

technical data

SA 365 C₂



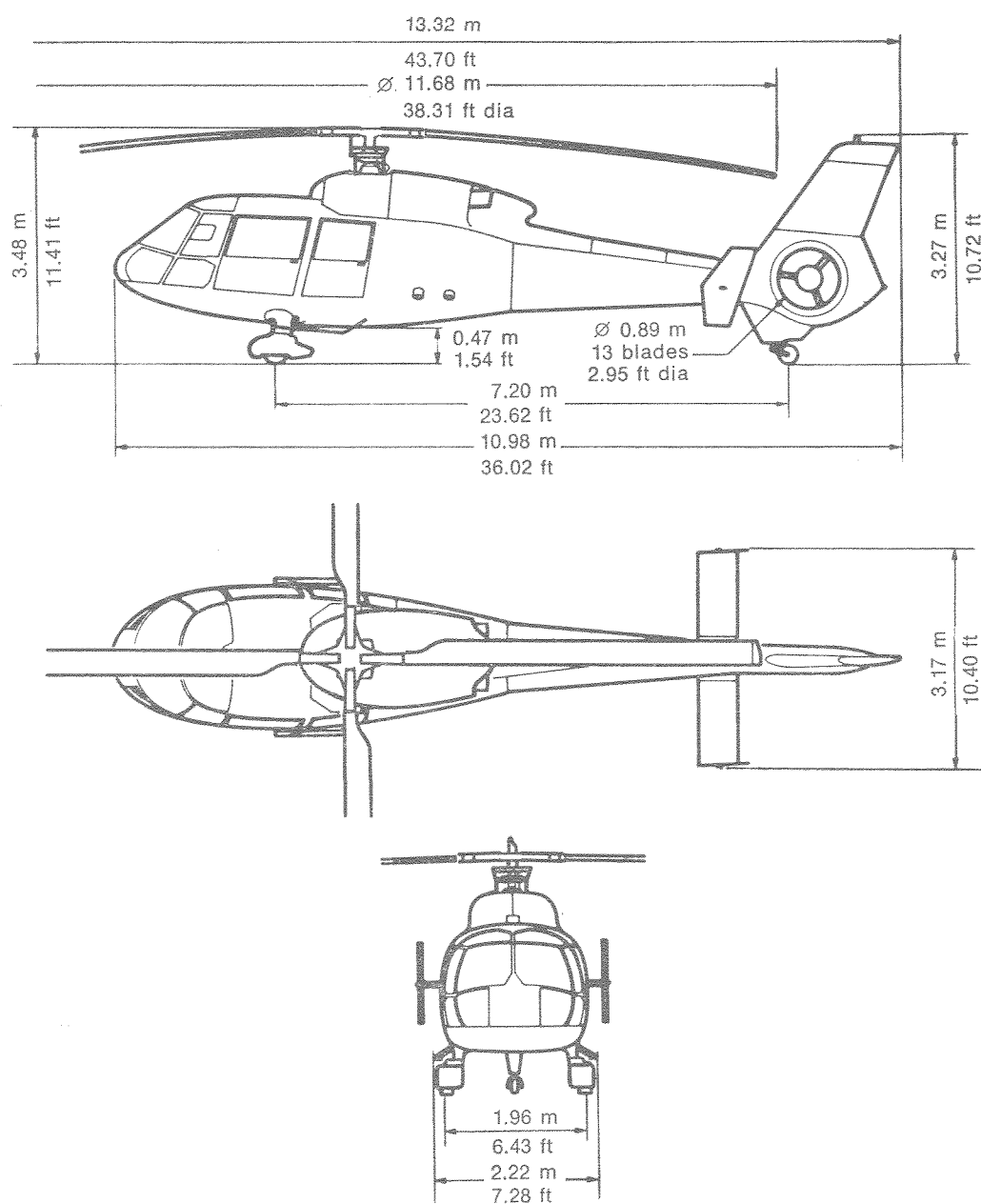
dauphin 2

aerospatiale

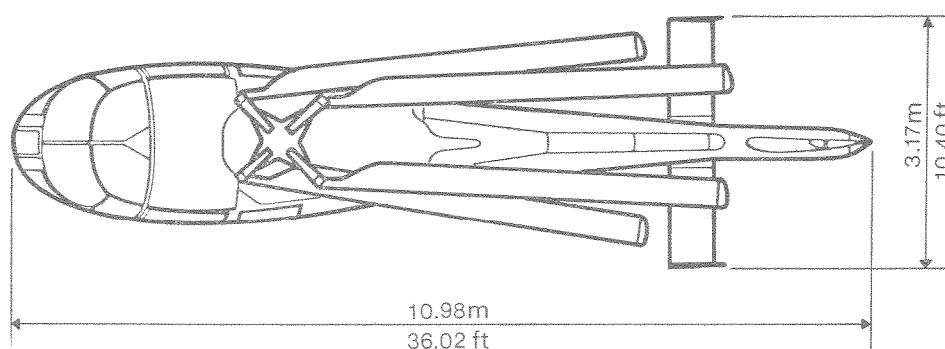
Division hélicoptères - 2 à 20 avenue Marcel Cachin 93126 La Courneuve - France



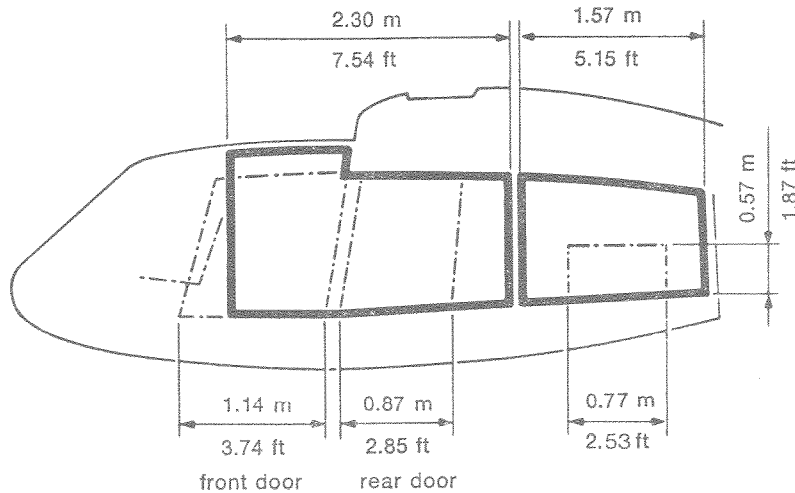
MAIN DIMENSIONS



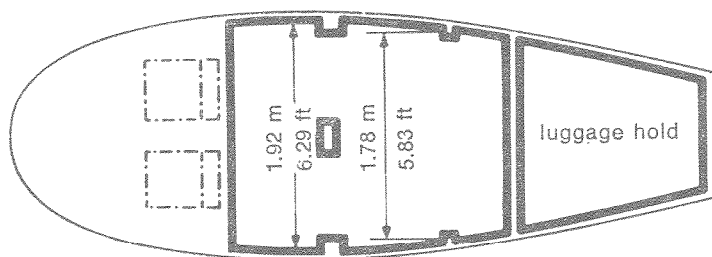
DIMENSIONS WITH BLADES FOLDED



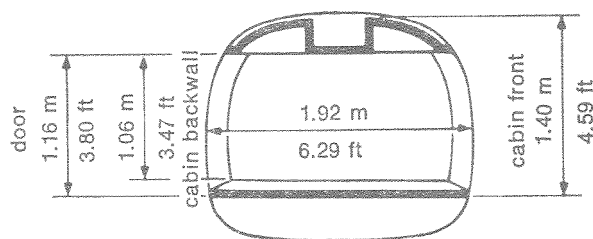
DIMENSIONS OF ACCESSES AND COMPARTMENTS



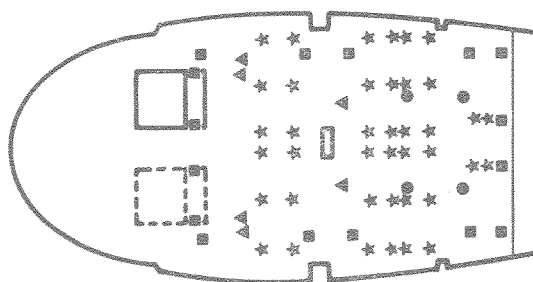
CABIN	
Area	4.20 m ² 45.20 sq.ft.
Volume	5.00 m ³ 176.57 cu.ft.



HOLD	
Area	1.15 m ² 12.37 sq.ft.
Volume	1.00 m ³ 35.31 cu.ft.



CABIN FLOOR



- ▲ Tie-down rings usable for stretchers
- Fixtures for ferrying tank
- Tie-down rings
- ★ Seat-attachment point

Max. floor strength : 610 daN/m² - 125 lb/sq.ft.

GENERAL CHARACTERISTICS

Arrangement

Troop-transport:	1 pilot + 9 passengers in standard version 1 pilot + 13 passengers in "utility version"
Casualty evacuation:	1 pilot + 4 stretcher-patients + 2 places for seated patients or doctors

Weights

	kg	lb
Empty weight, standard aircraft	1,876	4,136
Engine oil	15	33
Useful load	<u>1,609</u>	<u>3,547</u>
Max. weight on take-off	3,500	7,716
Max. load on cargo-sling	1,300	2,865

Power-plant

2 TURBOMECA ARRIEL turbine engines

Power-ratings in standard atmosphere, at sea level

■ Max. emergency power	500 kW	680 ch	670 HP
■ Intermediate emergency power	490 kW	666 ch	657 HP
■ Take-off power	470 kW	638 ch	630 HP
■ Max. continuous power	432 kW	586 ch	579 HP

Fuel capacity (usable fuel)

■ Standard tanks	640 litres	169 US gal.	510 kg	1,125 lb
■ Additional tanks (option)				
Cabin auxiliary fuel tank	215 litres	57 US gal.	170 kg	375 lb
Hold auxiliary fuel tank	190 litres	50 US gal.	150 kg	331 lb
Ferrying tank	475 litres	125 US gal.	375 kg	827 lb

Certification

The Dauphin 2 is certified by the DGAC, the FAA, the CAA and the LBA, categories A and B for VFR flight in the daytime and at night and IFR flight.

DEFINITION OF STANDARD AIRCRAFT

GENERAL

Fuselage comprising the cabin and luggage hold with floor, tie-down net and access-door
Tail boom with stabilizer fitted with 2 lateral fins and terminated by a shrouded tail rotor built in the main fin
Fixed, faired-in wheeled main landing gear with differential brakes on pilot's side
1 tail wheel with castor-lock
Hoist and cargo-sling attachment points
Jacking and hoisting points
Skid landing-gear provisions
Interior paint: grey; exterior: per customer paint scheme (glossy or dull polyurethane finish)

CABIN

1 cabin floor capable of the various seating arrangements up to 14 seats
2 removable pilot and copilot high back rest bucket-type seats, adjustable in reach, each fitted with a safety belt
8 folding dark-blue utility seats each fitted with a safety belt
4 jettisonable, hinged doors
1 rear door-extension, RH side
2 foot-steps
2 bad-weather windows
2 upper tinted panes
2 sun vizors
Cabin upholstery with soundproofing
Solo-flying controls with dual-control capability
Engine controls
Rotor brake control
1 heating/demisting/ventilation system, with air-conditioning capability
1 windshield wiper, pilot's side
2 map cases at pilot's and copilot's stations
6 ash trays (1 on each door and 2 on the pedestal)
2 fire-extinguishers
1 first-aid kit recess
1 pilot's foldable console
1 Flight Manual
1 data-case

INSTRUMENTS

1 airspeed indicator
1 altimeter
1 rate-of-climb indicator
1 gyro-horizon
1 gyro-compass with RMI
1 heated pitot head
1 dual torquemeter
2 tail pipe temperature needle-type indicators
2 engine oil pressure and temperature indicators
2 fuel pressure indicators
1 main gearbox oil pressure and temperature indicator
2 hydraulic pressure-gauges
1 voltmeter
1 ammeter
1 dual fuel content gauge
1 stop watch
1 triple tachometer for rotor and engines 1 and 2 free-wheel r.p.m.
1 dual engine gas-generator tachometer
1 bank indicator
1 stand-by magnetic compass
1 outside air temperature indicator
1 warning panel
1 master alarm light
2 fire warning lights and 2 dual extinguishing controls
1 hourmeter
1 electrical control panel
1 fuel circuit control and inspection panel

POWER PLANT

2 TURBOMECA ARRIEL 1 A₂ - 680 ch (670 HP) turbine engines complete with starting, fuel supply, lubrication and governing systems
2 fuel systems including four tanks in groups of 2 with a total usable capacity of 640 litres' (169 US gal.)
2 engine lubrication and oil cooling systems
2 fire detection and extinguishing systems
2 anti-icing air-intake screens
2 hydraulic sensors for torquemeters built into the engines

TRANSMISSION SYSTEM

1 main rotor gearbox, anti-vibration mounted, with oil sight gauge, magnetic plug, oil pressure and temperature pick-up, thermal-switch, rotor tachometer drive, and hole for passing of endoscope and sampling of oil
1 tail gearbox with oil sight gauge and oil temperature pick-up
1 main gearbox oil cooling system
2 free-wheeled engine/main gearbox coupling shafts
1 rotor brake

ROTORS AND FLYING CONTROLS

1 main rotor with 4 glass- and carbon-fibre blades with Starflex head equipped with droop stops, mast fitted with rotor r.p.m. phonic-wheel sensor and provisions for blade folding
1 tail rotor with 13 metal blades built in the fin
2 groups of 3 single-bodied servo-units series-mounted on the flight control channels, each fed by an independent hydraulic system: 1 main group located at the main rotor head and 1 auxiliary group capable of accommodating the autopilot
1 tail rotor servo-unit

ELECTRICAL INSTALLATION

2 250 VA, 115/26 V, 400 Hz 1-phase static inverters
2 4.5 kW starter-generators
1 23 Amp/hr cadmium-nickel battery with temperature detector
1 external power receptacle
1 instrument white-blue lighting system
1 cabin extension light on pilot's side
2 cabin dome-lights
1 hold dome-light
3 position lights
1 landing light, adjustable in elevation
1 anti-collision light

AIRBORNE KIT (weight not included in weight empty of standard aircraft)

1 pitot head cover
2 static vent blanks
2 engine air-intake blanks
2 engine tail pipe blanks
3 mooring rings
1 access ladder to transmission deck
1 airborne kit stowing bag

Empty weight: 1,876 kg - 4,136 lb

OPTIONAL EQUIPMENT

GENERAL ITEMS OF EQUIPMENT

- Reel harness + safety belt (at pilot and copilot station)
- Second landing light
- Air conditioning system
- Tinted plexiglass panes (in addition to the upper ones)
- Heated panes
- 4.5 kVA, 115/200 V, 400 Hz A.C. generation system
- Skid landing gear
- 36 amp/hr SAFT 4006-1 battery (mandatory for IFR-CAA certification)

WEIGHT SUPPLEMENT	
kg	lb
3.3	7.2
3.0	6.6
23.0	50.7
0.0	0.0
12.6	27.7
7.0	15.4
3.1	6.8
7.5	16.5

CONTROLS AND INSTRUMENTS

- Copilot kit, including:
 - dual controls
 - copilot's instruments (altimeter, rate-of-climb indicator, airspeed indicator, GH 14 gyro-horizon, IVA 557 RMI)
 - second windshield wiper
 - second cabin extension light
 - second master warning light
- Automatic flight control system SFIM 145 B (including horizontal situation indicator at pilot station)
- ARC G 213 B stand-by horizon
- EAS HSI 651 2nd horizontal situation indicator
- SPERRY C-14 D 2nd gyro-compass
- BADIN-CROUZET 39 600 encoding altimeter
- Integrating fuel flowmeter

14.7	32.4
20.1	44.3
1.4	3.0
2.2	4.8
4.9	10.8
1.3	2.8
2.0	4.4

CABIN LAY-OUT

- « De-luxe » interior upholstery and enhanced sound-proofing
- Folding utility bench-seat (4 places)
- « Comfort » lay-out
 - 8 passenger seats
 - carpet
 - foot-rests
- « V.I.P. » lay-out 4 places
- « V.I.P. » lay-out 6 places

27.0	59.5
13.1	28.8
60.0	132.2
205.0	451.9
195.0	429.8

SPECIFIC MISSION EQUIPMENT

- Emergency floatation gear for wheeled landing gear
- Emergency floatation gear for skid landing gear
- Skis for wheel landing gear
- Skis for skid landing gear
- Orange screens for instrument flight training with specially coloured goggles
- Fuel jettison system (a/c with skid landing gear only)
- Ferrying tank (475 litres - 125 US gal.)
- Cabin auxiliary fuel tank (215 litres - 57 US gal.)
 - with standard upholstery
 - with « de luxe » upholstery
- Hold auxiliary fuel tank (190 litres - 50 US gal.)
- External load carrying installation (CARGO-AIDS sling) (1 300 kg - 2 865 lb)
- AIR EQUIPEMENT electrical hoist (272 kg - 600 lb, 90 m - 295 ft cable)
 - with short jib (a/c with wheel landing gear)
 - with long jib (a/c with skid landing gear)
- BREEZE electrical hoist (272 kg - 600 lb, 74 m - 245 ft cable)
 - with short jib (a/c with wheel landing gear)
 - with long jib (a/c with skid landing gear)
- Left rear sliding door (hoisting installation requires the fitment of this equipment)
- Right rear sliding door
- Drip tub (sea rescue)
 - with 215-litre auxiliary fuel tank
 - without 215-litre auxiliary fuel tank
- Casualty-carrying installation (without stretchers)
- Stretcher
- Strong wind operation kit (upper stops on MRH)
- Hailers
- LOCATOR search light

WEIGHT SUPPLEMENT	
kg	lb
105.0	231.4
85.0	187.3
53.6	118.1
47.0	103.6
6.0	13.2
16.5	36.3
19.2	42.3
22.0	48.5
24.0	52.9
20.7	45.6
7.0	15.4
63.8	140.6
72.8	160.4
58.5	128.9
67.5	148.9
3.8	8.3
3.8	8.3
23.0	50.7
20.5	45.1
9.0	19.8
8.5	18.7
6.5	14.3
28.0	61.7
12.0	26.4

GROUND HANDLING AND PICKETTING

- Blade folding system (fixed parts on MRH)
- Bad weather mooring kit

1.3	2.8
1.6	3.5

TYPICAL INSTALLATION-EXAMPLES OF RADIO COM./NAV. EQUIPMENT

TYPE	DESCRIPTION	Solution 1	Solution 2	Solution 3
①	VHF/AM transceiver No. 1	KING KX 175 BE	COLLINS VHF 20 A	KING KTR 905
	VHF/AM transceiver No. 2	KING KX 175 BE	COLLINS VHF 20 A	KING KTR 905
	ICS	TEAM TB 27	TEAM TB 24	TEAM TB 24
	Headsets (2)	ELNO 247 SP 59	ELNO 247 SP 59	ELNO 247 SP 59

②	Manual VOR + LOC + GLIDE receiver	KING KI 204 + KN 75		
	Manual and automatic VOR + LOC + GLIDE receiver		COLLINS VIR 31 H	KING KNR 630
	Marker-Beacon receiver	EAS RB 692		KING KMR 675
	Radio-compass receiver	KING KR 85	COLLINS ADF 60	KING KDF 805
	Radio-altimeter		TRT AHV 8	TRT AHV 8

③	HF/SSB (BLU) transceiver	SUNAIR ASB 100 A	SUNAIR ASB 100 A	SUNAIR ASB 100 A
	Transponder	KING KT 76 A	COLLINS TDR 90	KING KXP 755
	Encoding altimeter		BADIN- CROUZET 39600	BADIN- CROUZET 39600
	DME		COLLINS DME 40	KING KDM 706
	Radar		BENDIX RDR 1 400 B or RCA PRIMUS 31	BENDIX RDR 1 400 B or RCA PRIMUS 31
	Emergency Locator Transmitter	JOLLIET JE 2	JOLLIET JE 2	JOLLIET JE 2

WEIGHT SUPPLEMENT	①	kg	18.5	20.1	19.5
		lb	40.8	44.3	42.9
	① + ②	kg	30.1	40.2	40.5
		lb	66.3	88.6	89.5
	① + ② + ③	kg	51.6	85.3	89.3
		lb	113.7	188.0	196.8

- ① Radio-communication equipment
- ② Radio-navigation equipment
- ③ Specific mission radio-com./nav. equipment

FUELS WHICH MAY BE USED

Designation		French Specifications	British Specifications	American Specifications	NATO Symbol
NORMAL USE	KEROSENE	AIR 3405 TR. 0	DERD 2453 AVTUR/FS 11	—	F. 34
			—	ASTM Jet A	—
			DERD 2494 AVTUR	ASTM Jet A 1	F. 35
		AIR 3407 TR. 4	DERD 2454 AVTAG/FS 11	MIL T 5624 JP 4	F. 40
			DERD 2486 AVTAG	ASTM Jet B	F. 45
		AIR 3404 TR. 5	—	—	F. 42
			DERD 2498 AVCAT	MIL T 5624 JP 5	F. 44
FOR USE IN EMERGENCY	AUTOMOTIVE GASOLINE	DCEA/2D MT 80	DEF 2401	MIL G 3056	F. 46
	AVIATION GASOLINE	AIR 3401 80/87	—	MIL G 5572 80/87	F. 12
		AIR 3401 100/130	DERD 2485 100/130 AVGAS	MIL G 5572 100/130	F. 18
		AIR 3401 115/145	DERD 2485 115/145 AVGAS	MIL G 5572 115/145	F. 22

Note: The use of "emergency fuels" is subject to certain temperature and duration restrictions indicated in the "limitations" chapter of the Flight Manual.

ENGINE LUBRICANTS

French Specifications		British Specifications	American Specifications	NATO Symbol	Remarks
NORMAL	AIR 3513		MIL L 7808	0.148	Synthetic oil
	AIR 3514			0.150	
			MIL L 23699	0.156	
		D. Eng RD 2487		0.149	
	AIR 3517			0.159	
ALTERNATIVES	AIR 3515	D. Eng RD 2490	Aeroshell Turbine Oil 3	0.135	Mineral oil
			Esso aviation utility oil F		
			Caltex Jet engine oil medium heavy		

Note: Use suffixes and amendments in force

MECHANICAL COMPONENT OILS

French Specifications	British Specifications	American Specifications	NATO Symbol	Remarks
AIR 3525	DTD 581	MIL L 6086	0.155	Mineral oil
		MIL L 23699	0.156	Synthetic oil

MAIN PERFORMANCE

The following performance figures are values obtained with average production engines. Unless otherwise stated, they are given for a clean aircraft, in zero wind at sea level, standard atmosphere conditions.

Performance on 2 engines

Take-off weight	kg lb	2,800 6,170	3,000 6,615	3,200 7,055	3,400 7,495	3,500 7,715
VNE	km/hr mph kts	315 196 170	315 196 170	296 184 160	278 173 150	269 167 145
Cruise speed	km/hr mph kts	256 159 138	255 158 137	254 157 137	253 157 136	252 156 136
Fuel consumption	kg/km	1.10	1.11	1.12	1.13	1.14
at cruise speed	lb/st. m lb/n. m	3.89 4.50	3.92 4.54	3.96 4.58	4.00 4.62	4.04 4.66
Rate of climb in oblique flight	m/sec. ft/min.	11.3 2,225	10.0 1,970	9.0 1,770	8.0 1,575	7.6 1,495
Max. range without fuel reserve at cruise speed						
■ with standard fuel tanks	km st. m n. m	470 292 254	465 289 251	460 286 248	455 283 245	450 280 243
■ with aux. fuel tank (compatible with 10-seat pass. transp. configuration)	km st. m n. m	625 388 337	620 385 334	615 382 332	610 379 329	605 376 327
Endurance without reserve, at 130 km/hr (70 kts or 80 mph)	hr	2.5	2.5	2.4	2.4	2.4
Hover ceiling IGE at take-off power:						
■ ISA	m ft	4,240 13,910	3,570 11,710	2,960 9,710	2,320 7,610	2,040 6,700
■ ISA + 20 °C	m ft	3,450 11,315	2,720 8,920	2,010 6,600	1,310 4,300	1,010 3,310
Hover ceiling OGE at take-off power:						
■ ISA	m ft	3,960 13,000	2,840 9,315	2,200 7,215	1,550 5,085	1,250 4,100
■ ISA + 20 °C	m ft	2,620 8,595	1,830 6,000	1,100 3,610	400 1,310	300 100
Service ceilings (1 m/sec - 200 ft/min)	m ft	> 6,000 > 19,680	> 6,000 > 19,680	6,000 19,680	5,000 16,400	4,700 15,415

Performance on 1 engine

Take-off weight	kg	2,800	3,000	3,200	3,400	3,500
	lb	6,170	6,615	7,055	7,495	7,715
Rate-of-climb	m/sec	3.3	2.7	2.1	1.5	1.2
at inter. emergency rating	ft/min	650	530	415	295	235
Service ceilings (1 m/sec -	m	2,225	1,615	1,220	670	400
200 ft/min) at inter. emergency rating	ft	7,300	5,300	4,000	2,200	1,310

Operating limitations

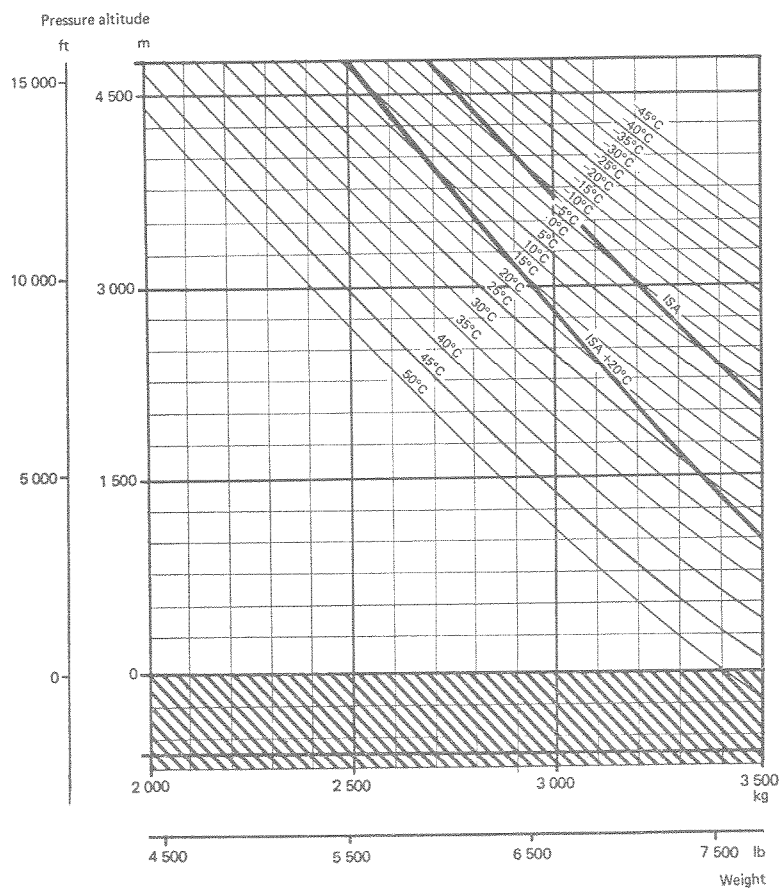
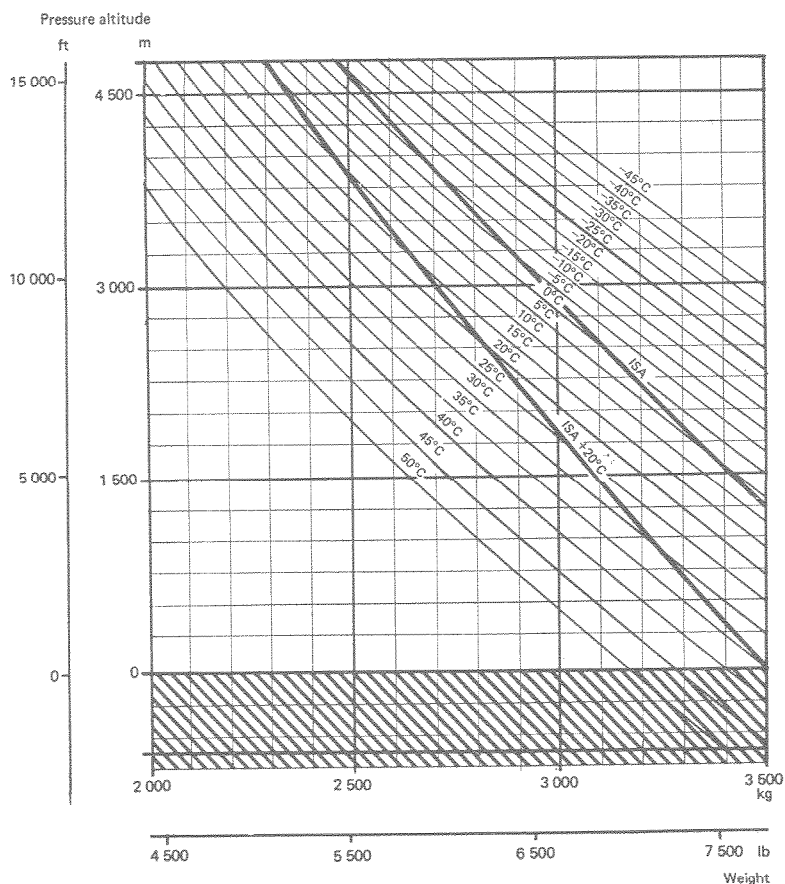
The aircraft is cleared to operate within the following altitude and temperature limitations:

- Maximum pressure altitude 4,570 m - 15,000 ft
- Maximum temperature ISA + 25 °C limited to + 40 °C
- Minimum temperature — 40 °C

The performance figures given in this chapter are those of the standard aircraft, in clean configuration. They should, when necessary, be modified to take into account the effect of the items of optional equipment. This effect, where applicable, appears on the corresponding descriptive leaflet.

HOVER CEILING O.G.E. on 2 engines at take-off power

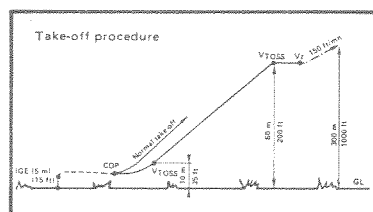
Recommended take-off weights



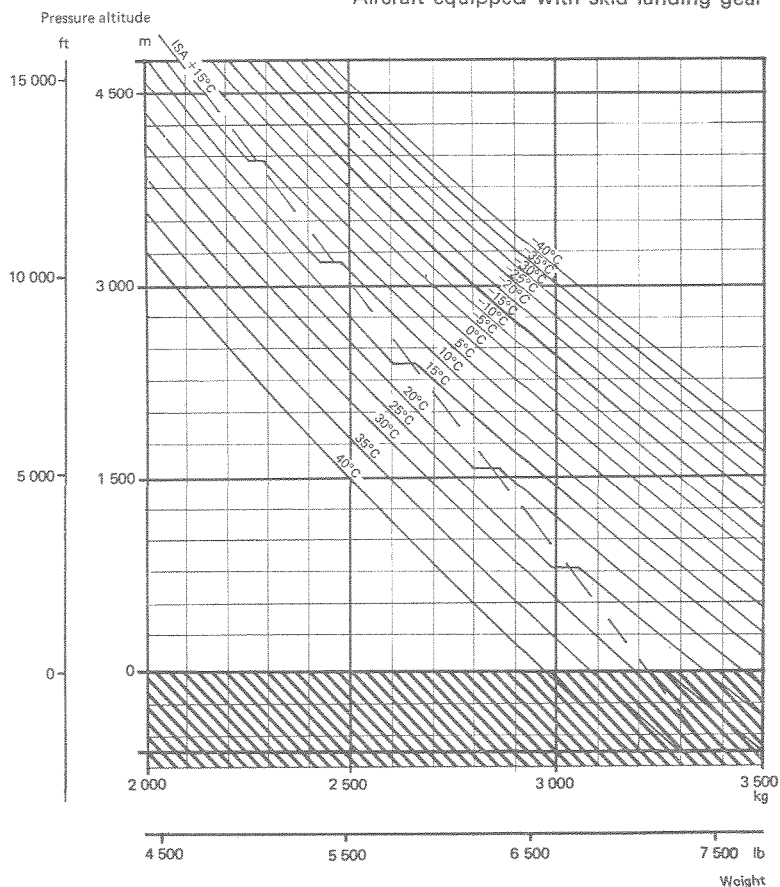
HOVER CEILING I.G.E. on 2 engines at take-off power

MAXIMUM PERMISSIBLE GROSS WEIGHT ON TAKE-OFF CLEAR HELIPORT

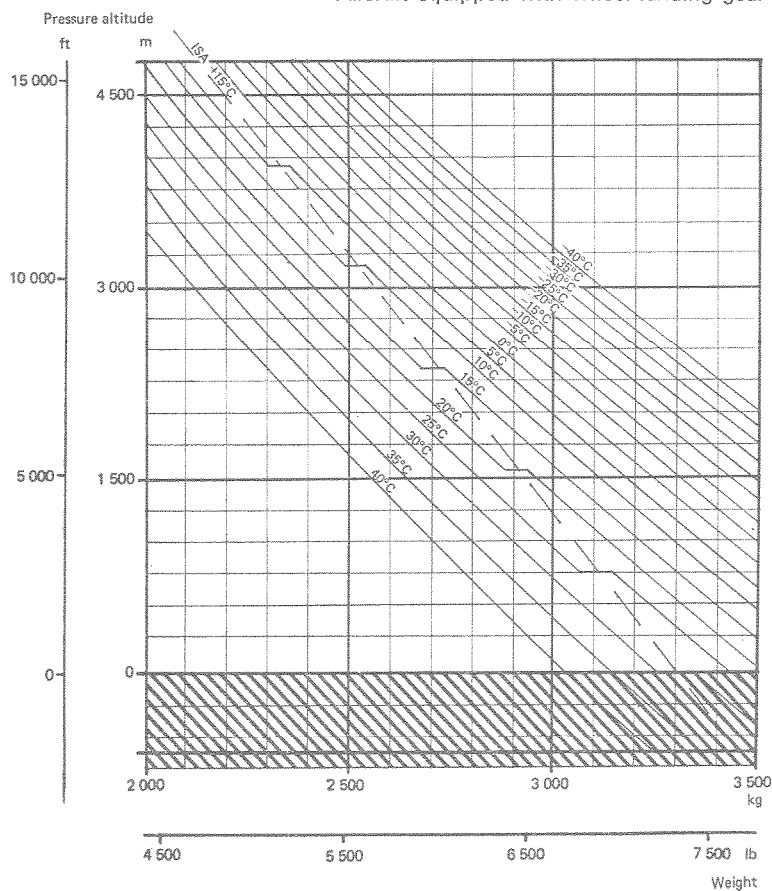
Category A



Aircraft equipped with skid landing gear



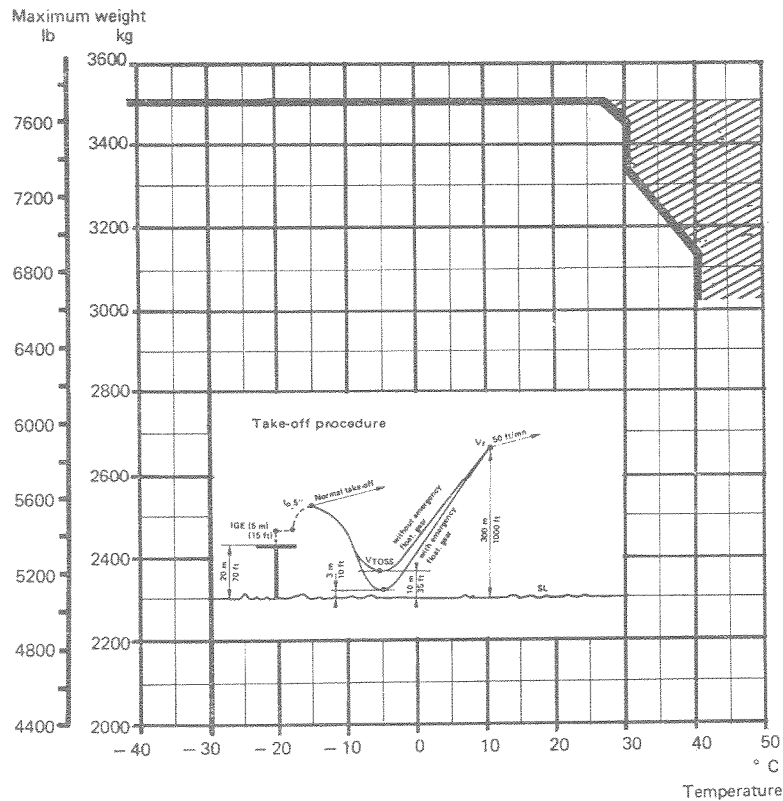
Aircraft equipped with wheel landing gear



NOTE:

When the emergency floatation gear is installed, take-off weights plotted from the curves must be reduced by:

- 80 kg for a helicopter with wheel type landing gear
- 10 kg for a helicopter with skid type landing gear



MAXIMUM PERMISSIBLE GROSS WEIGHT ON TAKE-OFF PLATFORM OPERATION

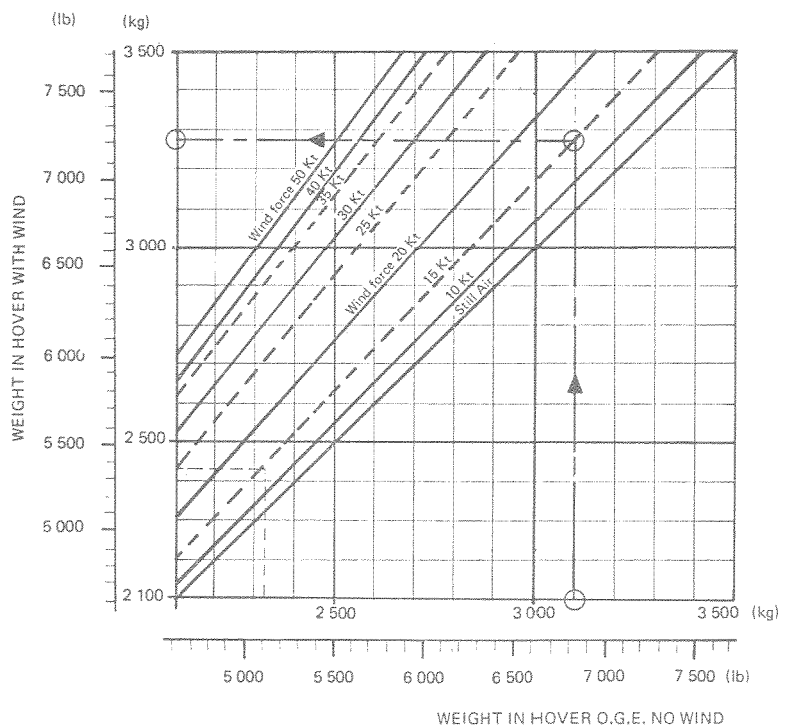
Category A

(a/c equipped with emergency floatation gear)

- Sea level
- No wind
- Offshore platform procedure with resource of flying below platform level in case of engine failure
- Height of platform 20 m (66 ft)
- R.O.C. one engine out: 50 ft/min
- Forward speed : 70 kts (intermediate emergency power)

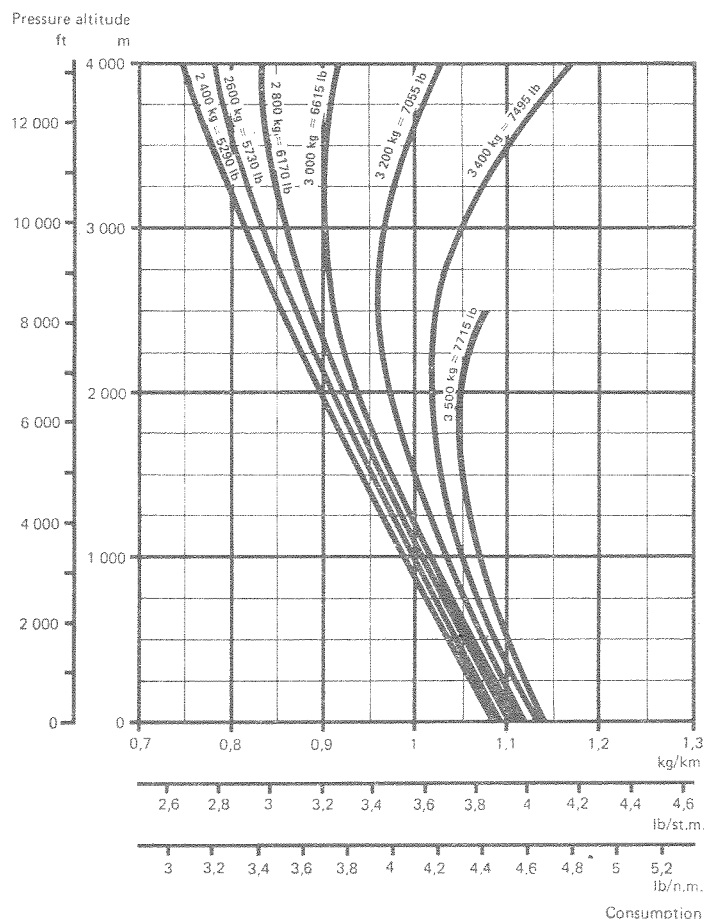
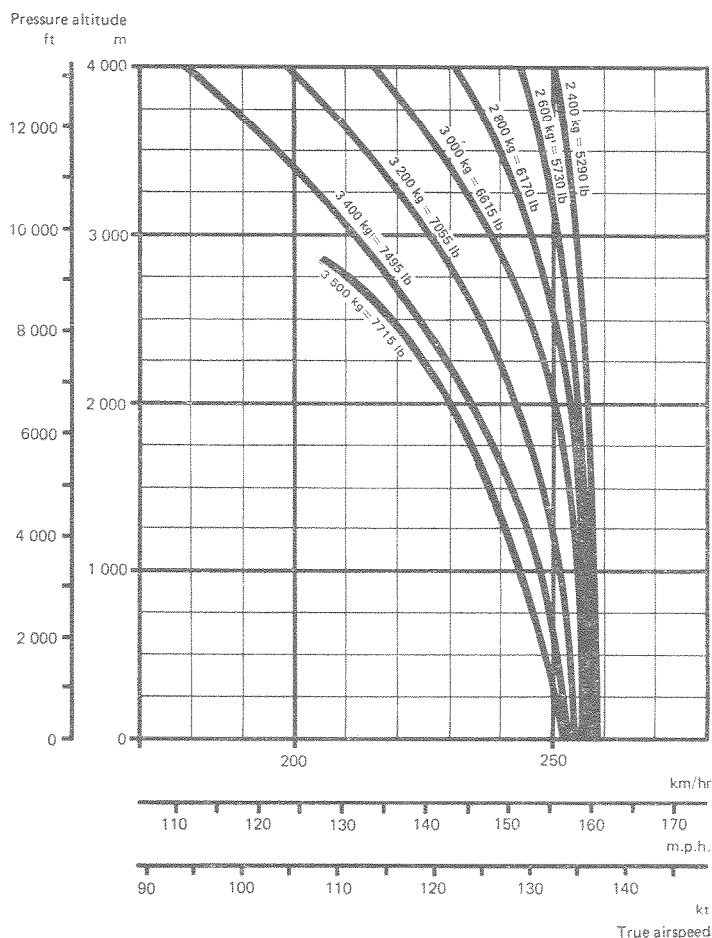
EFFECT OF WIND on hover performance O.G.E.

NOTE: Unfactored wind



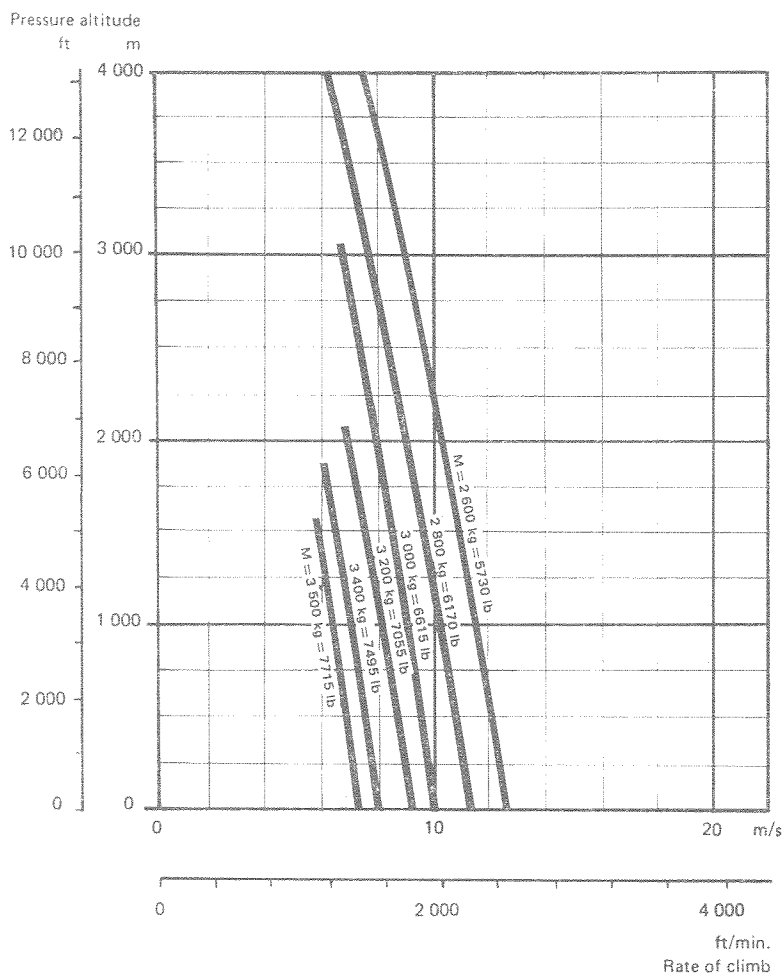
CRUISE SPEED on 2 engines (ISA)

at maximum continuous power



FUEL CONSUMPTION at cruise speed on 2 engines (ISA)

at maximum continuous power



**RATE OF CLIMB
IN OBLIQUE FLIGHT
on 2 engines (ISA)**

**RATE OF CLIMB
IN OBLIQUE FLIGHT
on 1 engine at intermediate
emergency rating
IAS = 70 kts (ISA)**

