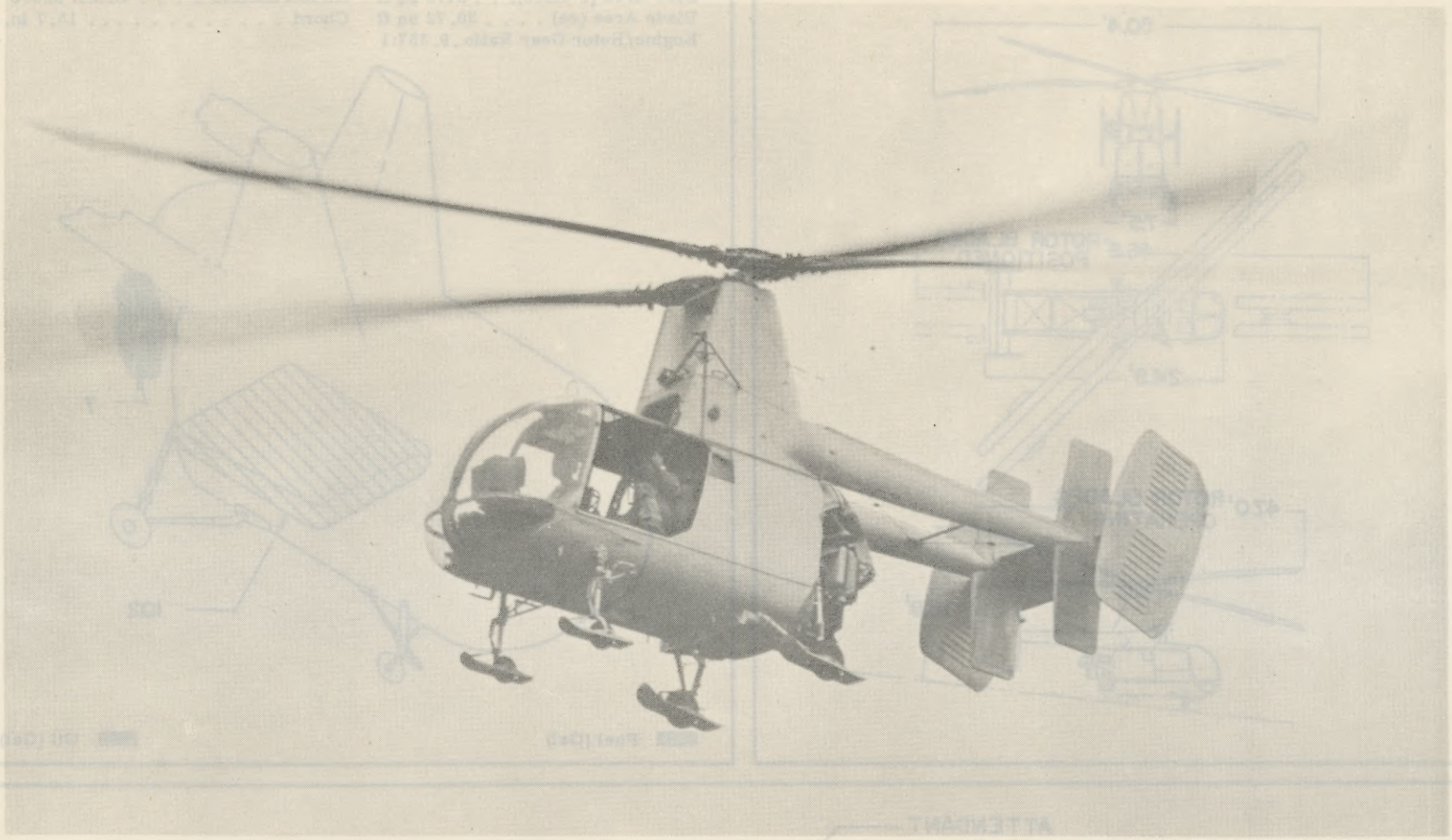


Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

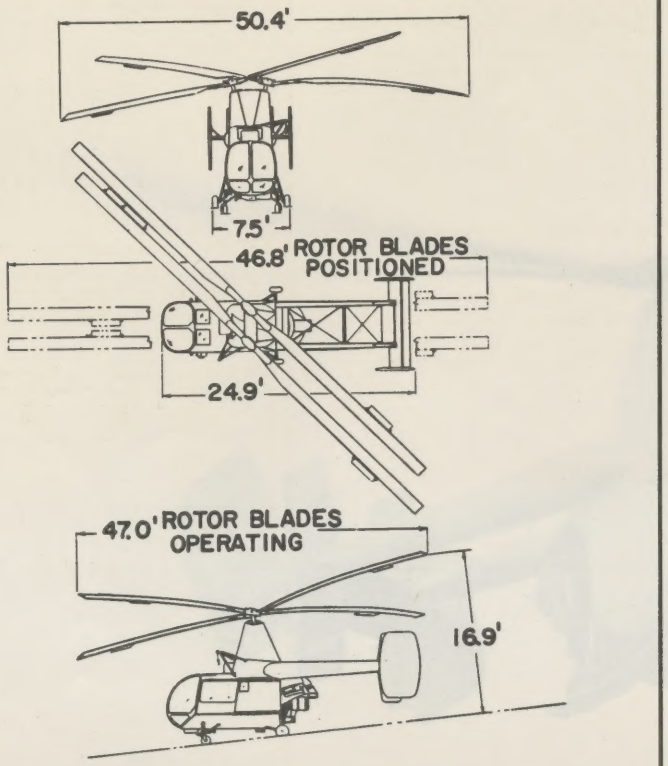
H-43A

ONE R-1340-48

PRATT & WHITNEY

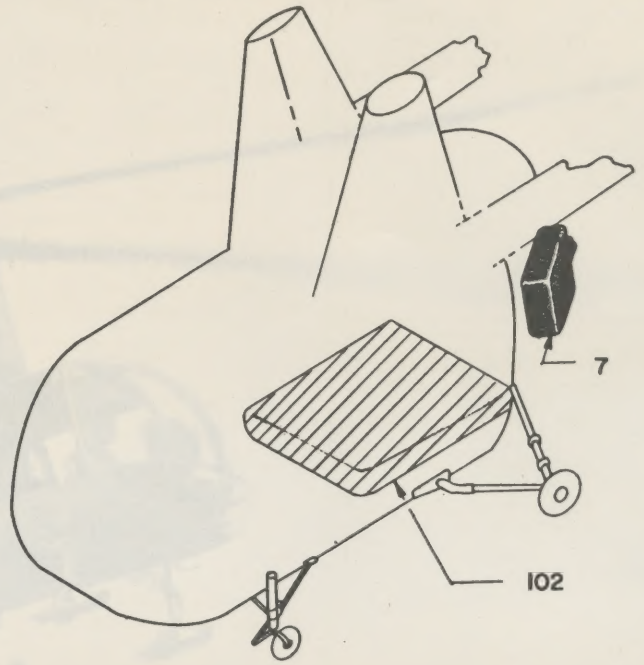
Kaman

20 OCT 58



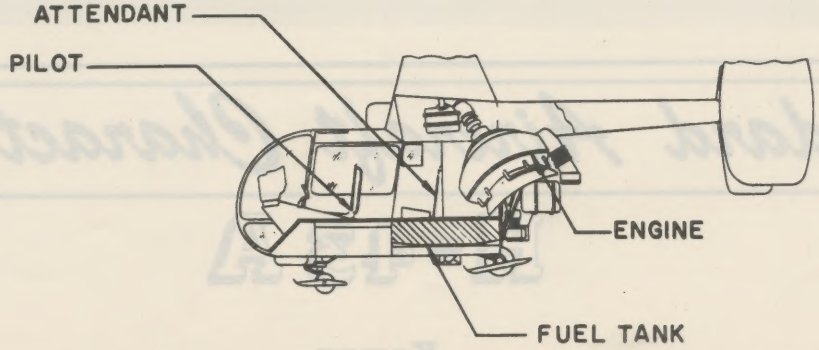
Disc Area (2 discs). . . 3470 sq ft
Blade Area (ea) . . . . 30.72 sq ft
Engine/Rotor Gear Ratio . 9.357:1

Airfoil Section . . . . NACA 23012
Chord . . . . . 15.7 in.



Fuel (Gal)

Oil (Gal)



POWER PLANT

Nr & Model . . . . (1) R-1340-48
Mfr . . . . . Pratt & Whitney
Engine Spec Nr A-1068A
Superch . . . . . 1 stg., 1 spd.
Red. Gear Ratio . . . . . D.D.

ENGINE RATINGS

	BHP	RPM	ALT	MIN
T.O.	600	2250	SL	5
METO:*	550	2200	SL	Cont

*Max except take-off

Mission and Description

Navy Equivalent: HOK-1 Mfr's Model: K-600

The principal mission of the H-43A is to maintain a condition of "ready alert" to proceed to crash or rescue site and be capable of aerial pickup of two (2) survivors, and when required, the suppression and control of fire, and crash entry removal.

The H-43A helicopter has two intermeshing rotors of two blades each. The rotors are controlled by aerodynamic servo flaps actuated by conventional controls mounted in the cockpit. The fuselage is a closed construction housing the cabin and engine. The necessity for a tail rotor is eliminated by the contra-rotating rotors. The fuselage tail booms support the tail group consisting of a horizontal stabilizer and four vertical surfaces. The four wheel type alighting gear is of standard construction.

Development

The H-43A is similiar to the HOK-1 except the tail vertical center fin of the HOK-1 is replaced by two dorsal and ventral fins and the elevator length has been extended.

Date of Contract . . . . . Mar 58
First Flight Date . . . . . Oct 58
First Acceptance . . . . . (est) Nov 58
Production Completion . . . . . (est) Jul 59

WEIGHTS

Loading	Lb	L.F.
Empty	4380(c)	—
Basic	4488(c)	—
Design	5572	3.00
Combat	*5805	2.88
Max T.O. (overload)	†7000	2.40
Max T.O. (normal)	†6560	2.55
Max Land	‡7000	2.40

(c) Calculated
* For basic mission
† Limited by structure, see Notes "a" & "b", page 6
‡ Limited by Max T.O. weight

FUEL

Location	Nr Tanks	Gal
Fuselage	1	(tot) 102
Grade		91/96
Specification		MIL-F-5572

OIL

Engine Section	1	(tot) 7.0
Grade		1100
Specification		MIL-L-6082B

DIMENSIONS

Rotor Dia . . . . . 47.0'
Length
  Rotors Operation . . . . . 47.0'
  Rotors Static . . . . . 46.8'
  Fuselage . . . . . 24.9'
Span (max lateral) . . . . . 50.4'
Height . . . . . 16.9'
Tread . . . . . 7.5'
Rotor Grd Clearance (static) . . 8'4"

FEATURES

Night Flying Equipment
Crash Entry Kit
Rescue Hoist
Cargo Hook
Bear Paw Skid Gear
Dual Controls (prov)
Winterization Kit (prov)
Firefighting Kit (prov)
Emergency Flotation Gear (prov)

PERSONNEL

Crew (normal) 2
  Pilot
  Attendant

Passengers 2
  or
Litters (level) 2

ELECTRONICS

UHF Command AN/ARC-34
Direction Finder AN/ARA-25
Radio Compass AN/ARN-59
Interphone AN/AIC-10
Remote Compass System . . . J-4

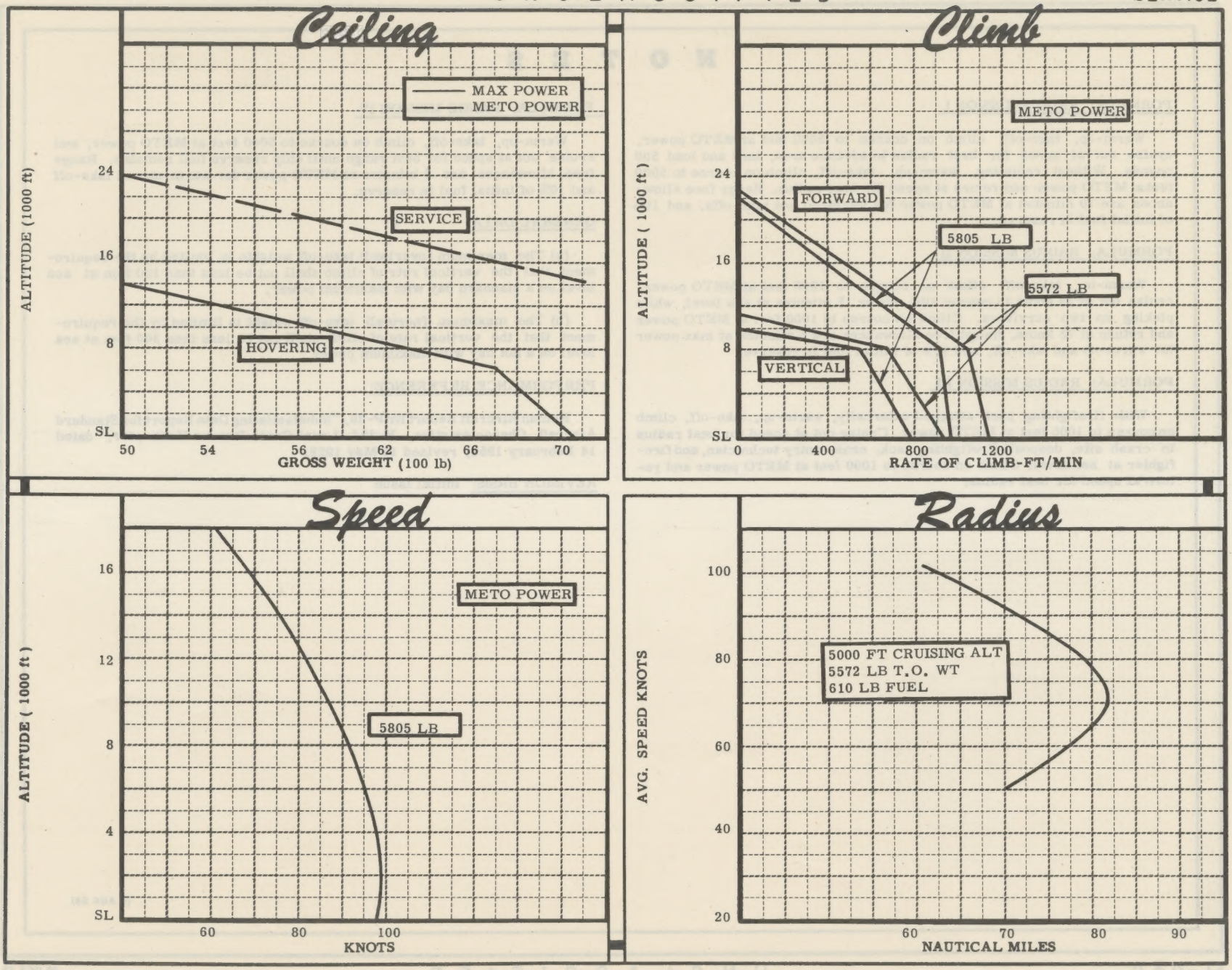
Loading and Performance—Typical Mission

CONDITIONS		BASIC MISSION I	DESIGN MISSION II	FIREFIGHTING MISSION III	FERRY RANGE IV
TAKE-OFF WEIGHT	(lb)	5572 (4)	5572 (4)	6772 (5)	5372 (6)
Fuel at 6.0 lb/gal (grade 91/96)	(lb)	610	610	610	610
Payload (outbound)	(lb)	None	None	1400	None
Payload (inbound)	(lb)	500	500	None	—
Take-off power loading	(lb/bhp)	9.29	9.29	11.29	8.95
Disc loading	(lb/sq ft)	3.21	3.21	3.87	3.09
Auto rotation speed (min R/D)	(kn)	42	42	40	42
Take-off ground run at SL (1)	(ft)	0	0	0	0
Take-off to clear 50 ft (1)	(ft)	0	0	0	0
Vertical rate of climb at SL (2)	(fpm)	920	920	450 (1)	1010
Max rate of climb at SL (2)	(fpm)	1130	1130	390	1260
Speed for max rate of climb at SL (2)	(kn)	41	41	39	41
Time: SL to 5000 ft (2)	(min)	4.4	4.5	11.9	4.0
Time: SL to 10,000 ft (2)	(min)	9.0	9.2	23.5	8.2
Service ceiling (100 fpm) (2)	(ft)	21,300	21,300	15,300	22,300
Absolute hovering ceiling (2)	(ft)	11,250	11,250	5000 (1)	12,300
COMBAT RANGE (3)	(n mi)	—	—	—	202
Averaging cruising speed	(kn)	—	—	—	76
Cruising altitude	(ft)	—	—	—	5000
Total mission time	(hr)	—	—	—	2.7
COMBAT RADIUS (3)	(n mi)	81	73	73	—
Average cruising speed	(kn)	77	75	67	—
Cruising altitude	(ft)	5000	1000	1000	—
Total mission time	(hr)	2.3	2.2	2.2	—
FIRST LANDING WEIGHT	(lb)	5305	—	6451	—
Ground roll at SL	(ft)	0	—	0	—
Total from 50 ft	(ft)	0	—	0	—
COMBAT WEIGHT	(lb)	5805	5765	5051	4823
Combat altitude	(ft)	5000	1000	1000	5000
Combat speed (1)	(kn)	103	104	104	111
Combat climb (1)	(fpm)	1290	1360	1760	1840
Combat ceiling (500 fpm) (1)	(ft)	15,700	16,000	19,300	20,200
Service ceiling (100 fpm) (2)	(ft)	20,300	20,500	23,800	24,900
Absolute hovering ceiling (2)	(ft)	10,000	10,300	13,900	15,100
Take-off ground run at SL (1)	(ft)	0	—	0	—
Take-off to clear 50 ft (1)	(ft)	0	—	0	—
Max rate of climb at SL (1)	(fpm)	1340	1360	1780	1910
Speed for max rate of climb at SL (1)	(kn)	41	42	42	42
Max speed at optimum altitude (2)	(kn/ft)	99/2500	99/2500	107/5000	108/5000
Basic speed at 5000 ft (2)	(ft)	97	97	107	108
LANDING WEIGHT	(lb)	5523	5553	4853	4823
Ground roll at SL	(ft)	0	0	0	0
Total from 50 ft	(ft)	0	0	0	0

NOTES

(1) Max power
(2) METO power
(3) Detailed description of RADIUS and RANGE missions are given on page 6.
(4) Includes crew of 1 @ 215 lb & attendant @ 200 lb
(5) Includes crew of 1 @ 215 lb; personnel of 2 @ 200 lb each and a firefighting pack @ 1000 lb (attached externally)
(6) Includes crew of 1 @ 215 lb

PERFORMANCE BASIS:
(a) Data sources: calculated data based on Navy flight tests of HOK-1.
(b) Performance is based on powers on pg 3.
(c) Data does not include ground effect.


Ceiling
MAX POWER
METO POWER
SERVICE
HOVERING
ALTITUDE (1000 ft)
24
16
8
SL
50
54
56
62
66
70
GROSS WEIGHT (100 lb)
Climb
METO POWER
FORWARD
5805 LB
5572 LB
VERTICAL
ALTITUDE (1000 ft)
24
16
8
SL
0
400
800
1200
RATE OF CLIMB-FT/MIN
Speed
METO POWER
5805 LB
ALTITUDE (1000 ft)
16
12
8
4
SL
60
80
100
KNOTS
Radius
5000 FT CRUISING ALT
5572 LB T.O. WT
610 LB FUEL
AVG. SPEED KNOTS
100
80
60
40
20
60
70
80
90
NAUTICAL MILES

NOTES

FORMULA: RADIUS MISSION I

Warm-up, take-off, climb on course to 5000 feet at METO power, cruise out at speed for best radius to advance area, land and load 500 pounds. Without refueling, warm-up, take-off, climb on course to 5000 feet at METO power and return at speed for best radius. Range free allowances are 10 minutes at METO power for warm-up and take-offs, and 10% of initial fuel in reserve.

FORMULA: RADIUS MISSION II

Warm-up, take-off, climb on course to 1000 feet at METO power, cruise out at 75 knots to rescue site, hover 15 minutes at sea level, while picking up two survivors. Climb on course to 1000 feet at METO power and return at 75 knots. Range free allowances are 5 minutes at max power for warm-up and take-off, and 15% of initial fuel in reserve.

FORMULA: RADIUS MISSION III

With firefighting pack attached externally, warm-up, take-off, climb on course to 1000 feet at METO power. Cruise out at speed for best radius to crash site, desposit firefighting pack, crash entry technician, and firefighter at sea level. Climb on course to 1000 feet at METO power and return at speed for best radius.

FORMULA: RANGE MISSION IV

Warm-up, take-off, climb on course to 5000 feet at METO power, and cruise out at speed for best range until only reserve fuel remains. Range free allowances are 5 minutes at METO power for warm-up and take-off and 10% of initial fuel in reserve.

GENERAL DATA:

(a) The maximum (overload) take-off weights is limited by the requirement that the vertical rate of climb shall not be less than 100 fpm at sea level on a standard day with maximum power.

(b) The maximum (normal) take-off weight is limited by the requirement that the vertical rate of climb shall not be less than 300 fpm at sea level on a hot day with maximum power

PERFORMANCE REFERENCE:

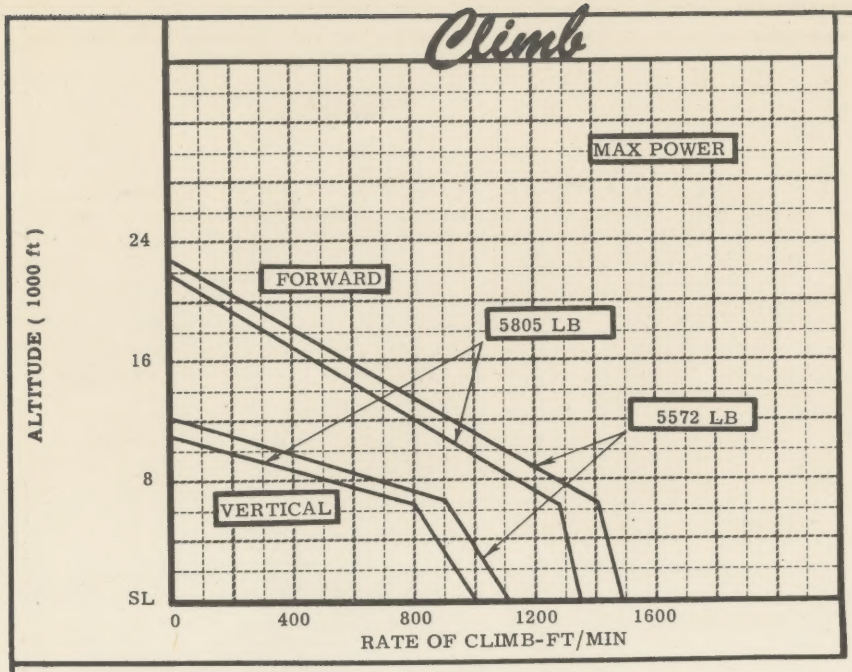
Kaman Aircraft Report Nr P-39, "Substantiating Data Report for Standard Aircraft Characteristics, H-43A Local Crash Rescue Helicopter," dated 14 February 1958, revised 16 May 1958.

REVISION BASIS: Initial Issue

(8 AUG 58)

SUPPLEMENTAL

Climb



Radius