APPENDIX C

MEDIUM CMD ASSET DATA

ALL OF SHIP 'CMD04' HAS BEEN USED.

ASSET/MONOLA VERSION 1.0 - DESIGN SUMMARY - 9/16/94 12.25.18.

PRINTED REPORT NO. 1 - SUMMARY

SHIP COMMENT TABLE

PRINCIPAL CHARACTERISTICS - FT		WEIGHT SUMMARY - LTON	
LBP	600.0	GROUP 1 - HULL STRUCTURE	7649.2
LOA	619.7	GROUP 2 - PROP PLANT	1818.2
BEAM, DWL	90.0	GROUP 3 - ELECT PLANT	611.2
BEAM, WEATHER DECK	90.0	GROUP 4 - COMM + SURVEIL	164.3
DEPTH @ STA 10	62.0	GROUP 5 - AUX SYSTEMS	1786.5
DRAFT TO KEEL DWL	23.8	GROUP 6 - OUTFIT + FURN	1106.7
DRAFT TO KEEL LWL	23.8	GROUP 7 - ARMAMENT	50.9
FREEBOARD @ STA 3	42.2	---	
GMT	9.6	SUM GROUPS 1-7	13187.1
CP	0.570	DESIGN MARGIN	1650.0
CX	0.920	---	
		LIGHTSHIP WEIGHT	14837.1

SPEED(KT): MAX= 27.6 SUST= 26.0 LOADS 4572.9

ENDURANCE: 6000.0 NM AT 16.0 KTS ---

FULL LOAD DISPLACEMENT 19410.0

TRANSMISSION TYPE: MECH FULL LOAD KG: FT 37.0

MAIN ENG: 4 GT @ 18200.0 HP

MILITARY PAYLOAD WT - LTON 0.0

SHAFT POWER/SHAFT: 35496.9 HP USABLE FUEL WT - LTON 1742.0

PROPELLERS: 2 - CP - 17.9 FT DIA

AREA SUMMARY - FT2

SEP GEN: 4 F DIESEL @ 2000.0 KW HULL AREA - 142307.8

SUPERSTRUCTURE AREA - 72956.1

---

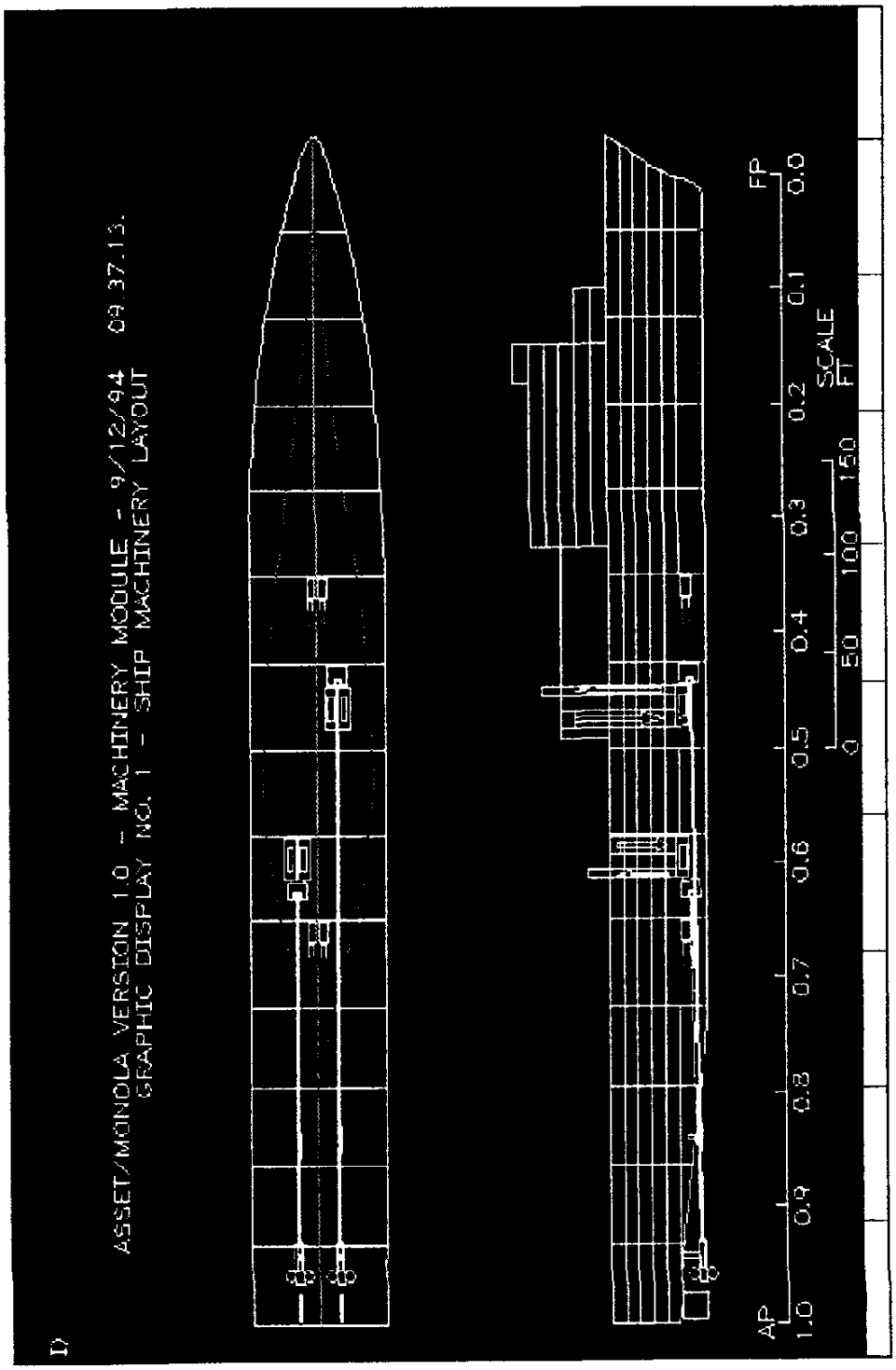
24 HR LOAD 4015.6 TOTAL AREA 215263.9

MAX MARG ELECT LOAD 11946.3

VOLUME SUMMARY - FT3

	OFF	CPO	ENL	TOTAL		
MANNING	49	33	386	468	HULL VOLUME	- 2407628.8
ACCOM	52	35	418	505	SUPERSTRUCTURE VOLUME	- 729561.1

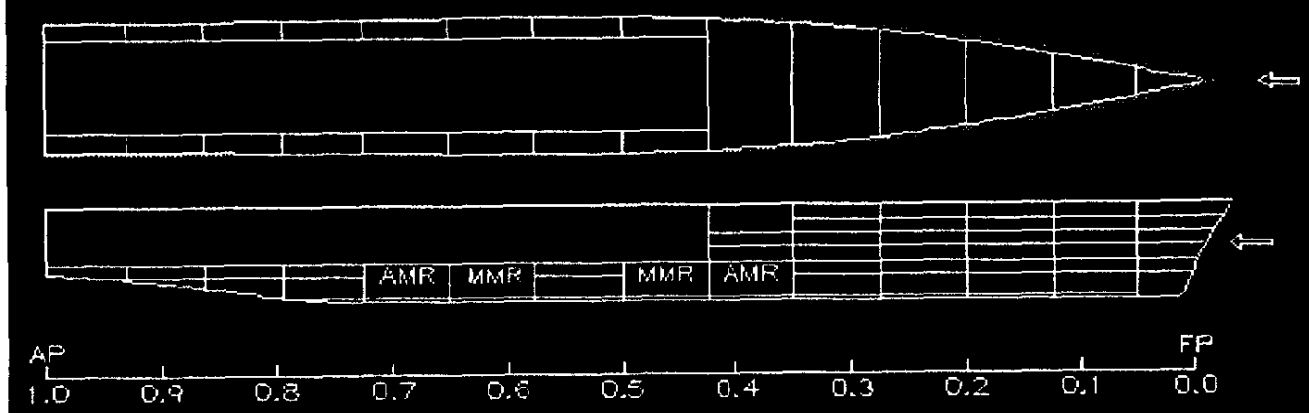
					TOTAL VOLUME	3137189.8


ASSET/MONOLA VERSION 1.0 - MACHINERY MODULE - 9/12/94 09:37:13.
GRAPHIC DISPLAY NO. 1 - SHIP MACHINERY LAYOUT
AP
FP
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
SCALE
FT
0
50
100
150

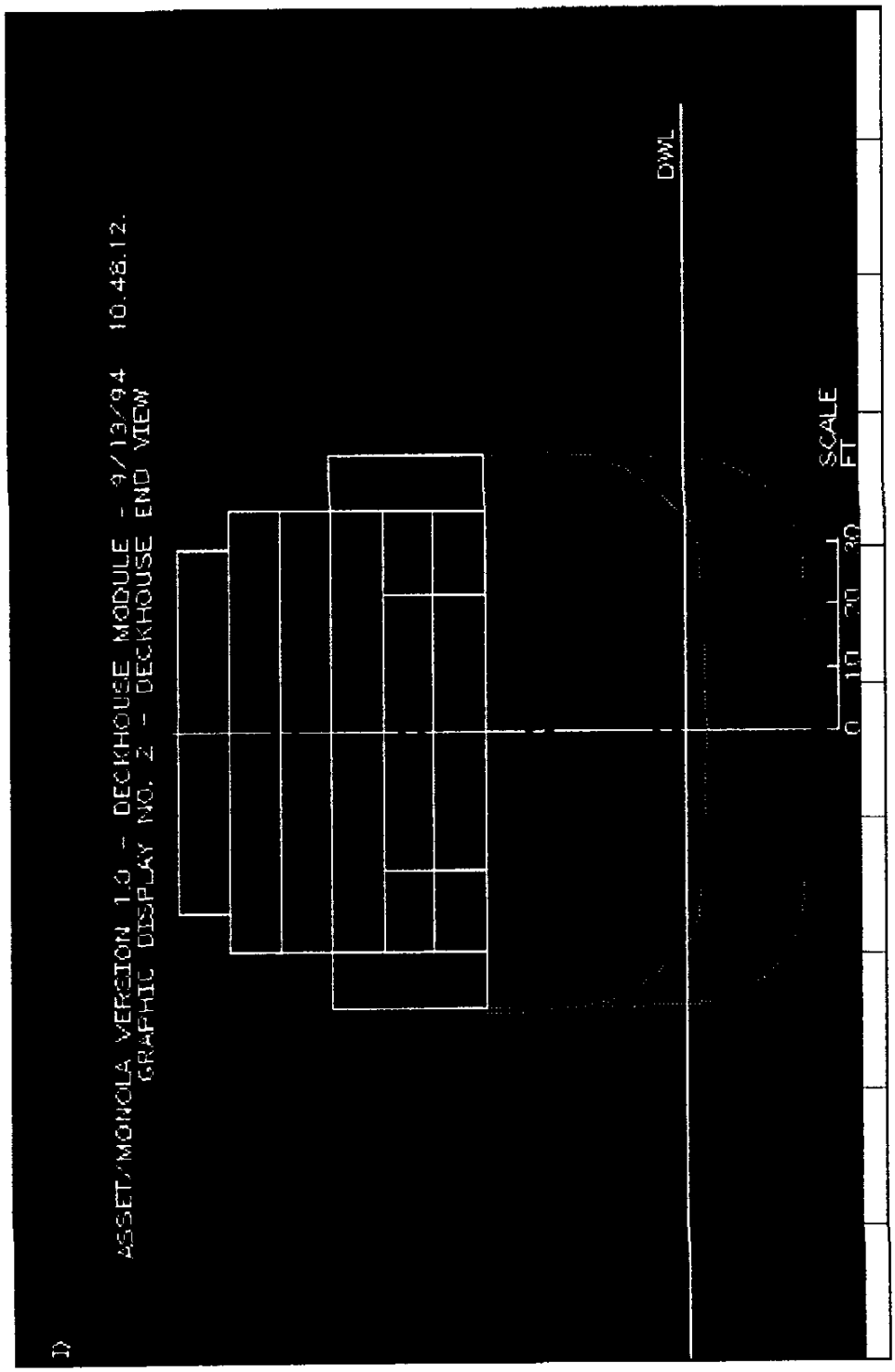
I)

ASSET/MONOLA VERSION 1.0 - HULL SUBDIV MODULE - 9/12/94 09.39.49.
GRAPHIC DISPLAY NO. 4 - HULL DECKS AND PLATFORMS
2ND DECK
(DECK NO. 4)

TOTAL DECK AREA, FT2	43035.6
LOST MR AREA, FT2	0.0
LOST LG OBJ AREA, FT2	-20700.0
AVL ARR AREA, FT2	22335.6

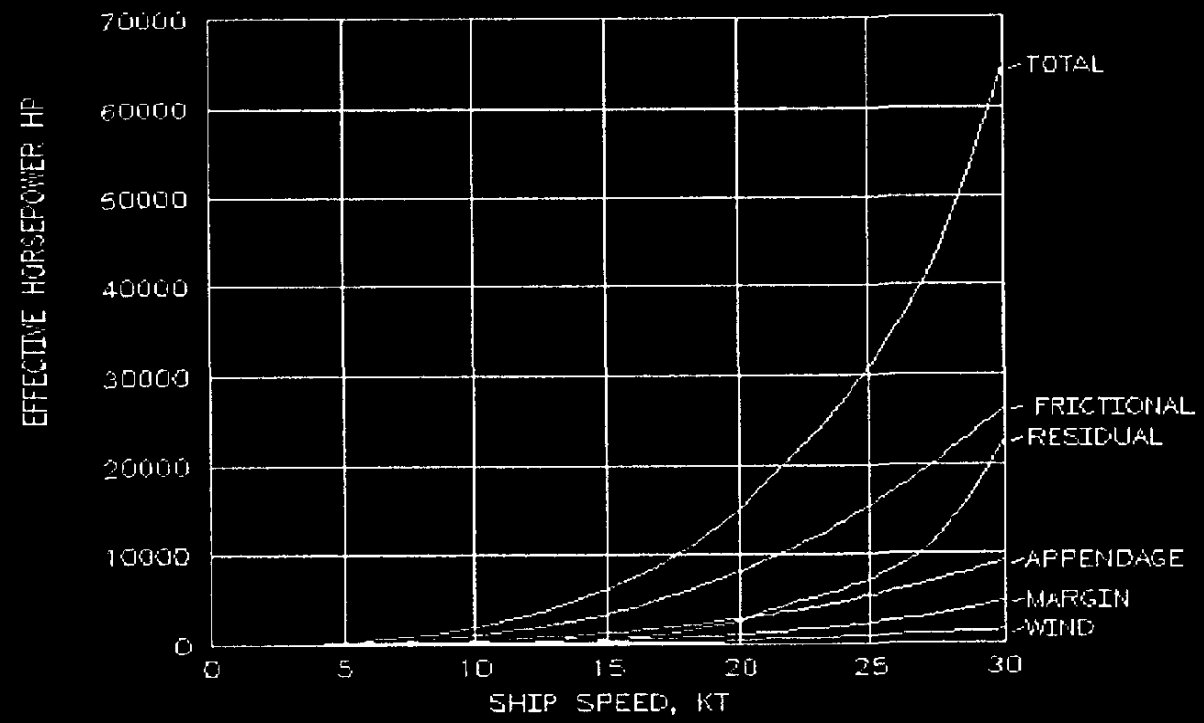


ASSET/MONOLA VERSION 1.0 - HULL GEOM MODULE - 9/13/94 10:46:29.
GRAPHIC DISPLAY NO. 1 - BODY PLAN
DWL
BL
SCALE
FT
0
10
20
30


ASSET/MORGOLA VERSION 1.0 - DECKHOUSE MODULE - 9/13/94 10.48.12.
GRAPHIC DISPLAY NO. 2 - DECKHOUSE END VIEW
DWL
SCALE
FT
0
10
20
30

I)

ASSET/MONOLA VERSION 1.0 - RESISTANCE MODULE - 9/13/94 10.49.11.
GRAPHIC DISPLAY NO. 2 - EHP VERSUS SPEED



DISPLACEMENT = 18338 LTON

AIRCRAFT PAYLOAD MODEL 08-24-1994

TYPE AND NUMBER OF AIRCRAFT

CH-53D PROVISIONS FOR 2 SORTIES/DAY, 7 DAYS OF OPERATION

PROVISIONS EXPENDITURE FACTOR = .2
NUMBER OF CRANES = 1
NUMBER OF ELEVATORS = 0
NUMBER OF WIRES FOR ARRESTING GEAR = 0
NUMBER OF STEAM CATAPULTS = 0
FIN STABILIZERS = NO
HAUL DOWN SYSTEM = NO
SKI JUMP = NO
NUMBER OF SORTIES FOR EACH DAY = 0
NUMBER OF DAYS FOR DEPLOYMENT = 0
LENGTH OF LANDING DECK IN FEET = 300
WIDTH OF LANDING DECK IN FEET = 80
LENGTH OF TAKEOFF DECK IN FEET = 300
WIDTH OF TAKEOFF DECK IN FEET = 80
SAME DECK FOR TAKEOFFS AND LANDINGS
LANDING DECK/TAKEOFF DECK CONSTRUCTION AND MATERIALS = MILD STEEL
HANGER LOCATION IS ON DECK
HANGER CONSTRUCTION MATERIAL IS MILD STEEL

PROVISIONS MADE FOR THE FOLLOWING AIRCRAFT LOADS:

MAINTENANCE LEVEL I FOR HANGAR AREA
HANGAR LOCATION IS ON DECK
HANGAR CONSTRUCTION MATERIAL IS MILD STEEL
PERCENTAGE OF AIRCRAFT IN HANGAR = 50 %
LEADING TO 6491.654 SQFT HANGAR AREA
NUMBER OF CRANES = 1

WEIGHT SWBS	DESCRIPTION		WEIGHT, LT
42313	TACAN	=	0.55
4272	NAVIGATION ALIGNMENT SYSTEM	=	1.00
454	AIRCRAFT CONTROL APPROACH RADAR	=	11.46
492	FLIGHT CONTROL & INST. LANDING	=	6.00
533	GAS SYSTEM	=	0.00
542	JP-5 SYSTEMS	=	6.00
586	CRANE (AC & BOAT)	=	67.00
588	AIRCRAFT HANDLING SERVICE, STOWG	=	168.55
661	OFFICES	=	7.00
665	WORKSHOPS	=	22.50
672	STOREROOMS	=	16.00
782	WEAPONS HANDLING	=	0.86
783	WEAPONS STOWAGE	=	15.64
792	SPECIAL WEAPONS HANDLING/STOWAGE	=	0.00

****** AIRCRAFT SYSTEM (NO LOADS) ******

TOTAL WEIGHT OF AIRCRAFT SYSTEM IN TONS = 2524.61

```
    ****** MANNING ******
F16   NUMBER OF OFFICERS      =  7
F16   NUMBER OF CPO'S         =  4
F16   NUMBER OF ENLISTED MEN  =  22


AREA SWBS        DESCRIPTION                        AREA, SQFT
     1.32     AVIATION CONTROL AREA                =   620.00
        1.3233  AVIATION PLAN & READY ROOM          =   620.00

     1.35     AVIATION ADMINISTRATION AREA         =   638.00
        1.351   AIR INTERMEDIATE MAINTENANCE DEPT =   398.11
        1.352   AIR DEPARTMENT                      =    19.14
        1.353   AIR WING (SQUADRON OFFICES)         =   220.75

     1.36     AVIATION MAINTENANCE AREA            =  1928.00
        1.361   AIRFRAME                            =   158.10
        1.362   AVIONICS MAINTENANCE AREA           =   848.32
        1.3642  AVIATION JET MAINTENANCE SHOP       =   198.58
        1.3649  AVIATION FUEL MAINTENANCE AREA      =    13.50
        1.365   SURVIVAL EQUIPMENT                  =    75.19
        1.367   GROUND SUPPORT EQUIPMENT            =   113.75
        1.369   ORGANIZATIONAL LEVEL FACILITIES     =   518.63

     1.38     AVIATION FUEL SYSTEM AREA            =   444.00

     1.39     AVIATION STORES AREA                 =   185.00
        1.3912  SD SR (AVIATION)                    =     5.37
        1.3921  AIRFRAME                            =    68.82
        1.3922  AVIONICS                            =    30.53
        1.3923  ORDNANCE                            =     4.26
        1.3924  POWERPLANT                          =    19.98
        1.394   FLIGHT CLOTHING                     =    49.95
        1.397   SQUADRON                            =     6.11

  TAL AREA OF AIRCRAFT SYSTEM IN SQUARE FEET  =  3867

                 ****** LOADS ******
F22      WEIGHT ORDNANCE LOAD IN TONS                = 0
F22      VOLUME ORDNANCE LOAD IN CUBIC FEET          = 0
F22      MAGAZINE ORDNANCE AREA IN SQUARE FEET       = 0
F23      AIRCRAFT WEIGHT, TONS                       = 63.16072
F26      AIRCRAFT SPARES WEIGHT, TONS                = 25.26429
F29      SPECIAL LOADS WGT (SONOBOUYS,PODS), TONS    = 0
F29      SPECIAL LOADS VOL, CUBIC FEET               = 0
F42      JP-5 LOAD WEIGHT, TONS                      = 224.25
F42      JP-5 VOLUME, CUBIC FEET                     = 10062.5
TOTAL AIRCRAFT LOADS WEIGHT IN TONS        =  287.4107
TOTAL AIRCRAFT LOADS VOLUME IN CUBIC FEET =  10062.5
```

SHIP TYPE -
..D MEDIUM VARIANT - CRP, MECHANICAL

SEE PAGE 2 FOR LIST OF TECHNOLOGIES INCORPORATED

MAIN ENGINES - 3 LM2500-30 GAS TURBINES
VERTICALLY MOUNTED EXHAUST WITH STACK
MECHANICAL TRANSMISSION
GENERATOR TYPE - LM500
STEEL SUPERSTRUCTURE
COMPENSATED FUEL SYSTEM

WEIGHT IN LONG TONS		VOLUME IN CUBIC FEET	
SHIP DISPLACEMENT	20900.43	SHIP VOLUME	3100287.00
HULL WEIGHT	9832.61	PROPULSION VOLUME	129843.40
SURVIVABILITY WEIGHT	25.50	ELECTRICAL VOLUME	71100.00
PROPULSION WEIGHT	482.00	PAYLOAD VOLUME	1458742.00
ELECTRICAL WEIGHT	524.44	AUXILIARY VOLUME	464729.20
PAYLOAD WEIGHT	4101.61	PERSONNEL VOLUME	296931.30
AUXILIARY WEIGHT	1702.03	REDUNDANCY VOLUME	0.00
OUTFITTNG WEIGHT	1204.66	OFFICES/SHOPS VOLUME	557675.00
REDUNDANCY WEIGHT	0.00	LOADS VOLUME	15685.15
FUEL WEIGHT	1704.04	FUEL VOLUME	74598.41
LOADS WEIGHT	731.47	MARGINS VOLUME	0.00
MARGINS WEIGHT	592.07		

POWER PLANT PARAMETERS		SHIP CHARACTERISTICS	
CRUISE BHP	10680.41	CREW SIZE	431.90
SUSTAINED BHP	60051.25	ACCOMMODATIONS	475.09
MAXIMUM BHP	74469.49	SHIP LENGTH FEET	677.74
INSTALLED BHP	75000.00	SHIP BEAM FEET	92.33
NO OF ENGINES	3	SHIP DRAFT FT	18.47
PROPULSION SFC	0.65	METACENTRIC HEIGHT FT	45.54
SUSTAINED SPEED KTS	26.27	CENTER OF GRAVITY FT	38.66
MAXIMUM SPEED KTS	27.81	GM INTACT STABILITY FT	6.88
CRUISE SPEED KNOTS	16.00	RANGE N.MI.	6000.00
MIN SUSTAINED SPEED KNO	24.00		
INSTALLED ELECTRIC KW	9000.00		
CRUISE ELECTRIC LOAD	3464.28		
NO OF GENERATORS	3		
GENERATOR SFC	0.82		

RANGE IN MILES		COST IN MILLIONS OF DOLLARS	
UNDERWATER NOISE RANGE	66.00	AVERAGE FIRST COST	560.32
IR DETECTION RANGE	4.59	O&S COST PER YEAR	30.57
RADAR DETECTION RANGE	250.00		

(SEE PAGE 2 FOR LIST OF TECHNOLOGIES INCORPORATED)

COMBAT PAYLOAD		SURVIVABILITY PARAMETERS	
CU FT OF CARGO	25000	ARRANGEMENT FACTOR	1.00
RADAR SELECTION	MK 49(MOD)	NBC PROTECTION IN %	0.50
MISSILES	NO MISSILES	SHOCK RESILENCE FACTOR	1.00
TONS OF FUEL	1000 (300000 G)	RCS REDUCTION IN DB	10.00
LANDING CRAFT	4 LCACS	STACK EDUCTORS	YES
COMM. & CONTROL	LVL II (50 MEN)	REDUNDANCY WEIGHT-AUX	0.00
GUNS	NO GUNS	REDUNDANCY WEIGHT-COMBAT	0.00
SMALL AAW MISSILES	48	REDUNDANCY VOLUME-AUX	0.00
CIWS	2	REDUNDANCY VOLUME-COMBAT	0.00
CARGO ELEVATORS	1	REDUNDANCY COST-AUX	0.00
TROOPS	200	REDUNDANCY COST-COMBAT	0.00
VEHICLES	0	NO OF RAM PANELS	15.00
HOSPITAL BEDS	0	NO OF KEVLAR ARMOR PANELS	0.00
TONS OF FUEL	1000 (300000	NO OF STEEL ARMOR PANELS	0.00
		NO OF ALUMINUM ARMOR PANEL	0.00
		PANEL WIDTHS	25.00
		STEEL ARMOR THICKNESS	0.07
		ALUMINUM ARMOR THICKNESS	0.00

***** MEASURES OF DESIGN EFFECTIVENESS *****
PAYLOAD/TOTAL SHIP COST RATIO = .1982806
MISSILES/$M = 0
LIFE CYCLE COST RATIO = ACQ.COST / (40 x O&S COST) = .4582927

COMBINATION OF TECHNOLOGIES
5-01 IR INSULATION
5-02 RCS REDUCTION - SLOPING SIDES + RAM
5-04 URN REDUCTION
5-06 EDUCTORS
9-04 BOW AND STERN BULB

SHIP MANNING MODEL

EXECUTIVE OFFICER MANNING	4
NAVIGATION OFFICER MANNING	8
OPERATIONS OFFICER MANNING	4
COMBAT SYSTEMS OFFICER MANNING	2
ENGINEERING OFFICER MANNING	6
SUPPLY OFFICER MANNING	6
AVIATIONS OFFICER MANNING	7
EXECUTIVE ENLISTED MAN MANNING	16
NAVIGATION ENLISTED MAN MANNING	42
OPERATIONS ENLISTED MAN MANNING	45
COMBAT SYSTEMS ENLISTED MAN MANNING	29
ENGINEERING ENLISTED MAN MANNING	116
SUPPLY ENLISTED MAN MANNING	85
AVIATION ENLISTED MAN MANNING	26

NUMBER OF OFFICERS OF = 37
NUMBER OF ENLISTED MEN EM = 359
TOTAL MANNING NC = 431.9

SHIP PROPULSION DATA

PROPELLER EFFICIENCY	NO = .6471406
SHAFT HORSEPOWER	SHP = 88709.72
NO. OF PROPELLERS	NPP = 2
PROPELLER RPM	RPM = 102.1694
PROPELLER DIAMETER FT	DP = 24.99379

THESE RESULTS AT 28 KTS

COMMERCIAL COST OF AMPHIB SHIP

4TH SHIP COSTS . . .

	MATERIALS	LABOR HRS
HULL	1.647862E+07	629798.5
PROPULSION	2.704944E+07	51645.56
ELECTRICAL	7436049	748266.1
AUXILIARIES	3.532235E+07	477828.2
OUTFITTING	1.617927E+07	204598.2
SURVIVABILITY	0	0
WEAPONS/COMBAT SYS		303518.8
ENGINEERING		289139.6
SHIP ASSMBLY		1600000
SUBTOTAL	1.079326E+08	4314995
x PROFITS, FEE, ETC	x 1.18877	x 1.18877
x LABOR COST		x 25.2
+ WEAPONS/COMBAT SYS	8.059375E+07	
TOTALS =	2.089007E+08	1.292643E+08

TOTAL COMMERCIAL COST = $ 3.381651E+08

AVERAGE TOTAL COMMERCIAL COST = $ 417.9809