APPENDIX F

ALTERNATIVE PROPULSION PLANT DATA

PRINTED REPORT NO. 3 - ENGINES

	MAIN ENG	SEC ENG	SS ENG
ENG SELECT IND	GIVEN		GIVEN
ENG TYPE IND	GT	F DIESEL	
ENG MODEL IND	GE-LM2500-30	MTU-16V538	
ENG SIZE IND	GIVEN		CALC
NO INSTALLED	4	0	4
ENG BARE WT, LTON	3.1	5.7	
ENG LENGTH, FT	15.65		9.85
ENG WIDTH, FT	5.20	5.11	
ENG HEIGHT, FT	5.20	7.18	
ENG PWR AVAIL, HP	26250.	.0	2790.9
ENG RPM	3600.0	1800.0	
ENG MASS FL, LBM/SEC	135.5		7.5
ENG EXH TEMP, DEGF	1039.0		945.5
ENG SFC EQN IND	EXPNT		DIESEL
ENG SFC, LBM/HP-HR	0.393		.349

MAX SPEED CONDITION

NO OPERATING	4	0	3
ENG PWR, HP	26250.	4760.7	
ENG RPM	3600.0	1800.0	
ENG MASS FL, LBM/SEC	135.5		9.2
ENG EXH TEMP, DEGF	1039.0		1202.4
ENG SFC, LBM/HP-HR	.393	.356	

SUSTN SPEED CONDITION

NO OPERATING	4	0	3
ENG PWR, HP	21000.	4760.7	
ENG RPM	3374.5	1800.0	
ENG MASS FL, LBM/SEC	124.3		9.2
ENG EXH TEMP, DEGF	986.8	1202.4	
ENG SFC, LBM/HP-HR	.414	.356	

ENDUR SPEED CONDITION

NO OPERATING	2	0	2
ENG PWR, HP	6400.	3313.0	
ENG RPM	1789.7	1800.0	
ENG MASS FL, LBM/SEC	78.7		8.0
ENG EXH TEMP, DEGF	845.8	1014.7	
ENG SFC, LBM/HP-HR	.628	.356	

NOTE - ENGINE OPERATING DATA ARE BASED ON USE OF DFM FUEL.

PRINTED REPORT NO. 7 - INTAKE DUCTS

INLET TYPE IND-PLENUM
DUCT SILENCING IND-BOTH
GT ENG ENCL IND-90 DBA

	MAIN ENG	SEC ENG	SS ENG
ENG TYPE	GT		F DIESEL
INLET DUCT XSECT AREA,FT2	99.6	.0	.0
INLET DUCT XSECT LTH, FT	11.45	.0	.0
INLET DUCT XSECT WID, FT	8.70	.0	.0

MMR1

	----MAIN ENG-----		-----SEC ENG-----	
	WT,LTON	VCG,FT	WT,LTON	VCG,FT
INLET	0.8	88.00		
INLET DUCTING	3.4	55.77		
INLET SILENCER	2.8	43.44		
GT COOLING SUPPLY	3.4	43.81		
GT BLEED AIR SUPPLY	3.9	35.39		

MMR2

	----MAIN ENG-----		-----SEC ENG-----	
	WT,LTON	VCG,FT	WT,LTON	VCG,FT
INLET	0.8	88.00		
INLET DUCTING	3.4	55.78		
INLET SILENCER	2.8	43.44		
GT COOLING SUPPLY	3.4	43.81		
GT BLEED AIR SUPPLY	3.9	35.39		

NOTE - NUMERIC DATA PRESENTED ABOVE ARE ON A PER ENGINE BASIS.

TRUNK AREA AND VOLUME REQUIREMENTS

	-----AREA,FT2----		---VOLUME,FT3----	
ENGINE CATEGORY	HULL	DKHS	HULL	DKHS
MAIN ENGINES	1912.8	1434.6	17215.	14346.
SECONDARY ENGINES	0.0	0.0	0.	0.
SHIP-SERVICE ENGINES	0.0	0.0	0.	0.
TOTALS	1912.8	1434.6	17215.	14346.

PRINTED REPORT NO. 8 - EXHAUST DUCTS

EXHAUST IR SUPPRESS IND-PRESENT
DUCT SILENCING IND-BOTH
GT ENG ENCL IND-90 DBA
EXHAUST STACK TEMP, DEGF 350.0
EDUCTOR DESIGN FAC 1.000

	MAIN ENG	SEC ENG	SS ENG
ENG TYPE	GT	F DIESEL	
ENG EXH TEMP, DEG	1039.	946.	
ENG MASS FL, LBM/SEC	135.5	7.5	
EXH DUCT GAS TEMP, DEG	927.	946.	
EXH DUCT GAS DEN, LBM/FT3	0.0282	.0278	
EXH DUCT MASS FL, LBM/SEC	154.5	7.5	
EXH DUCT AREA, FT2	51.0	2.5	

MMR1

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
EXH DUCT (TO BOILER/REG)				
EXH BOILER (RACER)				
EXH REGENERATOR				
EXH DUCT (TO STACK)	14.4	55.72		
EXH SILENCER	11.2	51.77		
EXH STACK	3.0	98.30		
EXH SPRAY RING	1.3	66.76		
EXH EDUCTOR	13.7	101.81		

MMR2

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
EXH DUCT (TO BOILER/REG)				
EXH BOILER (RACER)				
EXH REGENERATOR				
EXH DUCT (TO STACK)	14.4	55.71		
EXH SILENCER	11.2	51.77		
EXH STACK	3.0	98.30		
EXH SPRAY RING	1.3	66.76		
EXH EDUCTOR	13.7	101.81		

NOTE - NUMERIC DATA PRESENTED ABOVE ARE ON A PER ENGINE BASIS.

TRUNK AREA AND VOLUME REQUIREMENTS

ENGINE CATEGORY	AREA,FT2 HULL	AREA,FT2 DKHS	VOLUME,FT3 HULL	VOLUME,FT3 DKHS
MAIN ENGINES	2528.3	1896.3	22755.	18963.
SECONDARY ENGINES	0.0	0.0	0.	0.
SHIP-SERVICE ENGINES	418.9	261.8	3770.	2618.
TOTALS	2947.2	2158.1	26525.	21581.

PRINTED REPORT NO. 9 - PROPELLERS AND SHAFTS

SHAFT SUPPORT TYPE IND-OPEN STRUT
SHAFT SYS SIZE IND-CALC
PROP TYPE IND-CP
PROP DIA, FT 17.63
HUB DIA, FT 6.19
PROP BLADE WT, LTON 13.2
PROP HUB WT, LTON 31.7
BEND STRESS CON FAC 1.700
OVRHG PROP MOM ARM RATIO 0.340
EQUIV FP PROP WT, LTON 33.8
ALLOW BEND STRESS, LBF/IN2 6000.
FATIGUE LIMIT, LBF/IN2 47500.
YIELD POINT, LBF/IN2 75000.
TORQUE MARGIN FAC 1.200
OFF-CENTER THRUST FAC 1.000
NO STRUTS PER SHAFT 2

PORT SHAFT

	PROP SECTION	INTERMED SECTION	LINE SECTION
ANGLE, DEG	.44	.44	.44
LENGTH, FT	14.98	153.94	77.28
DIAMETER, FT	2.86	1.80	1.55
BORE RATIO	.550	.667	.667
WEIGHT, LTON	19.7	63.4	20.1
LCG, FT	594.32	509.86	394.25
TCG, FT	-12.75	-12.75	-12.75
VCG, FT	5.92	6.56	7.45
FACTOR OF SAFETY		2.00	1.75

STBD SHAFT

	PROP SECTION	INTERMED SECTION	LINE SECTION
ANGLE, DEG	.33	.33	.33
LENGTH, FT	14.98	156.65	169.06
DIAMETER, FT	2.86	1.80	1.55
BORE RATIO	.550	.667	.667
WEIGHT, LTON	19.7	64.6	43.9
LCG, FT	594.32	508.50	345.65
TCG, FT	12.75	12.75	12.75
VCG, FT	5.90	6.39	7.31
FACTOR OF SAFETY		2.00	1.75

PRINTED REPORT NO. 14 - PROPULSION PLANT WEIGHT

SWBS	COMPONENT	WT,LTON	LCG,FT	VCG,FT
200	PROPULSION PLANT	1037.5	376.98	21.61
210	ENERGY GENERATING SYSTEM (NUCLEAR)	0.0	0.00	0.00
220	ENERGY GENERATING SYSTEM (NON-NUCLEAR)	0.0	0.00	0.00
230	PROPULSION UNITS	84.7	282.06	15.50
233	PROPULSION INTERNAL COMBUSTION ENGINES	0.0	0.00	0.00
234	PROPULSION GAS TURBINES	84.7	282.06	15.50
235	ELECTRIC PROPULSION	0.0	0.00	0.00
240	TRANSMISSION AND PROPULSOR SYSTEMS	584.9	437.09	7.32
241	PROPULSION REDUCTION GEARS	167.8	302.34	9.09
242	PROPULSION CLUTCHES AND COUPLINGS	0.0	0.00	0.00
243	PROPULSION SHAFTING	231.2	482.67	6.62
244	PROPULSION SHAFT BEARINGS	72.2	424.99	7.00
245	PROPULSORS	113.6	551.13	6.31
250	PRPLN SUPPORT SYS (EXCEPT FUEL+LUBE OIL)	260.4	292.43	59.68
251	COMBUSTION AIR SYSTEM	57.5	274.52	46.86
252	PROPULSION CONTROL SYSTEM	28.2	282.06	40.30
256	CIRCULATING AND COOLING SEA WATER SYSTEM	12.6	396.90	22.32
259	UPTAKES (INNER CASING)	162.2	292.45	70.49
260	PRPLN SUPPORT SYS (FUEL+LUBE OIL)	46.6	274.79	12.41
261	FUEL SERVICE SYSTEM	9.4	250.56	9.50
262	MAIN PROPULSION LUBE OIL SYSTEM	26.6	282.06	12.00
264	LUBE OIL FILL, TRANSFER, AND PURIF	10.6	278.06	16.00
290	SPECIAL PURPOSE SYSTEMS	60.9	371.49	11.64
298	OPERATING FLUIDS	50.4	378.00	8.00
299	REPAIR PARTS AND SPECIAL TOOLS	10.5	340.20	29.14

* DENOTES INCLUSION OF PAYLOAD OR ADJUSTMENTS

PRINTED REPORT NO. 18 - MACHINERY SPACE REQUIREMENTS

MACHINERY ROOM VOLUME REQUIREMENTS

VOLUME CATEGORY	VOLUME, FT3
SWBS GROUP 200	144381.
PROPULSION POWER GENERATION	41382.
PROPULSION ENGINES	31651.
PROPULSION REDUCTION GEARS AND GENERATORS	9731.
DRIVELINE MACHINERY	0.
REDUCTION AND BEVEL GEARS WITH Z-DRIVE	0.
ELECTRIC PROPULSION MOTORS AND GEARS	0.
REMOTELY-LOCATED THRUST BEARINGS	0.
PROPELLER SHAFT	17159.
ELECTRIC PROPULSION MISCELLANEOUS EQUIPMENT	0.
CONTROLS	0.
BRAKING RESISTORS	0.
MOTOR AND GENERATOR EXCITERS	0.
SWITCHGEAR	0.
POWER CONVERTERS	0.
DEIONIZED COOLING WATER SYSTEMS	0.
RECTIFIERS	0.
HELIUM REFRIGERATION SYSTEMS	0.
PROPULSION AUXILIARIES	85840.
PROPULSION LOCAL CONTROL CONSOLES	4658.
CP PROP HYDRAULIC OIL POWER MODULES	6480.
FUEL OIL PUMPS	42952.
LUBE OIL PUMPS	5826.
LUBE OIL PURIFIERS	19750.
ENGINE LUBE OIL CONDITIONERS	1550.
SEAWATER COOLING PUMPS	4624.
SWBS GROUP 300	73815.
ELECTRIC PLANT POWER GENERATION	16535.
ELECTRIC PLANT ENGINES	8592.
ELECTRIC PLANT GENERATORS AND GEARS	7943.
SHIP SERVICE SWITCHBOARDS	57280.
CYCLOCONVERTERS	0.
SWBS GROUP 500	89787.
AUXILIARY MACHINERY	89787.
AIR CONDITIONING PLANTS	10683.
AUXILIARY BOILERS	17651.
FIRE PUMPS	6430.
DISTILLING PLANTS	29945.
AIR COMPRESSORS	20171.
ROLL FIN PAIRS	0.
SEWAGE PLANTS	4908.

ARRANGEABLE AREA REQUIREMENTS

SSCS	GROUP NAME	HULL/DKHS (FT2)	DKHS ONLY (FT2)
4.31	AUXILIARY MACHINERY DELTA	-1582.5	0.0
4.3311	SHIP SERVICE POWER GENERATION	0.0	0.0
4.132	INTERNAL COMB ENG COMB AIR	0.0	0.0
4.133	INTERNAL COMB ENG EXHAUST	418.9	261.8
4.142	GAS TURBINE ENG COMB AIR	1912.8	1434.6
4.143	GAS TURBINE ENG EXHAUST	2528.3	1896.3

ASSET/MONOLA VERSION 1.0 - SPACE MODULE - 9/29/94 08.58.14.

PRINTED REPORT NO. 6 - REQUIRED TANKAGE

POLLUTION CNTRL IND-PRESENT

ENDURANCE FUEL, FT3	109139.
AVIATION FUEL, FT3	0.
FRESH WATER, FT3	2752.
SEWAGE, FT3	1013.
WASTE OIL WATER, FT3	2183.
CLEAN BALLAST, FT3	30123.
TANKAGE MARGIN, FT3	0.
---	---
TANKAGE VOL REQ, FT3	145210.

ASSET/MONOLA VERSION 1.0 - DESIGN SUMMARY - 9/29/94 08.58.20.

PRINTED REPORT NO. 1 - SUMMARY

SHIP COMMENT TABLE

```
 PRINCIPAL CHARACTERISTICS - FT        WEIGHT SUMMARY - LTON
LBP                 630.0    GROUP 1 - HULL STRUCTURE  8503.3
LOA                 653.8    GROUP 2 - PROP PLANT      2512.9
BEAM, DWL            90.0    GROUP 3 - ELECT PLANT      619.8
BEAM, WEATHER DECK  103.1    GROUP 4 - COMM + SURVEIL   169.8
DEPTH @ STA 10       62.0    GROUP 5 - AUX SYSTEMS     1891.9
DRAFT TO KEEL DWL    25.0    GROUP 6 - OUTFIT + FURN   1184.8
DRAFT TO KEEL LWL    24.9    GROUP 7 - ARMAMENT          50.9
FREEBOARD @ STA 3    41.1    ---------------------------------
GMT                   9.3    SUM GROUPS 1-7          14933.5
CP                  0.570    DESIGN MARGIN            1868.5
CX                  0.920    ---------------------------------
                             LIGHTSHIP WEIGHT        16802.0
SPEED(KT):  MAX= 30.2  SUST= 28.8    LOADS                4572.9
ENDURANCE:  6000.0 NM AT 16.0 KTS    ---------------------------------
                             FULL LOAD DISPLACEMENT   21374.9
TRANSMISSION TYPE:        MECH    FULL LOAD KG:  FT          37.8
MAIN ENG: 4 GT      @ 26250.0 HP
                             MILITARY PAYLOAD WT - LTON    0.0
SHAFT POWER/SHAFT:    51197.3 HP    USABLE FUEL WT - LTON      1900.0
PROPELLERS: 2 - CP  - 17.6 FT DIA
                              AREA SUMMARY - FT2
SEP GEN:  4 F DIESEL @  2000.0 KW    HULL AREA          -  160288.3
                             SUPERSTRUCTURE AREA  -  103963.0
                             ---------------------------------
24 HR LOAD            4748.3    TOTAL AREA            264251.3
MAX MARG ELECT LOAD      14115.5
                              VOLUME SUMMARY  - FT3
      OFF  CPO  ENL    TOTAL    HULL VOLUME          - 2651982.0
MANNING   49   33   386    468    SUPERSTRUCTURE VOLUME - 1036390.8
ACCOM     52   35   418    505    ---------------------------------
                             TOTAL VOLUME          3688372.8
```

ALL OF SHIP 'CMD03' HAS BEEN USED.

ASSET/MONOLA VERSION 1.0 - MACHINERY MODULE - 9/29/94 08.58.38.

PRINTED REPORT NO. 1 - SUMMARY

TRANS TYPE IND	MECH	MAX SPEED, KT	25.35
ELECT PRPLN TYPE IND		SUSTN SPEED IND	CALC
SHAFT SUPPORT TYPE IND	OPEN STRUT	SUSTN SPEED, KT	23.58
NO PROP SHAFTS	2.	ENDUR SPEED IND	GIVEN
ENDUR CONFIG IND	NO TS	ENDUR SPEED, KT	16.00
SEC ENG USAGE IND		DESIGN MODE IND	ENDURANCE
MAX MARG ELECT LOAD, KW	14020.	ENDURANCE, NM	6000.
AVG 24 HR ELECT LOAD, KW	4638.	USABLE FUEL WT, LTON	1130.7
SWBS 200 GROUP WT, LTON	1081.6	SUSTN SPEED POWER FRAC	0.80
SWBS 300 GROUP WT, LTON	1024.2		

ARRANGEMENT OR SS GEN	TYPE	NO INSTALLED	NO ONLINE MAX+SUSTN	NO ONLINE ENDURANCE
MECH PORT ARR IND	M2-LTDR	1	1	1
MECH STBD ARR IND	M2-LTDR/F	1	1	1
SEP SS GEN	2000. KW	4	3	2
VSCF SS CYCLO	KW	0	0	0

	MAIN ENG	SEC ENG	SS ENG
ENG SELECT IND	GIVEN		GIVEN
ENG MODEL IND	F-PC2/18-DD		MTU-16V538
ENG TYPE IND	D DIESEL		F DIESEL
ENG SIZE IND	GIVEN		CALC
NO INSTALLED	4	0	4
ENG PWR AVAIL, HP	11700.		2791.
ENG RPM	520.0		1800.0
ENG SFC, LBM/HP-HR	0.340		.349
ENG LOAD FRAC	1.000		1.000

PRINTED REPORT NO. 3 - ENGINES

	MAIN ENG	SEC ENG	SS ENG
ENG SELECT IND	GIVEN		GIVEN
ENG TYPE IND	D DIESEL		F DIESEL
ENG MODEL IND	F-PC2/18-DD		MTU-16V538
ENG SIZE IND	GIVEN		CALC
NO INSTALLED	4	0	4
ENG BARE WT, LTON	87.1		5.7
ENG LENGTH, FT	30.43		9.85
ENG WIDTH, FT	12.15		5.11
ENG HEIGHT, FT	12.76		7.18
ENG PWR AVAIL, HP	11700.	.0	2790.9
ENG RPM	520.0		1800.0
ENG MASS FL, LBM/SEC	37.8		7.5
ENG EXH TEMP, DEGF	750.0		945.5
ENG SFC EQN IND	DIESEL		DIESEL
ENG SFC, LBM/HP-HR	0.340		.349

MAX SPEED CONDITION

NO OPERATING	4	0	3
ENG PWR, HP	11700.		4656.7
ENG RPM	520.0		1800.0
ENG MASS FL, LBM/SEC	37.8		9.1
ENG EXH TEMP, DEGF	750.0		1188.1
ENG SFC, LBM/HP-HR	.340		.356

SUSTN SPEED CONDITION

NO OPERATING	4	0	3
ENG PWR, HP	9360.		4656.7
ENG RPM	482.8		1800.0
ENG MASS FL, LBM/SEC	34.7		9.1
ENG EXH TEMP, DEGF	692.8		1188.1
ENG SFC, LBM/HP-HR	.334		.356

ENDUR SPEED CONDITION

NO OPERATING	2	0	2
ENG PWR, HP	5824.		3235.7
ENG RPM	320.0		1800.0
ENG MASS FL, LBM/SEC	28.9		7.9
ENG EXH TEMP, DEGF	617.7		1005.3
ENG SFC, LBM/HP-HR	.333		.356

NOTE - ENGINE OPERATING DATA ARE BASED ON USE OF DFM FUEL.

PRINTED REPORT NO. 7 - INTAKE DUCTS

INLET TYPE IND-PLENUM
DUCT SILENCING IND-BOTH
GT ENG ENCL IND-90 DBA

	MAIN ENG	SEC ENG	SS ENG
ENG TYPE	D DIESEL	F DIESEL	
INLET DUCT XSECT AREA,FT2	27.8	.0	.0
INLET DUCT XSECT LTH, FT	5.95	.0	.0
INLET DUCT XSECT WID, FT	5.95	.0	.0

MMR1

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
INLET	0.2	88.00		
INLET DUCTING	1.7	56.79		
INLET SILENCER	0.4	30.26		
GT COOLING SUPPLY	0.0	0.00		
GT BLEED AIR SUPPLY	0.0	0.00		

MMR2

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
INLET	0.2	88.00		
INLET DUCTING	1.7	57.13		
INLET SILENCER	0.4	30.26		
GT COOLING SUPPLY	0.0	0.00		
GT BLEED AIR SUPPLY	0.0	0.00		

NOTE - NUMERIC DATA PRESENTED ABOVE ARE ON A PER ENGINE BASIS.

TRUNK AREA AND VOLUME REQUIREMENTS

ENGINE CATEGORY	AREA,FT2 HULL	AREA,FT2 DKHS	VOLUME,FT3 HULL	VOLUME,FT3 DKHS
MAIN ENGINES	613.2	459.9	5519.	4599.
SECONDARY ENGINES	0.0	0.0	0.	0.
SHIP-SERVICE ENGINES	0.0	0.0	0.	0.
TOTALS	613.2	459.9	5519.	4599.

PRINTED REPORT NO. 8 - EXHAUST DUCTS

EXHAUST IR SUPPRESS IND-PRESENT
DUCT SILENCING IND-BOTH
GT ENG ENCL IND-90 DBA
EXHAUST STACK TEMP, DEGF 350.0
EDUCTOR DESIGN FAC 1.000

	MAIN ENG	SEC ENG	SS ENG
ENG TYPE	D DIESEL	F DIESEL	
ENG EXH TEMP, DEG	750.	946.	
ENG MASS FL, LBM/SEC	37.8	7.5	
EXH DUCT GAS TEMP, DEG	750.	946.	
EXH DUCT GAS DEN, LBM/FT3	0.0323	.0278	
EXH DUCT MASS FL, LBM/SEC	37.8	7.5	
EXH DUCT AREA, FT2	10.9	2.5	

MMR1

	----MAIN ENG-----		-----SEC ENG-----	
	WT,LTON	VCG,FT	WT,LTON	VCG,FT
EXH DUCT (TO BOILER/REG)				
EXH BOILER (RACER)				
EXH REGENERATOR				
EXH DUCT (TO STACK)	6.4	57.10		
EXH SILENCER	1.1	32.26		
EXH STACK	.6	98.30		
EXH SPRAY RING	.9	66.76		
EXH EDUCTOR	1.0	96.04		

MMR2

	----MAIN ENG-----		-----SEC ENG-----	
	WT,LTON	VCG,FT	WT,LTON	VCG,FT
EXH DUCT (TO BOILER/REG)				
EXH BOILER (RACER)				
EXH REGENERATOR				
EXH DUCT (TO STACK)	6.5	56.73		
EXH SILENCER	1.1	32.26		
EXH STACK	.6	98.30		
EXH SPRAY RING	.9	66.76		
EXH EDUCTOR	1.0	96.04		

NOTE - NUMERIC DATA PRESENTED ABOVE ARE ON A PER ENGINE BASIS.

TRUNK AREA AND VOLUME REQUIREMENTS

	-----AREA,FT2----		---VOLUME,FT3----	
ENGINE CATEGORY	HULL	DKHS	HULL	DKHS
MAIN ENGINES	965.7	724.2	8691.	7242.
SECONDARY ENGINES	0.0	0.0	0.	0.
SHIP-SERVICE ENGINES	418.9	261.8	3770.	2618.
TOTALS	1384.6	986.1	12461.	9861.

PRINTED REPORT NO. 9 - PROPELLERS AND SHAFTS

SHAFT SUPPORT TYPE IND-OPEN STRUT
SHAFT SYS SIZE IND-CALC
PROP TYPE IND-CP
PROP DIA, FT 15.03
HUB DIA, FT 4.73
PROP BLADE WT, LTON 6.9
PROP HUB WT, LTON 12.3
BEND STRESS CON FAC 1.700
OVRHG PROP MOM ARM RATIO 0.340
EQUIV FP PROP WT, LTON 15.3
ALLOW BEND STRESS, LBF/IN2 6000.
FATIGUE LIMIT, LBF/IN2 47500.
YIELD POINT, LBF/IN2 75000.
TORQUE MARGIN FAC 1.200
OFF-CENTER THRUST FAC 1.000
NO STRUTS PER SHAFT 2

PORT SHAFT

	PROP SECTION	INTERMED SECTION	LINE SECTION
ANGLE, DEG	1.83	1.83	1.83
LENGTH, FT	12.77	118.37	121.43
DIAMETER, FT	2.06	1.36	1.19
BORE RATIO	.550	.667	.667
WEIGHT, LTON	8.7	28.1	18.4
LCG, FT	597.73	532.19	412.36
TCG, FT	-10.86	-10.86	-10.86
VCG, FT	6.70	8.80	12.63
FACTOR OF SAFETY		2.00	1.75

STBD SHAFT

	PROP SECTION	INTERMED SECTION	LINE SECTION
ANGLE, DEG	1.39	1.39	1.39
LENGTH, FT	12.77	126.87	247.87
DIAMETER, FT	2.06	1.36	1.19
BORE RATIO	.550	.667	.667
WEIGHT, LTON	8.7	30.2	37.5
LCG, FT	597.73	527.93	340.62
TCG, FT	10.86	10.86	10.86
VCG, FT	6.63	8.33	12.88
FACTOR OF SAFETY		2.00	1.75

PRINTED REPORT NO. 14 - PROPULSION PLANT WEIGHT

SWBS	COMPONENT	WT,LTON	LCG,FT	VCG,FT
200	PROPULSION PLANT	1081.6	339.72	16.04
210	ENERGY GENERATING SYSTEM (NUCLEAR)	0.0	0.00	0.00
220	ENERGY GENERATING SYSTEM (NON-NUCLEAR)	0.0	0.00	0.00
230	PROPULSION UNITS	470.6	277.65	13.59
233	PROPULSION INTERNAL COMBUSTION ENGINES	470.6	277.65	13.59

234	PROPULSION GAS TURBINES	0.0	0.00	0.00
235	ELECTRIC PROPULSION	0.0	0.00	0.00
240	TRANSMISSION AND PROPULSOR SYSTEMS	281.3	432.18	11.09
241	PROPULSION REDUCTION GEARS	64.9	277.65	15.42
242	PROPULSION CLUTCHES AND COUPLINGS	0.0	0.00	0.00
243	PROPULSION SHAFTING	131.6	468.52	10.11
244	PROPULSION SHAFT BEARINGS	35.6	421.91	11.41
245	PROPULSORS	49.1	546.46	7.77
250	PRPLN SUPPORT SYS (EXCEPT FUEL+LUBE OIL)	205.6	362.42	31.63
251	COMBUSTION AIR SYSTEM	9.5	277.72	55.38
252	PROPULSION CONTROL SYSTEM	12.6	277.65	40.30
256	CIRCULATING AND COOLING SEA WATER SYSTEM	146.0	396.90	22.32
259	UPTAKES (INNER CASING)	37.5	278.04	58.92
260	PRPLN SUPPORT SYS (FUEL+LUBE OIL)	56.7	271.47	12.22
261	FUEL SERVICE SYSTEM	9.4	246.15	7.59
262	MAIN PROPULSION LUBE OIL SYSTEM	33.8	277.65	12.00
264	LUBE OIL FILL, TRANSFER, AND PURIF	13.5	273.65	16.00
290	SPECIAL PURPOSE SYSTEMS	67.5	375.38	9.46
298	OPERATING FLUIDS	62.9	378.00	8.00
299	REPAIR PARTS AND SPECIAL TOOLS	4.7	340.20	29.14

* DENOTES INCLUSION OF PAYLOAD OR ADJUSTMENTS

PRINTED REPORT NO. 18 - MACHINERY SPACE REQUIREMENTS

MACHINERY ROOM VOLUME REQUIREMENTS

VOLUME CATEGORY	VOLUME, FT3
SWBS GROUP 200	179967.
PROPULSION POWER GENERATION	58600.
PROPULSION ENGINES	48105.
PROPULSION REDUCTION GEARS AND GENERATORS	10495.
DRIVELINE MACHINERY	0.
REDUCTION AND BEVEL GEARS WITH Z-DRIVE	0.
ELECTRIC PROPULSION MOTORS AND GEARS	0.
REMOTELY-LOCATED THRUST BEARINGS	0.
PROPELLER SHAFT	21571.
ELECTRIC PROPULSION MISCELLANEOUS EQUIPMENT	0.
CONTROLS	0.
BRAKING RESISTORS	0.
MOTOR AND GENERATOR EXCITERS	0.
SWITCHGEAR	0.
POWER CONVERTERS	0.
DEIONIZED COOLING WATER SYSTEMS	0.
RECTIFIERS	0.
HELIUM REFRIGERATION SYSTEMS	0.
PROPULSION AUXILIARIES	99796.
PROPULSION LOCAL CONTROL CONSOLES	4690.
CP PROP HYDRAULIC OIL POWER MODULES	4036.
FUEL OIL PUMPS	43253.
LUBE OIL PUMPS	6744.
LUBE OIL PURIFIERS	19888.
ENGINE LUBE OIL CONDITIONERS	1561.
SEAWATER COOLING PUMPS	19623.
SWBS GROUP 300	73892.
ELECTRIC PLANT POWER GENERATION	16535.
ELECTRIC PLANT ENGINES	8592.
ELECTRIC PLANT GENERATORS AND GEARS	7943.
SHIP SERVICE SWITCHBOARDS	57357.
CYCLOCONVERTERS	0.
SWBS GROUP 500	90416.
AUXILIARY MACHINERY	90416.
AIR CONDITIONING PLANTS	10757.
AUXILIARY BOILERS	17775.
FIRE PUMPS	6475.
DISTILLING PLANTS	30154.
AIR COMPRESSORS	20312.
ROLL FIN PAIRS	0.
SEWAGE PLANTS	4942.

ARRANGEABLE AREA REQUIREMENTS

SSCS	GROUP NAME	HULL/DKHS (FT2)	DKHS ONLY (FT2)
4.31	AUXILIARY MACHINERY DELTA	-966.8	0.0
4.3311	SHIP SERVICE POWER GENERATION	0.0	0.0
4.132	INTERNAL COMB ENG COMB AIR	613.2	459.9
4.133	INTERNAL COMB ENG EXHAUST	1384.6	986.1
4.142	GAS TURBINE ENG COMB AIR	0.0	0.0
4.143	GAS TURBINE ENG EXHAUST	0.0	0.0

NOTE: * DENOTES INCLUSION OF PAYLOAD OR ADJUSTMENTS

ASSET/MONOLA VERSION 1.0 - SPACE MODULE - 9/29/94 08.58.47.

PRINTED REPORT NO. 6 - REQUIRED TANKAGE

POLLUTION CNTRL IND-PRESENT

ENDURANCE FUEL, FT3	109139.
AVIATION FUEL, FT3	0.
FRESH WATER, FT3	2752
SEWAGE, FT3	1013.
WASTE OIL WATER, FT3	2183.
CLEAN BALLAST, FT3	30123.
TANKAGE MARGIN, FT3	0.

TANKAGE VOL REQ, FT3	145210.

ASSET/MONOLA VERSION 1.0 - DESIGN SUMMARY - 9/29/94 08.58.51.

PRINTED REPORT NO. 1 - SUMMARY

SHIP COMMENT TABLE

```
 PRINCIPAL CHARACTERISTICS - FT        WEIGHT SUMMARY - LTON
LBP                 630.0    GROUP 1 - HULL STRUCTURE  8229.3
LOA                 653.8    GROUP 2 - PROP PLANT      1322.9
BEAM, DWL            90.0    GROUP 3 - ELECT PLANT      619.8
BEAM, WEATHER DECK  103.7    GROUP 4 - COMM + SURVEIL   169.8
DEPTH @ STA 10       62.0    GROUP 5 - AUX SYSTEMS     1853.4
DRAFT TO KEEL DWL    23.0    GROUP 6 - OUTFIT + FURN   1188.3
DRAFT TO KEEL LWL    23.0    GROUP 7 - ARMAMENT          50.9
FREEBOARD @ STA 3    43.0    ---------------------------------
GMT                   9.1    SUM GROUPS 1-7          13434.4
CP                  0.570    DESIGN MARGIN            1680.9
CX                  0.920    ---------------------------------
                             LIGHTSHIP WEIGHT        15115.4
SPEED(KT): MAX= 25.4  SUST= 23.6    LOADS                4572.9
ENDURANCE: 6000.0 NM AT 16.0 KTS    ---------------------------------
                             FULL LOAD DISPLACEMENT  19688.3
TRANSMISSION TYPE:        MECH    FULL LOAD KG: FT          39.6
MAIN ENG: 4 D DIESEL @ 11700.0 HP
                             MILITARY PAYLOAD WT - LTON   0.0
SHAFT POWER/SHAFT:   22819.4 HP    USABLE FUEL WT - LTON     1130.7
PROPELLERS: 2 - CP  - 15.0 FT DIA
                               AREA SUMMARY - FT2
SEP GEN:  4 F DIESEL @  2000.0 KW    HULL AREA          - 160418.8
                             SUPERSTRUCTURE AREA  -  103963.0
                             ---------------------------------
24 HR LOAD                4637.6    TOTAL AREA            264381.8
MAX MARG ELECT LOAD       14019.9
                               VOLUME SUMMARY  - FT3
      OFF  CPO  ENL    TOTAL    HULL VOLUME          - 2702387.8
MANNING   49   33   386    468    SUPERSTRUCTURE VOLUME - 1036390.8
ACCOM     52   35   418    505    ---------------------------------
                             TOTAL VOLUME          3738778.5
```

ALL OF SHIP 'CMD04' HAS BEEN USED.

ASSET/MONOLA VERSION 1.0 - MACHINERY MODULE - 9/30/94 14.43.16.

PRINTED REPORT NO. 1 - SUMMARY

TRANS TYPE IND	ELECT	MAX SPEED, KT	27.31
ELECT PRPLN TYPE IND	ACC-AC	SUSTN SPEED IND	CALC
SHAFT SUPPORT TYPE IND	POD	SUSTN SPEED, KT	25.46
NO PROP SHAFTS	2.	ENDUR SPEED IND	GIVEN
ENDUR CONFIG IND	NO TS	ENDUR SPEED, KT	16.00
SEC ENG USAGE IND		DESIGN MODE IND	ENDURANCE
MAX MARG ELECT LOAD, KW	13823.	ENDURANCE, NM	6000.
AVG 24 HR ELECT LOAD, KW	4653.	USABLE FUEL WT, LTON	2446.0
SWBS 200 GROUP WT, LTON	914.9	SUSTN SPEED POWER FRAC	0.80
SWBS 300 GROUP WT, LTON	962.8		

ARRANGEMENT OR SS GEN	TYPE	NO INSTALLED	NO ONLINE MAX+SUSTN	NO ONLINE ENDURANCE
ELECT PG ARR 1 IND	M-PG	4	4	2
ELECT PG ARR 2 IND		0	0	0
ELECT DL ARR IND	MTR	2	2	2
SEP SS GEN	2000. KW	2	1	0
VSCF SS CYCLO	1000. KW	4	4	2

	MAIN ENG	SEC ENG	SS ENG
ENG SELECT IND	GIVEN		GIVEN
ENG MODEL IND	GE-LM2500-30		MTU-16V538
ENG TYPE IND	GT		F DIESEL
ENG SIZE IND	GIVEN		GIVEN
NO INSTALLED	4	0	2
ENG PWR AVAIL, HP	26250.	.	3126.
ENG RPM	3600.0		1800.0
ENG SFC, LBM/HP-HR	0.393		.345
ENG LOAD FRAC	1.000		.893

PRINTED REPORT NO. 3 - ENGINES

	MAIN ENG	SEC ENG	SS ENG
ENG SELECT IND	GIVEN		GIVEN
ENG TYPE IND	GT		F DIESEL
ENG MODEL IND	GE-LM2500-30		MTU-16V538
ENG SIZE IND	GIVEN		GIVEN
NO INSTALLED	4	0	2
ENG BARE WT, LTON	3.1		6.6
ENG LENGTH, FT	15.65		10.37
ENG WIDTH, FT	5.20		5.38
ENG HEIGHT, FT	5.20		7.56
ENG PWR AVAIL, HP	26250.	.0	3126.3
ENG RPM	3600.0		1800.0
ENG MASS FL, LBM/SEC	135.5		8.3
ENG EXH TEMP, DEGF	1039.0		943.2
ENG SFC EQN IND	EXPNT		DIESEL
ENG SFC, LBM/HP-HR	0.393		.345

MAX SPEED CONDITION

NO OPERATING	4	0	1
ENG PWR, HP	26250.		4660.2
ENG RPM	3600.0		1800.0
ENG MASS FL, LBM/SEC	135.5		9.6
ENG EXH TEMP, DEGF	1039.0		1119.1
ENG SFC, LBM/HP-HR	.393		.352

SUSTN SPEED CONDITION

NO OPERATING	4	0	1
ENG PWR, HP	21469.		4660.2
ENG RPM	3343.6		1800.0
ENG MASS FL, LBM/SEC	125.4		9.6
ENG EXH TEMP, DEGF	991.1		1119.1
ENG SFC, LBM/HP-HR	.411		.352

ENDUR SPEED CONDITION

ENG ENDUR RPM IND	CALC		
NO OPERATING	2	0	0
ENG PWR, HP	14660.		.0
ENG RPM	2964.6		1800.0
ENG MASS FL, LBM/SEC	108.3		.0
ENG EXH TEMP, DEGF	924.6		
ENG SFC, LBM/HP-HR	.456		

NOTE - ENGINE OPERATING DATA ARE BASED ON USE OF DFM FUEL.

PRINTED REPORT NO. 7 - INTAKE DUCTS

INLET TYPE IND-PLENUM
DUCT SILENCING IND-BOTH
GT ENG ENCL IND-84 DBA

	MAIN ENG	SEC ENG	SS ENG
ENG TYPE	GT	F DIESEL	
INLET DUCT XSECT AREA,FT2	99.6	.0	.0
INLET DUCT XSECT LTH, FT	11.45	.0	.0
INLET DUCT XSECT WID, FT	8.70	.0	.0

MMR1

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
INLET	0.8	88.00		
INLET DUCTING	3.5	54.20		
INLET SILENCER	2.8	40.34		
GT COOLING SUPPLY	3.6	41.85		
GT BLEED AIR SUPPLY	3.9	33.10		

MMR2

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
INLET	0.8	88.00		
INLET DUCTING	3.5	54.20		
INLET SILENCER	2.8	40.34		
GT COOLING SUPPLY	3.6	41.85		
GT BLEED AIR SUPPLY	3.9	33.10		

NOTE - NUMERIC DATA PRESENTED ABOVE ARE ON A PER ENGINE BASIS.

TRUNK AREA AND VOLUME REQUIREMENTS

ENGINE CATEGORY	AREA,FT2 HULL	AREA,FT2 DKHS	VOLUME,FT3 HULL	VOLUME,FT3 DKHS
MAIN ENGINES	1912.8	1434.6	17215.	14346.
SECONDARY ENGINES	0.0	0.0	0.	0.
SHIP-SERVICE ENGINES	0.0	0.0	0.	0.
TOTALS	1912.8	1434.6	17215.	14346.

PRINTED REPORT NO. 8 - EXHAUST DUCTS

EXHAUST IR SUPPRESS IND-PRESENT
DUCT SILENCING IND-BOTH
GT ENG ENCL IND-84 DBA
EXHAUST STACK TEMP, DEGF 350.0
EDUCTOR DESIGN FAC 1.000

	MAIN ENG	SEC ENG	SS ENG
ENG TYPE	GT	F DIESEL	
ENG EXH TEMP, DEG	1039.	905.	
ENG MASS FL, LBM/SEC	135.5	7.9	
EXH DUCT GAS TEMP, DEG	927.	905.	
EXH DUCT GAS DEN, LBM/FT3	0.0282	.0286	
EXH DUCT MASS FL, LBM/SEC	154.5	7.9	
EXH DUCT AREA, FT2	51.0	2.6	

MMR1

	----MAIN ENG-----		-----SEC ENG-----	
	WT,LTON	VCG,FT	WT,LTON	VCG,FT
EXH DUCT (TO BOILER/REG)				
EXH BOILER (RACER)				
EXH REGENERATOR				
EXH DUCT (TO STACK)	15.0	54.20		
EXH SILENCER	11.2	48.67		
EXH STACK	3.0	98.30		
EXH SPRAY RING	1.3	65.73		
EXH EDUCTOR	13.7	101.81		

MMR2

	----MAIN ENG-----		-----SEC ENG-----	
	WT,LTON	VCG,FT	WT,LTON	VCG,FT
EXH DUCT (TO BOILER/REG)				
EXH BOILER (RACER)				
EXH REGENERATOR				
EXH DUCT (TO STACK)	15.0	54.20		
EXH SILENCER	11.2	48.67		
EXH STACK	3.0	98.30		
EXH SPRAY RING	1.3	65.73		
EXH EDUCTOR	13.7	101.81		

NOTE - NUMERIC DATA PRESENTED ABOVE ARE ON A PER ENGINE BASIS.

TRUNK AREA AND VOLUME REQUIREMENTS

	-----AREA,FT2----		---VOLUME,FT3----	
ENGINE CATEGORY	HULL	DKHS	HULL	DKHS
MAIN ENGINES	2528.3	1896.3	22755.	18963.
SECONDARY ENGINES	0.0	0.0	0.	0.
SHIP-SERVICE ENGINES	212.9	133.0	1916.	1330.
TOTALS	2741.2	2029.3	24671.	20293.

PRINTED REPORT NO. 9 - PROPELLERS AND SHAFTS

SHAFT SUPPORT TYPE IND-POD
SHAFT SYS SIZE IND-CALC
PROP TYPE IND-FP

PROP DIA, FT	19.29
HUB DIA, FT	12.85
PROP BLADE WT, LTON	11.6
PROP HUB WT, LTON	15.9
BEND STRESS CON FAC	1.000
OVRHG PROP MOM ARM RATIO	0.340
EQUIV FP PROP WT, LTON	27.4
ALLOW BEND STRESS, LBF/IN2	6000.
FATIGUE LIMIT, LBF/IN2	47500.
YIELD POINT, LBF/IN2	75000.
TORQUE MARGIN FAC	1.200
OFF-CENTER THRUST FAC	1.000
NO STRUTS PER SHAFT	0

PORT SHAFT
==========

	PROP SECTION	INTERMED SECTION	LINE SECTION
ANGLE, DEG	-4.18		
LENGTH, FT	4.82		
DIAMETER, FT	2.19		
BORE RATIO	.550		
WEIGHT, LTON	3.7		
LCG, FT	579.87		
TCG, FT	-14.15		
VCG, FT	1.54		
FACTOR OF SAFETY			

STBD SHAFT
==========

	PROP SECTION	INTERMED SECTION	LINE SECTION
ANGLE, DEG	-4.18		
LENGTH, FT	4.82		
DIAMETER, FT	2.19		
BORE RATIO	.550		
WEIGHT, LTON	3.7		
LCG, FT	579.87		
TCG, FT	14.15		
VCG, FT	1.54		
FACTOR OF SAFETY			

PRINTED REPORT NO. 14 - PROPULSION PLANT WEIGHT

SWBS	COMPONENT	WT,LTON	LCG,FT	VCG,FT
200	PROPULSION PLANT	914.9	392.11	22.12
210	ENERGY GENERATING SYSTEM (NUCLEAR)	0.0	0.00	0.00
220	ENERGY GENERATING SYSTEM (NON-NUCLEAR)	0.0	0.00	0.00
230	PROPULSION UNITS	504.8	425.18	8.21
233	PROPULSION INTERNAL COMBUSTION ENGINES	0.0	0.00	0.00
234	PROPULSION GAS TURBINES	100.1	271.86	12.40
235	ELECTRIC PROPULSION	404.7	463.09	7.17
240	TRANSMISSION AND PROPULSOR SYSTEMS	92.2	578.67	1.45
241	PROPULSION REDUCTION GEARS	0.0	0.00	0.00
242	PROPULSION CLUTCHES AND COUPLINGS	0.0	0.00	0.00
243	PROPULSION SHAFTING	7.4	579.87	1.54
244	PROPULSION SHAFT BEARINGS	29.9	584.11	1.85
245	PROPULSORS	54.9	575.54	1.23
250	PRPLN SUPPORT SYS (EXCEPT FUEL+LUBE OIL)	253.7	278.79	59.60
251	COMBUSTION AIR SYSTEM	58.6	264.30	44.86
252	PROPULSION CONTROL SYSTEM	26.5	271.86	40.30
256	CIRCULATING AND COOLING SEA WATER SYSTEM	4.0	396.90	22.32
259	UPTAKES (INNER CASING)	164.6	282.22	68.85
260	PRPLN SUPPORT SYS (FUEL+LUBE OIL)	33.2	262.11	11.23
261	FUEL SERVICE SYSTEM	9.4	240.36	6.40
262	MAIN PROPULSION LUBE OIL SYSTEM	17.0	271.86	12.00
264	LUBE OIL FILL, TRANSFER, AND PURIF	6.8	267.86	16.00
290	SPECIAL PURPOSE SYSTEMS	31.0	365.21	15.16
298	OPERATING FLUIDS	20.5	378.00	8.00
299	REPAIR PARTS AND SPECIAL TOOLS	10.5	340.20	29.14

* DENOTES INCLUSION OF PAYLOAD OR ADJUSTMENTS

PRINTED REPORT NO. 18 - MACHINERY SPACE REQUIREMENTS

MACHINERY ROOM VOLUME REQUIREMENTS

VOLUME CATEGORY	VOLUME, FT3
SWBS GROUP 200	152946.
PROPULSION POWER GENERATION	54143.
PROPULSION ENGINES	33861.
PROPULSION REDUCTION GEARS AND GENERATORS	20283.
DRIVELINE MACHINERY	0.
REDUCTION AND BEVEL GEARS WITH Z-DRIVE	0.
ELECTRIC PROPULSION MOTORS AND GEARS	0.
REMOTELY-LOCATED THRUST BEARINGS	0.
PROPELLER SHAFT	0.
ELECTRIC PROPULSION MISCELLANEOUS EQUIPMENT	21832.
CONTROLS	2705.
BRAKING RESISTORS	2683.
MOTOR AND GENERATOR EXCITERS	4826.
SWITCHGEAR	2399.
POWER CONVERTERS	4321.
DEIONIZED COOLING WATER SYSTEMS	4898.
RECTIFIERS	0.
HELIUM REFRIGERATION SYSTEMS	0.
PROPULSION AUXILIARIES	76970.
PROPULSION LOCAL CONTROL CONSOLES	4725.
CP PROP HYDRAULIC OIL POWER MODULES	0.
FUEL OIL PUMPS	43571.
LUBE OIL PUMPS	4571.
LUBE OIL PURIFIERS	20034.
ENGINE LUBE OIL CONDITIONERS	1573.
SEAWATER COOLING PUMPS	2496.
SWBS GROUP 300	82303.
ELECTRIC PLANT POWER GENERATION	8630.
ELECTRIC PLANT ENGINES	4659.
ELECTRIC PLANT GENERATORS AND GEARS	3971.
SHIP SERVICE SWITCHBOARDS	70663.
CYCLOCONVERTERS	3010.
SWBS GROUP 500	91081.
AUXILIARY MACHINERY	91081.
AIR CONDITIONING PLANTS	10837.
AUXILIARY BOILERS	17906.
FIRE PUMPS	6522.
DISTILLING PLANTS	30376.
AIR COMPRESSORS	20461.
ROLL FIN PAIRS	0.
SEWAGE PLANTS	4979.

ARRANGEABLE AREA REQUIREMENTS

SSCS	GROUP NAME	HULL/DKHS (FT2)	DKHS ONLY (FT2)
4.31	AUXILIARY MACHINERY DELTA	-6757.7	0.0
4.3311	SHIP SERVICE POWER GENERATION	0.0	0.0
4.132	INTERNAL COMB ENG COMB AIR	0.0	0.0
4.133	INTERNAL COMB ENG EXHAUST	212.9	133.0
4.142	GAS TURBINE ENG COMB AIR	1912.8	1434.6
4.143	GAS TURBINE ENG EXHAUST	2528.3	1896.3

NOTE: * DENOTES INCLUSION OF PAYLOAD OR ADJUSTMENTS

ASSET/MONOLA VERSION 1.0 - SPACE MODULE - 9/30/94 14.43.25.

PRINTED REPORT NO. 6 - REQUIRED TANKAGE

POLLUTION CNTRL IND-PRESENT

ENDURANCE FUEL, FT3	109139.
AVIATION FUEL, FT3	0.
FRESH WATER, FT3	2752.
SEWAGE, FT3	1013.
WASTE OIL WATER, FT3	2183.
CLEAN BALLAST, FT3	30123.
TANKAGE MARGIN, FT3	0.
---	---
TANKAGE VOL REQ, FT3	145210.

ASSET/MONOLA VERSION 1.0 - DESIGN SUMMARY - 9/30/94 14.43.32.

PRINTED REPORT NO. 1 - SUMMARY

SHIP COMMENT TABLE

PRINCIPAL CHARACTERISTICS - FT		WEIGHT SUMMARY - LTON	
LBP	630.0	GROUP 1 - HULL STRUCTURE	8417.7
LOA	653.8	GROUP 2 - PROP PLANT	2261.8
BEAM, DWL	90.0	GROUP 3 - ELECT PLANT	330.9
BEAM, WEATHER DECK	103.4	GROUP 4 - COMM + SURVEIL	169.8
DEPTH @ STA 10	62.0	GROUP 5 - AUX SYSTEMS	1897.6
DRAFT TO KEEL DWL	23.9	GROUP 6 - OUTFIT + FURN	1186.0
DRAFT TO KEEL LWL	23.9	GROUP 7 - ARMAMENT	50.9
FREEBOARD @ STA 3	42.1	---	
GMT	9.0	SUM GROUPS 1-7	14314.7
CP	0.570	DESIGN MARGIN	1791.1
CX	0.910	---	
		LIGHTSHIP WEIGHT	16105.8

SPEED(KT): MAX= 27.3 SUST= 25.5 LOADS 4572.9

ENDURANCE: 6000.0 NM AT 16.0 KTS ---

FULL LOAD DISPLACEMENT 20678.7

TRANSMISSION TYPE: ELECT FULL LOAD KG: FT 38.4

MAIN ENG: 4 GT @ 26250.0 HP

MILITARY PAYLOAD WT - LTON 0.0

SHAFT POWER/SHAFT: 44559.4 HP USABLE FUEL WT - LTON 2446.0

PROPELLERS: 2 - FP - 19.3 FT DIA

AREA SUMMARY - FT2

SEP GEN: 2 F DIESEL @ 2000.0 KW HULL AREA - 154085.6

PD GEN: 4 VSCF @ 1000.0 KW SUPERSTRUCTURE AREA - 103967.1

---

24 HR LOAD 4652.7 TOTAL AREA 258052.6

MAX MARG ELECT LOAD 13823.2

VOLUME SUMMARY - FT3

	OFF	CPO	ENL	TOTAL	HULL VOLUME	- 2669320.0
MANNING	49	33	386	468	SUPERSTRUCTURE VOLUME	- 1036431.0
ACCOM	52	35	418	505	---	
					TOTAL VOLUME	3705751.0

ALL OF SHIP 'CMD04' HAS BEEN USED.

ASSET/MONOLA VERSION 1.0 - MACHINERY MODULE - 9/29/94 11.30.46.

PRINTED REPORT NO. 1 - SUMMARY

TRANS TYPE IND	ELECT	MAX SPEED, KT	29.75
ELECT PRPLN TYPE IND	ACC-AC	SUSTN SPEED IND	CALC
SHAFT SUPPORT TYPE IND	OPEN STRUT	SUSTN SPEED, KT	28.29
NO PROP SHAFTS	2.	ENDUR SPEED IND	GIVEN
ENDUR CONFIG IND	NO TS	ENDUR SPEED, KT	16.00
SEC ENG USAGE IND		DESIGN MODE IND	ENDURANCE
MAX MARG ELECT LOAD, KW	13785.	ENDURANCE, NM	6000.
AVG 24 HR ELECT LOAD, KW	4641.	USABLE FUEL WT, LTON	1859.7
SWBS 200 GROUP WT, LTON	1024.7	SUSTN SPEED POWER FRAC	0.80
SWBS 300 GROUP WT, LTON	957.5		

ARRANGEMENT OR SS GEN	TYPE	NO INSTALLED	NO ONLINE MAX+SUSTN	NO ONLINE ENDURANCE
ELECT PG ARR 1 IND	M-PG	4	4	2
ELECT PG ARR 2 IND		0	0	0
ELECT DL ARR IND	MTR	2	2	2
SEP SS GEN	2000. KW	2	1	0
VSCF SS CYCLO	1000. KW	4	4	2

	MAIN ENG	SEC ENG	SS ENG
ENG SELECT IND	GIVEN		GIVEN
ENG MODEL IND	GE-LM2500-30		MTU-16V538
ENG TYPE IND	GT		F DIESEL
ENG SIZE IND	GIVEN		GIVEN
NO INSTALLED	4	0	2
ENG PWR AVAIL, HP	26250.	.	3126.
ENG RPM	3600.0		1800.0
ENG SFC, LBM/HP-HR	0.393		.345
ENG LOAD FRAC	1.000		.893

PRINTED REPORT NO. 3 - ENGINES

	MAIN ENG	SEC ENG	SS ENG
ENG SELECT IND	GIVEN		GIVEN
ENG TYPE IND	GT		F DIESEL
ENG MODEL IND	GE-LM2500-30		MTU-16V538
ENG SIZE IND	GIVEN		GIVEN
NO INSTALLED	4	0	2
ENG BARE WT, LTON	3.1		6.6
ENG LENGTH, FT	15.65		10.37
ENG WIDTH, FT	5.20		5.38
ENG HEIGHT, FT	5.20		7.56
ENG PWR AVAIL, HP	26250.	.0	3126.3
ENG RPM	3600.0		1800.0
ENG MASS FL, LBM/SEC	135.5		8.3
ENG EXH TEMP, DEGF	1039.0		943.2
ENG SFC EQN IND	EXPNT		DIESEL
ENG SFC, LBM/HP-HR	0.393		.345

MAX SPEED CONDITION

NO OPERATING	4	0	1
ENG PWR, HP	26250.		4648.0
ENG RPM	3600.0		1800.0
ENG MASS FL, LBM/SEC	135.5		9.6
ENG EXH TEMP, DEGF	1039.0		1117.7
ENG SFC, LBM/HP-HR	.393		.352

SUSTN SPEED CONDITION

NO OPERATING	4	0	1
ENG PWR, HP	21468.		4648.0
ENG RPM	3374.5		1800.0
ENG MASS FL, LBM/SEC	125.4		9.6
ENG EXH TEMP, DEGF	991.3		1117.7
ENG SFC, LBM/HP-HR	.412		.352

ENDUR SPEED CONDITION

ENG ENDUR RPM IND	CALC		
NO OPERATING	2	0	0
ENG PWR, HP	9763.		.0
ENG RPM	2588.9		1800.0
ENG MASS FL, LBM/SEC	92.6		.0
ENG EXH TEMP, DEGF	876.8		
ENG SFC, LBM/HP-HR	.521		

NOTE - ENGINE OPERATING DATA ARE BASED ON USE OF DFM FUEL.

PRINTED REPORT NO. 7 - INTAKE DUCTS

INLET TYPE IND-PLENUM
DUCT SILENCING IND-BOTH
GT ENG ENCL IND-84 DBA

	MAIN ENG	SEC ENG	SS ENG
ENG TYPE	GT	F DIESEL	
INLET DUCT XSECT AREA,FT2	99.6	.0	.0
INLET DUCT XSECT LTH, FT	11.45	.0	.0
INLET DUCT XSECT WID, FT	8.70	.0	.0

MMR1

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
INLET	0.8	88.00		
INLET DUCTING	3.5	54.20		
INLET SILENCER	2.8	40.34		
GT COOLING SUPPLY	3.6	41.85		
GT BLEED AIR SUPPLY	3.9	33.10		

MMR2

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
INLET	0.8	88.00		
INLET DUCTING	3.5	54.20		
INLET SILENCER	2.8	40.34		
GT COOLING SUPPLY	3.6	41.85		
GT BLEED AIR SUPPLY	3.9	33.10		

NOTE - NUMERIC DATA PRESENTED ABOVE ARE ON A PER ENGINE BASIS.

TRUNK AREA AND VOLUME REQUIREMENTS

ENGINE CATEGORY	AREA,FT2 HULL	AREA,FT2 DKHS	VOLUME,FT3 HULL	VOLUME,FT3 DKHS
MAIN ENGINES	1912.8	1434.6	17215.	14346.
SECONDARY ENGINES	0.0	0.0	0.	0.
SHIP-SERVICE ENGINES	0.0	0.0	0.	0.
TOTALS	1912.8	1434.6	17215.	14346.

PRINTED REPORT NO. 8 - EXHAUST DUCTS
EXHAUST IR SUPPRESS IND-PRESENT
DUCT SILENCING IND-BOTH
GT ENG ENCL IND-84 DBA
EXHAUST STACK TEMP, DEGF 350.0
EDUCTOR DESIGN FAC 1.000

	MAIN ENG	SEC ENG	SS ENG
ENG TYPE	GT	F DIESEL	
ENG EXH TEMP, DEG	1039.	905.	
ENG MASS FL, LBM/SEC	135.5	7.9	
EXH DUCT GAS TEMP, DEG	927.	905.	
EXH DUCT GAS DEN, LBM/FT3	0.0282	.0286	
EXH DUCT MASS FL, LBM/SEC	154.5	7.9	
EXH DUCT AREA, FT2	51.0	2.6	

MMR1

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
EXH DUCT (TO BOILER/REG)				
EXH BOILER (RACER)				
EXH REGENERATOR				
EXH DUCT (TO STACK)	15.0	54.20		
EXH SILENCER	11.2	48.67		
EXH STACK	3.0	98.30		
EXH SPRAY RING	1.3	65.73		
EXH EDUCTOR	13.7	101.81		

MMR2

	MAIN ENG WT,LTON	MAIN ENG VCG,FT	SEC ENG WT,LTON	SEC ENG VCG,FT
EXH DUCT (TO BOILER/REG)				
EXH BOILER (RACER)				
EXH REGENERATOR				
EXH DUCT (TO STACK)	15.0	54.20		
EXH SILENCER	11.2	48.67		
EXH STACK	3.0	98.30		
EXH SPRAY RING	1.3	65.73		
EXH EDUCTOR	13.7	101.81		

NOTE - NUMERIC DATA PRESENTED ABOVE ARE ON A PER ENGINE BASIS.

TRUNK AREA AND VOLUME REQUIREMENTS

ENGINE CATEGORY	AREA,FT2 HULL	AREA,FT2 DKHS	VOLUME,FT3 HULL	VOLUME,FT3 DKHS
MAIN ENGINES	2528.3	1896.3	22755.	18963.
SECONDARY ENGINES	0.0	0.0	0.	0.
SHIP-SERVICE ENGINES	212.9	133.0	1916.	1330.
TOTALS	2741.2	2029.3	24671.	20293.

PRINTED REPORT NO. 9 - PROPELLERS AND SHAFTS

SHAFT SUPPORT TYPE IND-OPEN STRUT
SHAFT SYS SIZE IND-CALC
PROP TYPE IND-FP

PROP DIA, FT	19.15
HUB DIA, FT	3.66
PROP BLADE WT, LTON	11.4
PROP HUB WT, LTON	15.9
BEND STRESS CON FAC	1.000
OVRHG PROP MOM ARM RATIO	0.340
EQUIV FP PROP WT, LTON	27.3
ALLOW BEND STRESS, LBF/IN2	6000.
FATIGUE LIMIT, LBF/IN2	47500.
YIELD POINT, LBF/IN2	75000.
TORQUE MARGIN FAC	1.200
OFF-CENTER THRUST FAC	1.000
NO STRUTS PER SHAFT	2

PORT SHAFT

	PROP SECTION	INTERMED SECTION	LINE SECTION
ANGLE, DEG	3.54	3.54	3.54
LENGTH, FT	16.28	108.73	23.69
DIAMETER, FT	2.18	1.68	1.48
BORE RATIO	.550	.667	.667
WEIGHT, LTON	12.4	39.4	5.6
LCG, FT	592.73	530.34	464.25
TCG, FT	-14.02	-14.02	-14.02
VCG, FT	4.90	8.76	12.85
FACTOR OF SAFETY		2.00	1.75

STBD SHAFT

	PROP SECTION	INTERMED SECTION	LINE SECTION
ANGLE, DEG	3.54	3.54	3.54
LENGTH, FT	16.28	108.73	23.69
DIAMETER, FT	2.18	1.68	1.48
BORE RATIO	.550	.667	.667
WEIGHT, LTON	12.4	39.4	5.6
LCG, FT	592.73	530.34	464.25
TCG, FT	14.02	14.02	14.02
VCG, FT	4.90	8.76	12.85
FACTOR OF SAFETY		2.00	1.75

PRINTED REPORT NO. 14 - PROPULSION PLANT WEIGHT

SWBS	COMPONENT	WT,LTON	LCG,FT	VCG,FT
200	PROPULSION PLANT	1024.7	374.24	23.55
210	ENERGY GENERATING SYSTEM (NUCLEAR)	0.0	0.00	0.00
220	ENERGY GENERATING SYSTEM (NON-NUCLEAR)	0.0	0.00	0.00
230	PROPULSION UNITS	490.0	355.90	13.21
233	PROPULSION INTERNAL COMBUSTION ENGINES	0.0	0.00	0.00
234	PROPULSION GAS TURBINES	100.1	271.86	12.40
235	ELECTRIC PROPULSION	389.9	377.47	13.42
240	TRANSMISSION AND PROPULSOR SYSTEMS	216.8	545.89	7.80
241	PROPULSION REDUCTION GEARS	0.0	0.00	0.00
242	PROPULSION CLUTCHES AND COUPLINGS	0.0	0.00	0.00
243	PROPULSION SHAFTING	115.0	537.40	8.32
244	PROPULSION SHAFT BEARINGS	47.1	498.82	10.71
245	PROPULSORS	54.7	604.29	4.19
250	PRPLN SUPPORT SYS (EXCEPT FUEL+LUBE OIL)	253.7	278.79	59.59
251	COMBUSTION AIR SYSTEM	58.6	264.30	44.86
252	PROPULSION CONTROL SYSTEM	26.5	271.86	40.30
256	CIRCULATING AND COOLING SEA WATER SYSTEM	4.0	396.90	22.32
259	UPTAKES (INNER CASING)	164.6	282.22	68.85
260	PRPLN SUPPORT SYS (FUEL+LUBE OIL)	33.2	262.11	11.23
261	FUEL SERVICE SYSTEM	9.4	240.36	6.40
262	MAIN PROPULSION LUBE OIL SYSTEM	17.0	271.86	12.00
264	LUBE OIL FILL, TRANSFER, AND PURIF	6.8	267.86	16.00
290	SPECIAL PURPOSE SYSTEMS	31.0	365.21	15.16
298	OPERATING FLUIDS	20.5	378.00	8.00
299	REPAIR PARTS AND SPECIAL TOOLS	10.5	340.20	29.14

* DENOTES INCLUSION OF PAYLOAD OR ADJUSTMENTS

PRINTED REPORT NO. 18 - MACHINERY SPACE REQUIREMENTS

MACHINERY ROOM VOLUME REQUIREMENTS

VOLUME CATEGORY	VOLUME, FT3
SWBS GROUP 200	176026.
PROPULSION POWER GENERATION	54143.
PROPULSION ENGINES	33861.
PROPULSION REDUCTION GEARS AND GENERATORS	20283.
DRIVELINE MACHINERY	17726.
REDUCTION AND BEVEL GEARS WITH Z-DRIVE	0.
ELECTRIC PROPULSION MOTORS AND GEARS	17726.
REMOTELY-LOCATED THRUST BEARINGS	0.
PROPELLER SHAFT	5072.
ELECTRIC PROPULSION MISCELLANEOUS EQUIPMENT	21894.
CONTROLS	2713.
BRAKING RESISTORS	2691.
MOTOR AND GENERATOR EXCITERS	4840.
SWITCHGEAR	2406.
POWER CONVERTERS	4333.
DEIONIZED COOLING WATER SYSTEMS	4912.
RECTIFIERS	0.
HELIUM REFRIGERATION SYSTEMS	0.
PROPULSION AUXILIARIES	77190.
PROPULSION LOCAL CONTROL CONSOLES	4738.
CP PROP HYDRAULIC OIL POWER MODULES	0.
FUEL OIL PUMPS	43696.
LUBE OIL PUMPS	4584.
LUBE OIL PURIFIERS	20091.
ENGINE LUBE OIL CONDITIONERS	1577.
SEAWATER COOLING PUMPS	2503.
SWBS GROUP 300	82419.
ELECTRIC PLANT POWER GENERATION	8630.
ELECTRIC PLANT ENGINES	4659.
ELECTRIC PLANT GENERATORS AND GEARS	3971.
SHIP SERVICE SWITCHBOARDS	70770.
CYCLOCONVERTERS	3019.
SWBS GROUP 500	91341.
AUXILIARY MACHINERY	91341.
AIR CONDITIONING PLANTS	10868.
AUXILIARY BOILERS	17957.
FIRE PUMPS	6541.
DISTILLING PLANTS	30463.
AIR COMPRESSORS	20520.
ROLL FIN PAIRS	0.
SEWAGE PLANTS	4993.

ARRANGEABLE AREA REQUIREMENTS

SSCS	GROUP NAME	HULL/DKHS (FT2)	DKHS ONLY (FT2)
4.31	AUXILIARY MACHINERY DELTA	-4906.3	0.0
4.3311	SHIP SERVICE POWER GENERATION	0.0	0.0
4.132	INTERNAL COMB ENG COMB AIR	0.0	0.0
4.133	INTERNAL COMB ENG EXHAUST	212.9	133.0
4.142	GAS TURBINE ENG COMB AIR	1912.8	1434.6
4.143	GAS TURBINE ENG EXHAUST	2528.3	1896.3

NOTE: * DENOTES INCLUSION OF PAYLOAD OR ADJUSTMENTS

ASSET/MONOLA VERSION 1.0 - SPACE MODULE - 9/29/94 11.30.57.

PRINTED REPORT NO. 6 - REQUIRED TANKAGE

POLLUTION CNTRL IND-PRESENT

ENDURANCE FUEL, FT3	109139.
AVIATION FUEL, FT3	0.
FRESH WATER, FT3	2752.
SEWAGE, FT3	1013.
WASTE OIL WATER, FT3	2183.
CLEAN BALLAST, FT3	30123.
TANKAGE MARGIN, FT3	0.
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TANKAGE VOL REQ, FT3	145210.

ASSET/MONOLA VERSION 1.0 - DESIGN SUMMARY - 9/29/94 11.31.03.

PRINTED REPORT NO. 1 - SUMMARY

SHIP COMMENT TABLE

PRINCIPAL CHARACTERISTICS - FT		WEIGHT SUMMARY - LTON	
LBP	630.0	GROUP 1 - HULL STRUCTURE	8417.8
LOA	653.8	GROUP 2 - PROP PLANT	2261.8
BEAM, DWL	90.0	GROUP 3 - ELECT PLANT	330.9
BEAM, WEATHER DECK	103.2	GROUP 4 - COMM + SURVEIL	169.8
DEPTH @ STA 10	62.0	GROUP 5 - AUX SYSTEMS	1899.3
DRAFT TO KEEL DWL	24.4	GROUP 6 - OUTFIT + FURN	1185.2
DRAFT TO KEEL LWL	24.4	GROUP 7 - ARMAMENT	50.9
FREEBOARD @ STA 3	41.6	---	
GMT	9.5	SUM GROUPS 1-7	14315.6
CP	0.570	DESIGN MARGIN	1791.2
CX	0.910	---	
		LIGHTSHIP WEIGHT	16106.8

SPEED(KT): MAX= 29.7 SUST= 28.3 LOADS 4572.9

ENDURANCE: 6000.0 NM AT 16.0 KTS ---

FULL LOAD DISPLACEMENT 20679.7

TRANSMISSION TYPE: ELECT FULL LOAD KG: FT 38.4

MAIN ENG: 4 GT @ 26250.0 HP

MILITARY PAYLOAD WT - LTON 0.0

SHAFT POWER/SHAFT: 44570.8 HP USABLE FUEL WT - LTON 1859.7

PROPELLERS: 2 - FP - 19.2 FT DIA

AREA SUMMARY - FT2

SEP GEN: 2 F DIESEL @ 2000.0 KW HULL AREA - 153094.7

PD GEN: 4 VSCF @ 1000.0 KW SUPERSTRUCTURE AREA - 103967.0

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24 HR LOAD 4641.1 TOTAL AREA 257061.8

MAX MARG ELECT LOAD 13784.8

VOLUME SUMMARY - FT3

	OFF	CPO	ENL	TOTAL		
MANNING	49	33	386	468	HULL VOLUME	- 2657103.8
ACCOM	52	35	418	505	SUPERSTRUCTURE VOLUME	- 1036430.8

					TOTAL VOLUME	3693534.5

ALL OF SHIP 'CMD02' HAS BEEN USED.

ASSET/MONOLA VERSION 1.0 - MACHINERY MODULE - 9/29/94 08.58.02.

PRINTED REPORT NO. 1 - SUMMARY

TRANS TYPE IND	MECH	MAX SPEED, KT	30.22
ELECT PRPLN TYPE IND		SUSTN SPEED IND	CALC
SHAFT SUPPORT TYPE IND	OPEN STRUT	SUSTN SPEED, KT	28.84
NO PROP SHAFTS	2.	ENDUR SPEED IND	GIVEN
ENDUR CONFIG IND	NO TS	ENDUR SPEED, KT	16.00
SEC ENG USAGE IND		DESIGN MODE IND	ENDURANCE
MAX MARG ELECT LOAD, KW	14115.	ENDURANCE, NM	6000.
AVG 24 HR ELECT LOAD, KW	4748.	USABLE FUEL WT, LTON	1900.0
SWBS 200 GROUP WT, LTON	1037.5	SUSTN SPEED POWER FRAC	0.80
SWBS 300 GROUP WT, LTON	1019.6		

ARRANGEMENT OR SS GEN	TYPE	NO INSTALLED	NO ONLINE MAX+SUSTN	NO ONLINE ENDURANCE
MECH PORT ARR IND	M2-LTDR	1	1	1
MECH STBD ARR IND	M2-LTDR	1	1	1
SEP SS GEN	2000. KW	4	3	2
VSCF SS CYCLO KW		0	0	0

	MAIN ENG	SEC ENG	SS ENG
ENG SELECT IND	GIVEN		GIVEN
ENG MODEL IND	GE-LM2500-30	MTU-16V538	
ENG TYPE IND	GT		F DIESEL
ENG SIZE IND	GIVEN	CALC	
NO INSTALLED	4	0	4
ENG PWR AVAIL, HP	26250.	.	2791.
ENG RPM	3600.0	1800.0	
ENG SFC, LBM/HP-HR	0.393		.349
ENG LOAD FRAC	1.000		1.000