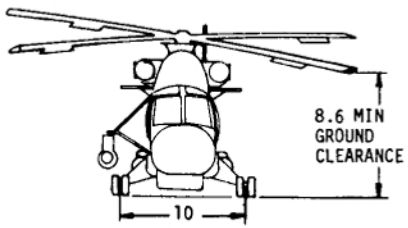
STANDARD AIRCRAFT CHARACTERISTICS

SH-2F "SEASPRITE"

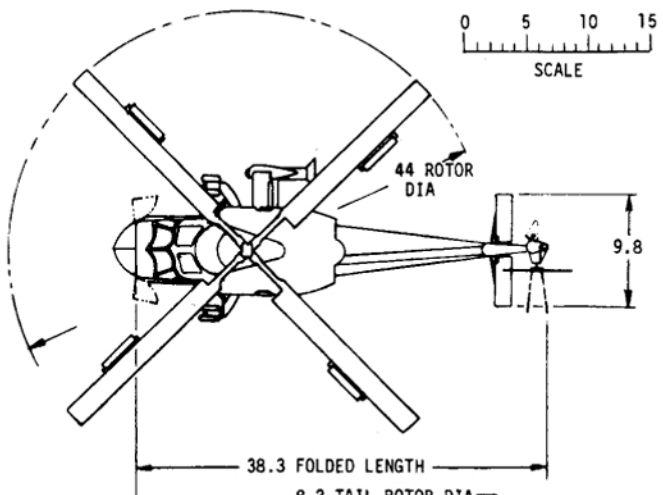
KAMAN

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT



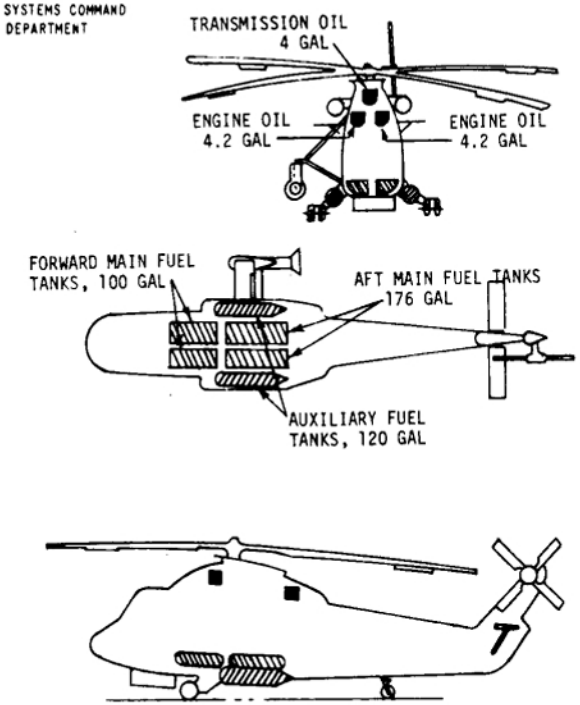
MAIN ROTOR

DISC AREA 1520.5 SQ. FT.
BLADE AREA 161.9 SQ. FT.
AIRFOIL SECTION NACA 23012 MOD
ENGINE/ROTOR GEAR RATIO 67.4:1

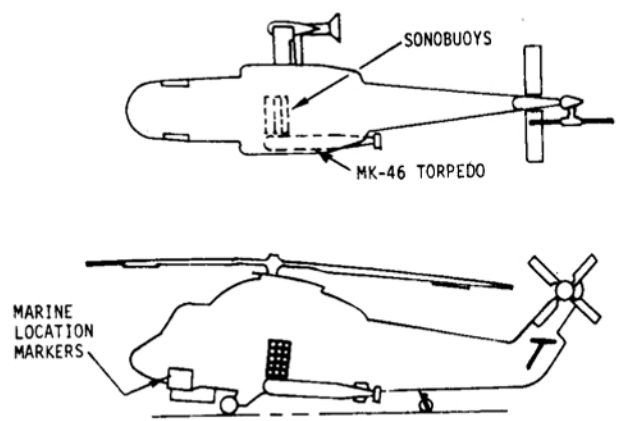


DESCRIPTIVE ARRANGEMENT

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT



TANKAGE
ASMD CONFIGURATION



ARMAMENT
ASW CONFIGURATION

POWER PLANT

NO. & MODEL . . . . . (2) T58-GE-8F
MFR . . . . . GENERAL ELECTRIC

GEAR REDUCTION RATIOS

ENGINE SPEED DECREASER . . .	0.31
MAIN ROTOR	0.048
TAIL ROTOR	0.28

RATINGS

	SHP	RPM	ALT
MIL	1350	19500	S.S.L.
NORM	1150	19500	S.S.L.

G.E. ENGINE SPEC. NO. E1152
JULY 14, 1968

ELECTRONICS

RADAR	LN-66HP
IFF	AN/APX-72
TRANSPONDER COMPUTER .	KIT-1A/TSEC
UHF RADIO SET (2) . . .	AN/ARC-159
SECURE SPEECH	KY-28
ICS	AN/AIC-14
TACAN	AN/ARN-52
DOPPLER RADAR	AN/APN-182
ATTITUDE HEADING . . .	AN/ASN-50
NAV COMPUTER	AN/AYK-2
PLOTTING BOARD	PT-429
DIRECTION FINDER (UHF).	AN/ARA-25
OTPI	R1047A/A
RADAR ALTIMETER	AN/APN-171
RAWS	AN/APQ-107
SONOBUOY RECEIVER . . .	AN/ARR-52
ACOUSTIC DATA PROC . .	AN/ASA-26B
DATA LINK	AN/AKT-22
MAD	AN/ASQ-81

PROVISIONS:

ESM	AN/ALR-54

MISSION AND DESCRIPTION

THE PRIMARY MISSIONS OF THIS HELICOPTER ARE ANTI-SUBMARINE WARFARE (ASW) AND ANTI-SHIP MISSILE DEFENSE (ASMD). IN ASW, THE HELICOPTER WILL REDETECT TARGETS INITIALLY CONTACTED BY ANOTHER SOURCE (SUCH AS SHIP'S SONAR), LOCALIZE AND CLASSIFY THE TARGET, AND ATTACK, IF NECESSARY. IN ASMD, THE HELICOPTER WILL DETECT THE THREAT OF AN ANTI-SHIP MISSILE AND/OR ITS LAUNCH PLATFORM, CLASSIFY THE THREAT, PROVIDE EARLY WARNING TO THE THREATENED FORCE, AND LOCALIZE THE THREAT FOR POSSIBLE ATTACK BY OWN FORCES.

THIS HELICOPTER IS ALSO TO ACCOMPLISH GENERAL UTILITY TASKS, WHICH INCLUDE SEARCH AND RESCUE MISSIONS, GUN FIRE OBSERVATION, RECONNAISSANCE, VERTICAL REPLENISHMENT, EMERGENCY SUPPLY AND RESUPPLY, PERSONNEL TRANSFER, EVACUATION OF WOUNDED, COURIER SERVICES, PLANE GUARD FOR CARRIER AIRCRAFT OPERATIONS, AND TACTICAL AIR CONTROLLER OPERATIONS.

THE HELICOPTER SHALL BE CAPABLE OF OPERATION FROM CARRIERS, CRUISERS, DESTROYERS, AND FROM A WIDE VARIETY OF OTHER NAVAL AND MERCHANT SHIPS EQUIPPED WITH SUITABLE LANDING PLATFORMS AND FACILITIES, AND FROM AIRFIELDS AND UNPREPARED FIELDS.

THE SH-2F IS A TWIN TURBOSHAFT ENGINE POWERED, SINGLE FOUR-BLADED ROTOR HELICOPTER WITH AN ANTI-TORQUE TAIL ROTOR. ITS "101 MAIN ROTOR" SYSTEM AND DIRECTIONAL CONTROL IMPROVEMENTS PROVIDE SUBSTANTIAL SERVICE LIFE AND PERFORMANCE GAINS OVER THE PREVIOUS SH-2D AIRCRAFT. THE INCREASED ENERGY ABSORPTION LANDING GEAR WITH RELOCATED TAIL LANDING GEAR PROVIDE GREATER CAPABILITY FOR OPERATION FROM SMALL DECKS IN HIGH SEA STATES.

DEVELOPMENT

FIRST FLIGHT (PROTOTYPE)	MAY 1971
SERVICE USE	MAY 1973

DIMENSIONS

MAIN ROTOR	
DIAMETER	44 FT
DISC AREA	1520.5 SQ.FT
BLADE AREA	161.9 SQ.FT
NO. OF BLADES	4
LENGTH	
MAXIMUM	52.6 FT
BLADES FOLDED	38.3 FT
HEIGHT	
MAXIMUM	15.1 FT
BLADES FOLDED	13.6 FT
WIDTH	
BLADES FOLDED	12.3 FT
TREAD	10 FT

WEIGHTS

LOADING	LBS	L.F.
EMPTY (A)	8652	
BASIC	8770	
COMBAT	9704	2.7
MAXIMUM	12800	2.0

NOTES: (A) = ACTUAL WITH LAMPS EQUIPMENT

FUEL AND OIL

FUEL

GAL.	NO. TANKS	LOCATION
276	4	FUSELAGE
120	2 (AUX)	EXTERNAL

FUEL GRADE - JP-4/JP-5
FUEL SPEC - MIL-T-5624

OIL

ENGINE (GAL.) 8.4
SPEC: MIL-L-23699
TRANSMISSION (GAL.) 4.0
SPEC: MIL-L-23699

ACCOMMODATIONS

CREW (MISSION):	3
CABIN SIZE CLEARANCE	
LENGTH	8.3
WIDTH	4.5
HEIGHT	4.6
USABLE VOLUME	172 CU.FT
PROVISION FOR TROOP SEATS . . .	3
PROVISION FOR LITTERS	2
RESCUE HOIST CAPABILITY . . .	600 LB
CARGO HOOK CAPABILITY . . .	4000 LB
DEAD WEIGHT CARGO FLOOR LIMIT FOR 3G L.F. . .	200 LB/SQ.FT

ORDNANCE

THE FOLLOWING LAUNCHERS ARE PROVIDED:
2 EXT. FIXED STORES STA. WITH MK-8 MOD 5 SHACKLES FOR AUX TANKS AND/OR MK-46 TORPEDO
1 SONOBUOY LAUNCHER WITH 15 TUBES FOR "A" SIZE BUOYS: SSQ-41 AND/OR SSQ-47
2 MARINE LOCATION MARKER LAUNCHERS FOR MK-25 TYPE MLM, 4 RDS/LAUNCHER

PERFORMANCE SUMMARY

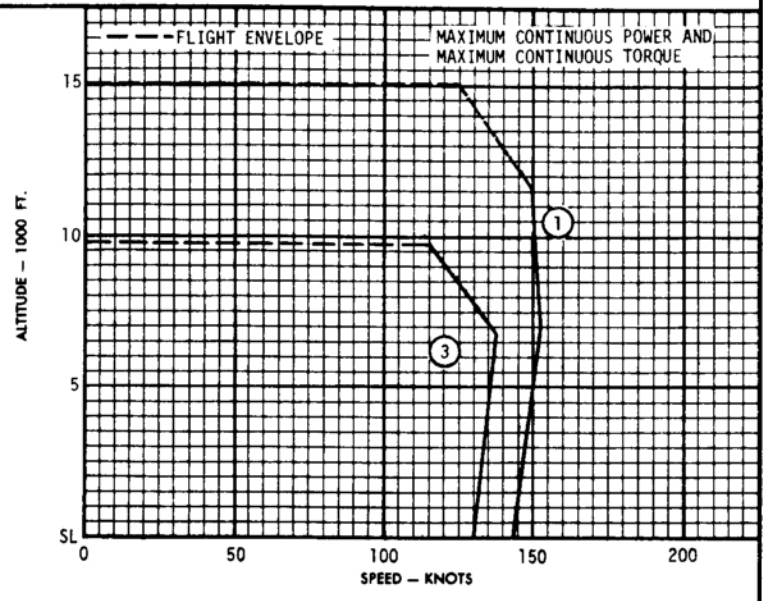
TAKE-OFF LOADING CONDITION			① UTILITY	② ASW	③ ASMD	④ RESCUE	⑤ CARGO	⑥ FERRY	
TAKE-OFF WEIGHT		LB.	10455 (F)	12577	12201	12401	12800 (F)	12041	
FUEL INTERNAL/EXTERNAL (JP-5)		LB.	1877/-	1536/408	1877/816	1877/816	739	1877/816	
PAYLOAD	(A)	LB.	-	999	-	400/1600	3483	-	
DISC LOADING		LB./SQ.FT.	6.9	8.3	8.0	8.2	8.4	7.9	
VERTICAL RATE OF CLIMB AT S.L.	(B)	FPM.	2500	1180	1410	1290	1030	1520	
ABSOLUTE HOVERING CEILING (OGE)	(C)	FT.	14700	8700	9600	9100	8100	10100	
MAX. RATE OF CLIMB AT S.L.	(B)	FPM.	2700	1870	1990	1930	1800	2050	
OPERATIONAL CEILING		FT.	15000	9700	10700	10200	9200	11100	
SPEED AT S.L.	(B)	KN.	142	130	131	130	124	136	
MAX. SPEED/ALTITUDE	(C)	KN/FT.	150/7000	138/7000	139/7000	139/7000	131/6400	144/7000	
OEI SERVICE CEILING (100 FPM)	(A)(D)	FT.	11700	6200	7100	6600	5600	7600	
OEI MIN SPEED	(C)(D)(G)	KN.	0	6	1	8	0	0	
OEI MAX SPEED	(C)(D)	KN.	116	103	105	106	98	108	
COMBAT RADIUS		N.MI.	111	-	-	127	-	-	
MISSION TIME		HRS.	2.0	1.9	2.9	2.3	0.5	2.8	
AVERAGE CRUISING SPEED		KN.	117	-	-	120	-	-	
CRUISING ALTITUDE		FT.	10000	-	-	5000	-	-	
RANGE		N.MI.	234	-	-	275	50	318	
AVERAGE CRUISING SPEED		KN.	117	-	-	120	110	116	
CRUISING ALTITUDE		FT.	10000	-	-	5000	SL	10000	
ENDURANCE		HRS.	2.2	1.3	2.7	2.9	-	-	
ENDURANCE SPEED		KN.	70	70	70	70	-	-	
ENDURANCE ALTITUDE		FT.	SL	1500	1500	SL	-	-	

NOTES

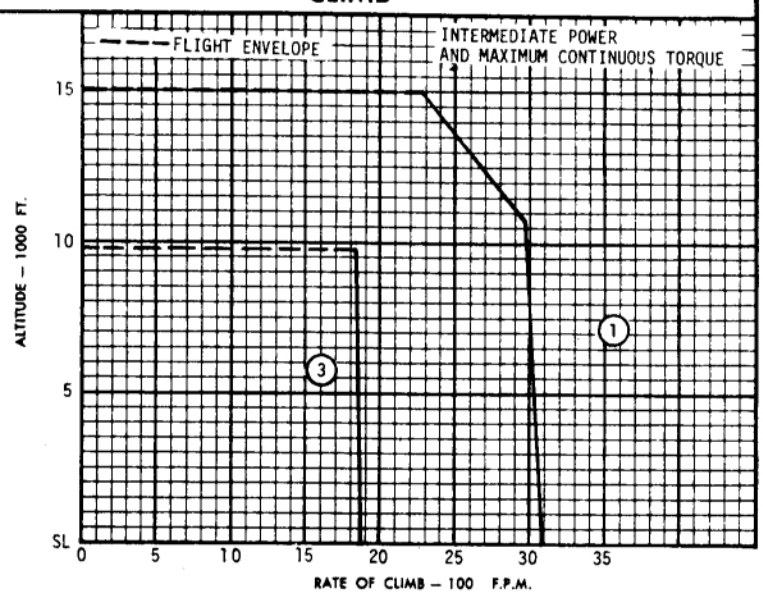
(A) OUT/RETURN PAYLOAD FOR RADIUS MISSIONS
(B) MAXIMUM CONTINUOUS TORQUE
(C) INTERMEDIATE POWER
(D) ONE ENGINE INOPERATIVE
(F) READILY REMOVABLE ASW/ASMD EQUIPMENT REMOVED, 628 LB
(G) DISPOSABLE STORES DROPPED, 10% INTERNAL FUEL REMAINING

PERFORMANCE BASIS: NATC FLIGHT TEST DATA
ENGINE SPECIFICATION POWER AVAILABLE
ENGINE SPECIFICATION FUEL CONSUMPTION INCREASED 5%

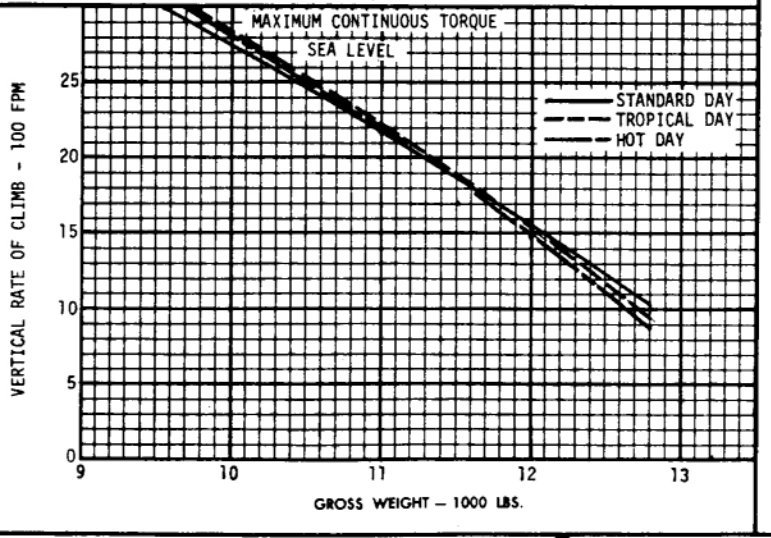
SPEED



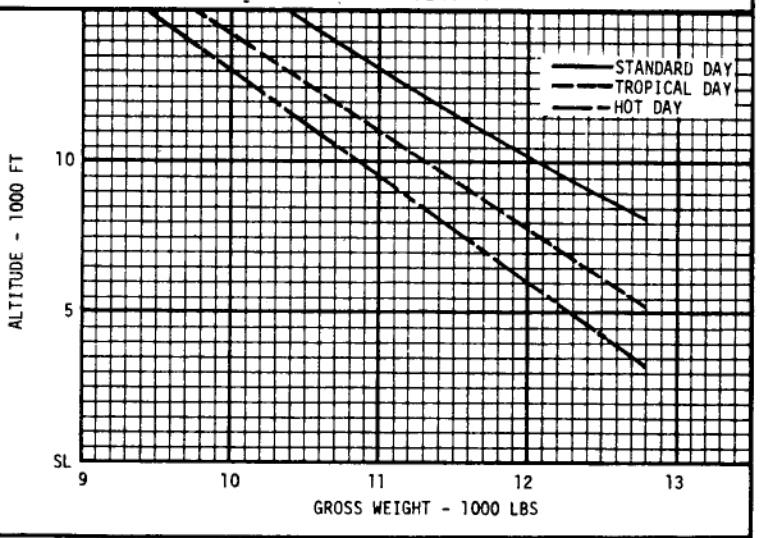
CLIMB



VERTICAL RATE OF CLIMB

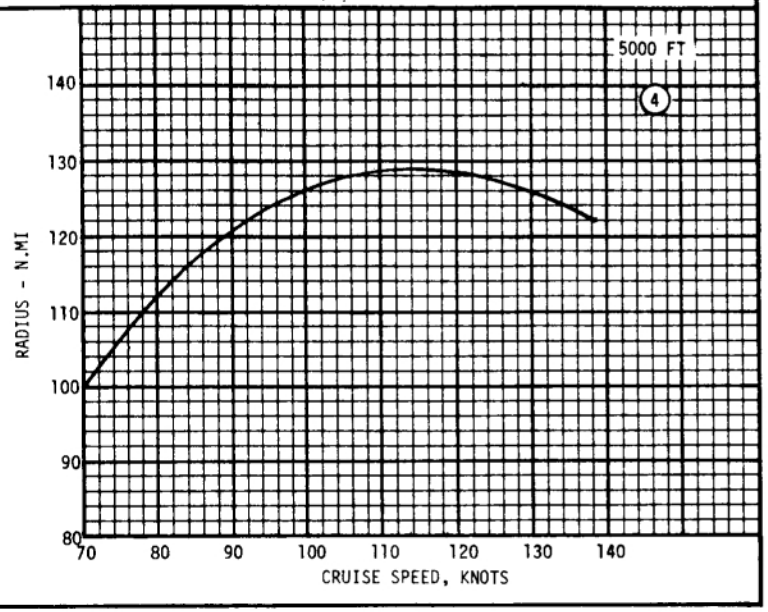


HOVER CEILING

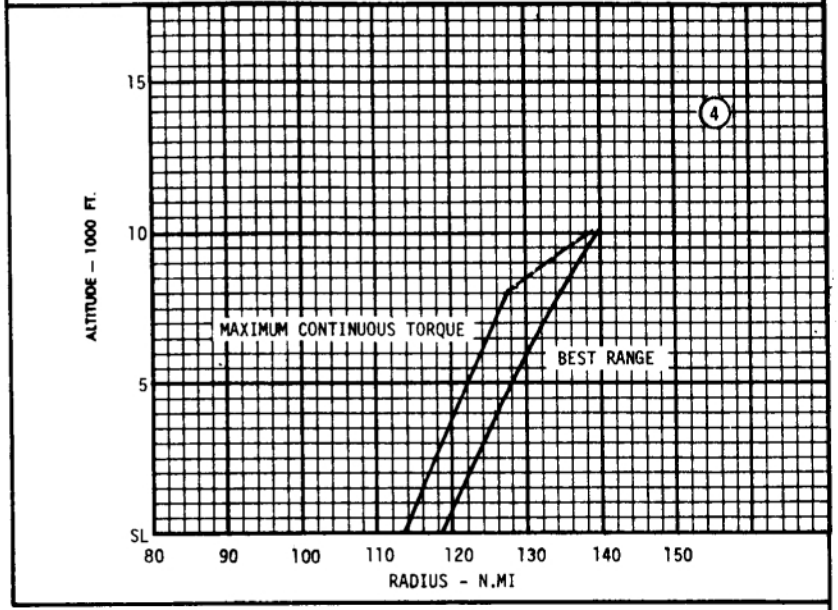


◯ LOADING CONDITION COLUMN NUMBER

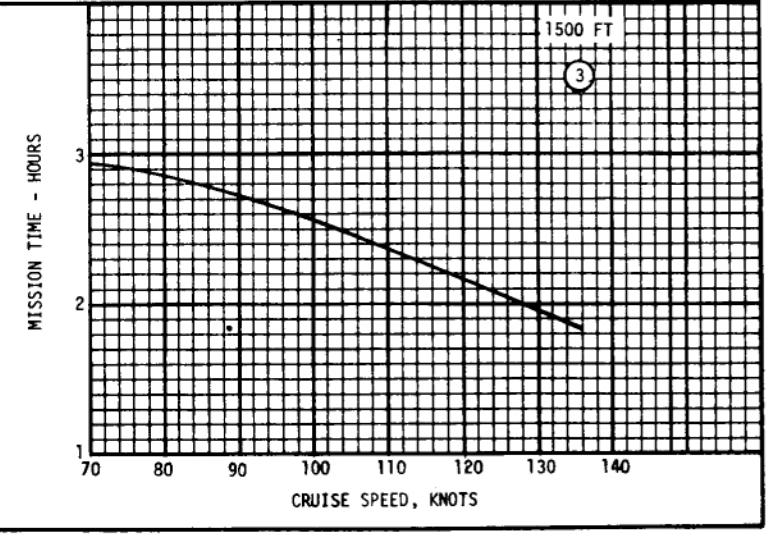
RADIUS



RADIUS



ENDURANCE



◯ LOADING CONDITION COLUMN NUMBER

NOTES

RADIUS MISSIONS

(1) CLEAN- HIGH ALTITUDE

WARM-UP AND TAKE-OFF: FUEL ALLOWANCE OF 2 MINUTES AT MAXIMUM CONTINUOUS TORQUE

CLIMB OUT: ON COURSE AT MAXIMUM CONTINUOUS TORQUE TO OPT CRUISE ALT

CRUISE OUT: TO TARGET AT SPEED FOR MAXIMUM RANGE AT OPTIMUM CRUISE ALTITUDE

HOVER: 5 MINUTES AT HOVER CEILING, OUT OF GROUND EFFECT

CRUISE BACK: TO HOME BASE AT SPEED FOR MAXIMUM RANGE AT OPTIMUM CRUISE ALTITUDE

DESCEND TO SEA LEVEL: NO FUEL USED, NO DISTANCE GAINED

LANDING RESERVE: 10% OF INITIAL FUEL

(4) RESCUE

WARM-UP AND TAKE-OFF: FUEL ALLOWANCE OF 2 MINUTES AT MAXIMUM CONTINUOUS TORQUE AT SEA LEVEL

CLIMB OUT: ON COURSE AT MAXIMUM CONTINUOUS TORQUE TO 5000 FEET

CRUISE OUT: TO TARGET AT 120 KNOTS AT 5000 FEET

DESCEND TO SEA LEVEL: NO FUEL USED, NO DISTANCE GAINED

PICK UP FOUR (4) SURVIVORS: HOVER OUT OF GROUND EFFECT 5 MINUTES AT SEA LEVEL

CLIMB OUT: ON COURSE AT MAXIMUM CONTINUOUS TORQUE TO 5000 FEET

CRUISE BACK: TO BASE AT 120 KNOTS AT 5000 FEET

DESCEND TO SEA LEVEL: NO FUEL USED, NO DISTANCE GAINED

LANDING RESERVE: 10% OF INITIAL FUEL

RANGE MISSIONS

(1)(6) UTILITY & FERRY

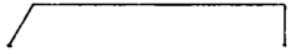
WARM-UP AND TAKE-OFF: FUEL ALLOWANCE OF 2 MINUTES AT MAXIMUM CONTINUOUS TORQUE AT SEA LEVEL

CLIMB OUT: ON COURSE AT MAXIMUM CONTINUOUS TORQUE TO OPT CRUISE ALT

CRUISE OUT: TO REMOTE BASE AT SPEED FOR MAXIMUM RANGE AT OPTIMUM CRUISE ALTITUDE

DESCEND TO SEA LEVEL: NO FUEL USED, NO DISTANCE GAINED

LANDING RESERVE: 10% OF INITIAL FUEL



(4) GENERAL RANGE MISSION

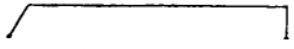
WARM-UP AND TAKE-OFF: FUEL ALLOWANCE OF 2 MINUTES AT MAXIMUM CONTINUOUS TORQUE AT SEA LEVEL

CLIMB OUT: ON COURSE AT MAXIMUM CONTINUOUS TORQUE TO 5000 FEET

CRUISE OUT: TO REMOTE BASE AT 120 KNOTS AT 5000 FEET

DESCEND TO SEA LEVEL: NO FUEL USED, NO DISTANCE GAINED

LANDING RESERVE: 10% OF INITIAL FUEL



(5) CARGO

WARM-UP AND TAKE-OFF: FUEL ALLOWANCE OF 2 MINUTES AT MAXIMUM CONTINUOUS TORQUE AT SEA LEVEL

HOVER: 5 MINUTES OUT OF GROUND EFFECT TO PICK UP EXTERNAL CARGO

CRUISE OUT: TO REMOTE BASE AT SPEED FOR MAXIMUM RANGE AT SEA LEVEL

LANDING RESERVE: 10% OF INITIAL FUEL

ENDURANCE MISSIONS

(1)&(4) GENERAL ENDURANCE MISSIONS

WARM-UP AND TAKE-OFF: 2 MINUTES AT MAXIMUM CONTINUOUS TORQUE AT SEA LEVEL

CRUISE: AT SPEED FOR MAXIMUM ENDURANCE AT SEA LEVEL

LANDING RESERVE: 10% OF INITIAL FUEL

(2) ANTI-SUBMARINE WARFARE (ASW)

WARM-UP AND TAKE-OFF: FUEL ALLOWANCE OF 2 MINUTES AT MAXIMUM CONTINUOUS TORQUE AT SEA LEVEL

CLIMB OUT: ON COURSE TO 1500 FEET AT MAXIMUM CONTINUOUS TORQUE

CRUISE OUT: TO TARGET 35 N.MI. FROM TAKE-OFF AT 120 KTS AT 1500 FEET.

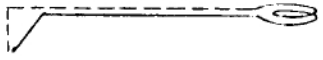
LOITER: STATED TIME AT 1500 FEET AT SPEED FOR MAXIMUM ENDURANCE

DROP STORES (TORPEDO, MARINE MARKERS, SONOBUOYS WITH A TOTAL WEIGHT OF 999 LBS)

CRUISE BACK: TO HOME BASE AT SPEED FOR MAXIMUM RANGE AT 1500 FEET

DESCEND TO SEA LEVEL: NO FUEL USED, NO DISTANCE GAINED

LANDING RESERVE: 10% OF INITIAL FUEL



(3) ANTI-SHIP MISSILE DEFENSE (ASMD)

WARM-UP AND TAKE-OFF: FUEL ALLOWANCE OF 2 MINUTES AT MAXIMUM CONTINUOUS TORQUE

CLIMB OUT: ON COURSE TO 1500 FEET AT MAXIMUM CONTINUOUS TORQUE

CRUISE OUT: 10 NAUTICAL MILES AT 120 KNOTS AT 1500 FEET

LOITER: STATED TIME AT SPEED FOR MAXIMUM ENDURANCE AT 1500 FEET

CRUISE BACK: 10 NAUTICAL MILES AT SPEED FOR MAXIMUM RANGE AT 1500 FEET

DESCEND TO SEA LEVEL: NO FUEL USED, NO DISTANCE GAINED

LANDING RESERVE: 10% OF INITIAL FUEL

(○) LOADING CONDITION COLUMN NUMBER