SECTION 5

PERFORMANCE

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PERFORMANCE

5.1 GENERAL

This section provides performance information applicable to the V1.0 aircraft, required by certification regulations and useful for flight planning.

5.2 INTRODUCTION - PERFORMANCE CHARTS

Performance data charts presented in this section may be used to know what to expect from the aircraft under various conditions, and also to facilitate the planning of flights with reasonable accuracy.

The performance charts are unfactored and do not make any allowance for varying degrees of pilot proficiency or airframe material or mechanical deterioration.

NOTE

Performance loss should be expected when incorporating external modifications causing a significant increase in the aerodynamic drag.

5.3 AIRSPEED CALIBRATION

The Figure 5-1 shows the Airspeed Calibration curves; only one curve is reported because the flap position does not affect the calibration curve.
The graph represents the calibrated airspeed V_{CAS} as a function of the indicated airspeed V_{IAS}.

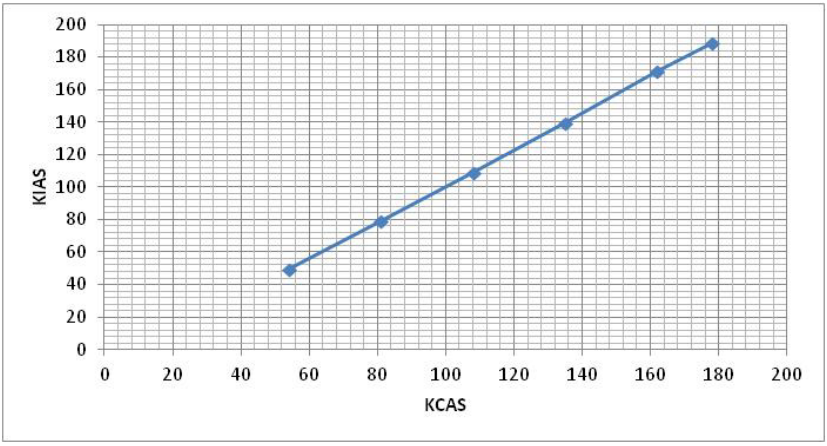

Figure 5-1 Airspeed calibration

5.4 ALTIMETER CORRECTION

The maximum static error correction to be applied to the altimeter reading does not exceed 30 feet.

5.5 ALTERNATE STATIC SOURCE

The alternate source valve is located on the left side of the control pedestal. No static error correction must be applied to the altitude and airspeed indicator readings when static air is supplied by the alternate static source.

5.6 TEMPERATURE CORRECTION CHART

See Figure 5-2.

5.7 WIND COMPONENT

See Figure 5-3.

Maximum demonstrated crosswind velocity is 20 Kts.

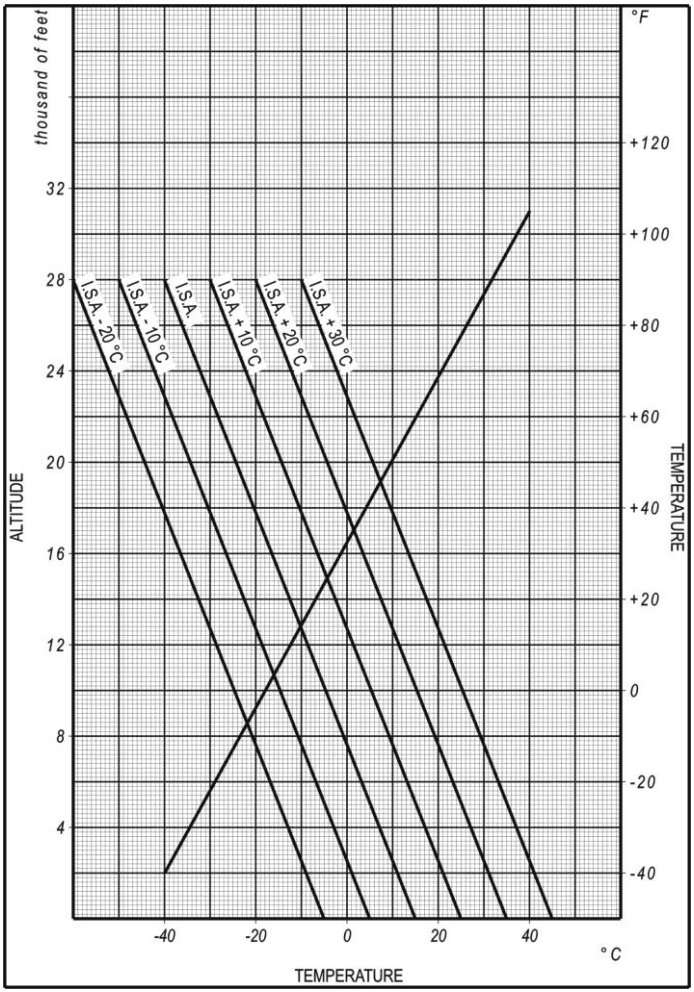

Figure 5-2 Temperature conversion

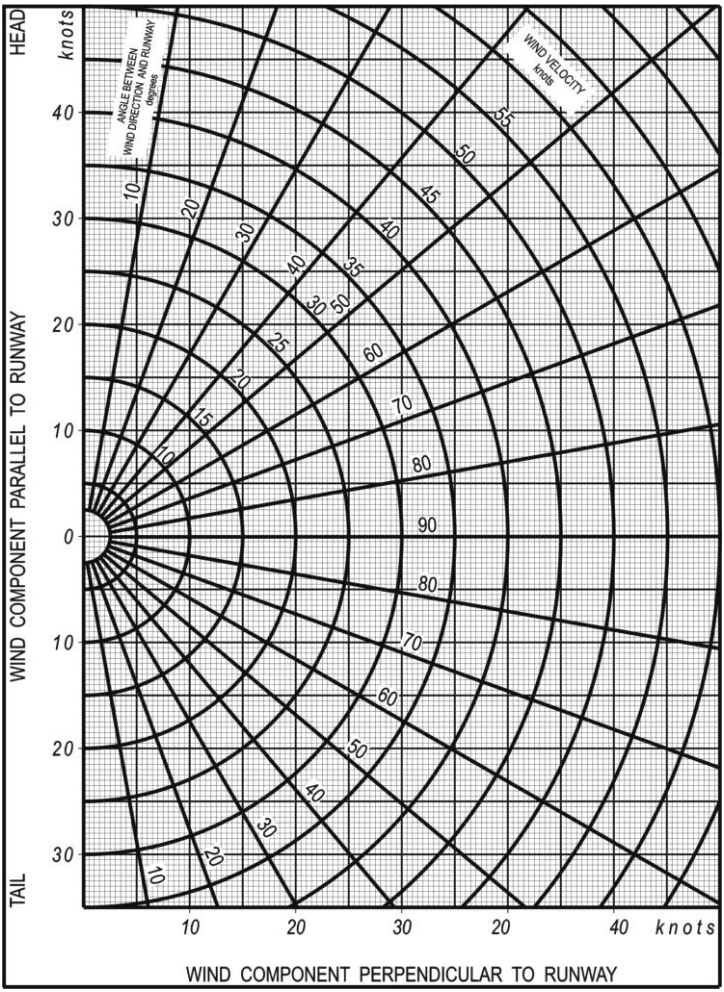

Figure 5-3 Wind component

5.8 STALL SPEED

(Figure 5-4)

Associated Conditions:

Throttles IDLE

		Angle of bank					
Weight	**FLAPS**	**0°**		**30°**		**60°**	
kg	**degrees**	**KIAS**	**KCAS**	**KIAS**	**KCAS**	**KIAS**	**KCAS**
1155	0°	59	63	64	67	85	86
	14°	54	58	59	62	78	80
	28°	51	55	56	60	73	75
	42°	49	53	53	57	70	72
1000	0°	55	59	59	63	79	81
	14°	50	54	55	59	73	75
	28°	47	52	52	56	68	71
	42°	46	50	49	54	65	68
850	0°	51	55	55	59	73	75
	14°	46	51	51	55	67	70
	28°	44	49	48	52	63	66
	42°	42	47	45	50	60	63

Figure 5-4 Stall speeds

5.9 TAKE-OFF DISTANCE TO CLEAR 50 FT OBSTACLE

(Figure 5-5)

Associated Conditions:

Power	180 HP @ 2700 RPM (Maximum Continuous Power) before brake release
Runway	Paved, Dry, Level

WARNING

Poor maintenance condition of the airplane, deviation from the given procedures as well as unfavorable external factors (e.g. high temperature, rain, unfavorable wind conditions, including cross-wind) will increase the take-off distance.

CAUTION

- Increase the take-off distance of 15% in case of grass up to 10 cm.
- Increase the take-off distance of a further 10% in case of wet surface.

CAUTION

In case of grass longer than 10 cm an additional increase in take-off distance must be expected.

CAUTION

In case of grass longer than 25 cm the take-off should not be attempted.

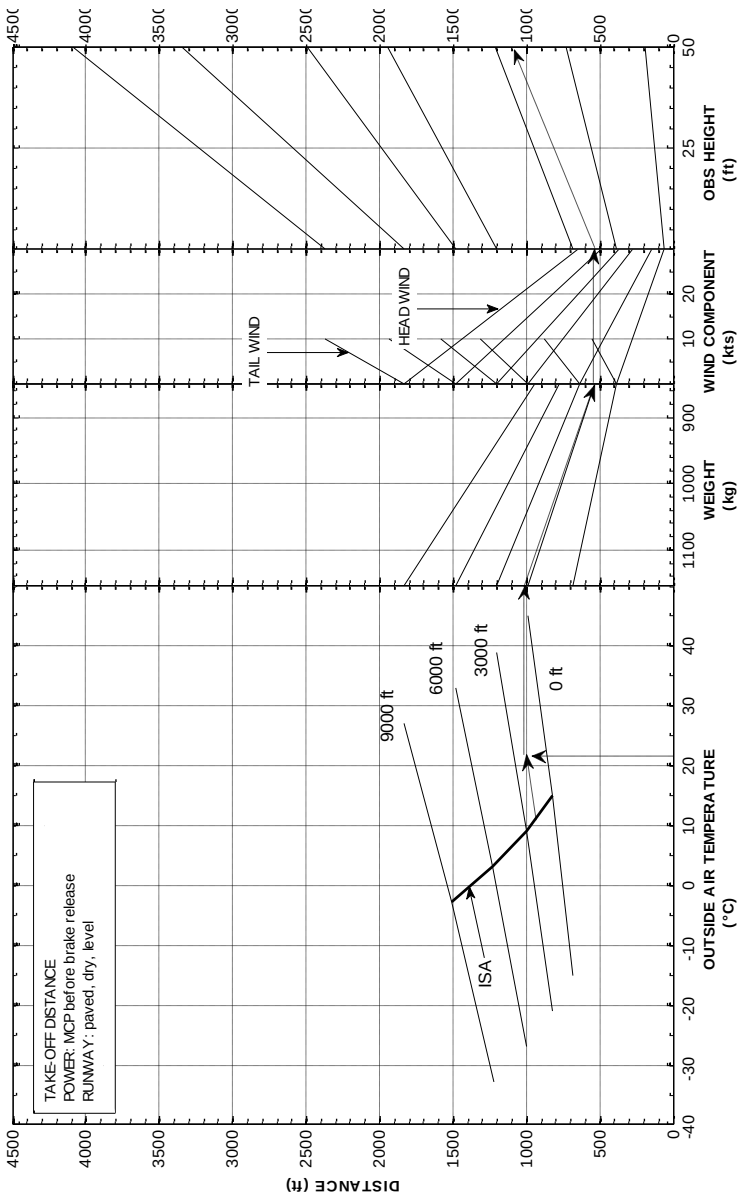

Figure 5-5 Take-off distance to clear 50 ft obstacle

5.10 CLIMB PERFORMANCE

(Figure 5-6)

Associated Conditions:

MTOW	1155 kg (2546 lb)
Power	180 HP @ 2700 RPM (Maximum Continuous Power)
Mixture	FULL RICH
Flaps	UP

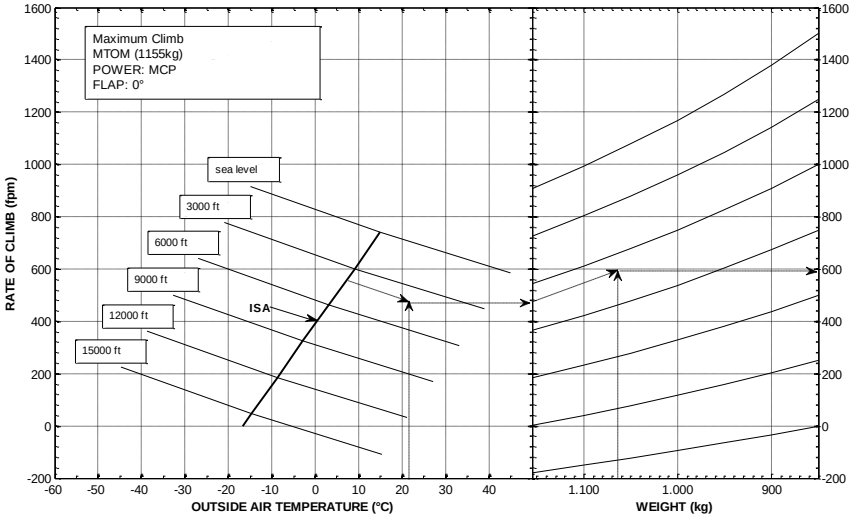

Figure 5-6 Climb performance

5.11 TIME, FUEL AND DISTANCE FOR CLIMB

(Figure 5-7)

Associated Conditions:

MTOW	1155 kg (2546 lb)
Power	180 HP @ 2700 RPM (Maximum Continuous Power)
Mixture	FULL RICH
Flaps	UP
Wind	ZERO

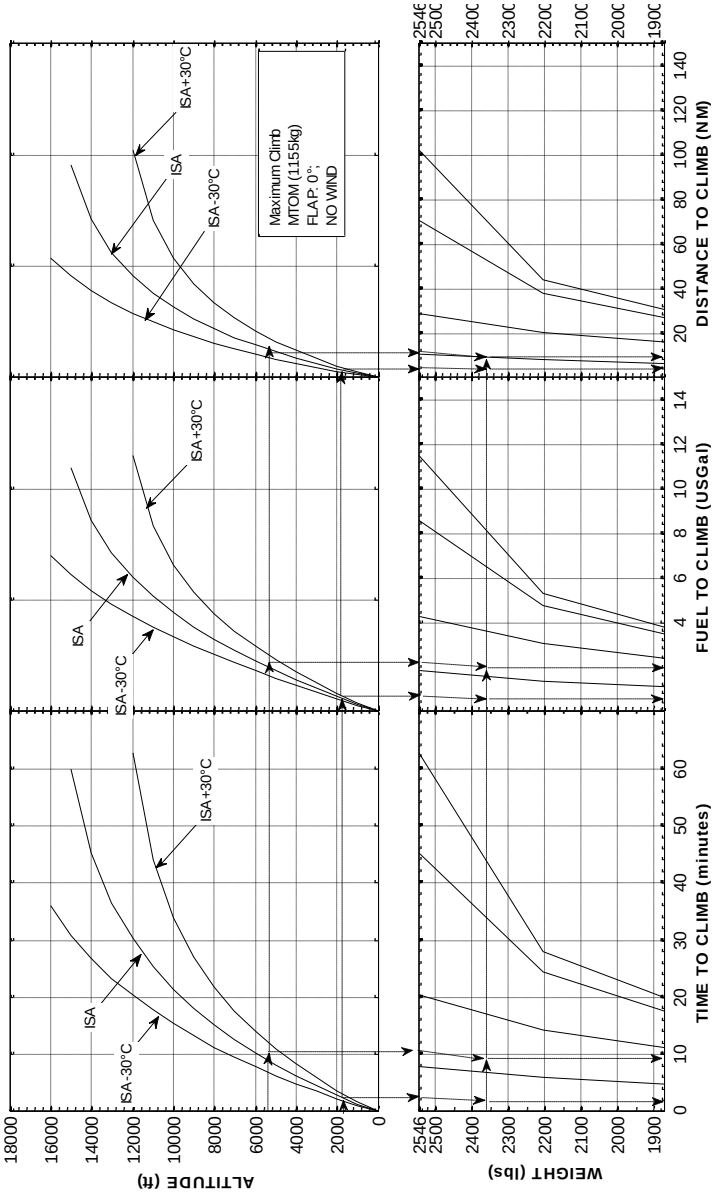

Figure 5-7 Time, fuel and distance for climb

5.12 CRUISE PERFORMANCE

(Figure 5-8)

NOTE

To obtain the fuel flow in lbs/h multiply the fuel flow in GPH by 6.01

ALTITUDE	POWER SETTING		I.S.A. -30 °C (-15°C)			I.S.A. (15°C)			I.S.A. +30 °C (45°C)		
	RPM	"Hg	%BHP	KTAS	GPH	%BHP	KTAS	GPH	%BHP	KTAS	GPH
SEA LEVEL	2700	29	105.6	135	15.1	100.0	137	14.5	95.2	138	14.0
	2450	25	79.2	115	12.2	75.0	122	11.6	71.4	122	11.1
	2450	23	70.0	113	11.0	66.0	114	10.5	62.9	115	10.2
	2450	22	63.4	108	10.3	60.0	108	9.9	57.1	109	9.6
3000ft	2700	26	95.7	133	13.0	90.5	135	13.4	86.2	136	12.9
	2450	24	78.9	118	12.0	75.0	125	11.6	71.1	126	11.1
	2450	22	69.9	117	11.0	66.0	118	10.5	62.9	118	10.2
	2450	21	63.4	111	10.3	60.0	111	9.9	57.2	111	9.6
6000ft	2700	23	85.8	130	12.8	81.1	132	12.3	77.2	133	11.8
	2450	23	79.0	121	12.0	75.0	128	11.6	71.3	129	11.1
	2450	21	69.9	120	11.0	66.0	121	10.5	62.9	121	10.2
	2450	20	63.4	114	10.2	60.0	114	9.9	57.6	114	9.6
9000ft	2700	21	77.6	128	11.8	73.3	129	11.4	73.3	130	11.4
	2450	20	69.9	123	11.0	66.0	124	10.5	62.9	123	10.2
	2450	19	63.4	117	10.3	60.0	117	9.9	57.0	116	9.6
12000ft	2700	18	69.3	125	10.9	65.6	125	10.5	62.3	125	10.1
	2450	18	63.5	120	10.3	60.0	120	9.9	57.8	118	9.5
15000ft	2700	16	61.7	120	10.1	58.3	119	9.7	55.4	116	9.4

Figure 5-8 Cruise performance (MTOW and full rich mixture)

5.13 CRUISE OPERATING ENVELOPE
(Figure 5-9)

Associated Conditions:

Aircraft Weight	1155 kg (2546 lb)
Outside Air Temperature	ISA
Wind	ZERO
Flaps	UP

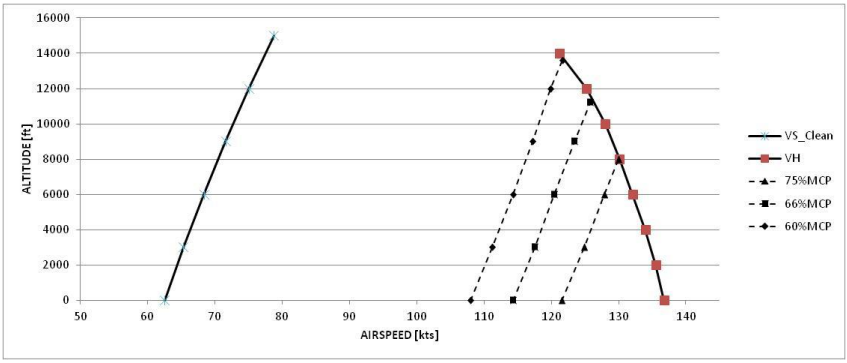

Figure 5-9 Cruise operating envelope

5.14 RANGE PROFILE

(Figure 5-10)

Associated Conditions:

Aircraft Weight	1155 kg (2546 lb) before engine starts
Initial Fuel	50 U.S.Gal
Climb	Maximum climb
Rate of descent	750 fpm
Ambient	ISA, zero wind

NOTE

Range computation includes the fuel needed for starting, taxi, take-off, climb and descent with 45 minutes reserve fuel at Maximum Continuous Power setting.

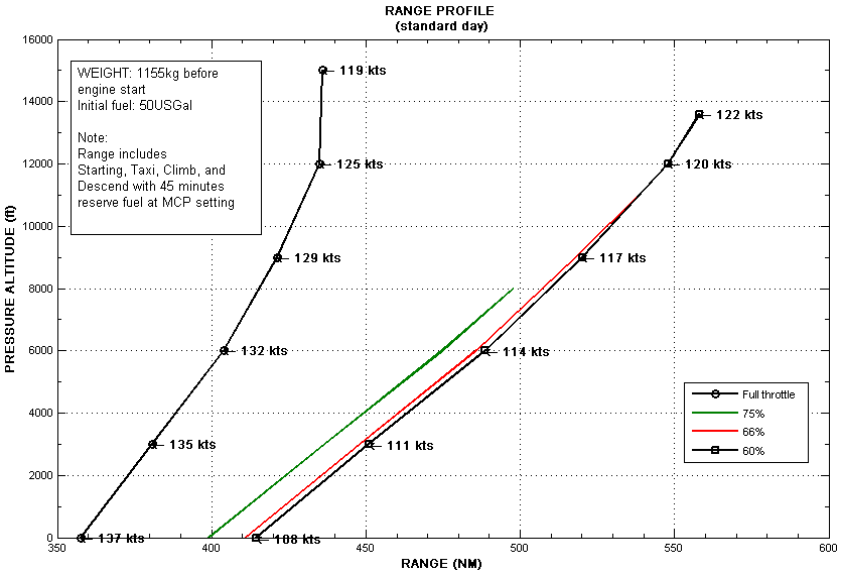

Figure 5-10 Range profile

5.15 ENDURANCE PROFILE

(Figure 5-11)

Associated Conditions:

Aircraft Weight	1155 kg (2546 lb) before engine starts
Initial Fuel	50 U.S.Gal
Climb	Maximum climb
Rate of descent	750 fpm
Ambient	ISA, zero wind

NOTE

Endurance computation includes the fuel needed for starting, taxi, take-off, climb and descent with 45 minutes reserve fuel at Maximum Continuous Power setting.

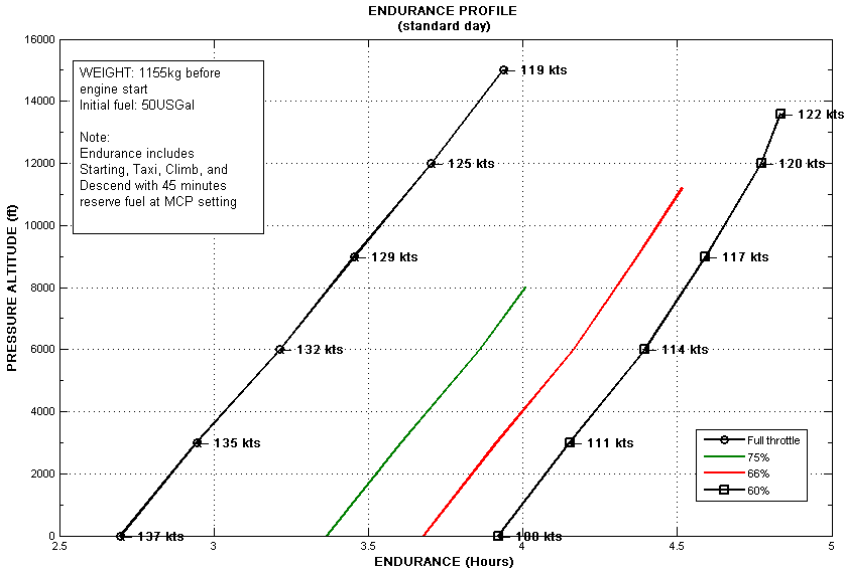

Figure 5-11 Endurance profile

5.16 TIME, FUEL AND DISTANCE TO DESCENT

(Figure 5-12)

Associated Conditions:

Power	As required to descent
Outside Air Temperature	ISA
Fuel consumption	45PPH (45% MCP)
Wind	ZERO
Flaps	UP
Airspeed	120 KIAS

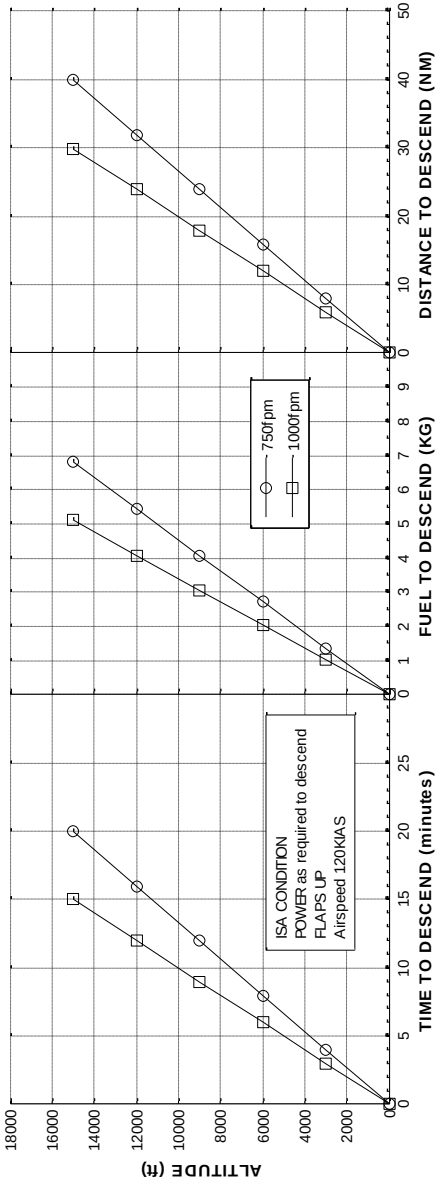

Figure 5-12 Time, fuel and distance to descent

5.17 LANDING DISTANCE TO CLEAR 50 FT OBSTACLE (SHORT FIELD)

(Figure 5-13)

Associated Conditions:

Power	Retarded to maintain 500 fpm on final approach
Flaps	FULL
Braking	Maximum
Runway	Paved, Dry, Level
Landing approach path	5°

CAUTION

- Increase the landing distance of 15% in case of grass up to 10 cm.
- Increase the landing distance of a further 10% in case of wet surface.

CAUTION

In case of grass longer than 10 cm an additional increase in landing distance must be expected.

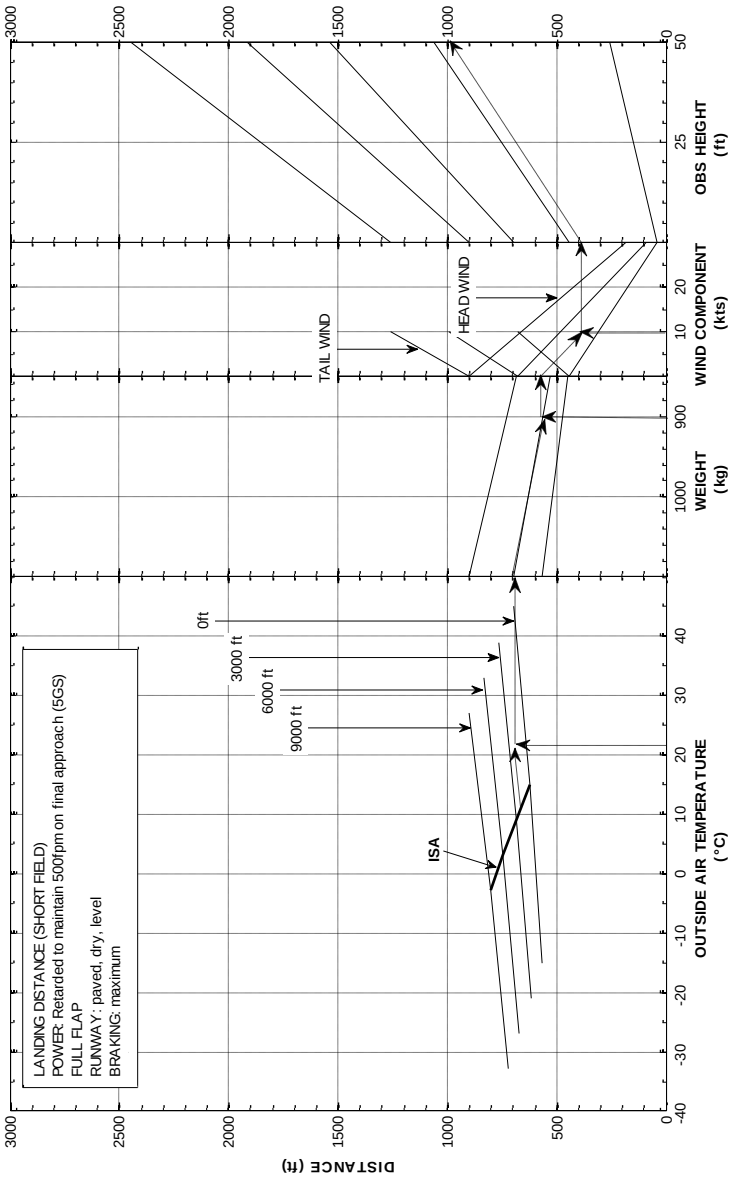

Figure 5-13 Landing distance to clear 50 ft obstacle (short field)

5.18 LANDING DISTANCE TO CLEAR 50 FT OBSTACLE

(Figure 5-14)

Associated Conditions:

Power	Retarded to maintain 500 fpm on final approach
Flaps	FULL
Braking	Maximum
Runway	Paved, Dry, Level
Landing approach path	3°

CAUTION

- Increase the landing distance of 15% in case of grass up to 10 cm.
- Increase the landing distance of a further 10% in case of wet surface.

CAUTION

In case of grass longer than 10 cm an additional increase in landing distance must be expected.

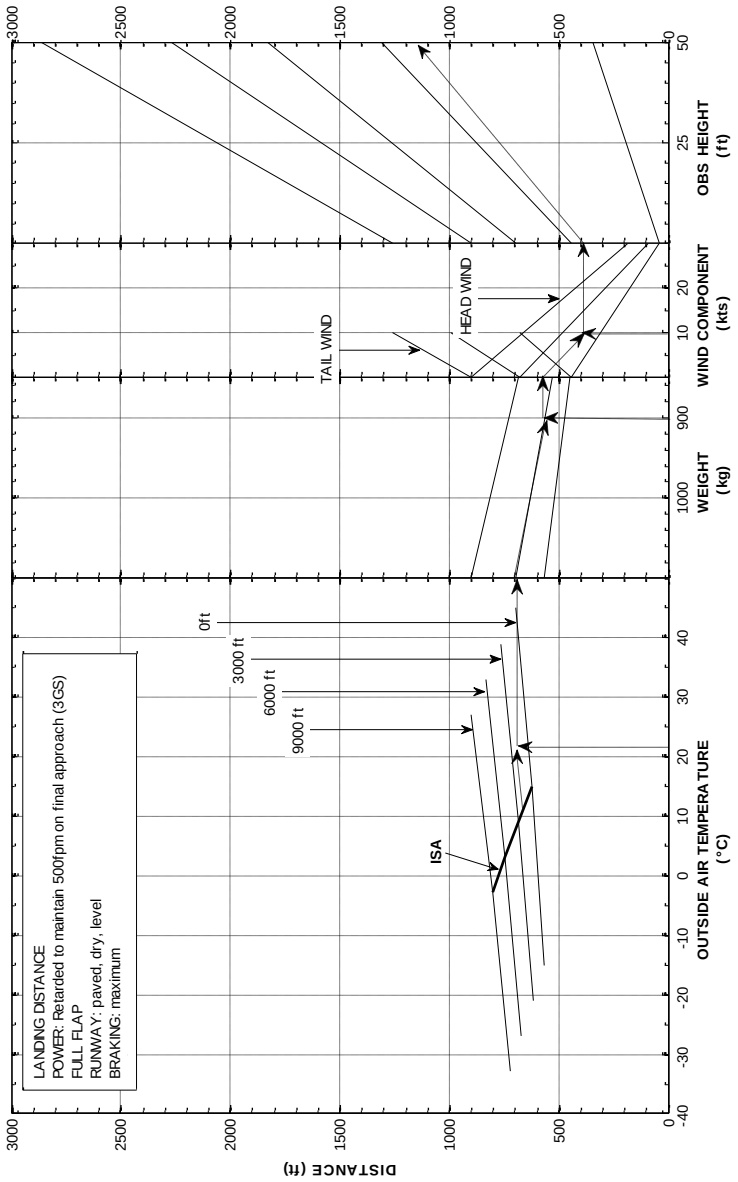

Figure 5-14 Landing distance to clear 50 ft obstacle

5.19 INSTRUMENT LANDING CATEGORY

The installation of Garmin G500 avionics system, integrated with GTN 650 and GNC 255B radio equipment, is such that the aircraft is capable to perform ILS CAT I approaches.