducted prior to boat delivery.

2.11 WORKMANSHIP, MATERIALS, AND METHODS

Workmanship, materials, and methods shall be equivalent to, or better than, good commercial marine practices.

2.12 MAJOR EQUIPMENT

Major equipment shall be as set forth in Appendix II.

3.0 DESIGN OBJECTIVES

3.1 WEIGHT BREAKDOWN (TYPICAL)

Weights shown below are nominal based on present known values.

	POUNDS
CUSTOMER FIXED WEIGHT	
Standard Options	
1. Headrests for 136 seats	277
2. Recline for 122 seats	21
3. Food trays for 136 seats	321
4. Enclosed Overhead Stowage	664
5. Vision Augmentation System	750
6. Fantail Container	650
7. Heated Wheelhouse Windows	94
8. Port Crew Seat	53
9. Folding Food Carts (3)	138
10. Upper Deck Galley	482
11. Food/Beverage/Ice Carriers	585
12. Life Jackets for 19-1/2" Seats	389
Customer Unique Options	
1. Conversion of Main Passenger Cabin to Cargo Space	2072
2. Conversion of Electrical, Lighting, and Air Conditioning for Cargo Space	-1090
3. Conversion of one Toilet Module to a Galley	-126
4. Additional Portable Fire Extinguishers	50
5. Tie-downs allowance	200
6. Microwave Ovens (2)	210
7. Modified Luggage Rack and Installation	202
8. Oven Stand and Installation	125
9. Modifications for Cold Weather	402
10. Additional Seawater Pump and Cargo Space Sprinkler System	125
11. Change from 294 21" Seats to 136 19-1/2" Seats	-5392
TOTAL CUSTOMER FIXED WEIGHT	1202

DEADWEIGHT

Crew (6 @ 190# incl 20# Luggage/Person)	1140
Fresh Water (53 gallons @ 8.3#)	440
General Ship Stores (incl. Appendix III)	650
Diesel Fuel (90 U.S. gallons @ 7#)	630
Allowance for Turbine Fuel, Cargo, Passengers and Luggage, Food, and margin	71215
TOTAL DEADWEIGHT	74075

DESIGN USEFUL WEIGHT	75277 (33.6 LT)

* Normal allowances are:

Passengers	155 lbs each
Baggage	10 lbs each
Food/ Beverages/Ice	3 lbs per person
Freshwater	440 lbs (53 gal.)
General Ship's stores	100 lbs

Fuel requirements vary with distance and weather conditions.

4.0 STRUCTURES

4.1 GENERAL DESCRIPTION

The boat structure shall comprise welded and mechanically fastened aluminum extruded shapes and plate, corrosion resistant steel, titanium, and plastic materials. Magnesium alloy sheet or extrusions shall not be used in boat structure. Refer to Figure 4-1 for a typical section.

4.2 HULL

The hull structure shall consist of aluminum frames, bulkheads, beams, and stringers covered with sheet or plate to form an integrated unit.

The hull shall be divided into watertight compartments by bulkheads extending to the main deck amidships, the foredeck forward, and the machinery deck aft. Hull compartment identification is shown by Figure 4-3 of this specification.

The main deck shall be capable of supporting the loads shown in Figure 1-2 .

4.3 SUPERSTRUCTURE AND DECKHOUSE

The superstructure and deckhouse shall form the cargo space, passenger cabins, wheelhouse, and aft machinery compartments 17 and 18. These structures shall be fabricated from aluminum framing members similarly to the hull structure.

4.4 ACCESS PROVISIONS

Access provisions--doors, hatches, cutouts, manholes, stairs, and ladders--shall be installed in the boat for crew, passengers, or maintenance personnel. Locations shall be as shown on Figures 1-1, 1-2, and 4-2.

4.4.1 HABITABLE SPACES ACCESS

Access to each habitable space on the main and upper decks shall be provided by doors designed for the specific use of that space.

4.4.2 MACHINERY SPACE AND VOID ACCESS

Access to machinery spaces and voids shall be provided by doorways, hatches with hinged covers, manholes, or openings with bolted covers as appropriate for their intended uses. The general arrangement, sizes, and watertight classifications shall be as shown by Figure 4-2 of this specification.

4.4.3 STAIRS

A passenger stairway leading from the main cabin to the upper cabin shall be installed. The stairway shall have appropriate handrails. Secondary stairways shall be installed for egress from the upper deck passenger cabin and aft machinery deck to the main deck, port and starboard.

4.4.4 CARGO ACCESS OPENINGS

Openings shall be provided port and starboard to provide access for cargo loading. These openings shall be located as shown on Figure 1-1 and shall be 11'-6" wide by 7'-8" high (except near the corners, which shall be rounded).

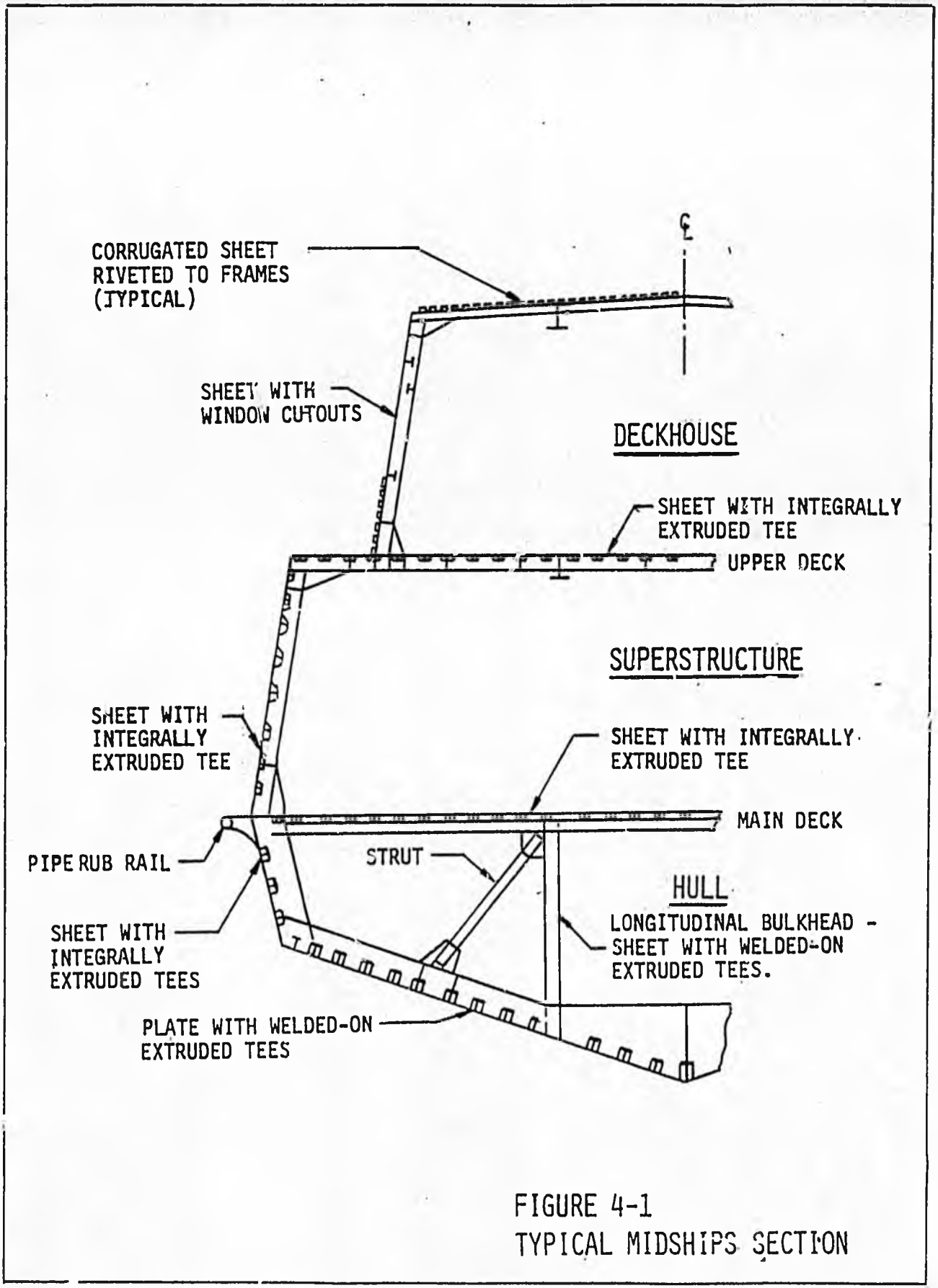


FIGURE 4-1
TYPICAL MIDSHIPS SECTION

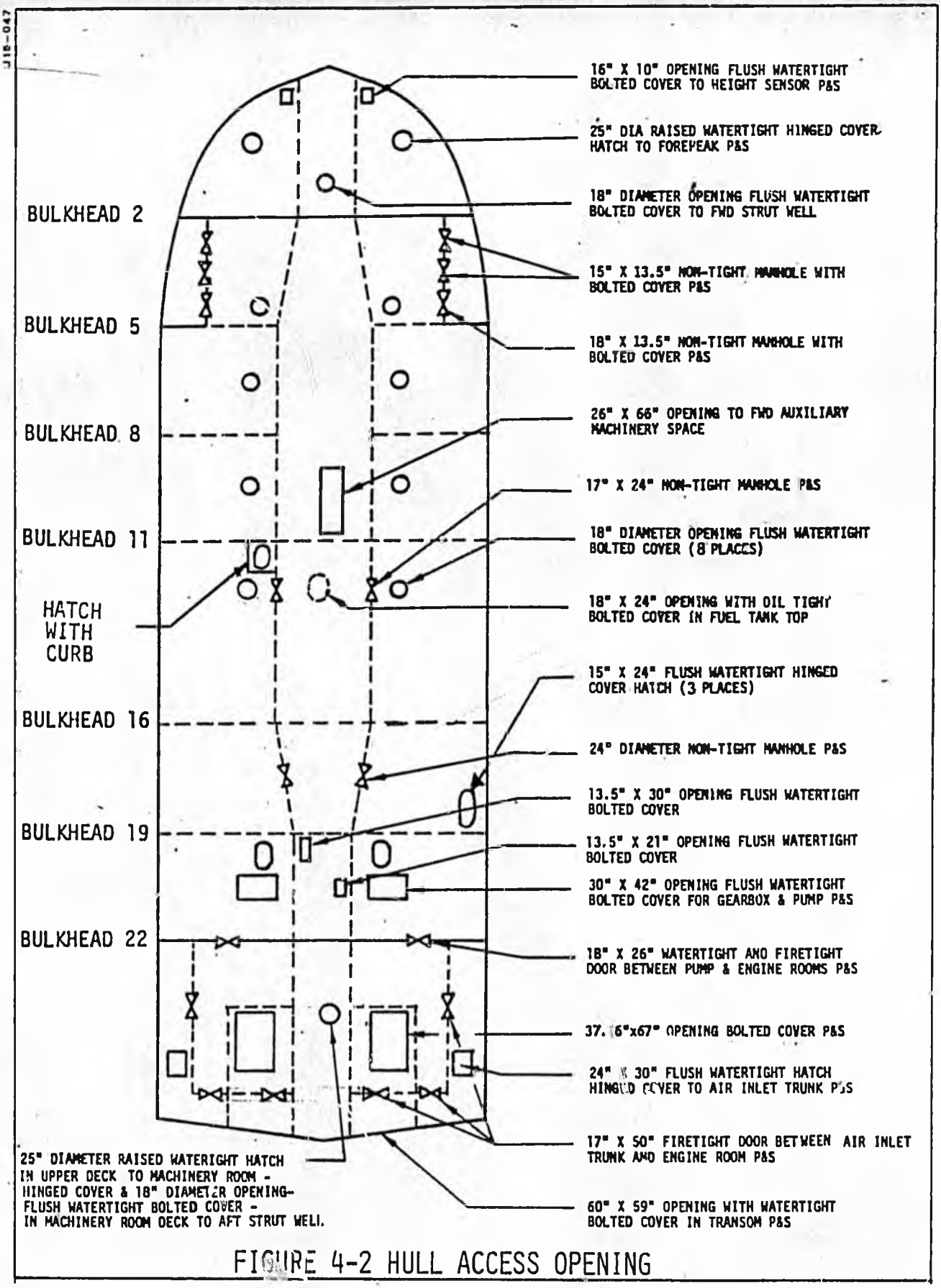


FIGURE 4-2 HULL ACCESS OPENING

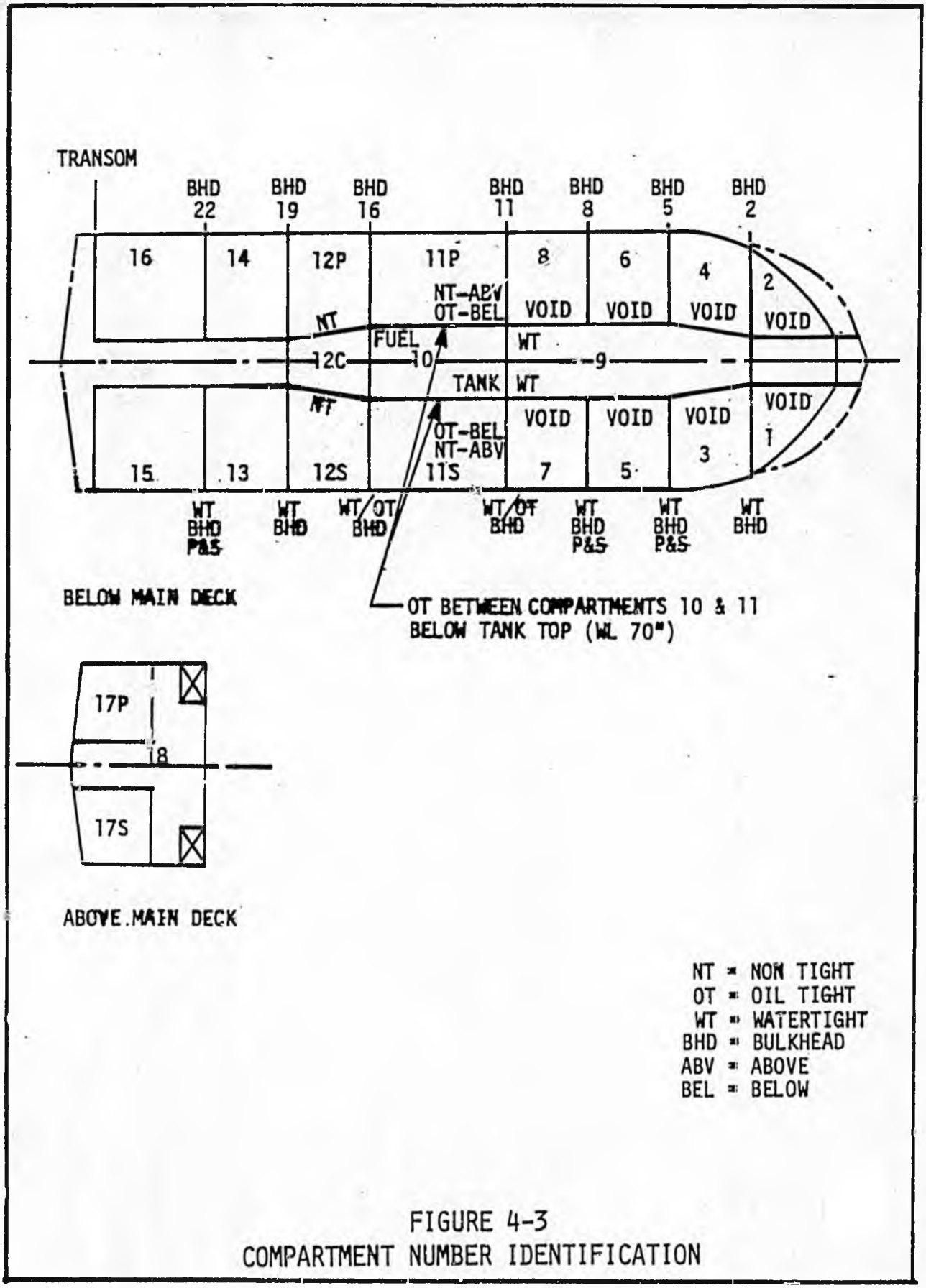


FIGURE 4-3
COMPARTMENT NUMBER IDENTIFICATION

4.4.5 LADDERS

Ladders, where used, shall be manufactured from aluminum alloy and, except for those with welded-on rungs, shall be equipped with non-skid treads. Access to the housetop shall be provided by a portable ladder stowed on the starboard side adjacent to the wheelhouse. Handrails and/or handholds shall be installed as required.

4.4.6 WINDOWS

4.4.6.1 WHEELHOUSE WINDOWS

Wheelhouse windows shall be arranged as indicated by Figure 1-1 of this specification. Glazing shall be single pane, clear, tempered glass.

USCG approved electrically heated windows, with necessary controls, shall be installed in the 6 forward wheelhouse window frames.

The six forward facing windows shall be fitted with electrically operated marine grade windshield wipers, washers, and defoggers.

4.4.6.2 PASSENGER CABIN WINDOWS

Windows installed in the passenger cabins shall be glazed with single-pane, tinted, tempered glass.

4.5 STRUTS AND FOILS

The structure of the fore and aft struts and foils shall be welded corrosion resistant steel and mechanically attached titanium and aluminum components.

4.6 CORROSION CONTROL

Galvanic corrosion control of aluminum underwater structure shall be accomplished by installation of sacrificial anodes. Struts and foils shall be cathodically protected against pitting and crevice corrosion by controlled resistance electrical short circuit to the hull anodes. A corrosion potential monitoring system shall be incorporated to provide visibility of the corrosion protection level provided to the struts. Dissimilar metals shall be isolated from each other by appropriate non-conducting gaskets and finishes. The electrical systems of the boat shall not use the structure as a return ground.

Chemical and solvent resistant finishes shall be applied to selected surfaces of the boat. Certain areas of the cabin and wheelhouse interior and all exterior surfaces of the boat shall be painted with the appropriate Boeing standard paint system.

Internal areas of pods shall be treated with an anti-fouling paint system. Internal areas of struts and foils shall be protected with a preservative floating oil.

5.0 POWER PLANT SYSTEM

5.1 GENERAL DESCRIPTION

The power plant system shall consist of two independent propulsion systems. Each propulsion system shall comprise a gas turbine engine, gearbox, and waterjet propulsor.

5.2 GAS TURBINES

Two gas turbine engines shall be installed.

Each engine shall have automatic shutdown for:

Gas Generator Overspeed

High Turbine Inlet Temperature

Gas Generator Low Lubrication Oil Pressure

Power Turbine Underspeed

Power Turbine Overspeed

Low Power Turbine/Gearbox/Propulsor Lubrication Oil Pressure

An air intake with aerosol separator and a foreign object screen shall be provided for each engine. Weathertight closures shall be provided for installation over engine air inlets and exhaust stacks. Stowage for the closures shall be provided. Thermally insulated stainless steel exhaust ducts terminating with an elbow providing an aft-flowing horizontal exhaust shall be installed for each engine.

A deck connection, with piping to each engine, shall be provided for engine internal washing.

5.3 WATERJET PROPULSORS

The propulsors shall receive seawater from the center aft strut when the struts are in the extended position, and from the hull inlet when the struts are retracted.

A grill shall be provided at the hull inlet to limit debris ingestion into the propulsors. An air blowdown system shall be provided to assist in clearing debris from the inlet grill.

Propulsor jet stream deflectors shall be provided for lateral and astern thrust in the hullborne mode.

5.4 CONTAINMENT SHIELD

A containment shield shall be provided around the shaft coupling connecting each gas turbine to the propulsor gearboxes.

5.5 ENGINE STARTING

Each gas turbine engine shall be started by an hydraulic starter motor driven by the hydraulic system.

5.6 LUBRICATION SYSTEM

The gas generator (N_1) and power turbine/gearbox/propulsor (N_2) lubrication systems shall use oil per MIL-L-23699B in accordance with Boeing provided maintenance manuals. (See Figures 5-1 and 5-2).

5.7 FUEL SYSTEM

A fuel system shall be installed to store fuel and to provide it to the gas turbines and diesel engines (see Figure 5-3). A 4200 gallon integral fuel tank installed between the longitudinal bulkheads from athwartships bulkheads 11 to 16 shall provide fuel for the gas turbine engines. A 90 gallon tank located at the aft end of compartment 18 shall provide fuel for the diesel engines. The diesel tank shall be replenishable from the gas turbine tank. All system components shall be compatible with diesel fuels as identified in Figure 5-4 and Federal Specification VV-F-800A.
Fuel lines shall be stainless steel tubing except for flexible lines, which shall be fire resistant flexible hose.

5.8 ACCESS

Power plant machinery shall be accessible for inspection and routine maintenance at dockside.

5.9 FIRE DETECTION AND PROTECTION

A fire detection and protection system shall be provided for machinery compartments 15, 16, 17P, and 17S. This system shall comprise sensors, alarms, Halon extinguishing system, and related controls.

5.10 BOW THRUSTER

A bow thruster capable of 900 pounds static lateral thrust shall be installed aft of bulkhead 2.

5.11 FUEL

The gas turbines and diesels shall be capable of operation on diesel fuels conforming to Figure 5-4 and Federal Specification VV-F-800A. (For certain commercial usages or where the Regulatory Agency with jurisdiction over the Buyer's operations so requires, more restrictive specifications may be imposed.)

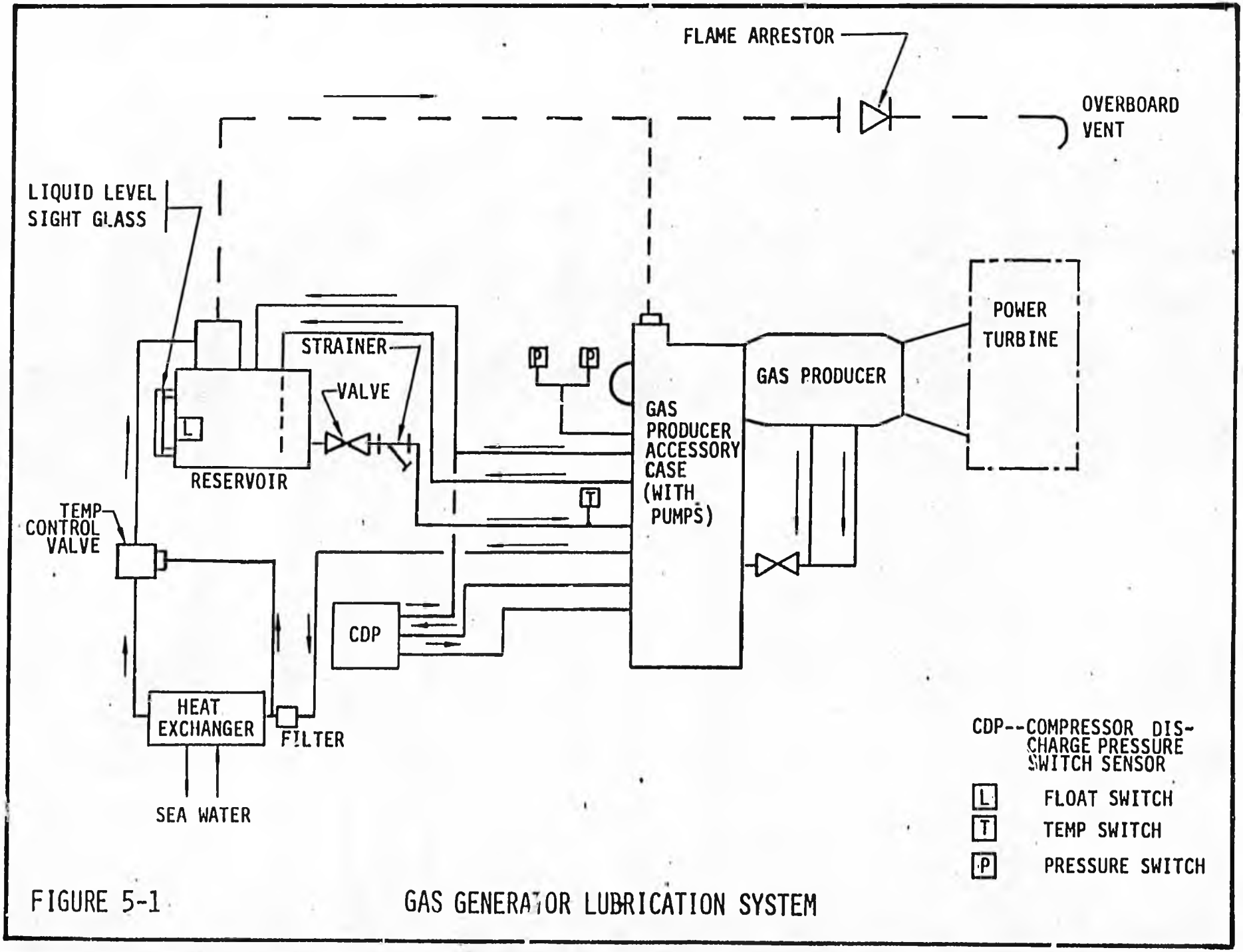


FIGURE 5-1 GAS GENERATOR LUBRICATION SYSTEM

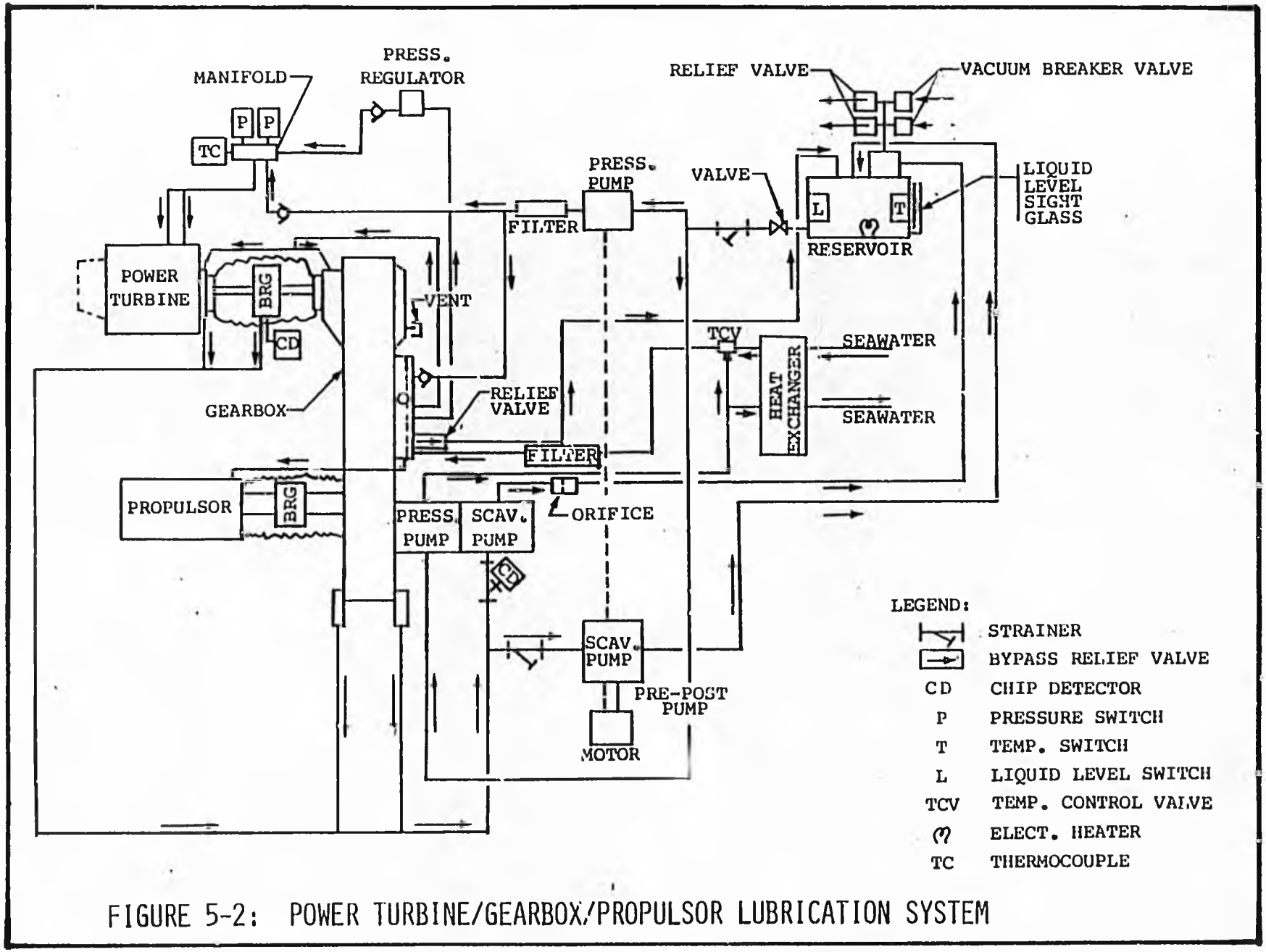


FIGURE 5-2: POWER TURBINE/GEARBOX/PROPULSOR LUBRICATION SYSTEM

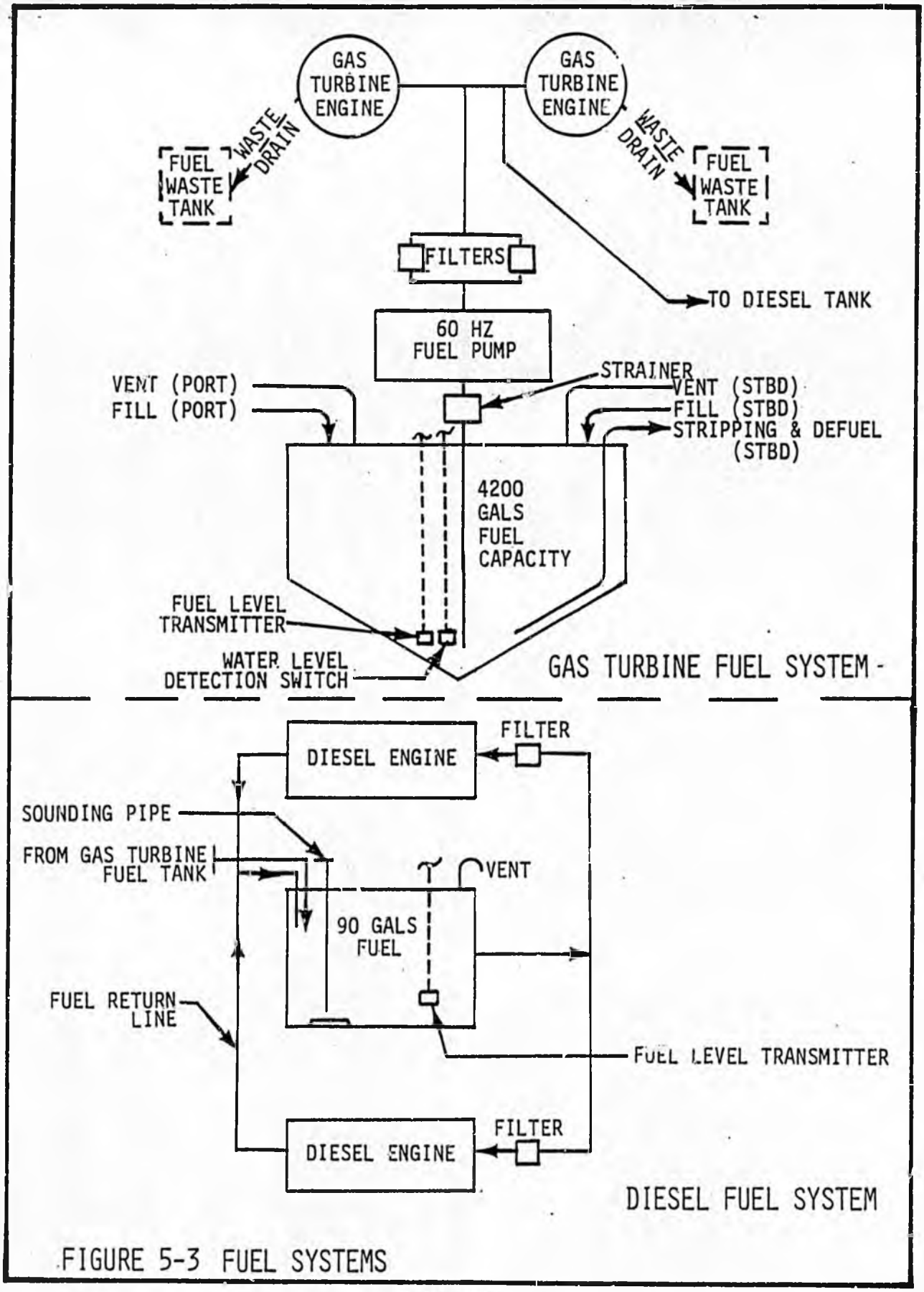


FIGURE 5-3 FUEL SYSTEMS

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FIGURE 5-4:

FUEL SPECIFICATION

Fuel Analysis Elements	ASTM Test Method	Gas Turbine	Diesel
Flash Point °F	D93	(5) to 190	(5) to 190
Pour Point °F	D97	(1)	(1)
Water and Sediment (% of Volume)	D1796	max 0.05	max 0.05
Carbon Residue			
Residuum (% by Weight)	D524	max 0.15	(4)
Ash Content (% by Weight)	D482	max 0.01	(4)
Distillation			
50% Distilled °F		(6)	(4)
90% Distilled °F		max 650	(4)
End Point °F		max 675	max 675
Kinematic Viscosity Centistokes	D445	(2)	(7)
Gravity API (degrees)	D287	min 35.0	(4)
Vanadium (ppm by Weight)		max 2.0	
Sodium and Potassium (ppm by Weight)		max 5.0	
Calcium (ppm by Weight)		max 5.0	
Lead (ppm by Weight)		max 5.0	
Luminometer Number	D1740	min 40.0	(4)
or Smoke Point (mm)	D1322	min 15.0	
Sulphur Content (% by Weight)	D129	max 0.5	max 0.5
Cloud Point		(3)	(3)
Cetane	D613	(4)	min 40

(1) The pour point should be at least 10°F below the lowest expected ambient air temperature or sea water temperature, whichever is lower

(2) The viscosity must be 10 cs or less for the lowest expected ambient air temperature or sea water temperature, whichever is lower.

(3) The cloud point should be at least 10°F below the lowest expected ambient air temperature or sea water temperature, whichever is lower.

(4) No requirement.

(5) At least 50°F above the highest ambient air temperature expected but not less than 110°F (US Regulatory) or 150°F (British Regulatory).

(6)

50% Distilled Maximum Temperature °F	Minimum Expected Ambient Air Temp °F
505	+20
530	+40
555	+60
575	+80

(7) The viscosity must be 10 cs or less for the lowest expected ambient air temperature but not less than 1.5 cs.

Foreign matter content is limited to that which could pass through a coalescing type filter of 10 micron nominal or 25 micron absolute size.

ABBREVIATIONS

max	maximum	min	minimum
API	American Petroleum Institute	ppm	parts per million
cs	centistokes	mm	millimeter

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6.0 WHEELHOUSE INSTRUMENTS AND CONTROLS

6.1 GENERAL DESCRIPTION

The wheelhouse shall be on the upper deck between bulkheads 4 and 7. The general arrangement of instrument and control consoles shall be as shown in Figure 6-1.

6.2 INSTRUMENT PANELS

All instrument panels shall be detachable via quick-disconnect fasteners. Wire bundles shall be of sufficient length to permit removal of panels for local inspection and maintenance. Instruments shall be equipped with individual connectors.

6.3 CONTROLS

Boat controls and some of the system instrumentation shall be located on the instrument console starboard of centerline as follows:

1 Helm Control
2 ACS Foil Depth Control
3 Vision Augmentation System Primary Display
4 Throttle
5 Strut Control
6 Hullborne Maneuvering Indicators
7 Gyro Control
8 Speed Indicator, Gyrocompass Repeater, and Master Warnings
9 Heading Hold
10 Depth Sounder
11 Console Lighting and Bow Thruster
12 ACS Self-test and Checkout
13 ACS Warning
14 ACS Warning
15 Intercom and Public Address
16 Fog Whistle Control

The balance of the controls and instrumentation shall be mounted on the port side of the console centerline as follows:

17 Propulsion Gauges
18 Propulsion Controls
19 Propulsion Status
20 Deisel Generator Controls/status
21 Compartment Overtemperature Warning
22 Fire Protection Controls
23 Fuel Quantity Gauges
24 Navigation Lights (Dual)
25 Seat Belt Signs
26 Bilge System and Fire Pump
27 Gearbox Bearing Temperature Indicator
28 Hydraulics
29 Air Compressor and Fire Doors
30 Turbine Unloading Protection System
31 Window Services
32 Intercom and Public Address

NOTE: Above numbers correlate with numbers on Figure 6-1.

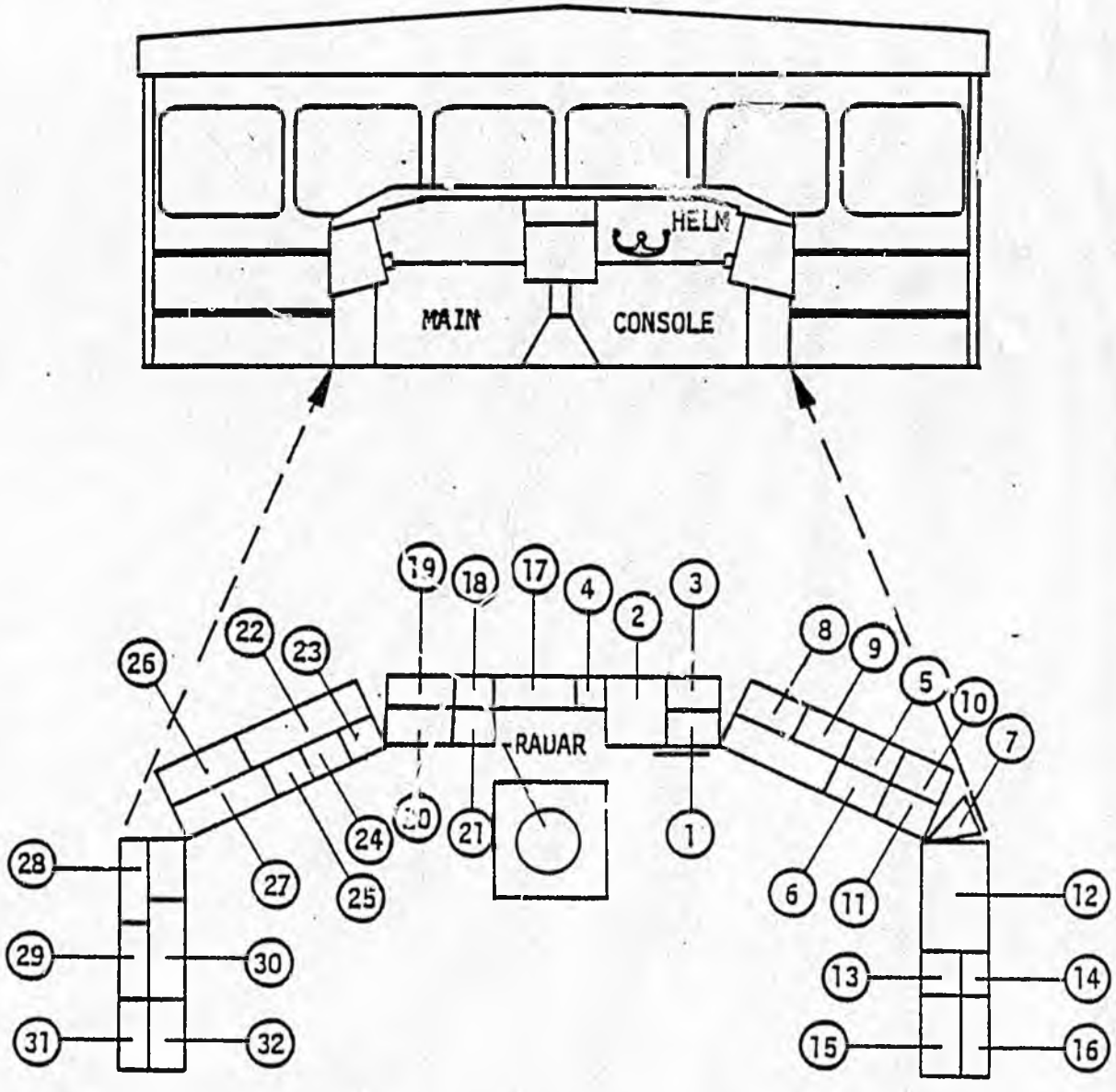


FIGURE 6-1
WHEELHOUSE ARRANGEMENT

NOTE: CIRCLED NUMBERS REFER TO PARAGRAPH 6.3

7.0 CONTROL SYSTEMS

An Automatic Control System (ACS) shall be installed to provide stable boat responses to helm commands. The system shall comprise electronics assemblies and gyros installed in the wheelhouse; four accelerometers installed on or near the forward and aft outboard strut foundations; and height sensors installed on either side of the stem.

7.1 FOILBORNE CONTROL (FIGURE 7-1)

When foilborne, the ACS shall continuously control the boat in turn rate, attitude, and height by processing helm and foil depth commands with sensed boat height, attitude, turn rate, and acceleration signals to obtain appropriate forward strut rotation and forward and aft flap deflection commands.

The ACS and Heading Reference shall operate conjointly to provide automatic control of the boat's heading.

7.2 HULLBORNE CONTROL

Waterjet deflectors shall provide steering control when the boat is hullborne (See paragraph 5.3). Additional steering control authority may be obtained from the forward strut through the Automatic Control System.

The bow thruster may be used to aid in dockside maneuvering (See Paragraph 5.10).

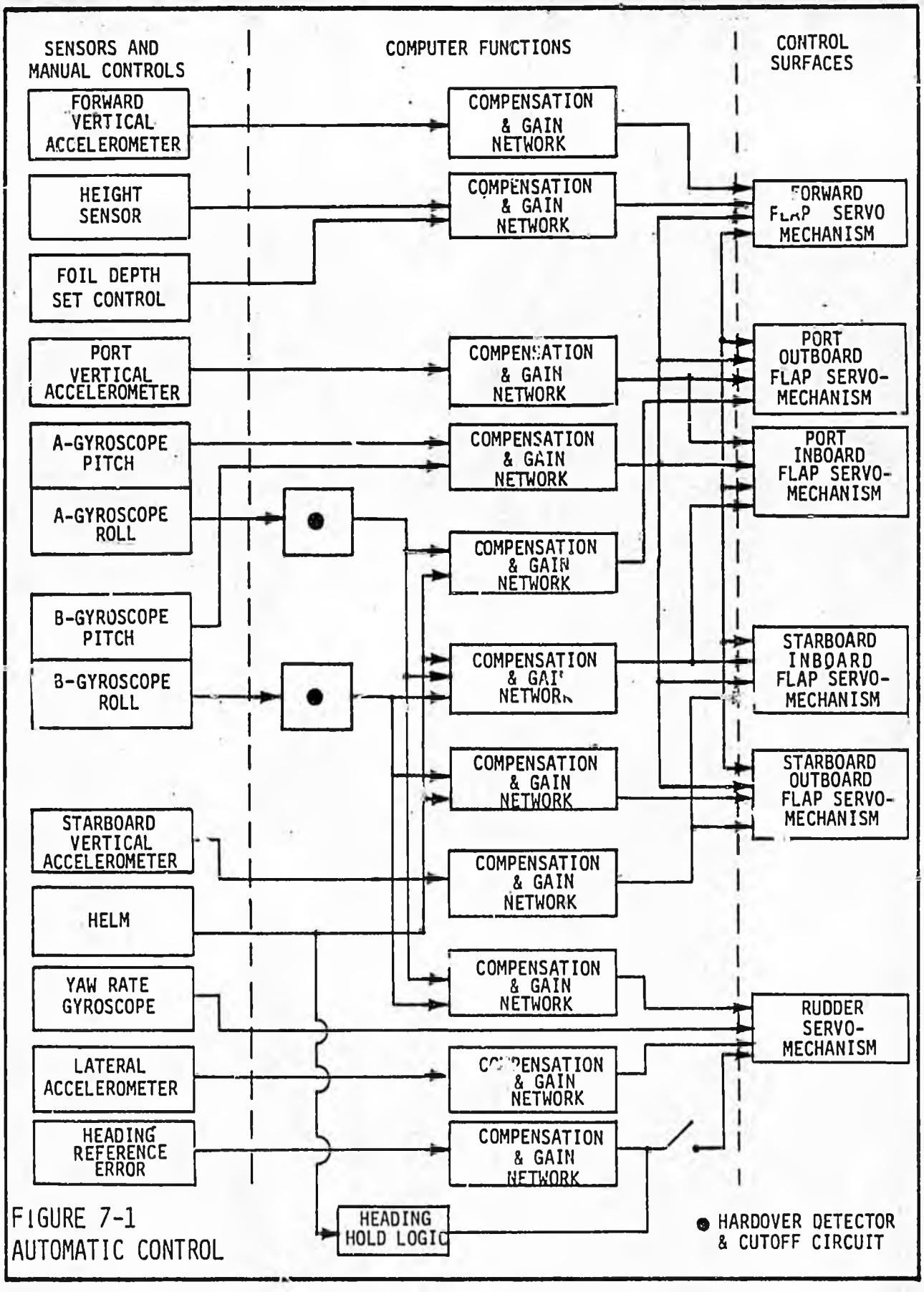


FIGURE 7-1
AUTOMATIC CONTROL

8.0 HYDRAULIC SYSTEM

8.1 GENERAL DESCRIPTION (FIGURE 8-1)

Two separate and independent hydraulic power supply systems shall be installed. These systems shall provide power for the gas turbine engine starters; strut steering, hullborne steering, thrust reverser, and flap actuators; strut retraction/extension and lock actuators; bow thruster motor; and fire pump motor. The systems shall use hydraulic fluid per MIL-H-83282 or Boeing Specification S320-25003 and shall operate at a nominal 3000 psi pressure.

8.2 PUMPS AND ACCUMULATORS

Two pumps shall be installed in each hydraulic system. Each pump shall be a variable-displacement pressure-compensated unit. One pump in each hydraulic system shall be driven by the propulsor gearbox and the other by the diesel engine. The systems shall have cross-connect capability to provide hydraulic power redundancy to all systems in the event of a pump failure.

Each hydraulic system shall be equipped with two 200 cubic inch piston type accumulators.

8.3 FILTERS

Filters shall be installed to maintain hydraulic system cleanliness.

8.4 LINES AND HOSES

Hydraulic supply and return lines shall be corrosion resistant steel tubing or flexible hoses utilizing flareless fittings and coupling nuts.

8.5 PROTECTIVE DEVICES

The hydraulic systems shall be equipped with warning devices which sense pump overheating, system under-pressure, filter contamination, and inadequate reservoir fluid volume. Relief valves shall be installed to protect the systems from overpressure.

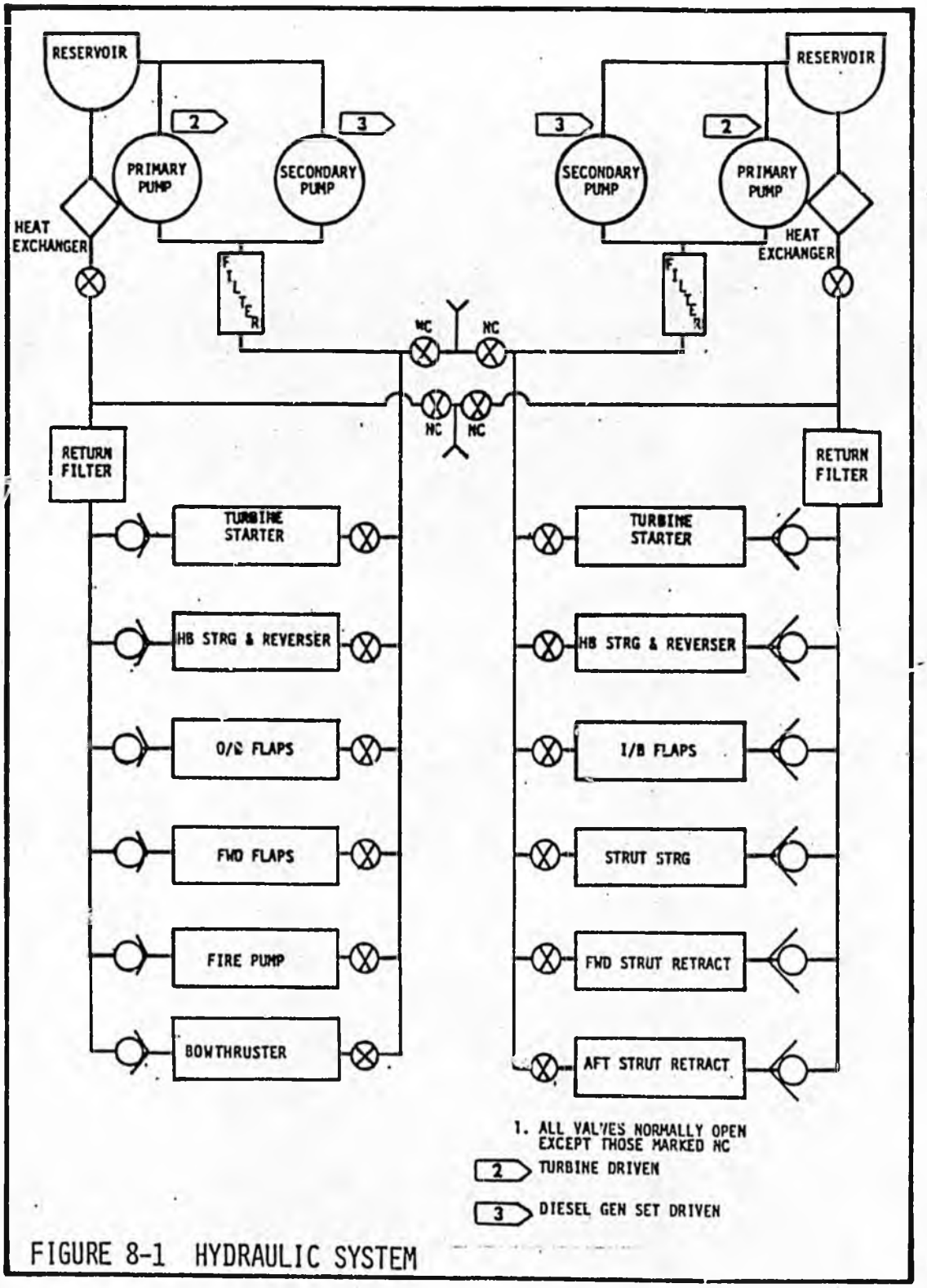


FIGURE 8-1 HYDRAULIC SYSTEM

9.0 ELECTRICAL/ELECTRONIC SYSTEMS

9.1 GENERAL DESCRIPTION (FIGURE 9-1)

The electrical system shall conform to Boeing standards that use the American Bureau of Shipping Rules for Building and Classing of Aluminum Vessels as a guide. Boeing standard design practices shall be used where improved electrical performance can be provided.

9.2 ELECTRICAL POWER SUPPLY

The boat shall have the capability of generating both AC and DC power and shall be capable of operating on shore power when dockside.

9.2.1 AC SYSTEM

Two diesel engine-driven generator sets shall be installed. The engines shall be capable of using fuel per paragraph 5.11 and shall use lubricating oil per MIL-L-2014C. The generators shall provide 440VAC, 3-phase, 60 Hertz ungrounded power to the electrical distribution systems. EAch shall be rated at 50kW (at 0.8pf) continuous.

Automatic engine shutdown shall be provided for engine high coolant temperature, overspeed, engine overcrank, and low lubricating oil pressure.

9.2.2 DC SYSTEM

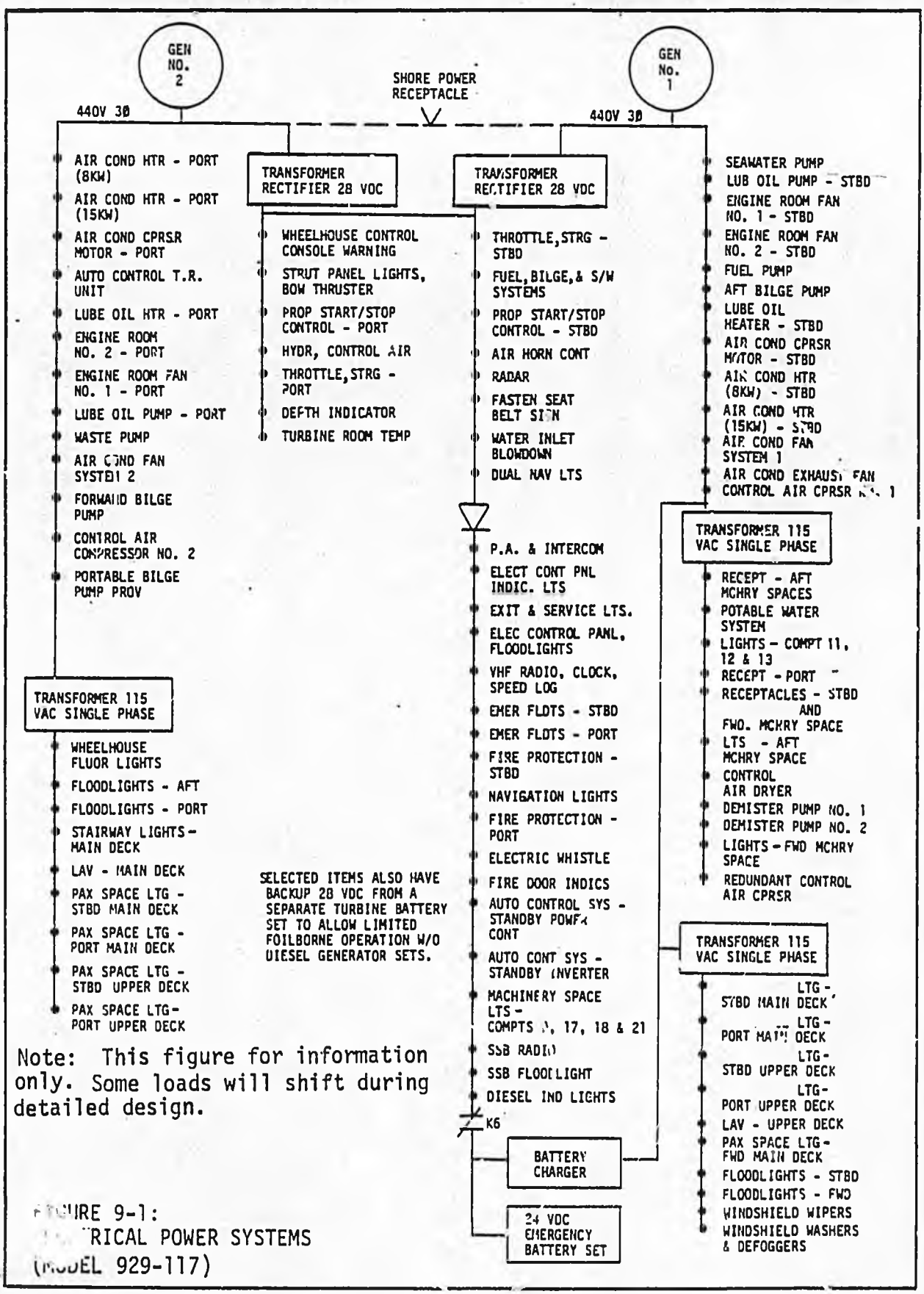
Two transformer-rectifier (TR) units shall be installed to convert 440VAC 3-phased, 60 Hertz power to 24 VDC. Each TR unit shall be rated at 75 Amperes, and shall be capable of supplying all normal ship's DC power. Each TR unit shall obtain input power from a separate AC bus. The TR outputs shall be paralleled and shall supply power to the two main DC buses and the emergency DC bus.

The emergency DC power source shall consist of six 12-Volt batteries connected in a series-parallel configuration. This combination shall provide 24VDC power for the emergency DC system. The emergency DC bus shall be isolated from the main DC buses. Power to the emergency bus shall be provided by the batteries only if power is not being provided from any other source.

A battery charger shall be provided to maintain a full charge on the emergency batteries.

9.2.3 SHORE POWER

A receptacle shall be provided to receive 440VAC, 3 phase, 60 Hertz, delta shore power.



Note: This figure for information only. Some loads will shift during detailed design.

FIGURE 9-1:
ELECTRICAL POWER SYSTEMS
(MODEL 929-117)

9.3 DISTRIBUTION

The AC and DC electrical power systems shall be self-contained and shall not be grounded to the boat structure.

9.3.1 AC SYSTEMS

The 440VAC system shall, by means of transformers, supply power for the 115VAC equipment requirements.

9.3.2 EMERGENCY DC SYSTEMS

Emergency equipment such as navigation lights, lights in machinery spaces, exit lights, lavatory lights, radio equipment, passenger address system, etc. shall be connected to the emergency DC bus.

9.4 LIGHTING

9.4.1 INTERIOR LIGHTS

Fluorescent lights shall be installed to provide illumination in the passenger spaces, lavatories, wheelhouse, stairway, and machinery spaces. The cargo area shall be fitted with weatherproof lighting.

9.4.2 EXTERIOR LIGHTS

Nine floodlights shall be installed to provide illumination for passenger boarding and life raft areas. Fixtures shall be watertight. Forward and aft lights shall contain 200 Watt incandescent lamps and operate on 115VAC. Emergency DC power shall be available to the six side lights which shall contain one 60 Watt incandescent lamp each.

9.4.3 NAVIGATION LIGHTS

USCG approved dual navigation lights shall be installed: white anchor lights, white masthead lights, green starboard side lights, red port side lights, and white stern lights. Each navigation light shall be controlled by the control panel in the wheelhouse.

Electrical Not-Under-Command lights, and a dedicated electrical receptacle for their connection, shall be provided.

9.4.4 INSTRUMENT PANEL LIGHTS

Dial indicators shall be internally lighted. Additional instrument panel and console lighting shall be provided by panel mounted cowl lights. All instrument lights shall be dimmable.

9.4.5 CONVENIENCE OUTLETS

U.S. standard 115VAC, 60 Hertz, 15 Ampere outlet boxes shall be installed throughout the weathertight areas of the boat to provide for portable equipment connection.

9.5 COMMUNICATION

The communication system for the boat shall include equipment to transmit and receive voice from shore-based facilities or other watercraft, to communicate between crew members, and to address the passengers.

9.5.1 RADIO SYSTEMS

A VHF-FM marine-band radiotelephone shall be installed in the wheelhouse to provide for voice transmission and reception. A VHF-FM simplex antenna shall be mounted atop the mast.

An MF single-sideband radio shall be installed. An MF single-sideband simplex antenna shall extend from the masthead to the aft mast.

9.5.2 INTERNAL COMMUNICATIONS

Crew intercommunication shall be provided by four identical stations, each incorporating telephone-type facilities, as follows: Wheelhouse (two), Upper Deck Attendant (Bulkhead 22), and Main Deck Attendant.

A separate service interphone system shall be installed to provide for communication during maintenance, docking/undocking, or emergency conditions. Three service headsets shall be stowed in the wheelhouse and sixteen plug-in jack stations shall be installed throughout the boat in the following locations:

Wheelhouse (4)
Main Deck - Bulkhead 11 (Cargo Area)
Upper Deck - Bulkhead 22 Attendant Station
Forward Machinery Space - Compartment 9
Aft Machinery Space - Compartment 12C
Diesel Engine Space P & S - Compartments 17P & 17S
Gas Turbine Space P and S - Compartments 15 and 16
Propulsion Pump Space P & S - Compartments 13 & 14
Fantail Deck - Bulkhead 23 (approximate)
Compartment 18

9.5.3 PASSENGER ADDRESS

The Passenger Address System shall provide a means for wheelhouse personnel to make announcements to passengers.

An amplifier unit and a volume control shall be installed in the wheelhouse. Speakers shall be installed at appropriate locations in the passenger cabins and in the wheelhouse.

An 8 ohm tape deck input jack and 115VAC electrical outlet shall be provided to allow the installation of a music or pre-recorded announcement sub-system. The Buyer shall be responsible for any required royalty payments relating to the installation and use of taped music.

9.5.4 BELL

A mount for a manually operated bell shall be installed on the bow. The bell shall be stowed in the wheelhouse when not in use.

9.5.5 WHISTLE

One electrical and one air-operated horn shall be installed above the wheelhouse to provide required whistle signals. A switch, fog signal timer, and a manual pull cable shall be installed in the wheelhouse.

9.6 NAVIGATION

The navigation system shall include the following equipment.

9.6.1 RADAR

A relative motion marine navigation radar system shall be installed. It shall display a PPI (Plan Position Indicator) picture of conditions about the boat at selectable ranges.

The radar system shall operate in the X-band range and shall comprise a scanner unit, a transceiver unit, a power distribution unit, and a display unit.

9.6.2 MAGNETIC COMPASS

A magnetic compass with a card marked in 2-degree increments shall be mounted forward of the Main Console (see Figure 6-1). The compass shall be compensated for nearby magnetic materials and shall be lighted.

9.6.3 DEPTH INDICATOR

A depth indicator system shall be installed as an aid to hullborne navigation. The indicator shall display water depth to one hundred feet in one foot increments. The transducer shall be installed through the hull.

9.6.4 SPEED LOG

A speed log system shall be installed as an aid to navigation. The indicator shall display speed in knots over a range of 0 to 50 knots.

9.6.5 GYROCOMPASS

A gyrocompass shall be installed to display heading and to provide a heading reference to the Automatic Control System for maintaining the boat on a selected course when foilborne.

9.6.6 VISION AUGMENTATION SYSTEM

The Boeing Vision Augmentation System shall be installed. This system comprises an illuminator and camera, operating in the near infra-red band; two displays; panning capability; and the necessary supporting onboard equipment.

10.0 HEATING, VENTILATING, AND AIR CONDITIONING (ENVIRONMENTAL CONTROL) SYSTEM

The environmental control system shall provide conditioned air to the passenger cabins and wheelhouse. Outside air for ventilation and cooling shall be provided to the diesel generator rooms, turbine engine rooms, and the propulsion pump rooms. Weatherproof closures shall be provided for the air conditioning inlets and vents. Stowage for the closures shall also be provided.

10.1 MACHINERY

The air conditioning system shall use direct expansion coils with Refrigerant 22 as the cooling fluid.

The nominal capacity of the system shall be 38.5 tons (at 85°F maximum seawater temperature). The system shall be designed to control the cabin environment within limits of 68°F to 80°F at 50 percent relative humidity with outside air conditions of 95°F dry bulb and 82°F wet bulb.

Cabin heating shall be provided by electric heaters in the air conditioning system.

10.2 DISTRIBUTION AND CONTROL (FIGURE 10-1)

Conditioned air shall be distributed through ceiling suspended ducts to the passenger cabins and wheelhouse. A modulated flow of air shall be exhausted overboard and the remaining air returned and reconditioned.

In the event that a fire extinguishing switch is activated for a particular machinery space, the air flow dampers within those spaces shall close automatically.

Manual activation of ventilation electrical controls shall be possible at the Environmental Systems Control Panel located in the wheelhouse.

Manually controlled smoke dampers shall be installed in the conditioned air supply distribution system.

10.3 CARGO SPACE

The cargo space shall be fitted with a powered exhaust to assist the natural air supply.

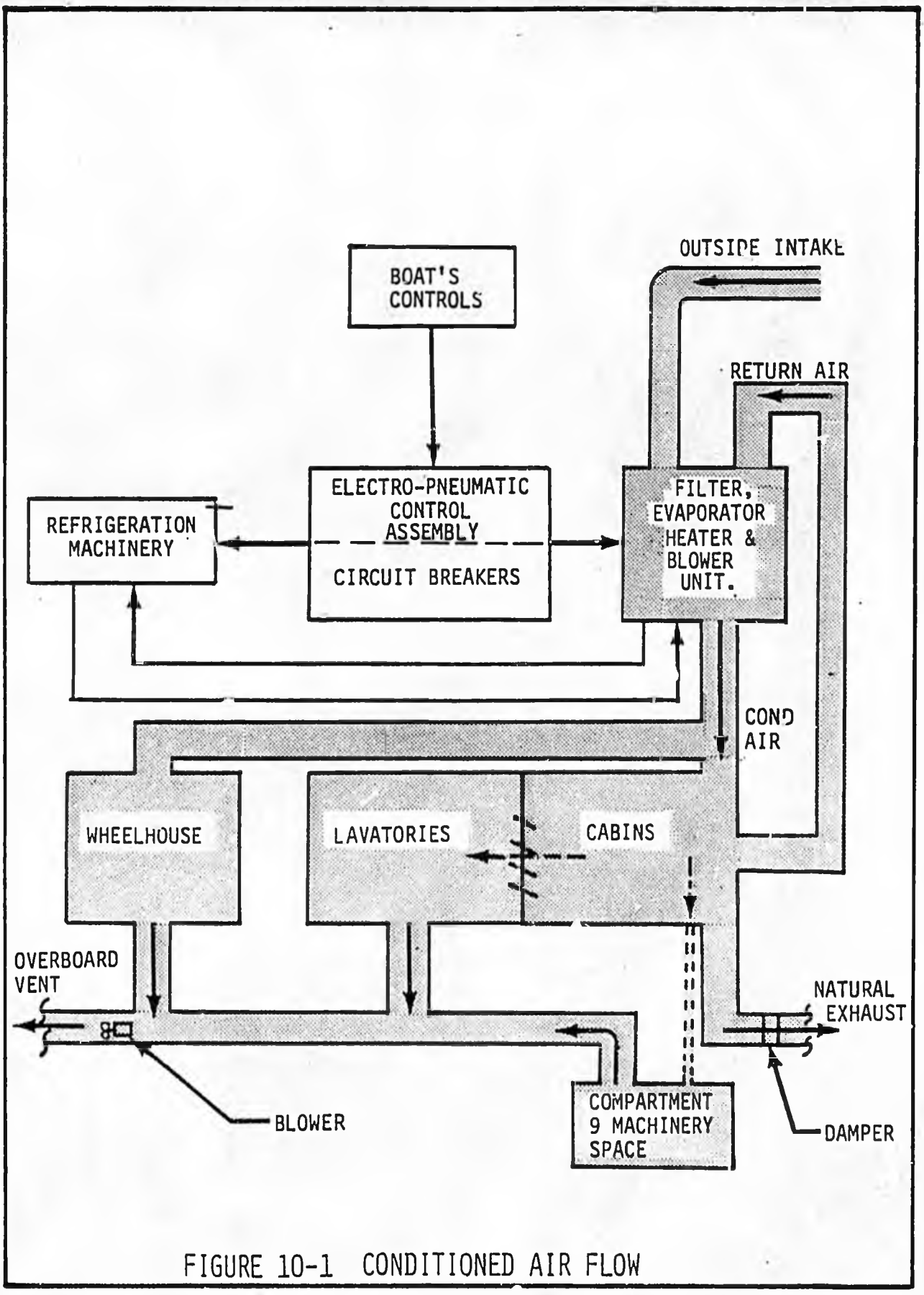


FIGURE 10-1 CONDITIONED AIR FLOW

11.0 AUXILIARY SYSTEMS

The auxiliary systems provide cooling water for machinery; drinking and wash water for passengers and crew; waste disposal; bilge pumping; and compressed air for certain machinery operation.

The boat shall be fitted with optional equipment to allow operation with 20°F air temperature and 28°F water temperature.

11.1 SEAWATER SYSTEM (FIGURE 11-1)

A seawater system shall be installed to provide cooling water to the following heat exchangers: gas generator and turbine/gearbox/propulsor lubricating oil systems, hydraulic system, air conditioning system, and diesel engines. Seawater shall be provided for the propulsor water pump seal. Further, the seawater system shall provide a source of water for the fire hydrant manifold.

11.2 POTABLE WATER SYSTEM (FIGURE 11-2)

A potable water system shall supply cold water to the drinking fountain and hot and cold water to the washbasins. System capacity shall be 53 gallons.

11.3 SANITARY WASTE SYSTEM (FIGURE 11-3)

A waste system shall be installed to receive; hold; and discharge waste from the three washbasins, three waterclosets, and one drinking fountain. The system shall include a 53-gallon holding tank, a discharge pump/motor unit, control valves and appropriate connecting plumbing, and a discharge fitting for shore-side connection.

11.4 BILGE SYSTEM (FIGURE 11-4)

A bilge pumping system shall be installed. It shall be possible to pump out the bilges in each compartment served using either of two electrically operated bilge pumps; both shall be self-priming and rated at 50 gpm at 25 psi. Remote control capability shall be provided for compartments 13 and 14.

In addition, a combination bilge/fire hand pump with two 24 foot long, 1-1/8 inch hoses capable of delivering 5 gpm shall be installed in compartment 9.

11.5 CONTROL AIR (FIGURE 11-5)

A control air system shall be installed to deliver compressed air to the hydraulic reservoir, ACS junction boxes, whistle, water closets, air-conditioning control unit, gas turbine controls, and bilge and seawater valve actuators.

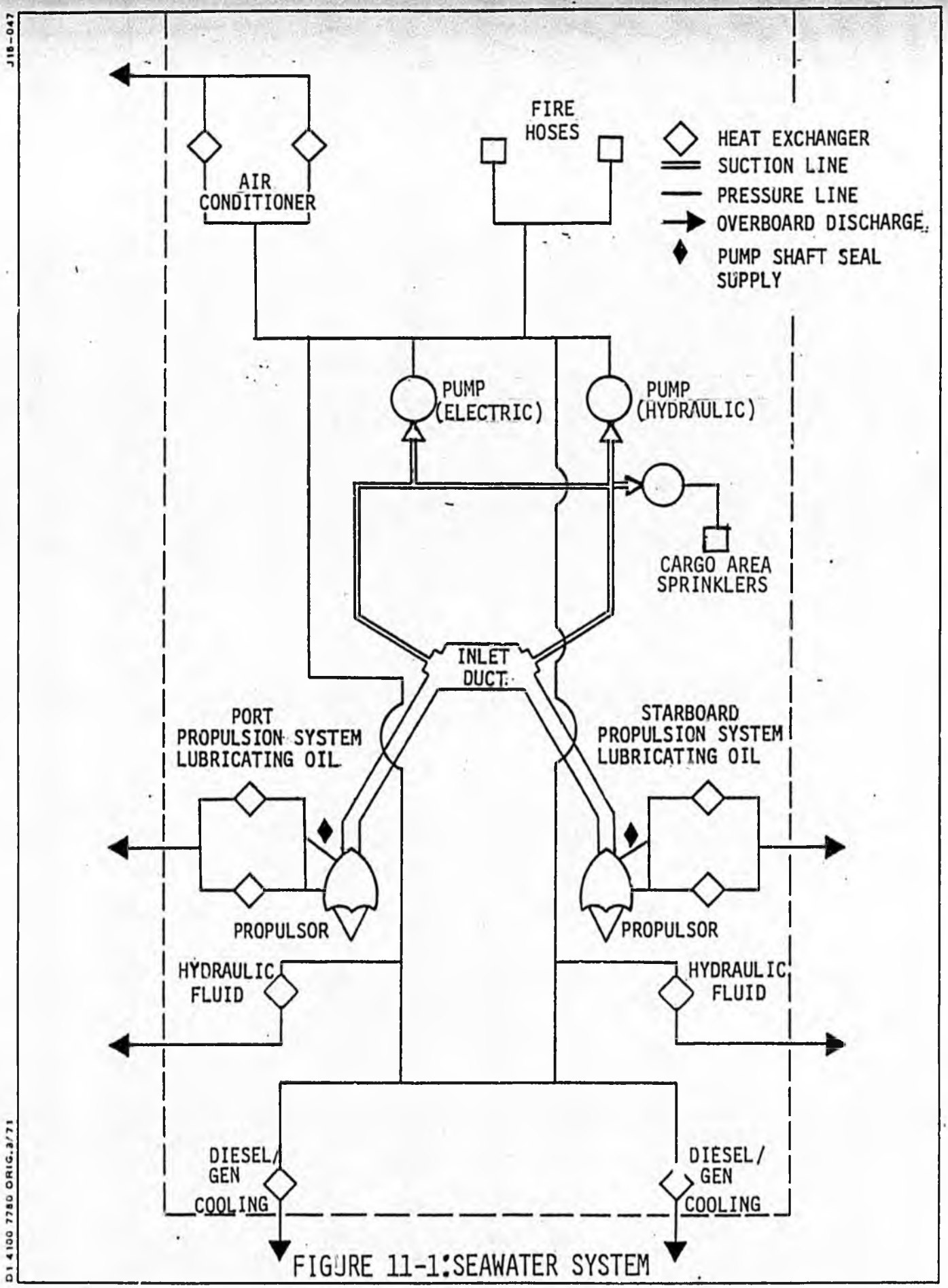


FIGURE 11-1. SEAWATER SYSTEM

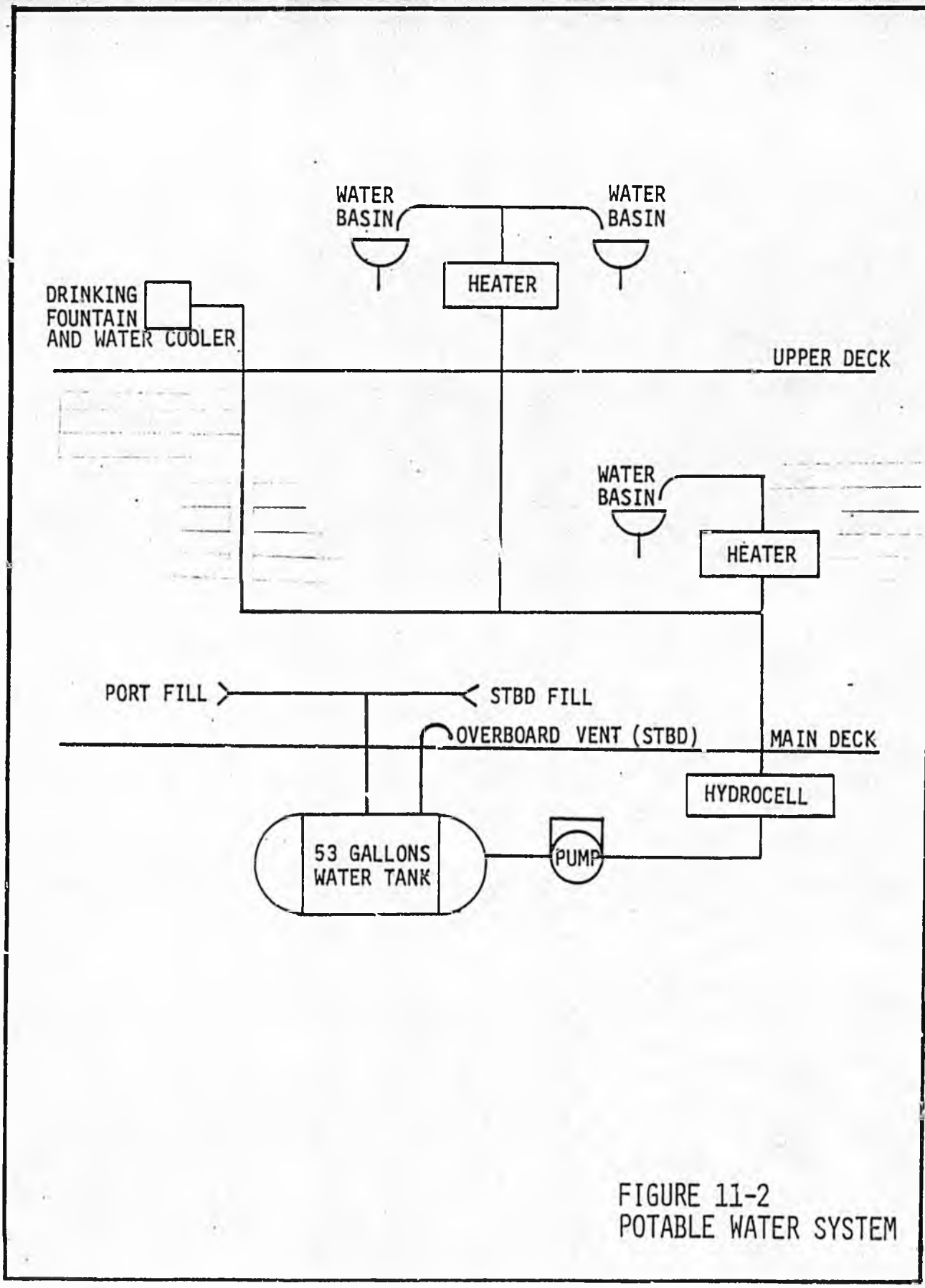


FIGURE 11-2
POTABLE WATER SYSTEM

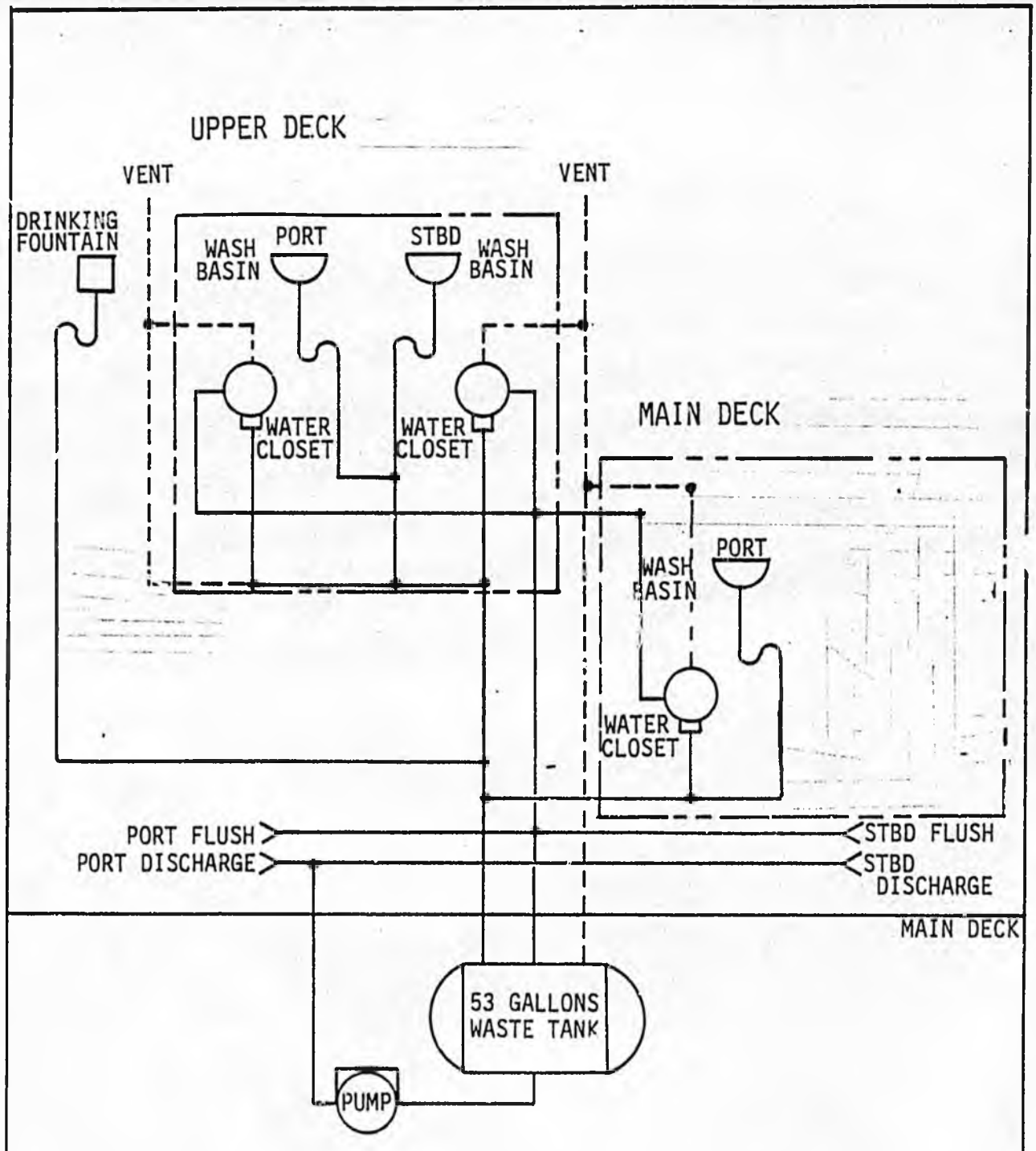


FIGURE 11-3 SANITARY WASTE SYSTEM

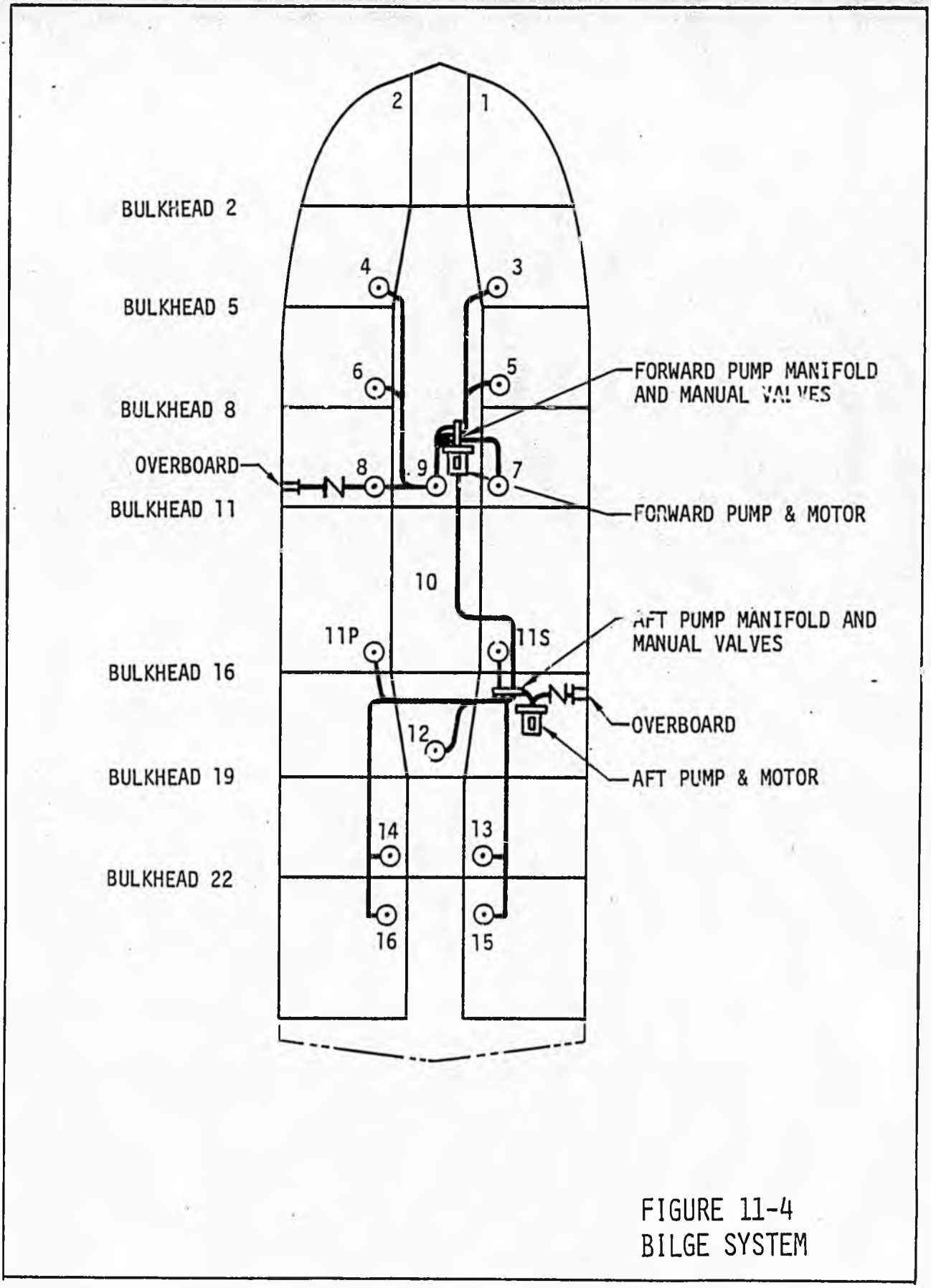


FIGURE 11-4
BILGE SYSTEM

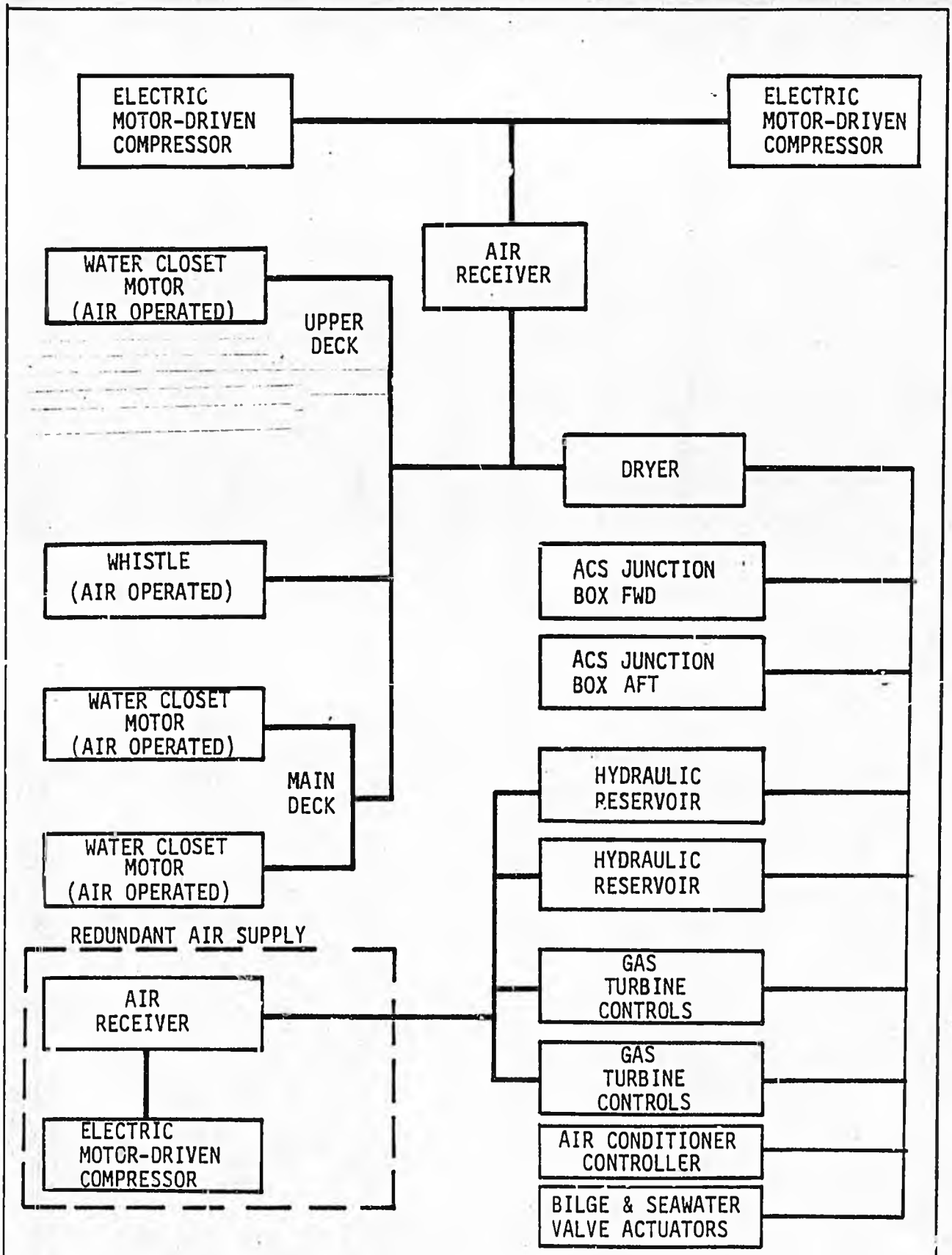


FIGURE 11-5 CONTROL AIR SYSTEM

12.0 EMERGENCY SYSTEMS

Fire detection/extinguishing systems and life saving equipment shall be installed on the boat in selected spaces.

12.1 MACHINERY ROOMS FIRE PROTECTION

A fire detection and extinguishing system shall be installed in selected unmanned machinery rooms. (Refer to Section 5.0 of this contract specification.)

Portable dry chemical fire extinguishers shall be provided; one in, or near the entrance to, each turbine space and diesel space.

12.2 SUPERSTRUCTURE FIRE PROTECTION

A seawater fire extinguishing system shall be installed to provide fire protection in the passenger cabins, cargo area, wheelhouse, and areas not otherwise protected. This system shall consist of a pump installed in the aft auxiliary machinery room and two hydrants, one installed on each deck. Each hydrant shall be equipped with 75 feet of 1-1/2 inch fire hose, shut-off valve, combination spray/straight stream nozzles with 4 foot extension applicators, wrench, and hose rack.

A manually operated sprinkler system shall be installed in the cargo area. It shall be served by a dedicated seawater pump.

Three portable dry chemical fire extinguishers shall be provided for the passenger cabins. Each shall be rated at 10 pounds capacity, 15 to 25 foot range, and 11 second operating time. One extinguisher shall be located on the main deck and two on the upper deck. Three additional fire extinguishers shall be located in the cargo area.

One fire axe shall be mounted in a main deck closet and one shall be mounted in the wheelhouse on the aft bulkhead.

12.3 LIFE SAVING EQUIPMENT

12.3.1 LIFE RAFTS

An USCG approved life raft system shall be provided. The system shall include four 42-person life rafts (two rafts in each of two containers). Deployment and automatic inflation mechanisms shall be provided. The containers shall be equipped with hydrostatic releases. See Figure 1-1 for typical locations.

12.3.2 LIFE BUOYS

Four 30-inch lifebuoys, two with waterlights, shall be installed as shown on Figure 1-1.

12.3.3 LIFE PRESERVERS

One USCG-approved adult life preservers shall be installed integral with each passenger seat. Six crew's and fifteen children's life preservers shall be stowed in a closet. The location and quantity of the stowed life preservers shall be suitably marked.

12.3.4 DISTRESS SIGNALS

One set of six red signal flares and six orange smoke signals, USCG approved, shall be located in the wheelhouse.

13.0 OUTFITTING AND FURNISHINGS

13.1 CREW ACCOMMODATIONS

13.1.1 WHEELHOUSE ARRANGEMENT

The general plan of the wheelhouse shall be as delineated in Figure 6-1. The main console shall form the base for boat controls and systems indicators. The console shall be symmetrical about the boat centerline.

13.1.2 WHEELHOUSE SEATS

Two identical seats shall be installed at the control consoles. Each seat shall be equipped with a footrest and fold-up arm rests, shall swivel, and shall be adjustable vertically and longitudinally. Upholstery shall be color-fast, mildew-resistant, fire-retardant, and soil-resistant.

An additional standard crew seat shall be installed on the port side of the wheelhouse.

13.1.3 WHEELHOUSE DECK, SIDEWALL, AND OVERHEAD COVERING

The Wheelhouse deck shall be carpeted with materials approved by the USCG.

Sidewall and overhead areas shall be covered with approved materials to provide thermal and acoustic insulation.

13.1.4 CABIN ATTENDANT SEATS

Two one-man fold-up bulkhead-mounted cabin attendant seats shall be installed in the upper deck passenger cabin as identified in Figure 1-2. The seats shall have a decorative finish to fit the cabin interior decor.

One of the seats installed in the Main Deck Forward Cabin (adjacent to the galley) is intended to be used as a crew seat.

13.2 PASSENGER ACCOMMODATIONS

13.2.1 CABIN ARRANGEMENT

The general arrangement of the main deck and upper deck passenger cabins shall be as identified in Figure 1-2.

The main deck cabin shall be forward of the main entry complex. One toilet--including a lavatory and watercloset--shall be installed to port of the boat centerline forward of the main entry doors.

A stairway shall be installed leading from the main deck to the upper deck accommodations. Additional egress shall be provided port and starboard via two doors leading to the after deck.

The upper deck accommodations shall include two toilets located at the forward end of the cabin, aft of the wheelhouse bulkhead. The toilets shall be identical to those on the main deck. Egress from the upper deck cabin shall be via the main stairway or the aft cabin port and starboard doors. Port and starboard aft exterior stairs leading to the main deck shall be installed.

13.2.2 PASSENGER SEATS

136 passenger seats shall be installed (135 for passengers and 1 on the lower deck to be used as a crew seat). The seats shall be provided in modules of up to four seats. [Modules and abutting modules shall have a fixed armrest on the end of each module (shared armrest for abutting modules) with folding armrests between seats within the modules.] Seat tracks shall be installed integral with deck structure. Passenger seats shall be equipped with a reclining feature and headrests (except when located with its back against a wall or stanchion, equipped with seat belts, and styled and upholstered to complement the interior decor. Upholstery materials shall be color-fast, mildew-resistant, fire-resistant (to meet the flame spread and smoke requirements specified by the USCG), and soil-resistant.

A Food Tray shall be provided for each passenger. These shall fold-down from the seatback in front, or shall be plug-in trays where this is impracticable.

13.2.3 CABIN DECK, SIDEWALL, AND OVERHEAD COVERINGS

The cabin decks shall be carpeted with materials acceptable to the USCG.

Sidewall and overhead areas shall be covered with approved materials to provide thermal and acoustic insulation.

13.2.4 FOOD SERVICE

One free-standing food service module (galley) shall be provided at the upper deck location shown on figure 1-2. The cabinet shall be approximately 75 " high, 43 " wide, and 22 " deep. The front of the module shall be curtained and shall be compatible with the interior decor of the boat. The galley shall be fitted with 10 food/beverage carriers and 2 ice carriers.

Facing the food service module shall be a 63" wide luggage rack modified to hold a microwave oven and 6 additional food and beverage carriers.

The main deck galley shall be forward and starboard of the main stairwell as shown in figure 1-2. A microwave oven shall be rack-mounted against the cabin sidewall, just outboard of the galley. The main deck galley shall have 3 food and beverage carriers and 2 ice carriers.

Three folding food carts shall be provided: two on the upper deck and one on the lower.

13.2.5 LUGGAGE STOWAGE

Enclosed overhead stowage racks shall be provided above the passenger windows on both decks as shown on figure 1-2.

A baggage container shall be mounted on the fantail. This container shall be fixed in position.

13.3 MACHINERY SPACE OUTFITTING

Approved sidewall and overhead fireproof panels shall be installed in the turbine and diesel engine spaces. Selected decks in working areas of machinery spaces shall be treated with a non-skid surface coating.

13.4 CARGO SPACE OUTFITTING

The cargo area sidewalls and overhead shall be covered by fire-insulation, a moisture barrier, and expanded metal sheathing.

A cargo openings shall be fitted with a remoable chain barrier.

Parcel shelves shall be installed to starboard of the main stairwell and stowage for cargo tiedown hardware to port.

13.4 PAINT

The hull below the waterline shall receive a paint system as follows: alodine, two coats epoxy primer, and two coats anti-fouling topcoat. Struts and foils shall not be painted below the hullborne waterline.

Draft marks, both forward and aft, shall be in metric dimensions.

The hull and superstructure above the waterline shall receive a paint system as follows: alodine, two coats epoxy primer, one coat white semi-gloss polyurethane, and a topcoat comprising white semigloss polyurethane enamel and markings/trim to Buyer's requirements (to a maximum of two solid continuous tone trim colors). See Figure 13-1 for exterior color markings.

All weather deck working and walking areas shall be covered with an epoxy non-skid paint. The cargo deck shall be covered with a non-skid coating.

Passenger cabin interiors not covered with vinyl panels shall be painted to match or harmonize with their immediate surroundings.

Interior decor shall include the following:

Seat fabric:	60% Replin Jetset "D" Blue 40% Replin Jetset "F" Gold
Carpet	Mohasco "Emissary" AZ-1936-11 Antron II Nylon, Static Control (Blue)

13.5 DECK HARDWARE

13.5.1 HULL FITTINGS

Mooring cleats, towing fittings, cargo ramp fittings, lift fittings, and handrails shall be installed as identified on Figure 1-1 of this specification.

13.5.2 GROUND TACKLE

One 250-pound ABS approved anchor with 340 feet of 7/16 inch diameter wire rope and stowage drum shall be provided. Two 100-foot and two 50-foot lengths of one-inch diameter nylon line shall be provided for mooring.

13.6 SIGNS AND PLACARDS

Signs and placards shall be installed throughout the boat as required by the USCG. All signs and placards shall be in English unless otherwise negotiated.(See paragraph 1.4.5.)

An initial supply of evacuation placards, in international symbols, shall be provided.

13.7 EQUIPMENT SUGGESTED FOR OPERATION

Certain equipment not furnished by Boeing is suggested for boat operation. These are set forth in Appendix IV. A weight allowance has been included for these items in the deadweight shown in section 3.0 of this specification.

FIGURE 13-1: TBA
EXTERIOR COLOR MARKINGS

(COLORED ILLUSTRATION TO BE INCLUDED IN
FINAL VERSION OF THIS SPECIFICATION)

14.0 STANDARD OPTIONS

The following JETFOIL Standard Options shall be installed prior to delivery.

1. Headrests for 136 seats
2. Recline for 122 seats
3. Food trays for 136 seats
4. Enclosed Overhead Stowage
5. Vision Augmentation System
6. Fantail Container
7. Heated Wheelhouse Windows
8. Port Crew Seat
9. Folding Food Carts (3)
10. Upper Deck Galley
11. Food/Beverage/Ice Carriers
12. Life Jackets for 19-1/2" Seats

15.0 BUYER UNIQUE OPTIONS

The following Customer Unique Options shall be installed by Boeing prior to boat delivery.

1. Conversion of Main Passenger Cabin to Cargo Space
2. Conversion of Electrical, Lighting, and Air Conditioning systems for Cargo Space
3. Conversion of one Toilet Module to a Galley
4. Additional Portable Fire Extinguishers
5. Tie-downs allowance
6. Microwave Ovens (2)
7. Modified Luggage Rack and Installation
8. Oven Stand and Installation
9. Modifications for Cold Weather
10. Additional Seawater Pump and Cargo Space Sprinkler System
11. Change from 294 21" Seats to 136 19-1/2" Seats

16.0 BUYER FURNISHED EQUIPMENT

The following are required equipment that are to be supplied by the Buyer after delivery.

None

APPENDIX I:

PERFORMANCE ESTIMATES AMD DEMONSTRATIONS

1.0 PERFORMANCE ESTIMATES

Estimated takeoff performance, foilborne cruise pump speed (power), and foilborne cruise fuel consumption are shown in Figures I-1, I-2, and I-3, respectively.

2.0 PERFORMANCE DEMONSTRATIONS

Boat performance demonstrations shall be conducted in Lake Washington, Puget Sound, and/or the Straits of Juan de Fuca to demonstrate compliance with this specification. The exact site for any given demonstration shall be selected by the Boeing Ship Master.

Demonstrations shall be conducted with the boat in a configuration that is, as nearly as practicable, the deliverable configuration as defined in the contract specification or in such other configuration as may be agreed upon by the Buyer and Boeing in the Purchase Agreement. Data from the Builder's Trials shall be provided on request.

The demonstrations to be conducted, and the appertaining conditions, shall be in accordance with a Customer Demonstration Trials Procedure to be prepared by Boeing based on D320-52001-3, "JETFOIL Customer Trials--Standard."

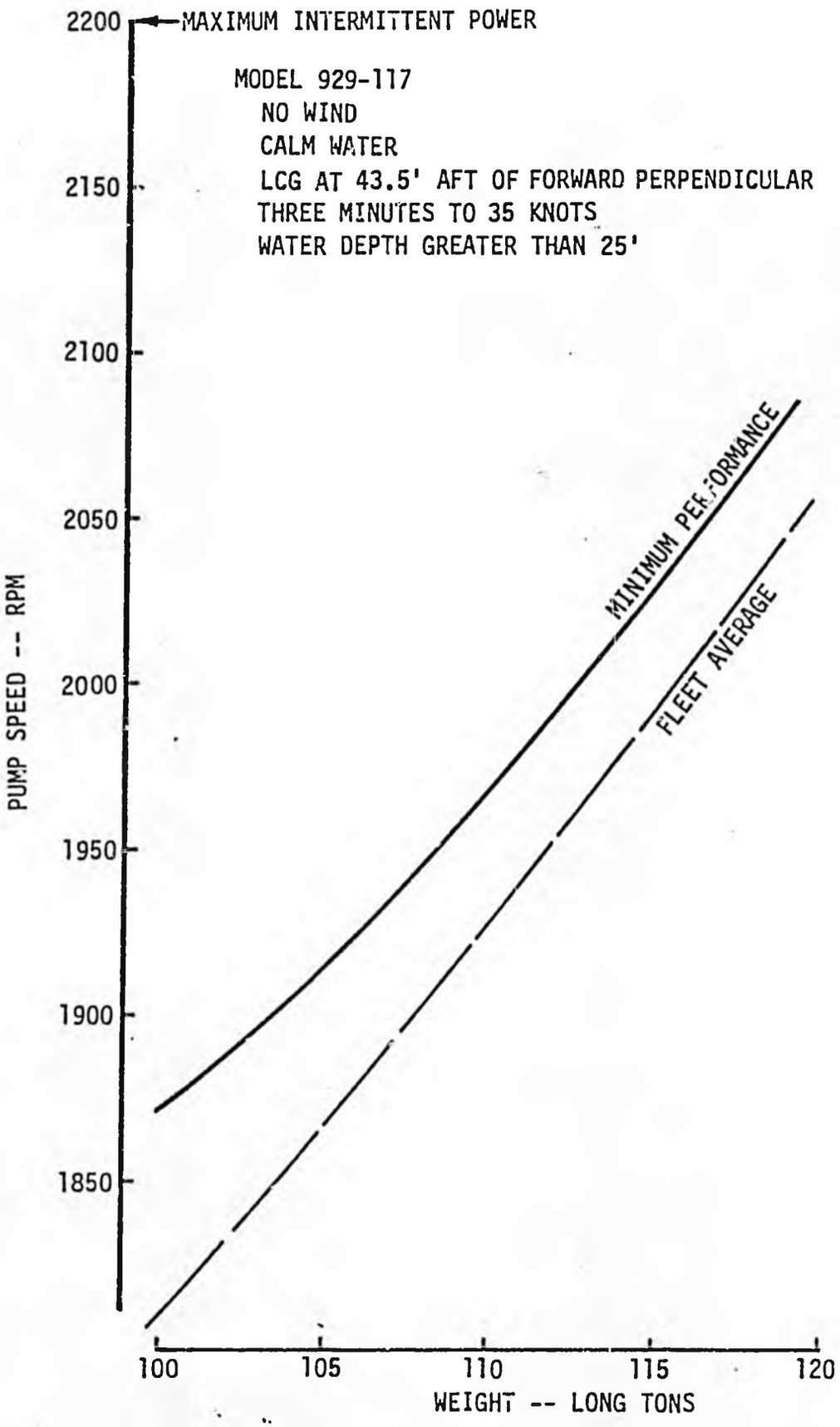


FIGURE 1-1 TAKEOFF PERFORMANCE

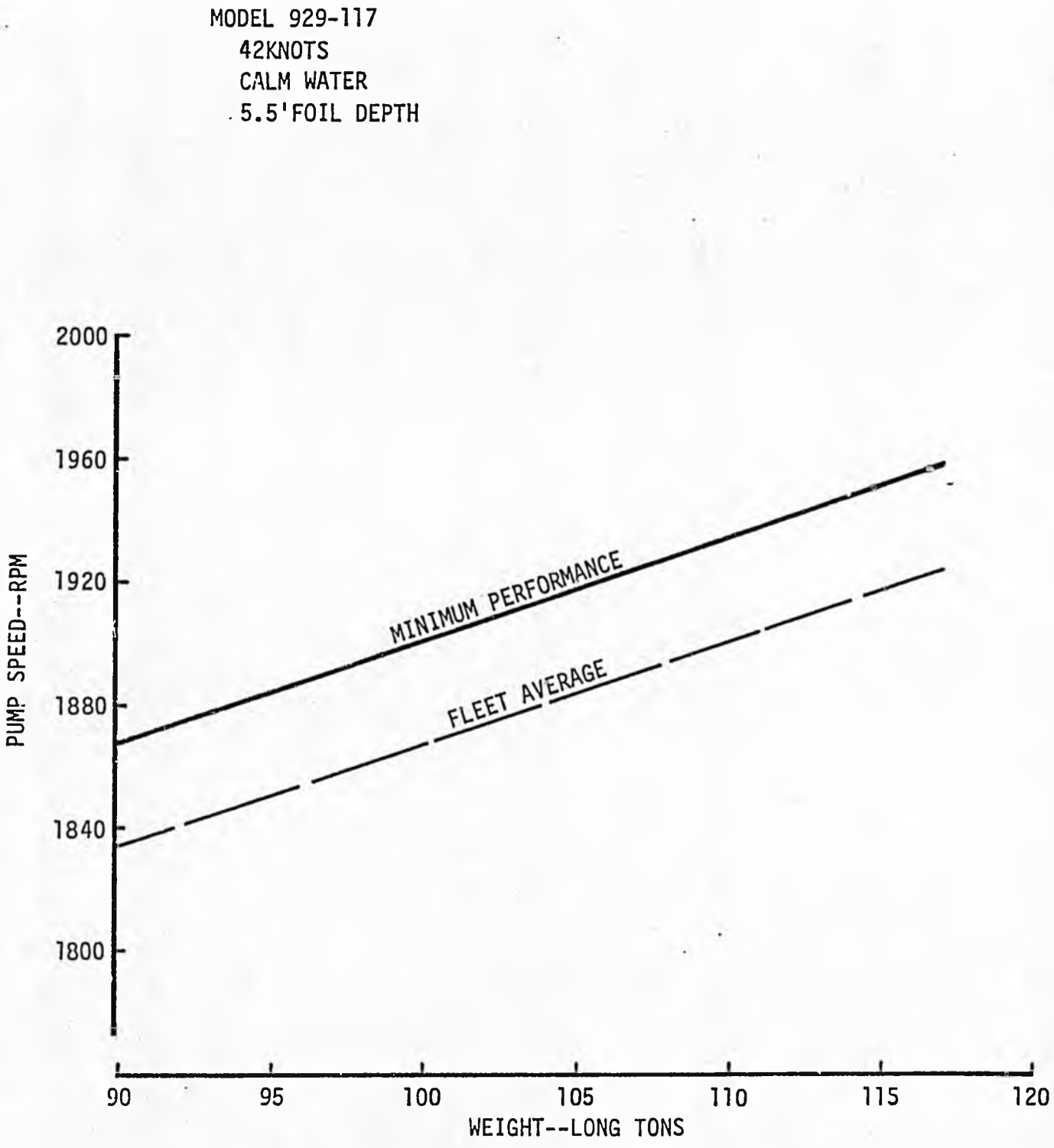


FIGURE 1-2 FOILBORNE CRUISE PUMP SPEED