



STANDARD AIRCRAFT CHARACTERISTICS

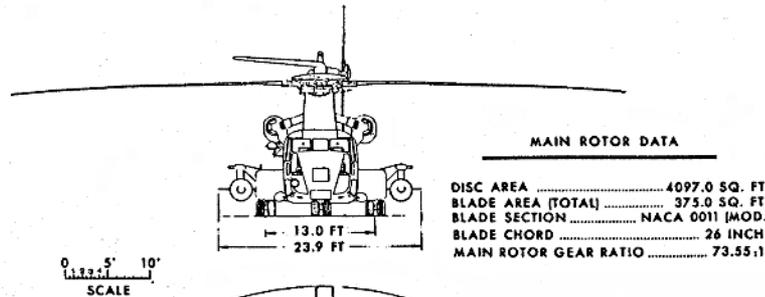
SEA STALLION

RH-53D

SIKORSKY AIRCRAFT

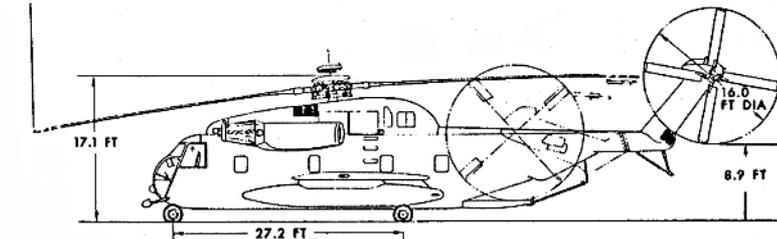
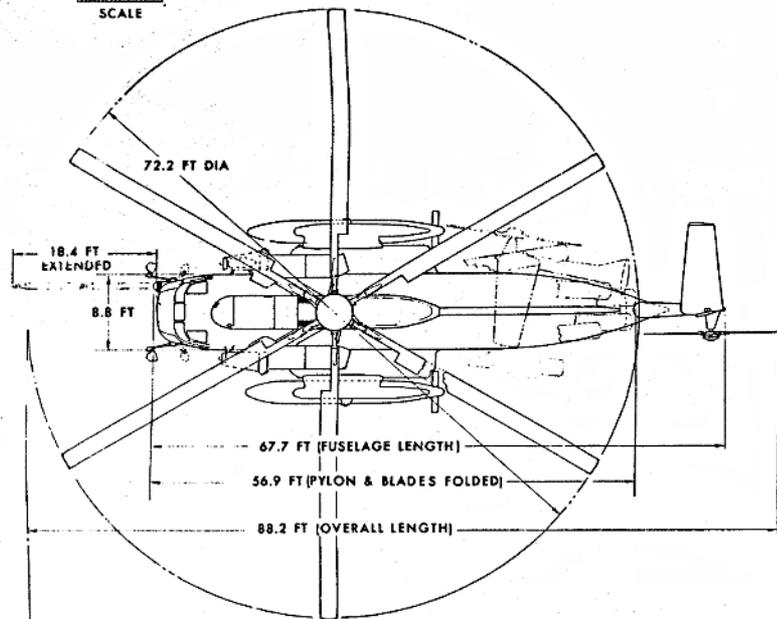
NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT

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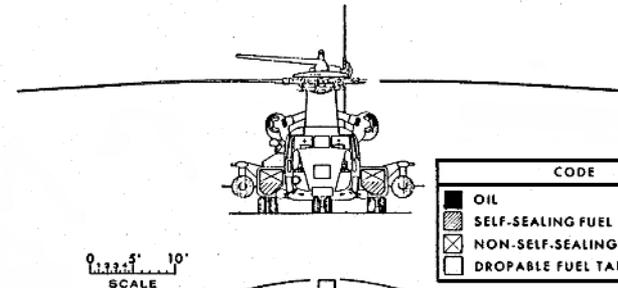


MAIN ROTOR DATA

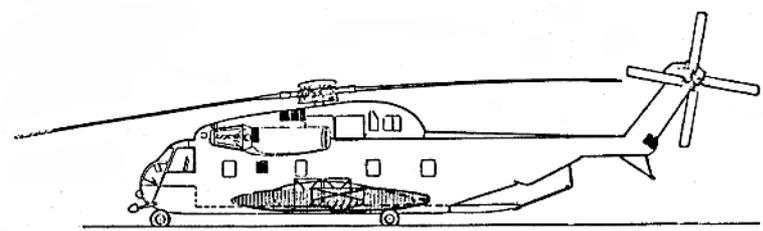
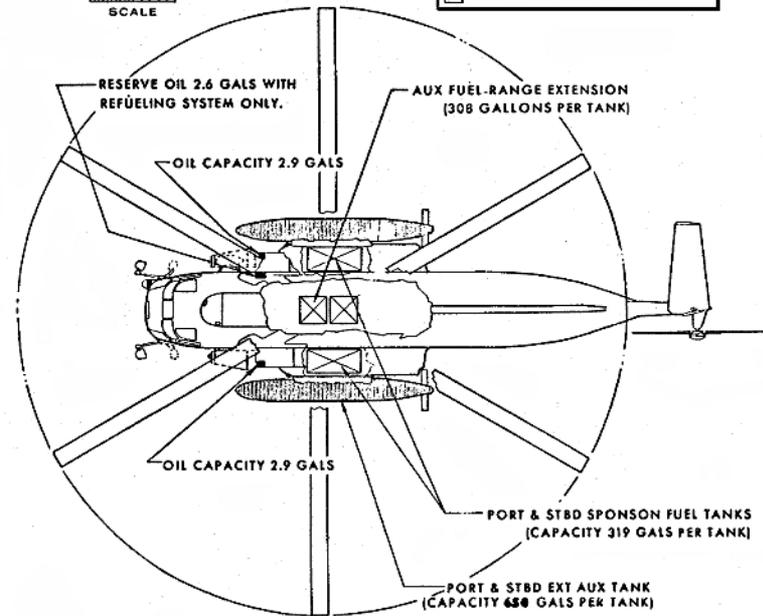
DISC AREA 4097.0 SQ. FT.
BLADE AREA (TOTAL) 375.0 SQ. FT.
BLADE SECTION NACA 0011 (MOD.)
BLADE CHORD 26 INCH
MAIN ROTOR GEAR RATIO 73.55:1



DESCRIPTIVE ARRANGEMENT



CODE	
■	OIL
▨	SELF-SEALING FUEL TANKS
⊗	NON-SELF-SEALING FUEL TANKS
□	DROPPABLE FUEL TANKS



ARMAMENT AND TANKAGE

POWER PLANT	MISSION AND DESCRIPTION	WEIGHTS																																																
<p>No. and Model: (2) T64-GE-413A Manufacturer: General Electric Engine Spec. No: E1196 30 May 1972 Type: Axial</p> <p><u>Gear Reduction Ratios</u></p> <p>Engine Speed Decreaser: Main Rotor: 73.55:1 Tail Rotor: 17.19:1</p> <p>RATINGS</p> <table border="1"> <thead> <tr> <th></th> <th>SHP</th> <th>RPM</th> <th>ALT</th> </tr> </thead> <tbody> <tr> <td>Maximum (10 min.)</td> <td>3925</td> <td>13600</td> <td>SL</td> </tr> <tr> <td>Intermediate (30 min.)</td> <td>3695</td> <td>13600</td> <td>SL</td> </tr> <tr> <td>Maximum Continuous</td> <td>3230</td> <td>13600</td> <td>SL</td> </tr> </tbody> </table> <p><u>Transmission Ratings</u></p> <p>Take-off (30 min)* 7560 (3780 single engine) Max. Cont.* 6400 (3200 single engine) * Ratings are at 100% N_R</p>		SHP	RPM	ALT	Maximum (10 min.)	3925	13600	SL	Intermediate (30 min.)	3695	13600	SL	Maximum Continuous	3230	13600	SL	<p>This helicopter is designed to conduct mine counter-measures independently or in conjunction with surface forces.</p> <p>As secondary missions, this aircraft is equipped to function in a rescue capacity and to transport passengers, litter patients and internal or external cargo from ship-to-ship, ship-to-shore or shore-to-ship.</p> <p>The RH-53D helicopter is derived from the CH-53D assault transport helicopter, currently in service. Features which distinguish the RH-53D are:</p> <ol style="list-style-type: none"> 1) External drop tanks 2) Engine Air Partical Separators (EAPS) as a standard installation. 3) Fixed towing gear including external aft facing mirrors, and strengthened fuselage to accept towing loads. 4) Rescue hoist, and rescue hatch. 5) Capability for rapid installation of air-to-air refueling probe or ship-to-air refueling gear. 	<table border="1"> <thead> <tr> <th><u>Loading</u></th> <th><u>Weight</u></th> <th><u>L.F.</u></th> </tr> </thead> <tbody> <tr> <td>Empty</td> <td>25695</td> <td>3.9</td> </tr> <tr> <td>Basic</td> <td>26613</td> <td>3.8</td> </tr> <tr> <td>Operating *</td> <td>30179</td> <td>3.3</td> </tr> <tr> <td>Design</td> <td>42000</td> <td>2.4</td> </tr> <tr> <td>Combat*</td> <td>36862</td> <td>2.7</td> </tr> <tr> <td>Overload</td> <td>42000</td> <td>2.4</td> </tr> <tr> <td>Maximum Take-Off</td> <td>42000</td> <td>2.4</td> </tr> <tr> <td>Maximum Landing</td> <td>42000</td> <td>2.4</td> </tr> </tbody> </table> <p>* Basic MCM Mission</p>	<u>Loading</u>	<u>Weight</u>	<u>L.F.</u>	Empty	25695	3.9	Basic	26613	3.8	Operating *	30179	3.3	Design	42000	2.4	Combat*	36862	2.7	Overload	42000	2.4	Maximum Take-Off	42000	2.4	Maximum Landing	42000	2.4					
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ELECTRONICS	<p>DEVELOPMENT</p> <p>First Flight: October 27, 1972 First Service Use: June 1973 Production Status: Currently in Production</p>	<p>FUEL AND OIL</p> <p>FUEL</p> <table border="1"> <thead> <tr> <th><u>Gal.</u></th> <th><u>No. & Type of Tanks</u></th> <th><u>Location</u></th> </tr> </thead> <tbody> <tr> <td>319</td> <td>(1) Internal, Fixed</td> <td>L. Sponson*</td> </tr> <tr> <td>319</td> <td>(1) Internal, Fixed</td> <td>R. Sponson*</td> </tr> <tr> <td>650</td> <td>(1) External, Dropable</td> <td>L. Ext. Aux</td> </tr> <tr> <td>650</td> <td>(1) External, Dropable</td> <td>R. Ext. Aux</td> </tr> <tr> <td>616</td> <td>(2) Internal, Removable*</td> <td>Cabin**</td> </tr> <tr> <td>2554</td> <td>Total</td> <td></td> </tr> </tbody> </table> <p>Grade: JP-4, JP-5 Specification: MIL-J-5624D</p> <p>* Bottom 1/3 self-sealing ** Up to five aux. tanks can be installed for range extension. Normally limited to two for Basic MCM Mission.</p> <p>OIL</p> <p>Engine (Gal.) 2.9 ea. Reserve (Gal.) 2.6 (with aerial refueling) Spec: MIL-L-23699 (only) Trans (Gal.) 20.2 Spec: MIL-L-23699</p>	<u>Gal.</u>	<u>No. & Type of Tanks</u>	<u>Location</u>	319	(1) Internal, Fixed	L. Sponson*	319	(1) Internal, Fixed	R. Sponson*	650	(1) External, Dropable	L. Ext. Aux	650	(1) External, Dropable	R. Ext. Aux	616	(2) Internal, Removable*	Cabin**	2554	Total																												
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<p>AN/ARC-51A Radio Set (UHF) AN/ARN-52(V) Tacan Navigation Set AN/APX-72 IFF Transponder Set AN/ARC-94 Radio Set AN/ARN-59 ADF AN/ARC-131 Radio Set (VHF/FM) AN/AIC-14 Interphone System AN/APN-154 Radar Beacon Set AN/APN-171(V) Radar Altimeter AN/ARA-25A Direction Finder Group AN/ASH-50 Attitude Heading Reference System Juliet</p>	<p>DIMENSIONS</p> <table border="1"> <tbody> <tr> <td colspan="2"><u>Main Rotor</u></td> </tr> <tr> <td>Diameter:</td> <td>72' - 2.7"</td> </tr> <tr> <td>Disc Area:</td> <td>4097 sq. ft.</td> </tr> <tr> <td>Blade Area (each)</td> <td>62.5 sq. ft.</td> </tr> <tr> <td colspan="2"><u>Length</u></td> </tr> <tr> <td>Maximum:</td> <td>88' - 2"</td> </tr> <tr> <td>Blades and Tail Folded:</td> <td>56'-9"</td> </tr> <tr> <td colspan="2"><u>Height</u></td> </tr> <tr> <td>Maximum:</td> <td>26' - 11"</td> </tr> <tr> <td>Blades and Tail Folded:</td> <td>17' - 1.7"</td> </tr> <tr> <td colspan="2"><u>Width</u></td> </tr> <tr> <td>Blades Folded:</td> <td>23' - 11"</td> </tr> <tr> <td>Tread:</td> <td>13' - 0"</td> </tr> </tbody> </table>	<u>Main Rotor</u>		Diameter:	72' - 2.7"	Disc Area:	4097 sq. ft.	Blade Area (each)	62.5 sq. ft.	<u>Length</u>		Maximum:	88' - 2"	Blades and Tail Folded:	56'-9"	<u>Height</u>		Maximum:	26' - 11"	Blades and Tail Folded:	17' - 1.7"	<u>Width</u>		Blades Folded:	23' - 11"	Tread:	13' - 0"	<p>ACCOMODATIONS</p> <table border="1"> <tbody> <tr> <td>Crew (Mission):</td> <td>6</td> </tr> <tr> <td colspan="2"><u>Cabin Size Clearance:</u></td> </tr> <tr> <td>Length</td> <td>30' - 0"</td> </tr> <tr> <td>Width</td> <td>7' - 6"</td> </tr> <tr> <td>Height</td> <td>6' - 6"</td> </tr> <tr> <td>Usable Volume</td> <td>1462.5 sq. ft.</td> </tr> <tr> <td>Rescue Hatch Dimensions:</td> <td>5'-4.5"x3'-1"</td> </tr> <tr> <td>Provision for Troop Seats:</td> <td>38</td> </tr> <tr> <td>Provision for Litters:</td> <td>24</td> </tr> <tr> <td>Rescue Hoist Lift Capacity:</td> <td>600 lbs.</td> </tr> <tr> <td>Cargo Hook Capacity:</td> <td>25000 lbs.</td> </tr> </tbody> </table>	Crew (Mission):	6	<u>Cabin Size Clearance:</u>		Length	30' - 0"	Width	7' - 6"	Height	6' - 6"	Usable Volume	1462.5 sq. ft.	Rescue Hatch Dimensions:	5'-4.5"x3'-1"	Provision for Troop Seats:	38	Provision for Litters:	24	Rescue Hoist Lift Capacity:	600 lbs.	Cargo Hook Capacity:	25000 lbs.
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PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION	① Clean-High	② Basic MCM	③ Troop Transport	④ Search and Rescue	⑤ Ferry
TAKE-OFF WEIGHT lb.	30,413	42,000	42,000	40,652	42,000 (G)
Fuel internal/external (JP-5) lb./lb.	4,338/0	4,338/7,347	4,338/2,388	4,338/8,840	5,048/8,840
Payload lb.	0	2,441	8,000	200	0
Disc loading lb./sq. ft.	7.42	10.25	10.25	9.92	10.25
Vertical rate of climb at S.L. (A) fpm.	2,465	820	820	1,080	820
Absolute hovering ceiling (OGE) (A) ft.	12,950	2,500	2,500	3,600	2,500
Max. rate of climb at S.L. (B) fpm.	2,755	1,935	1,935	2,035	1,935
Service ceiling (B) ft.	20,400	12,450	12,450	13,400	12,450
Speed at S.L. (C) kn.	170 (E)	157	157	160	157
Max speed/altitude (C) kn./ft.	176/2500 (E)	157/SL	157/SL	160	157/SL
O.E.I. Service ceiling (A) ft.	14,000	4,100	4,100	5,200	4,100
Min. speed (O.E.I.) (B) kn.	18	51	51	45	51
Max. speed (O.E.I.) (C) kn.	139	114	114	119	114
Combat radius n. mi.	131	25	114	303	
Mission time (D) hrs.	2.05	3.8 (F)	1.78	4.45	
Average cruising speed kn.	132	133	165	148	
Cruising altitude ft.	10,000	SL	SL	SL	
Range n. mi.	278	678	354	796	834
Average cruising speed kn.	134	132	131	133	133
Cruising altitude ft.	10,000	4,800-10,000	4,800-9,000	5,800-10,000	4,800-10,000
Maximum endurance hrs.	2.54		3.3		
Endurance speed kn.	82.5		87		
Endurance altitude ft.	10,000		3,000-7,600		

NOTES

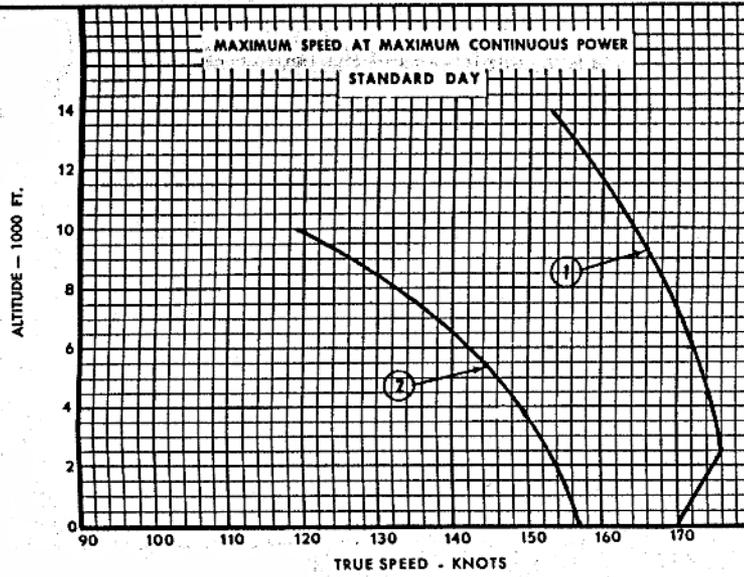
NOTES:

- (A) Maximum power, two engines.
 (B) Intermediate power, two engines.
 (C) Maximum continuous power, two engines.
 (D) Mission Time - Time in air (excludes time before start of enroute climb and reserve, unless otherwise specified and noted).
 (E) Aircraft redline airspeed is 170 KCAS.
 (F) Includes 2.20 hr. tow.
 (G) Refueling probe installed

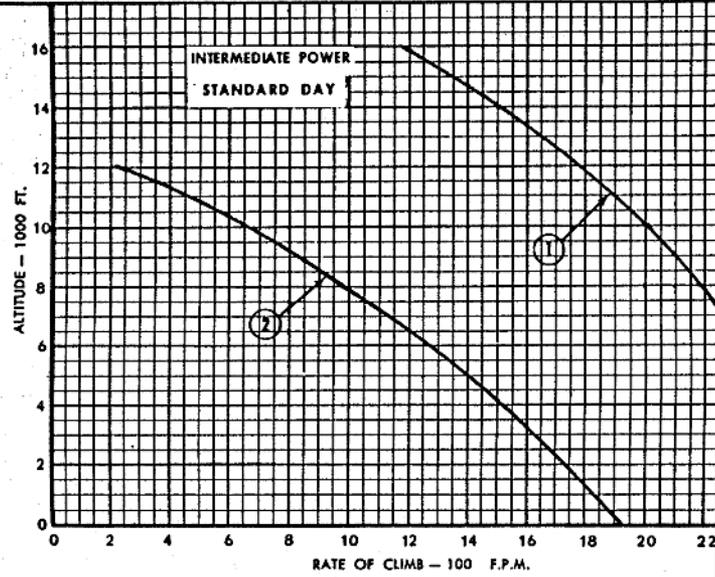
PERFORMANCE BASIS

- (1) ICAO Standard conditions, no wind, no ground effect.
 (2) Aerodynamic flight test data.
 (3) All engine data were derived from "Model Specification E1196 Engine Aircraft, Turboshaft" T64-GE-413A General Electric Company.
 (4) All fuel consumption data were increased 5% above engine specification values.
 (5) The engine specification power ratings are reduced approximately 2% due to the installation of EAPS (Engine Air Particle Separator).

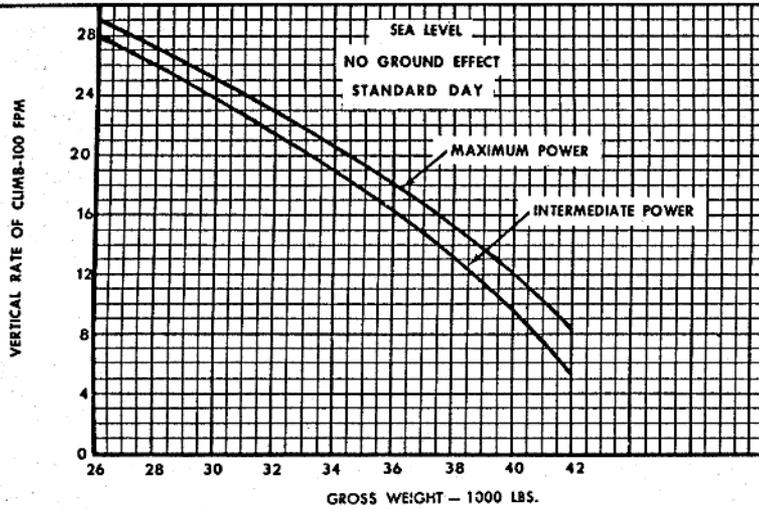
SPEED



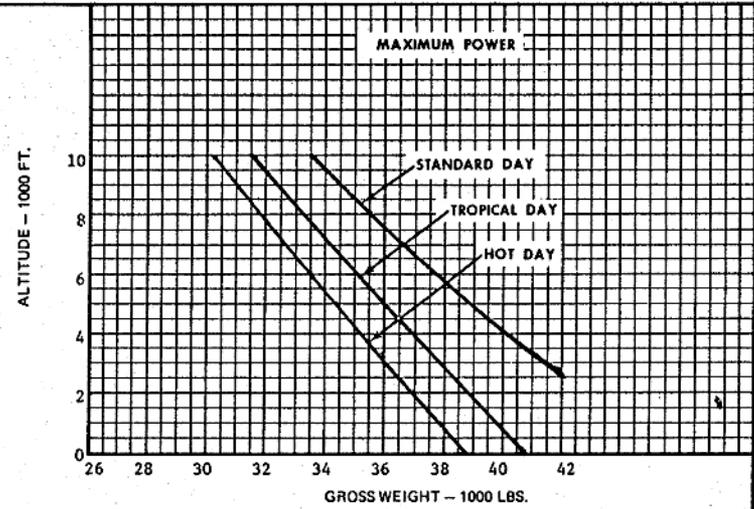
CLIMB



VERTICAL RATE OF CLIMB

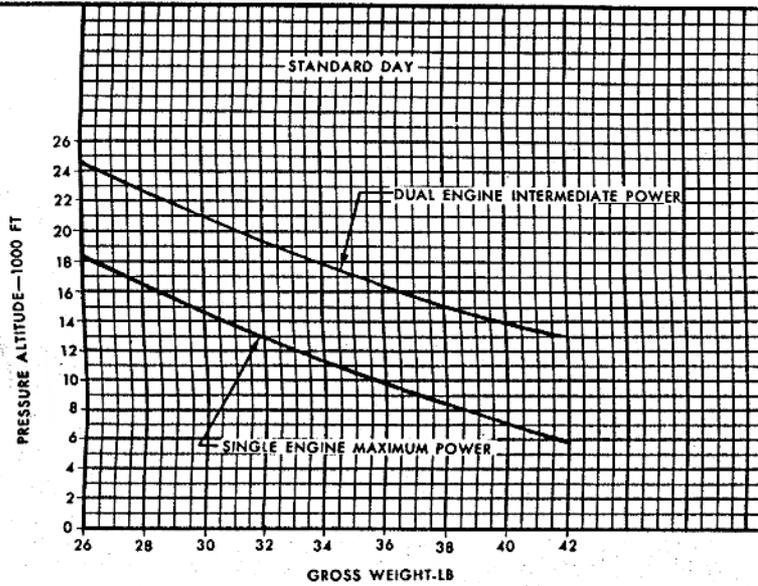


HOVER CEILING

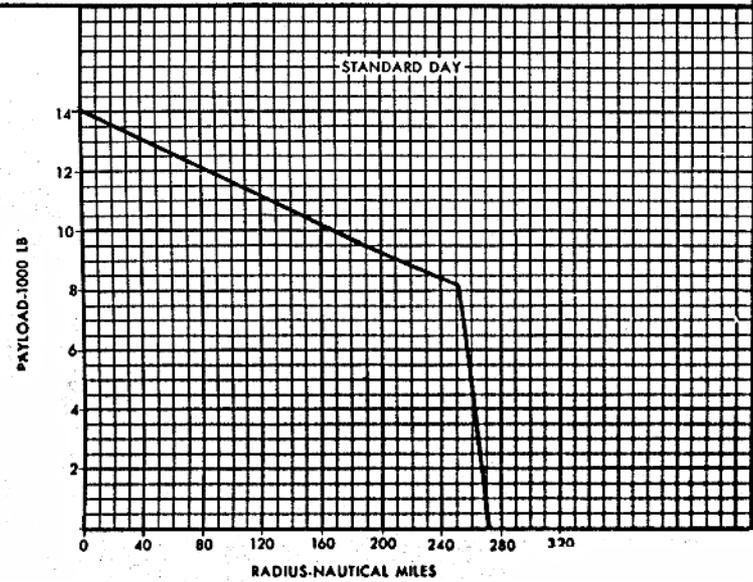


○ LOADING CONDITION COLUMN NUMBER

SERVICE CEILING



DUD RETRIEVAL MISSION



○ LOADING CONDITION COLUMN NUMBER

NOTES

CLEAN-HIGH ALTITUDE

Warm-Up and Take-Off: 5 min. at S.L. Maximum Cont. Power

Climb Out: On course at best climb speed and intermediate power to 10,000 ft.

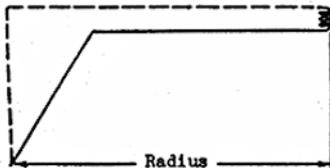
Cruise Out: To target at maximum range speed and 10,000 ft.

Hover: 5 min. at 10,000 ft.

Cruise Back: To base at maximum range speed and 10,000 ft.

Descent to S.L.: No fuel used, no distance gained.

Landing Reserve: Fuel for 20 min. at speed for max. range at S.L.

OPTIMUM RANGE/ENDURANCE

Warm-Up and Take-Off: 5 min. at S.L., M.C.P.

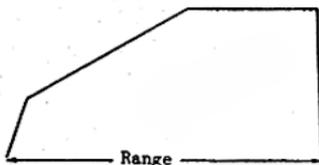
Climb Out: On course at best climb speed and intermediate power to initial cruise climb altitude.

Cruise Climb: At optimum range/endurance speed to 10,000 ft.

Cruise: To remote base at optimum range/endurance speed at 10,000 ft.

Descent to S.L.: No fuel used, no distance gained.

Landing Reserve: 10% of initial fuel load.

BASIC MCM MISSION

Warm-Up and Take-Off: 5 min. at S.L. M.C.P.

Cruise Out: 25 n. mi. at S.L. and maximum range speed.

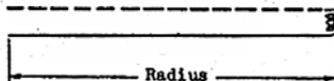
Stream Gear: Hover 30 min., O.G.E. at S.L.

Tow: At 25 kts. and 7500 lb. cable tension.

Retrieve Gear: Hover 30 min., O.G.E. at S.L.

Cruise Back: 25 n. mi. at S.L. and maximum range speed.

Reserve: 10% of initial fuel load.

TROOP TRANSPORT

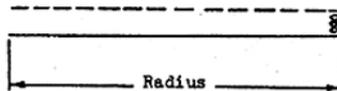
Warm-Up and Take-Off: 5 min. at S.L. M.C.P.

Cruise Out: To remote base at S.L. and M.C.P.

Land and Unload: 2 min. at S.L. and M.C.P.

Cruise Back: To home base at S.L. and M.C.P.

Landing Reserve: 10% of initial fuel load.

SEARCH AND RESCUE

Warm-Up and Take-Off: 5 min. at S.L. M.C.P.

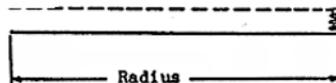
Dash Out: To target at S.L. and M.C.P.

Search: Over target at maximum endurance speed for 15 min. at S.L.

Pick Up Survivor: Hover O.G.E. at S.L. for 2 min.

Cruise Back: To base at S.L. and maximum range speed.

Landing Reserve: 10% of initial fuel load.

FERRY

Warm-Up and Take-Off: 5 min. at S.L. M.C.P.

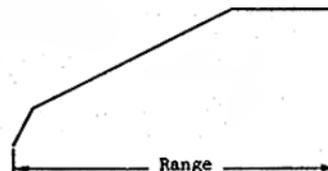
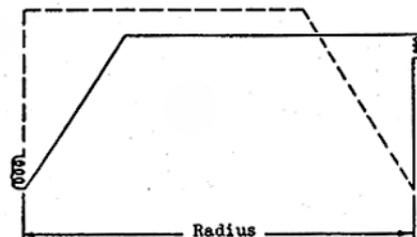
Climb Out: On course at best climb speed and intermediate power to initial cruise climb altitude.

Cruise Climb: At best range speed to 10,000 ft.

Cruise: To remote base at best range speed and 10,000 ft.

Descent to SL: No fuel used no distance gained.

Landing Reserve: 10% of initial fuel load.

DUD RETRIEVAL

Warm-Up and Take-Off: 5 min. at S.L. M.C.P.

Climb Out: On course to 3000 ft. at best climb speed and intermediate power.

Cruise Out: To downed aircraft at maximum range speed.

Hover: At 3000 ft. for 10 min. (O.G.E.)

Descend to S.L.: No fuel used, no distance gained.

Pick up maximum external payload.

Climb Back: On course to 3000 ft. at intermediate power and best climb speed.

Cruise Back: To home base at speed for best range with external load, $f=35$ sq. ft.

Descent to S.L.: No fuel used, no distance gained.

Hover: 5 min. O.G.E. at S.L. with payload.

Landing Reserve: 10% of initial fuel load.



LOADING CONDITION COLUMN NUMBER