

issues

NOTIFICATION BULLETIN No. RTC-063b

**TECHNICAL CONTENT OF THIS DOCUMENT IS APPROVED ON
THE BASIS OF AUTHORIZATION DOA NO. EASA.21J.057.**

- 1. CONCERNING TO:** Aircrafts SportStar RTC with use propeller Woodcomp
KW-31-033
- 2. REASON:** Issue of the Supplement No. 23 Pilot's Operation Handbook in
revision 2- flight performance in higher temperature
- 3. REQUIRED ACTIONS:** Owner / operator of the airplane insert supplement into Pilot's
Operation Handbook, the supplement No. 23 is a attachment of
bulletin
- 4. LATEST DAY OF THE ACTION:** Immediately after receiving this bulletin.
- 5. CARRIED OUT BY:** Owner / operator of the airplane.
- 6. COSTS COVERED BY:** Owner / operator of the airplane.
- 7. NECESSARY MATERIAL:** Supplement No. 23 is a attachment of bulletin
- 8. WORK PROCEDURE:** Owner / operator of the airplane will insert supplements and
changed pages, which are enclosed to this bulletin, into POH
and will mark date of pages insertion and put the signature into
the table on page 0-2. Owner / operator will mark Supplements
incorporated into the POH into table on pages 9-3 and 9-4.
- 9. APPENDICES:** Supplement No. 23

Valid from: 16. 03. 2022



Supplement No. 23

Woodcomp KW-31-033

In-Flight Adjustable Propeller

Airplane Serial Number:

Airplane Registration Number:

Date of Issue: 30.07.2015

This Supplement must be contained in Pilot's Operating Handbook if the Woodcomp KW-31-033 in-flight adjustable propeller is installed on the airplane.

Information contained in this Supplement add or replace information from basic Pilot's Operating Handbook in the further mentioned parts only. Limitation, procedures and information not included in this supplement are contained in the basic Pilot's Operating Handbook approved by EASA.

This Pilot's Operating Handbook Supplement is EASA approved under the AFM Approval 10054707 dated 09.09.2015.





Section 1 – General Information

This Supplement adds information necessary for operation of the airplane with the Woodcomp KW-31-033 in-flight adjustable propeller is installed in accordance with the approved airplane manufacturer documentation.

1.4 Descriptive Data

1.4.2 Power Plant

The power plant consists of ROTAX 912 ULS engine and Woodcomp KW-31-033 in-flight adjustable propeller.

1.7 Speeds

Top speed (0 ft ISA, MTP) 108 KIAS (202 km/h IAS)

Cruise speed (2000 ft ISA, 75% MCP)..... 102 KIAS (188 km/h IAS)

Maximum range (2000 ft ISA, 75% MCP)..... 1090 km

Best rate-of-climb speed V_Y :

- Flaps retracted – 0° 62 KIAS (115 km/h IAS)
- Flaps in take-off position – 15° 59 KIAS (109 km/h IAS)

Best angle-of-climb speed V_X :

- Flaps retracted – 0° 50 KIAS (92 km/h IAS)
- Flaps in take-off position – 15° 49 KIAS (90 km/h IAS)

Stall speeds in straight flight:

- Flaps retracted – 0° 43 KIAS (79 km/h IAS)
- Flaps in take-off position – 15° 42 KIAS (78 km/h IAS)
- Flaps in landing position I – 30°..... 42 KIAS (77 km/h IAS)
- Flaps in landing position II – 50° 41 KIAS (76 km/h IAS)



Section 2 – Limitations

2.2 Airspeed Limitation

Airspeed limitations and their meaning for operation are stated in the table below:

Airspeed		KIAS	km/h IAS	Meaning
V _{NE}	Never exceed speed	146	270	Do not exceed this speed in any operation.
V _C	Design cruising speed	113	209	Do not exceed this speed, with exception of flight in smooth air, and even then only with increased caution.
V _A	Design maneuvering speed	88	163	Do not make full or abrupt control movement above this speed, because under certain conditions the airplane may be overstressed by full control movement.
V _{FE}	Maximum flap extended speed	70	130	Do not exceed this speed with the given flap setting.
V _{S0}	Stall speed	41	76	Flaps in 50° position at maximum take-off weight.



2.3 Airspeed Indicator Marking

Airspeed indicator markings and their color-code significance are shown in the table below:

Marking	Range		Meaning
	KIAS	km/h IAS	
Red line	41	76	V_{S0} at maximum weight (flaps in landing position 50°)
White arc	41 – 70	76 - 130	Operating range with extended flaps. Lower limit - V_{S0} at maximum weight (flaps in landing position 50°) Upper limit - V_{FE}
Green arc	43 - 113	79 - 209	Normal operating range Lower limit - V_{S1} at maximum weight (flaps retracted - 0°) Upper limit - V_C
Yellow arc	113 – 146	209 - 270	Maneuvers must be conducted with caution and only in smooth air
Red line	146	270	Maximum speed for all operations - V_{NE}

2.4 Powerplant

Propeller manufacturer: WOODCOMP s.r.o.

Propeller type: KW-31-033
3-blade, composite, in-flight adjustable

Propeller diameter: 1726 mm / 68 in

Pitch range: 15.4° - 28.5°



2.8 Centre of Gravity

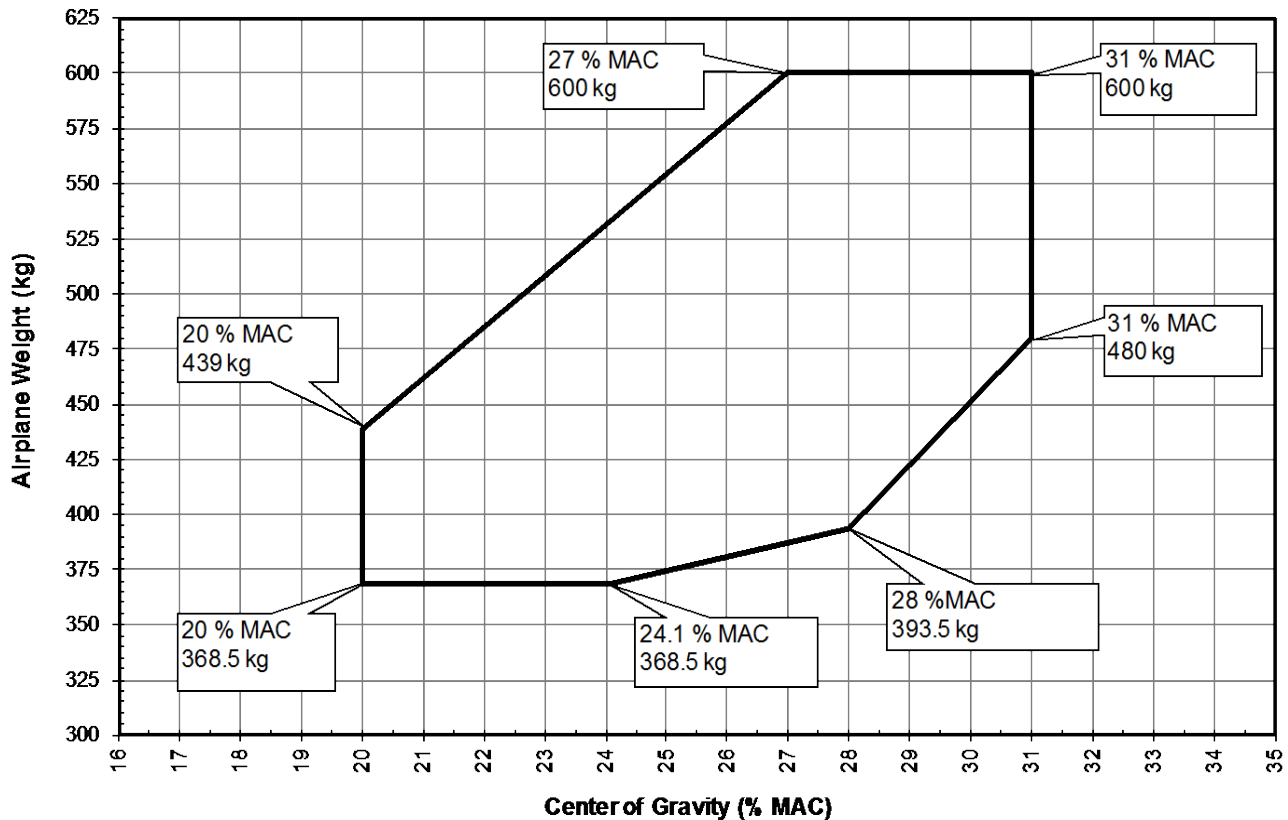


Figure 2-1 Centre of gravity

Reference datum is the wing leading edge.

WARNING

DO NOT EXCEED MAXIMUM WEIGHTS AND LIMITATION OF CENTER OF GRAVITY! THEIR EXCEEDING LEADS TO AIRPLANE OVERLOADING AND TO DEGRADATION OF FLIGHT CHARACTERISTICS AND DETERIORATION OF MANOEUVRABILITY.



2.17 Limitation Placards

The following placards are located on the titling canopy:

This Light Sport Aircraft has been approved only for VFR day flights under no icing conditions.	This Light Sport Aircraft has been approved only for VFR day flights under no icing conditions.
Aerobatics and intentional spins are prohibited!	Aerobatics and intentional spins are prohibited!
AIRSPEED IAS Never exceed V_{NE} 146 kts Design Manoeuvring V_A 88 kts Max. Flap Extended V_{FE} 70 kts Stalling V_{S0} 41 kts	AIRSPEED IAS Never exceed V_{NE} 270 km/h Design Manoeuvring V_A 163 km/h Max. Flap Extended V_{FE} 130 km/h Stalling V_{S0} 76 km/h
ENGINE SPEED Max. Take-off (max. 5 min.) 5800 rpm Max. Continuous 5500 rpm Min. Idling 1400 rpm	ENGINE SPEED Max. Take-off (max. 5 min.) 5800 rpm Max. Continuous 5500 rpm Min. Idling 1400 rpm
Unusable quantity of fuel 2 litres	Unusable quantity of fuel 2 litres



Section 3 – Emergency Procedures

3.2 Speeds for Performing Emergency Procedures

Airspeed for the best gliding ratio

(flaps retracted) 60 KIAS (111 km/h IAS)

Airspeed for the best gliding ratio

(flaps in **TAKE-OFF** position – 15°) 58 KIAS (108 km/h IAS)

Precautionary landing (engine running,

flaps in **LANDING I** position – 30°) 58 KIAS (107 km/h IAS)

Precautionary landing (engine running,

flaps in **LANDING II** position – 50°) 56 KIAS (104 km/h IAS)

Emergency landing (engine stopped,

flaps in **LANDING I** position – 30°) 58 KIAS (107 km/h IAS)

Emergency landing (engine stopped,

flaps in **LANDING II** position – 50°) 56 KIAS (104 km/h IAS)

3.2 Engine Failure

3.3.2 Engine Failure at Take-off

Gliding speed:

- Flaps in **TAKE-OFF** position (15°) min. 58 KIAS (108 km/h IAS)
- Flaps retracted (0°) min. 60 KIAS (111 km/h IAS)

3.3.3 Engine Failure in Flight

Gliding speed 60 KIAS (111 km/h IAS)

3.4 Engine Starting in Flight

Gliding speed 60 KIAS (111 km/h IAS)

3.5 Engine Fire

3.5.2 Fire at Take-off

Gliding speed min. 58 KIAS (108 km/h IAS)

5.5.3 Fire in Flight

Gliding speed 60 KIAS (111 km/h IAS)



3.8 Gliding Flight

NOTE

Gliding flight can be used for example in case of engine failure.

Wing flaps position	Retracted (0°)	Take-off (15°)
Airspeed	60 KIAS (111 km/h IAS)	58 KIAS (108 km/h IAS)

3.9 Emergency Landing

3.9.1 Emergency Landing – with Non-operating Engine

1. Airspeed 60 KIAS (111 km/h IAS)
2. Landing area choose,
determine wind direction
3. Safety harness..... tighten up
4. Flaps:
 - **LANDING I** position (30°) 58 KIAS (107 km/h IAS)
 - **LANDING II** position (50°) 56 KIAS (104 km/h IAS)
5. ATC notify situation, if possible
6. **FUEL** selector..... **OFF**
7. Ignition..... **OFF**
8. **MASTER SWITCH** **OFF** before touch down

3.9.2 Precautionary Landing – with Engine Operating

1. Area for landing choose, determine wind
direction, carry out
passage flight with speed of
58 KIAS (108 km/h IAS)
flaps in take-off position (15°)
2. Propeller constant speed - 5700 rpm
3. ATC notify situation, if possible
4. Safety harness..... tighten up
5. Flaps:
 - **LANDING I** position (30°) 58 KIAS (107 km/h IAS)
 - **LANDING II** position (50°) 56 KIAS (104 km/h IAS)
6. Landing..... carry out



Section 4 – Normal Procedures

4.2 Recommended Speeds for Normal Procedures

4.2.1 Take-off

Climbing speed up to 50 ft

(flaps in **TAKE-OFF** pos. - 15°) 59 KIAS (110 km/h IAS)

Best rate-of-climb speed V_Y

(flaps retracted - 0°) 62 KIAS (115 km/h IAS)

Best angle-of-climb speed V_X

(flaps in **TAKE-OFF** pos. - 15°) 49 KIAS (90 km/h IAS)

Best angle-of-climb speed V_X

(flaps retracted - 0°) 50 KIAS (92 km/h IAS)

4.2.2 Landing

Approaching speed for normal landing

(flaps in **LANDING I** position - 30°) 59 KIAS (110 km/h IAS)

Approaching speed for normal landing

(flaps in **LANDING II** position - 50°) 58 KIAS (107 km/h IAS)

4.5 Normal Procedures and Checklist

CAUTION

INCREASE OF ENGINE POWER FROM IDLE TO MAX. TAKE-OFF POWER MUST BE CARRIED OUT CONTINUOUSLY SO THAT THE PROPELLER GOVERNOR KW-31-033 MANAGES TO REGULATE AND PROTECT THE POWER UNIT FROM OVERSPEEDING. THE TIME OF TRANSITION FROM IDLE TO MAX. RPM IS ABOUT 5 SECONDS.

4.5.1 Before Engine Starting

Propeller constant speed – 5700 rpm



4.5.6 Take-off

1. Propeller constant speed – 5700 rpm
2. **THROTTLE** lever max. take-off power
3. Lift-off speed Concrete RWY: 54 KIAS
(100 km/h IAS)
Grass RWY: 51 KIAS
(95 km/h IAS)
4. After lift-off accelerate airplane to 59 KIAS (110 km/h IAS)
5. Main landing gear wheels brake
6. After reaching 150 ft, set flaps to retracted position 0°
7. Accelerate airplane to 62 KIAS (115 km/h IAS)
8. Trim as necessary

WARNING

TAKE-OFF IS PROHIBITED:

- IF ENGINE RUNNING IS IRREGULAR
- IF CHOKE IS OPEN
- IF VALUES OF ENGINE INSTRUMENTS ARE NOT
WITHIN THE REQUIRED RANGE

4.5.7 Climb

After reaching the height of 1100 ft above the RWY:

1. Propeller constant speed – 5500 rpm
2. **THROTTLE** lever max. continuous power
3. Airspeed $V_Y = 62$ KIAS (115 km/h IAS)
 $V_X = 50$ KIAS (92 km/h IAS)
4. Engine instruments check
5. Trim as necessary
6. Electric fuel pump **OFF**

4.5.8 Cruise

Propeller constant speed – for rpm see
para 5.3.1 (page 25 of 40)

**4.5.9 Descent**

Propeller constant speed – rpm as
necessary

4.5.10 Before Landing

1. Fuel quantity check

CAUTION

FUEL GAUGES DISPLAY TRUE FUEL QUANTITY
ONLY ON GROUND AND IN A LEVEL FLIGHT. TO
READ TRUE FUEL QUANTITY AFTER TRANSITION
FROM CLIMB/DESCENT WAIT APPROX. 2
MINUTES TO FUEL TO LEVEL.

2. **FUEL** selector **LEFT** or **RIGHT**
3. Engine check
4. Propeller constant speed – 5700 rpm
5. Brakes check by depressing pedals
6. Safety harnesses tighten up
7. Free area of landing check
8. **CARBURET. PREHEAT.** **ON**
9. Approaching speed 59 KIAS (110 km/h IAS)
10. Flaps **TAKE-OFF** position (15°)
11. Airspeed 59 KIAS (110 km/h IAS)
12. Trim as necessary
13. **PARKING BRAKE** check for lever down
14. Electric fuel pump **ON**

FINAL – NORMAL LANDING

15. Flaps **LANDING I** position (30°)
16. Maintain airspeed 59 KIAS (110 km/h IAS)
17. Trim as necessary
18. **CARBURET. PREHEAT.** **OFF**



FINAL – SHORT LANDING

19. Flaps..... **LANDING II** position (50°)

NOTE

When extending wing flaps to **LANDING II** (50°) position at flight speeds close to V_{FE} , it is necessary to exert an increased force on the wing flap control lever.

20. Maintain airspeed 57 KIAS (105 km/h IAS)
21. Trim as necessary
22. **CARBURET. PREHEAT.** **OFF**

4.5.11 Balked Landing

1. Propeller constant speed – 5700 rpm
2. **THROTTLE** lever..... max. take off power
3. Airspeed min. 58 KIAS (107 km/h IAS)
4. Flaps..... **TAKE-OFF** position (15°)
5. Airspeed 59 KIAS (110 km/h IAS)
6. Flaps at altitude of 150 ft **RETRACTED** position (0°)
7. Climb at speed..... 62 KIAS (115 km/h IAS)
8. Trim as necessary
9. Propeller constant speed – 5500 rpm
10. **THROTTLE** lever..... max. continuous power
11. Instruments..... check

4.5.12.1 Short Landing

1. Flaps..... **LANDING II** position (50°)
2. **THROTTLE** lever..... idle
3. Airspeed 50 KIAS (92 km/h IAS)
4. Touch-down on all three wheels carry out
5. Brakes after touch-down..... brake



Section 5 – Performance

5.2 Approved Performance Data

5.2.1 Airspeed Indicator System Calibration

NOTE

Assumed zero instrument error. Valid for airplane take-off weight 600 kg.

		RETRACTED 0°	TAKE-OFF 15°	LANDING I 30°	LANDING II 50°
	CIAS	KCAS	KCAS	KCAS	KCAS
V_{SO}	41				45
V_{S1} flaps 30°	42			46	45
V_{S1} flaps 15°	42		48	47	46
V_{S1} flaps 0°	43	49	48	47	46
	43	50	49	48	47
	46	52	51	50	49
	49	54	53	52	51
	51	57	55	54	54
	54	59	57	57	56
	57	61	60	59	59
	59	64	62	62	61
	62	66	64	64	64
	65	69	67	67	66
	67	71	69	69	69
V_{FE}	70	73	72	72	72
	76	78			
	81	83			
	86	88			
V_A	88	90			
	92	93			
	97	98			
	103	103			
	108	108			
V_C	113	113			
	119	118			
	124	123			
	130	128			
	135	133			
	140	139			
V_{NE}	146	144			



		RETRACTED 0°	TAKE-OFF 15°	LANDING I 30°	LANDING II 50°
	IAS (km/h)	CAS (km/h)	CAS (km/h)	CAS (km/h)	CAS (km/h)
V_{S0}	76				83
V_{S1} flaps 30°	77			86	84
V_{S1} flaps 15°	78		88	86	85
V_{S1} flaps 0°	79	91	89	87	85
	80	92	90	88	87
	85	96	94	92	91
	90	101	98	97	95
	95	105	102	101	100
	100	109	106	105	104
	105	114	111	110	109
	110	118	115	114	113
	115	123	119	119	118
	120	127	124	123	123
	125	131	128	128	128
V_{FE}	130	136	133	133	133
	140	145			
	150	154			
	160	163			
V_A	163	166			
	170	172			
	180	181			
	190	191			
	200	200			
V_C	209	208			
	210	209			
	220	219			
	230	228			
	240	238			
	250	247			
	260	257			
V_{NE}	270	266			



5.2.2 Stall Speed

- Conditions:**
- wing level stall
 - turning flight stall
 - airplane weight
 - airplane centre of gravity
 - engine at idle power
 - engine at 75% max. cont. power
 - 600 kg
 - 27% MAC

NOTE

The stated stall speeds are valid for all flight altitudes.

Altitude losses shown in the table present max. values determined on the basis of flight tests using average piloting technique.

	Flaps position	Stall speed		Altitude loss
		KIAS	KCAS	ft
Wing level flight	Retracted (0°)	43	49	200 ft
	Take-off(15°)	42	48	
	Landing I (30°)	42	46	
	Landing II (50°)	41	45	
Turn flight (coordinated turn 30° bank)	Retracted (0°)	47	53	200 ft
	Take-off(15°)	47	51	
	Landing I (30°)	46	50	
	Landing II (50°)	45	48	

	Flaps position	Stall speed		Altitude loss
		IAS (km/h)	CAS (km/h)	ft
Wing level flight	Retracted (0°)	79	91	200 ft
	Take-off(15°)	78	88	
	Landing I (30°)	77	86	
	Landing II (50°)	76	83	
Turn flight (coordinated turn 30° bank)	Retracted (0°)	86	97	200 ft
	Take-off(15°)	86	95	
	Landing I (30°)	84	92	
	Landing II (50°)	83	89	

**5.2.3 Take-off Distance**

- Conditions:**
- engine – max. take-off power
 - propeller – constant speed
 - flaps – Take-off position (15°)
 - carburetor preheater – OFF
 - airplane weight – 600 kg
 - lift-off speed – Concrete RWY: 54 KIAS (100 km/h IAS)
– Grass RWY: 51 KIAS (95 km/h)
 - airspeed in height of 50 ft – 59 KIAS (110 km/h IAS)
 - airplane centre of gravity – 27%

ISA conditions		Concrete RWY		Grass RWY	
Airport altitude	Temperature	Take-off run	Distance over 50 ft obstacle	Take-off run	Distance over 50 ft obstacle
	°C	m	m	m	m
0 ft	15,0	166	370	233	455
2000 ft	11,0	187	416	262	512
4000 ft	7,1	210	469	295	577
6000 ft	3,1	238	530	334	651
8000 ft	-0,8	269	599	377	737
10000 ft	-4,8	304	679	427	835

ISA conditions + 10°C		Concrete RWY		Grass RWY	
Airport altitude	Temperature	Take-off run	Distance over 50 ft obstacle	Take-off run	Distance over 50 ft obstacle
	°C	m	m	m	m
0 ft	25,0	178	396	249	487
2000 ft	21,0	200	446	281	549
4000 ft	17,1	226	503	317	619
6000 ft	13,1	255	569	358	699
8000 ft	9,2	289	644	405	792
10000 ft	5,2	328	730	460	898

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ISA conditions + 20°C		Concrete RWY		Grass RWY	
Airport altitude	Temperature	Take-off run	Distance over 50 ft obstacle	Take-off run	Distance over 50 ft obstacle
	°C	m	m	m	m
0 ft	35,0	190	423	266	520
2000 ft	31,0	214	477	300	587
4000 ft	27,1	242	539	339	662
6000 ft	23,1	273	609	384	749
8000 ft	19,2	310	690	435	849
10000 ft	15,2	352	784	493	964

ISA conditions + 30°C		Concrete RWY		Grass RWY	
Airport altitude	Temperature	Take-off run	Distance over 50 ft obstacle	Take-off run	Distance over 50 ft obstacle
	°C	m	m	m	m
0 ft	45	202	451	284	554
2000 ft	41	228	508	320	625
4000 ft	37,1	258	575	362	707
6000 ft	33,1	292	650	410	800

ISA conditions + 35°C		Concrete RWY		Grass RWY	
Airport altitude	Temperature	Take-off run	Distance over 50 ft obstacle	Take-off run	Distance over 50 ft obstacle
	°C	m	m	m	m
0 ft	50	209	465	293	572
2000 ft	46	235	524	330	645
4000 ft	42,1	266	594	374	730
6000 ft	38,1	301	672	423	826

ISA conditions – 10°C		Concrete RWY		Grass RWY	
Airport altitude	Temperature	Take-off run	Distance over 50 ft obstacle	Take-off run	Distance over 50 ft obstacle
	°C	m	m	m	m
0 ft	5,0	155	345	217	424
2000 ft	1,0	174	388	244	477
4000 ft	-2,9	196	436	275	536
6000 ft	-6,9	221	492	310	605
8000 ft	-10,8	249	556	350	683
10000 ft	-14,8	282	629	396	773



ISA conditions – 20°C		Concrete RWY		Grass RWY	
Airport altitude	Temperature	Take-off run	Distance over 50 ft obstacle	Take-off run	Distance over 50 ft obstacle
	°C	m	m	m	m
0 ft	-5,0	144	320	202	394
2000 ft	-11,0	161	360	227	442
4000 ft	-12,9	182	405	255	497
6000 ft	-16,9	204	456	287	560
8000 ft	-20,8	231	514	324	632
10000 ft	-24,8	261	581	366	715

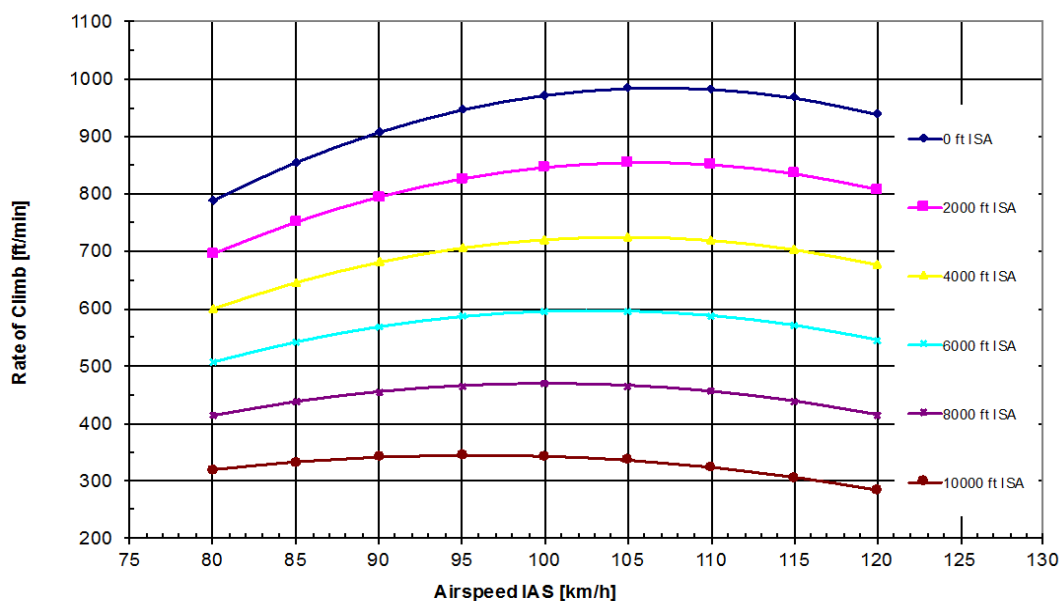
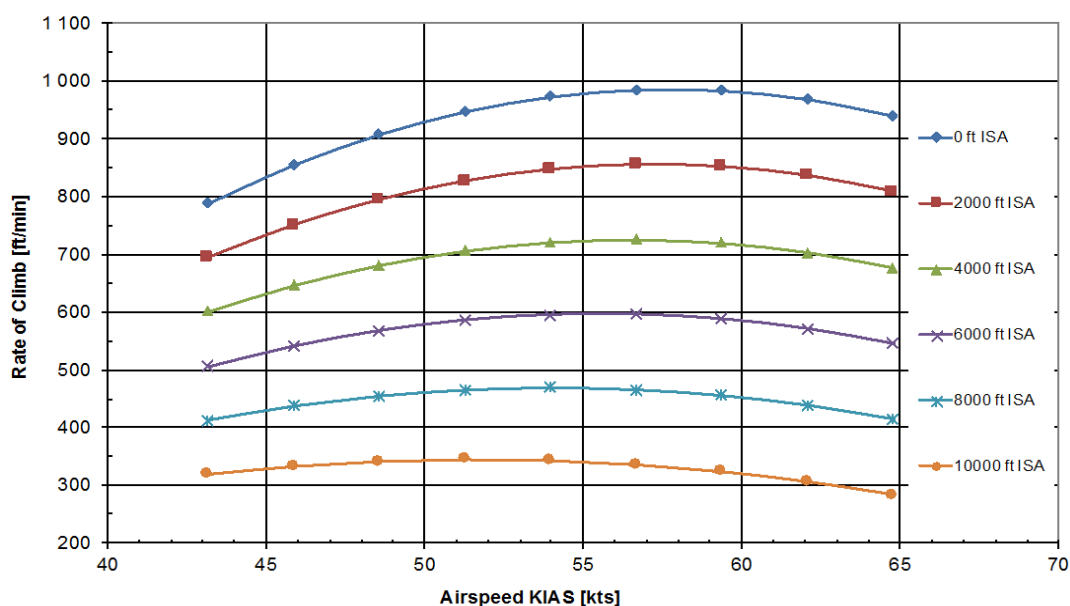
NOTE

Take-offs at temperature ISA + 20 °C (35 °C) are recalculated up to the maximum ambient temperature defined by the engine manufacturer.



5.2.5 Climb Performance

- Conditions:**
- engine – max. take-off power
 - flaps – TAKE-OFF pos. (15°)
 - carburetor preheating – OFF
 - airplane weight – 600 kg
 - ambient air temperature – ISA
 - airplane centre of gravity – 27% MAC





Best rate of climb for various altitudes is mentioned in the following table:

Altitude	Best rate of climb speed		Max. rate of climb	
ft ISA	KIAS	km/h IAS	fpm	m/s
0	59	110	983	5.0
1000	58	108	919	4.7
2000	58	107	855	4.3
3000	57	105	791	4.0
4000	56	104	726	3.7
5000	56	103	662	3.4
6000	55	102	598	3.0
7000	54	101	534	2.7
8000	54	100	470	2.4
9000	53	98	405	2.1
10000	53	97	341	1.7

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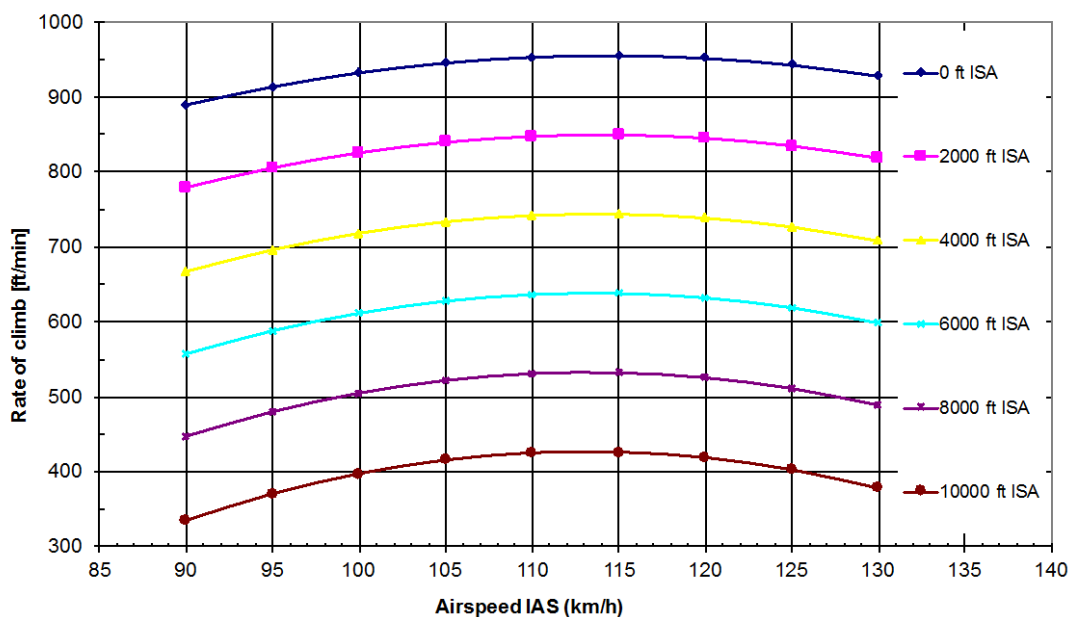
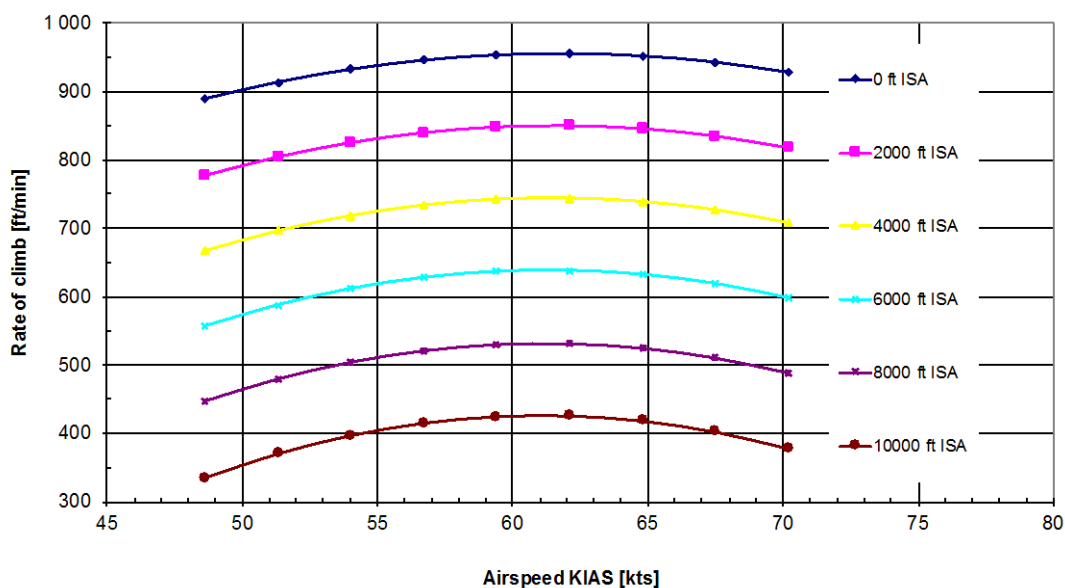


- Conditions:**
- engine
 - flaps
 - carburetor preheating
 - airplane weight
 - ambient air temperature
 - airplane centre of gravity
 - max. take-off power
 - retracted pos. (0°)
 - OFF
 - 600 kg
 - ISA
 - 27% MAC

Altitude	Best rate of climb speed		Max. rate of climb	
ft ISA	KIAS	km/h IAS	fpm	m/s
0	62	115	984	5.0
250	62	115	965	4.9
500	62	115	945	4.8
750	62	115	925	4.7
1000	62	115	906	4.6
1250	62	115	886	4.5
1500	62	115	847	4.3
1750	62	115	827	4.2
2000	62	115	807	4.1
2250	62	115	787	4.0
2500	62	115	768	3.9
2750	62	115	748	3.8
3000	62	115	728	3.7



- Conditions:**
- engine - max. continuous power
 - flaps - retracted (0°)
 - carburetor preheating - OFF
 - airplane weight - 600 kg
 - ambient air temperature - ISA
 - airplane centre of gravity - 27% MAC



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Best rate of climb for various altitudes is mentioned in the following table:

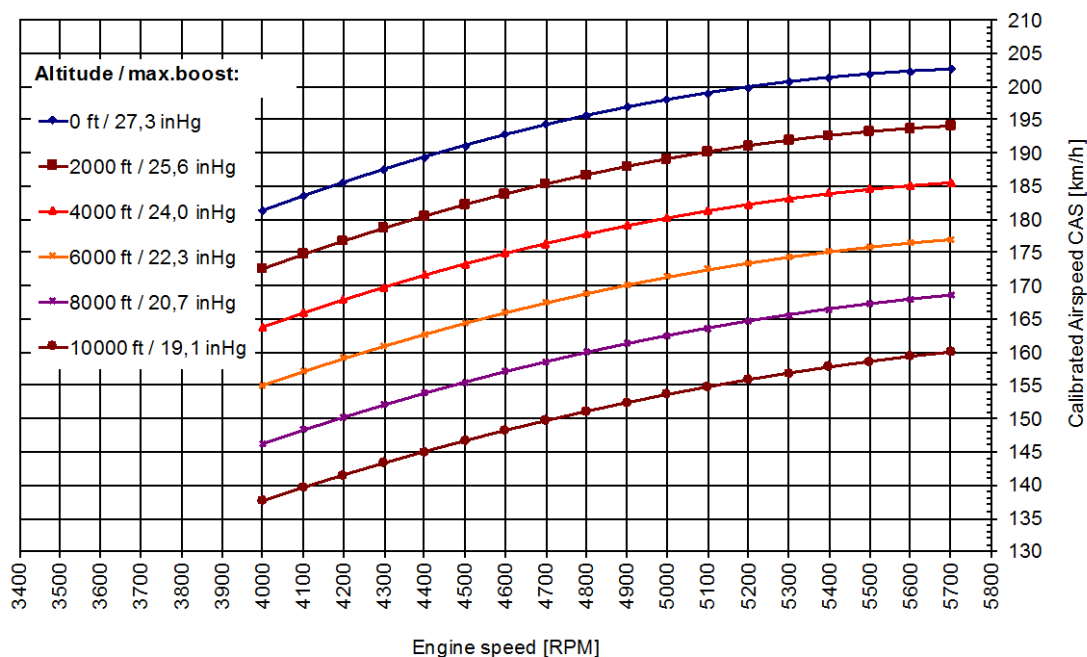
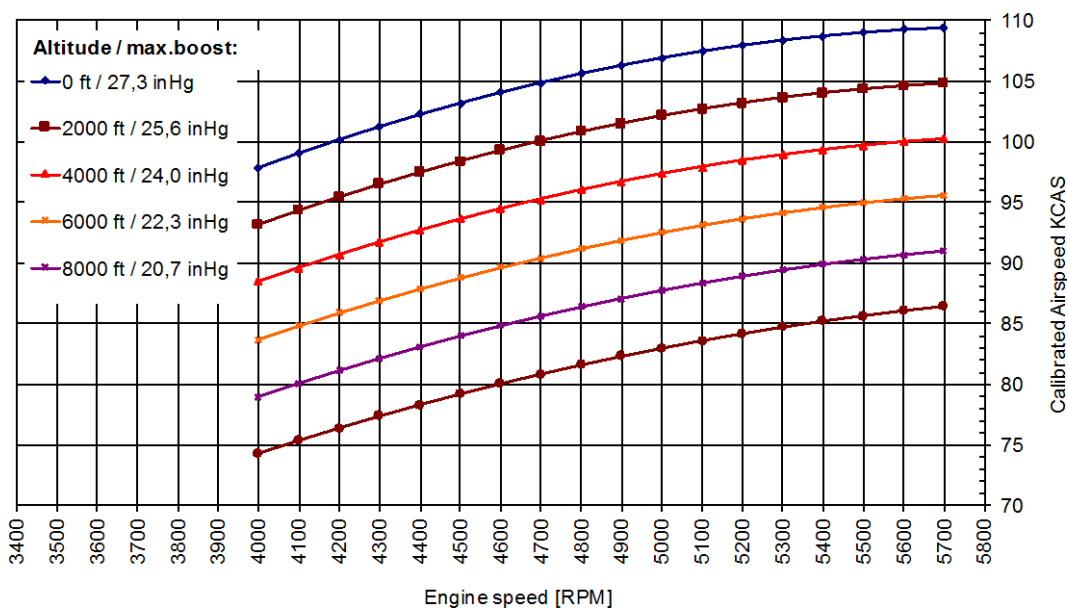
Altitude	Best rate of climb speed		Max. rate of climb	
	KIAS	km/h IAS	fpm	m/s
0	62	115	951	4.8
1000	62	115	899	4.6
2000	62	115	847	4.3
3000	62	115	795	4.0
4000	62	115	743	3.8
5000	62	115	691	3.5
6000	62	115	638	3.2
7000	62	115	586	3.0
8000	62	115	534	2.7
9000	62	115	482	2.5
10000	62	115	430	2.2



5.3 Additional information

5.3.1 Cruise

- Conditions:**
- flaps
 - carburetor preheating
 - airplane weight
 - ambient air temperature
 - retracted (0°)
 - OFF
 - 600 kg
 - ISA





Horizontal Speeds

In the following table states Indicated airspeeds (IAS), corresponding calibrated air speeds (CAS) and true air speeds (TAS) versus altitude, all for various engine speeds.

MAP			Engine RPM																	
			4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500	5600	5700
0 ft	27,3 inHg	IAS [knots]	97	98	100	101	102	103	104	105	106	106	107	107	108	108	109	109	109	110
		CAS [knots]	98	99	100	101	102	103	104	105	106	106	107	107	108	108	109	109	109	109
		TAS [knots]	98	99	100	101	102	103	104	105	106	106	107	107	108	108	109	109	109	109
	27,0 inHg	IAS [knots]	96	97	98	100	101	102	103	104	104	105	106	106	107	107	108	108	108	108
		CAS [knots]	97	98	99	100	101	102	103	104	105	105	106	106	107	107	108	108	108	108
		TAS [knots]	97	98	99	100	101	102	103	104	105	105	106	106	107	107	108	108	108	108
	26,0 inHg	IAS [knots]	92	93	94	95	96	97	98	99	100	101	101	102	102	103	103	104	104	104
		CAS [knots]	93	94	95	96	97	98	99	100	100	101	102	102	103	103	104	104	104	104
		TAS [knots]	93	94	95	96	97	98	99	100	100	101	102	102	103	103	104	104	104	104
	25,0 inHg	IAS [knots]	87	88	90	91	92	93	94	95	95	96	97	97	98	98	99	99	99	100
		CAS [knots]	89	90	91	92	93	94	95	96	96	97	98	98	99	99	99	100	100	100
		TAS [knots]	89	90	91	92	93	94	95	96	96	97	98	98	99	99	99	100	100	100
	24,0 inHg	IAS [knots]	82	84	85	86	87	88	89	90	91	92	92	93	94	94	95	95	95	95
		CAS [knots]	85	86	87	88	89	90	91	91	92	93	94	94	95	95	95	96	96	96
		TAS [knots]	85	86	87	88	89	90	91	91	92	93	94	94	95	95	95	96	96	96
2000 ft	25,6 inHg	IAS [knots]	92	93	94	96	97	98	99	99	100	101	102	102	103	103	104	104	104	105
		CAS [knots]	93	94	95	96	97	98	99	100	101	101	102	103	103	104	104	104	105	105
		TAS [knots]	96	97	98	99	100	101	102	103	104	105	105	106	106	107	107	107	108	108
	25,0 inHg	IAS [knots]	89	91	92	93	94	95	96	97	98	98	99	100	100	101	101	101	102	102
		CAS [knots]	91	92	93	94	95	96	97	98	98	99	100	100	101	101	102	102	102	102
		TAS [knots]	93	95	96	97	98	99	100	100	101	102	103	103	104	104	105	105	105	105
	24,0 inHg	IAS [knots]	85	86	87	88	90	91	92	92	93	94	95	95	96	96	97	97	97	98
		CAS [knots]	87	88	89	90	91	92	93	94	94	95	96	96	97	97	98	98	98	98
		TAS [knots]	89	90	92	93	94	95	96	96	97	98	98	99	100	100	100	101	101	101
	23,0 inHg	IAS [knots]	81	82	83	84	85	86	87	88	89	90	90	91	91	92	92	93	93	93
		CAS [knots]	83	84	85	86	87	88	89	90	90	91	92	92	93	93	93	94	94	94
		TAS [knots]	85	86	87	89	90	90	91	92	93	94	94	95	95	96	96	97	97	97
	22,0 inHg	IAS [knots]	76	77	78	80	81	82	83	84	84	85	86	86	87	88	88	88	89	89
		CAS [knots]	79	80	81	82	83	84	85	86	86	87	88	88	89	89	89	90	90	90
		TAS [knots]	81	82	83	84	85	86	87	88	89	90	90	91	91	92	92	92	93	93
4000 ft	24,0 inHg	IAS [knots]	87	88	89	90	91	92	93	94	95	96	97	97	98	98	99	99	99	100
		CAS [knots]	88	90	91	92	93	94	94	95	96	97	97	98	98	99	99	100	100	100
		TAS [knots]	94	95	96	97	98	99	100	101	102	103	103	104	104	105	105	106	106	106
	23,0 inHg	IAS [knots]	83	84	85	86	87	88	89	90	91	92	93	93	94	94	95	95	95	96
		CAS [knots]	85	86	87	88	89	90	91	92	92	93	94	94	95	95	96	96	96	97
		TAS [knots]	90	91	92	93	94	95	96	97	98	99	99	100	101	101	101	102	102	102
	22,0 inHg	IAS [knots]	79	80	81	82	83	84	85	86	87	88	88	89	90	90	91	91	91	92
		CAS [knots]	81	82	83	84	85	86	87	88	89	89	90	90	91	91	92	92	93	93
		TAS [knots]	86	87	88	89	90	91	92	93	94	95	95	96	97	97	97	98	98	98
	21,0 inHg	IAS [knots]	74	76	77	78	79	80	81	82	83	84	84	85	85	86	86	87	87	87
		CAS [knots]	77	78	79	80	81	82	83	84	85	85	86	87	87	88	88	88	89	89
		TAS [knots]	82	83	84	85	86	87	88	89	90	91	91	92	93	93	93	94	94	94
	20,0 inHg	IAS [knots]	70	72	73	74	75	76	77	78	79	79	80	81	81	82	82	83	83	83
		CAS [knots]	73	75	76	77	78	79	79	80	81	82	82	83	83	84	84	85	85	85
		TAS [knots]	78	79	80	81	82	83	84	85	86	87	87	88	89	89	90	90	90	90



MAP					Engine RPM																
					4200	4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500	5600	5700	
6000 ft	22,3 inHg	IAS [knots]	82	83	84	85	86	87	88	89	90	91	91	92	93	93	94	94	94	95	
		CAS [knots]	84	85	86	87	88	89	90	90	91	92	93	93	94	94	95	95	95	96	
		TAS [knots]	92	93	94	95	96	97	98	99	100	101	101	102	102	103	103	104	104	105	
	22,0 inHg	IAS [knots]	80	82	83	84	85	86	87	88	88	89	90	91	91	92	92	93	93	93	
		CAS [knots]	82	84	85	86	87	88	88	89	90	91	91	92	92	93	93	94	94	94	
		TAS [knots]	90	91	93	94	95	96	97	98	98	99	100	101	101	102	102	103	103	103	
	21,0 inHg	IAS [knots]	76	78	79	80	81	82	83	84	85	85	86	87	87	88	88	89	89	89	
		CAS [knots]	79	80	81	82	83	84	85	86	86	87	88	88	89	89	90	90	91	91	
		TAS [knots]	86	88	89	90	91	92	93	94	94	95	96	97	97	98	98	99	99	99	
	20,0 inHg	IAS [knots]	72	74	75	76	77	78	79	80	81	81	82	83	83	84	84	85	85	85	
		CAS [knots]	75	76	78	79	79	80	81	82	83	83	84	85	85	86	86	87	87	87	
		TAS [knots]	82	84	85	86	87	88	89	90	91	91	92	93	93	94	94	95	95	95	
	19,0 inHg	IAS [knots]	68	70	71	72	73	74	75	76	77	77	78	79	79	80	80	81	81	82	
		CAS [knots]	72	73	74	75	76	77	78	78	79	80	81	81	82	82	83	83	83	84	
		TAS [knots]	78	80	81	82	83	84	85	86	87	87	88	89	89	90	90	91	91	91	
8000 ft	20,7 inHg	IAS [knots]	76	78	79	80	81	82	83	84	85	85	86	87	87	88	88	89	89	90	
		CAS [knots]	79	80	81	82	83	84	85	86	86	87	88	88	89	89	90	90	91	91	
		TAS [knots]	89	90	92	93	94	95	96	97	97	98	99	100	100	101	101	102	102	103	
	20,0 inHg	IAS [knots]	74	75	76	77	78	79	80	81	82	83	83	84	85	85	86	86	87	87	
		CAS [knots]	77	78	79	80	81	82	82	83	84	85	85	86	87	87	87	88	88	89	
		TAS [knots]	86	88	89	90	91	92	93	94	95	96	96	97	98	98	99	99	100	100	
	19,0 inHg	IAS [knots]	70	71	72	73	74	75	76	77	78	79	80	80	81	82	82	82	83	83	
		CAS [knots]	73	74	75	76	77	78	79	80	81	81	82	83	83	84	84	84	85	85	
		TAS [knots]	83	84	85	86	87	88	89	90	91	92	92	93	94	94	95	95	96	96	
	18,0 inHg	IAS [knots]	66	67	69	70	71	72	73	74	74	75	76	77	77	78	78	79	79	79	
		CAS [knots]	70	71	72	73	74	75	76	76	77	78	79	79	80	80	81	81	81	82	
		TAS [knots]	79	80	81	82	83	84	85	86	87	88	89	89	90	90	91	91	92	92	
	17,0 inHg	IAS [knots]	62	64	65	66	67	68	69	70	71	71	72	73	73	74	74	75	75	76	
		CAS [knots]	66	67	69	70	70	71	72	73	74	74	75	76	76	77	77	78	78	78	
		TAS [knots]	75	76	77	78	79	80	81	82	83	84	85	85	86	87	87	88	88	88	
10000 ft	19,1 inHg	IAS [knots]	71	72	74	75	76	77	78	78	79	80	81	81	82	83	83	84	84	85	
		CAS [knots]	74	75	76	77	78	79	80	81	82	82	83	84	84	85	85	86	86	86	
		TAS [knots]	86	88	89	90	91	92	93	94	95	96	97	97	98	99	99	100	100	101	
	19,0 inHg	IAS [knots]	71	72	73	74	75	76	77	78	79	80	81	81	82	82	83	84	84	84	
		CAS [knots]	74	75	76	77	78	79	80	81	81	82	83	83	84	84	85	85	86	86	
		TAS [knots]	86	87	89	90	91	92	93	94	95	95	96	97	98	98	99	99	100	100	
	18,0 inHg	IAS [knots]	67	69	70	71	72	73	74	75	75	76	77	78	78	79	79	80	80	81	
		CAS [knots]	71	72	73	74	75	76	77	77	78	79	79	80	81	81	82	82	83	83	
		TAS [knots]	82	84	85	86	87	88	89	90	91	92	93	93	94	95	95	96	96	97	
	17,0 inHg	IAS [knots]	64	65	66	67	68	69	70	71	72	73	73	74	75	75	76	76	77	77	
		CAS [knots]	68	69	70	71	72	72	73	74	75	76	76	77	77	78	78	79	79	80	
		TAS [knots]	79	80	81	82	83	84	85	86	87	88	89	89	90	91	91	92	92	93	
	16,0 inHg	IAS [knots]	60	61	62	64	65	66	66	67	68	69	70	70	71	72	72	73	73	74	
		CAS [knots]	64	65	66	67	68	69	70	71	72	72	73	74	74	75	75	76	76	76	
		TAS [knots]	75	76	77	78	80	81	82	83	83	84	85	86	86	87	88	88	89	89	

Section 9

Supplement No. 23

KW-31-033 Prop



PILOT'S OPERATING HANDBOOK

Doc. No. ERTC020-10-AS-023



			Engine RPM																			
MAP			4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500	5600	5700		
0 ft	27,3 inHg	IAS [km/h]	180	182	185	187	189	191	192	194	195	197	198	199	200	201	201	202	202	203	203	
		CAS [km/h]	181	183	186	188	189	191	193	194	196	197	198	199	200	201	201	201	202	202	203	
		TAS [km/h]	181	183	186	188	189	191	193	194	196	197	198	199	200	201	201	201	202	202	203	
	27,0 inHg	IAS [km/h]	178	180	182	185	187	188	190	192	193	195	196	197	198	199	199	199	200	200	201	
		CAS [km/h]	179	182	184	186	187	189	191	192	194	195	196	197	198	199	199	199	200	200	201	
		TAS [km/h]	179	182	184	186	187	189	191	192	194	195	196	197	198	199	199	199	200	200	201	
	26,0 inHg	IAS [km/h]	169	172	174	176	178	180	182	184	185	186	188	189	190	191	191	191	192	192	193	
		CAS [km/h]	172	174	176	178	180	182	183	185	186	187	188	189	190	191	191	192	192	193	193	
		TAS [km/h]	172	174	176	178	180	182	183	185	186	187	188	189	190	191	191	192	192	193	193	
	25,0 inHg	IAS [km/h]	161	164	166	168	170	172	174	175	177	178	179	181	181	182	182	183	184	184	184	
		CAS [km/h]	164	166	168	170	172	174	176	177	178	180	181	182	182	183	184	184	185	185	185	
		TAS [km/h]	164	166	168	170	172	174	176	177	178	180	181	182	182	183	184	184	185	185	185	
24,0 inHg	IAS [km/h]	153	155	157	160	162	164	165	167	169	170	171	172	173	174	175	175	176	176	176		
	CAS [km/h]	156	159	161	163	165	166	168	169	171	172	173	174	175	176	176	177	177	178	178		
	TAS [km/h]	156	159	161	163	165	166	168	169	171	172	173	174	175	176	176	177	177	178	178		
2000 ft	25,6 inHg	IAS [km/h]	170	173	175	177	179	181	183	184	186	187	188	190	191	191	192	193	193	194		
		CAS [km/h]	173	175	177	179	180	182	184	185	187	188	189	190	191	191	192	193	193	194	194	
		TAS [km/h]	178	180	182	184	186	188	189	191	192	194	195	196	197	198	198	199	199	200	200	
	25,0 inHg	IAS [km/h]	165	168	170	172	174	176	178	179	181	182	183	185	186	186	187	187	188	188	189	
		CAS [km/h]	168	170	172	174	176	178	179	181	182	183	185	186	186	187	188	188	189	189	189	
		TAS [km/h]	173	175	177	179	181	183	185	186	188	189	190	191	192	193	194	194	195	195	195	
	24,0 inHg	IAS [km/h]	157	160	162	164	166	168	170	171	173	174	175	176	177	178	179	180	180	181	181	
		CAS [km/h]	161	163	165	167	168	170	172	173	175	176	177	178	179	180	181	181	182	182	182	
		TAS [km/h]	166	167	170	172	173	175	177	178	180	181	182	183	184	185	186	187	187	187	187	
	23,0 inHg	IAS [km/h]	149	151	154	156	158	160	161	163	165	166	167	168	169	170	171	172	172	173	173	
		CAS [km/h]	153	155	157	159	161	163	164	166	167	168	170	171	172	172	173	174	174	175	175	
		TAS [km/h]	158	160	162	164	166	168	169	171	172	174	175	176	177	178	178	179	179	180	180	
	22,0 inHg	IAS [km/h]	141	143	145	148	150	151	153	155	156	158	159	160	161	162	163	164	164	164	164	
		CAS [km/h]	146	148	150	152	154	155	157	158	160	161	162	163	164	165	166	166	167	167	167	
		TAS [km/h]	151	152	154	156	158	160	162	163	165	166	167	168	169	170	171	171	172	172	172	
	4000 ft	24,0 inHg	IAS [km/h]	161	163	165	167	169	171	173	175	176	177	179	180	181	182	183	183	184	185	185
			CAS [km/h]	164	166	168	170	172	173	175	176	178	179	180	181	182	183	184	185	185	185	186
			TAS [km/h]	174	176	178	180	182	184	186	187	189	190	191	192	193	194	195	196	196	196	197
23,0 inHg		IAS [km/h]	153	156	158	160	162	164	166	167	169	170	171	173	174	175	175	176	177	177	177	
		CAS [km/h]	157	159	161	163	165	166	168	170	171	172	173	174	175	176	177	178	178	178	179	
		TAS [km/h]	167	169	171	173	175	177	178	180	181	183	184	185	186	187	188	189	189	189	190	
22,0 inHg		IAS [km/h]	146	148	150	152	154	156	158	160	161	162	164	165	166	167	168	168	169	169	170	
		CAS [km/h]	150	152	154	156	158	160	161	163	164	165	166	168	169	169	170	171	171	171	172	
		TAS [km/h]	159	161	164	166	167	169	171	173	174	175	177	178	179	180	181	181	182	182	182	
21,0 inHg		IAS [km/h]	138	140	142	145	147	148	150	152	153	155	156	157	158	159	160	161	161	161	162	
		CAS [km/h]	143	145	147	149	151	153	154	156	157	158	160	161	162	162	163	164	164	164	165	
		TAS [km/h]	152	154	156	158	160	162	164	165	167	168	169	170	171	172	173	174	174	174	175	
20,0 inHg	IAS [km/h]	130	133	135	137	139	141	143	144	146	147	148	150	151	152	152	153	154	154	154		
	CAS [km/h]	136	138	140	142	144	146	147	149	150	151	153	154	155	155	156	157	157	157	158		
	TAS [km/h]	144	147	149	151	153	155	156	158	159	161	162	163	164	165	166	166	167	167	168		



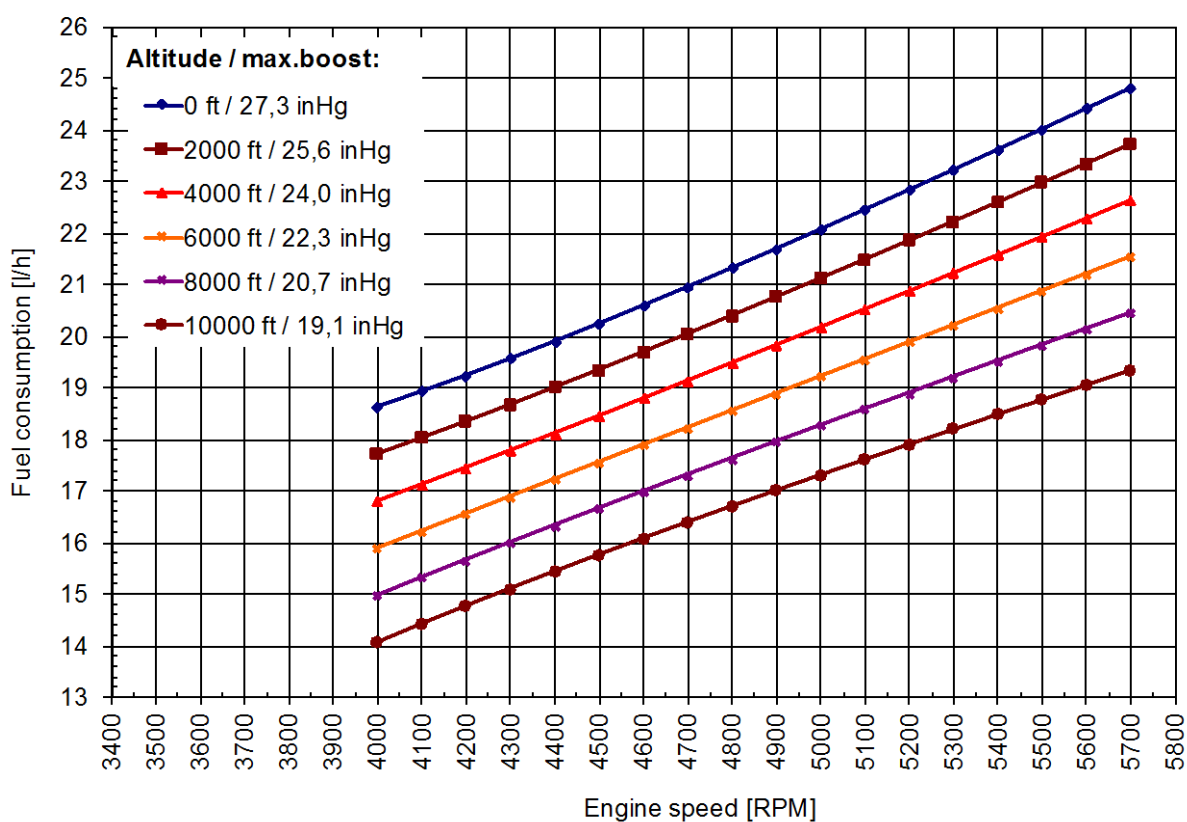
MAP				Engine RPM																
				4200	4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500	5600	5700	
6000 ft	22,3 inHg	IAS [km/h]	151	153	156	158	160	161	163	165	166	168	169	170	171	172	173	174	175	175
		CAS [km/h]	155	157	159	161	163	164	166	167	169	170	171	172	173	174	175	176	177	177
		TAS [km/h]	170	172	174	176	178	180	182	183	185	186	187	189	190	191	192	192	193	194
	22,0 inHg	IAS [km/h]	149	151	153	155	157	159	161	162	164	165	167	168	169	170	171	172	172	173
		CAS [km/h]	153	155	157	159	160	162	164	165	167	168	169	170	171	172	173	174	174	175
		TAS [km/h]	167	169	172	174	176	177	179	181	182	184	185	186	187	188	189	190	191	191
	21,0 inHg	IAS [km/h]	141	144	146	148	150	152	153	155	157	158	159	161	162	163	164	164	165	166
		CAS [km/h]	146	148	150	152	154	156	157	159	160	161	162	164	165	165	166	167	168	168
		TAS [km/h]	160	162	164	166	168	170	172	173	175	176	178	179	180	181	182	183	183	184
	20,0 inHg	IAS [km/h]	134	136	138	141	142	144	146	148	149	151	152	153	154	155	156	157	158	158
		CAS [km/h]	139	142	144	145	147	149	150	152	153	155	156	157	158	159	160	160	161	161
		TAS [km/h]	153	155	157	159	161	163	165	166	168	169	170	172	173	174	175	175	176	177
	19,0 inHg	IAS [km/h]	127	129	131	133	135	137	139	140	142	143	145	146	147	148	149	150	150	151
		CAS [km/h]	133	135	137	139	141	142	144	145	147	148	149	150	151	152	153	154	154	155
		TAS [km/h]	145	148	150	152	154	156	157	159	160	162	163	164	165	166	167	168	169	169
8000 ft	20,7 inHg	IAS [km/h]	142	144	146	148	150	152	153	155	157	158	159	161	162	163	164	165	165	166
		CAS [km/h]	146	148	150	152	154	156	157	159	160	161	162	164	165	166	166	167	168	169
		TAS [km/h]	165	167	169	172	174	175	177	179	180	182	183	185	186	187	188	189	189	190
	20,0 inHg	IAS [km/h]	137	139	141	143	145	147	149	150	152	153	154	156	157	158	159	160	160	161
		CAS [km/h]	142	144	146	148	149	151	153	154	156	157	158	159	160	161	162	163	163	164
		TAS [km/h]	160	162	164	167	169	170	172	174	175	177	178	180	181	182	183	184	184	185
	19,0 inHg	IAS [km/h]	130	132	134	136	138	140	142	143	145	146	148	149	150	151	152	153	154	154
		CAS [km/h]	136	138	139	141	143	145	146	148	149	151	152	153	154	155	156	156	157	158
		TAS [km/h]	153	155	157	159	161	163	165	167	168	170	171	172	174	175	176	177	177	178
	18,0 inHg	IAS [km/h]	122	125	127	129	131	133	135	136	138	139	141	142	143	144	145	146	147	147
		CAS [km/h]	129	131	133	135	137	138	140	141	143	144	145	147	148	149	149	150	151	151
		TAS [km/h]	146	148	150	152	154	156	158	160	161	163	164	165	166	168	169	169	170	171
	17,0 inHg	IAS [km/h]	115	118	120	122	124	126	127	129	131	132	134	135	136	137	138	139	140	140
		CAS [km/h]	123	125	127	129	130	132	134	135	137	138	139	140	141	142	143	144	145	145
		TAS [km/h]	139	141	143	145	147	149	151	152	154	156	157	158	159	160	161	162	163	164
10000 ft	19,1 inHg	IAS [km/h]	132	134	136	138	140	142	144	145	147	148	150	151	152	153	154	155	156	157
		CAS [km/h]	138	140	141	143	145	147	148	150	151	152	154	155	156	157	158	159	159	160
		TAS [km/h]	160	162	165	167	169	171	172	174	176	177	179	180	181	183	184	185	185	186
	19,0 inHg	IAS [km/h]	131	134	136	138	140	141	143	145	146	148	149	150	152	153	154	155	155	156
		CAS [km/h]	137	139	141	143	145	146	148	149	151	152	153	154	155	156	157	158	159	160
		TAS [km/h]	160	162	164	166	168	170	172	174	175	177	178	180	181	182	183	184	185	186
	18,0 inHg	IAS [km/h]	125	127	129	131	133	135	137	138	140	141	143	144	145	146	147	148	149	150
		CAS [km/h]	131	133	135	137	139	140	142	143	145	146	147	148	149	150	151	152	153	154
		TAS [km/h]	153	155	157	159	161	163	165	167	168	170	171	173	174	175	176	177	178	179
	17,0 inHg	IAS [km/h]	118	120	122	124	126	128	130	131	133	135	136	137	138	139	140	141	142	143
		CAS [km/h]	125	127	129	131	133	134	136	137	139	140	141	142	143	144	145	146	147	148
		TAS [km/h]	146	148	150	152	154	156	158	160	161	163	164	166	167	168	169	170	171	172
	16,0 inHg	IAS [km/h]	111	113	116	118	120	121	123	125	126	128	129	131	132	133	134	135	136	136
		CAS [km/h]	119	121	123	125	127	128	130	131	133	134	135	136	137	138	139	140	141	142
		TAS [km/h]	139	141	143	145	147	149	151	153	154	156	157	159	160	161	162	163	164	165



5.3.3 Endurance

- Conditions:**
- flaps
 - carburetor preheating
 - airplane weight
 - ambient air temperature
 - usable fuel volume
 - retracted (0°)
 - OFF
 - 600 kg
 - ISA
 - 118 l

Fuel consumption at full throttle





MAP		Engine RPM															
			4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500	5600	5700
0 ft	27,3 inHg	IAS [knots]	101	102	103	104	105	106	106	107	107	108	108	109	109	109	110
		IAS [km/h]	187	189	191	192	194	195	197	198	199	200	201	202	202	203	203
		CAS [km/h]	188	189	191	193	194	196	197	198	199	200	201	201	202	202	203
		TAS [km/h]	188	189	191	193	194	196	197	198	199	200	201	201	202	202	203
		Fuel cons. [l/hour]	19,6	19,9	20,2	20,6	21,0	21,3	21,7	22,1	22,5	22,8	23,2	23,6	24,0	24,4	24,8
		Endurance [h:m]	6:01	5:55	5:49	5:43	5:37	5:31	5:26	5:20	5:15	5:10	5:04	4:59	4:54	4:50	4:45
		Range [km]	1130	1120	1110	1100	1090	1080	1070	1060	1050	1030	1020	1010	990	980	960
	27,0 inHg	IAS [knots]	100	101	102	103	104	104	105	106	106	107	107	108	108	108	108
		IAS [km/h]	185	187	188	190	192	193	195	196	197	198	199	199	200	200	201
		CAS [km/h]	186	187	189	191	192	194	195	196	197	198	199	199	200	200	201
		TAS [km/h]	186	187	189	191	192	194	195	196	197	198	199	199	200	200	201
		Fuel cons. [l/hour]	19,0	19,4	19,7	20,1	20,4	20,8	21,2	21,5	21,9	22,3	22,7	23,1	23,5	23,9	24,3
		Endurance [h:m]	6:12	6:05	5:59	5:52	5:46	5:40	5:34	5:28	5:23	5:17	5:12	5:06	5:01	4:56	4:51
		Range [km]	1150	1140	1130	1120	1110	1100	1090	1070	1060	1050	1030	1020	1000	990	980
	26,0 inHg	IAS [knots]	95	96	97	98	99	100	101	101	102	102	103	103	104	104	104
		IAS [km/h]	176	178	180	182	184	185	186	188	189	190	191	191	192	192	193
		CAS [km/h]	178	180	182	183	185	186	187	188	189	190	191	192	192	193	193
		TAS [km/h]	178	180	182	183	185	186	187	188	189	190	191	192	192	193	193
		Fuel cons. [l/hour]	16,9	17,3	17,6	18,0	18,3	18,7	19,1	19,4	19,8	20,2	20,6	21,0	21,4	21,8	22,2
		Endurance [h:m]	6:58	6:50	6:42	6:34	6:26	6:18	6:11	6:04	5:57	5:50	5:43	5:37	5:31	5:25	5:19
		Range [km]	1240	1230	1220	1200	1190	1180	1160	1140	1130	1110	1100	1080	1060	1040	1030
	25,0 inHg	IAS [knots]	91	92	93	94	95	95	96	97	97	98	98	99	99	99	100
		IAS [km/h]	168	170	172	174	175	177	178	179	181	181	182	183	184	184	184
		CAS [km/h]	170	172	174	176	177	178	180	181	182	183	184	184	185	185	185
		TAS [km/h]	170	172	174	176	177	178	180	181	182	183	184	184	185	185	185
		Fuel cons. [l/hour]	14,8	15,2	15,5	15,9	16,2	16,6	17,0	17,3	17,7	18,1	18,5	18,9	19,3	19,7	20,1
		Endurance [h:m]	7:57	7:47	7:36	7:26	7:16	7:07	6:57	6:48	6:39	6:31	6:23	6:15	6:07	6:00	5:52
		Range [km]	1360	1340	1320	1310	1290	1270	1250	1230	1210	1190	1170	1150	1130	1110	1090
	24,0 inHg	IAS [knots]	86	87	88	89	90	91	92	92	93	94	94	95	95	95	95
		IAS [km/h]	160	162	164	165	167	169	170	171	172	173	174	175	175	176	176
		CAS [km/h]	163	165	166	168	169	171	172	173	174	175	176	177	177	178	178
		TAS [km/h]	163	165	166	168	169	171	172	173	174	175	176	177	177	178	178
		Fuel cons. [l/hour]	12,7	13,1	13,4	13,8	14,1	14,5	14,8	15,2	15,6	16,0	16,4	16,8	17,2	17,6	18,0
		Endurance [h:m]	9:16	9:02	8:48	8:34	8:21	8:09	7:56	7:45	7:33	7:22	7:12	7:02	6:52	6:43	6:34
		Range [km]	1510	1490	1460	1440	1420	1390	1370	1340	1320	1290	1270	1240	1220	1190	1170
2000 ft	25,6 inHg	IAS [knots]	96	97	98	99	99	100	101	102	102	103	103	104	104	104	105
		IAS [km/h]	177	179	181	183	184	186	187	188	190	191	191	192	193	193	194
		CAS [km/h]	179	180	182	184	185	187	188	189	190	191	192	193	193	194	194
		TAS [km/h]	184	186	188	189	191	192	194	195	196	197	198	198	199	199	200
		Fuel cons. [l/hour]	18,7	19,0	19,4	19,7	20,0	20,4	20,8	21,1	21,5	21,9	22,2	22,6	23,0	23,3	23,7
		Endurance [h:m]	6:19	6:12	6:05	5:59	5:53	5:47	5:41	5:35	5:29	5:23	5:18	5:13	5:08	5:03	4:58
		Range [km]	1160	1150	1140	1130	1120	1110	1100	1090	1080	1060	1050	1040	1020	1010	990
	25,0 inHg	IAS [knots]	93	94	95	96	97	98	98	99	100	100	101	101	101	102	102
		IAS [km/h]	172	174	176	178	179	181	182	183	185	186	186	187	188	188	189
		CAS [km/h]	174	176	178	179	181	182	183	185	186	186	187	188	189	189	189
		TAS [km/h]	179	181	183	185	186	188	189	190	191	192	193	194	194	195	195
		Fuel cons. [l/hour]	17,5	17,8	18,1	18,5	18,8	19,2	19,5	19,9	20,3	20,6	21,0	21,4	21,7	22,1	22,5
		Endurance [h:m]	6:45	6:37	6:30	6:23	6:16	6:09	6:02	5:55	5:49	5:43	5:37	5:31	5:25	5:20	5:14
		Range [km]	1210	1200	1190	1180	1170	1150	1140	1130	1110	1100	1080	1070	1050	1040	1020
	24,0 inHg	IAS [knots]	88	90	91	92	92	93	94	95	95	96	96	97	97	97	98
		IAS [km/h]	164	166	168	170	171	173	174	175	176	177	178	179	180	180	181
		CAS [km/h]	167	168	170	172	173	175	176	177	178	179	180	181	181	182	182
		TAS [km/h]	172	173	175	177	178	180	181	182	183	184	185	186	187	187	187
		Fuel cons. [l/hour]	15,5	15,8	16,2	16,5	16,9	17,2	17,6	17,9	18,3	18,7	19,0	19,4	19,8	20,2	20,5
		Endurance [h:m]	7:37	7:27	7:18	7:08	6:59	6:51	6:42	6:34	6:26	6:19	6:12	6:04	5:57	5:51	5:44
		Range [km]	1310	1290	1280	1260	1250	1230	1220	1200	1180	1170	1150	1130	1110	1100	1080
	23,0 inHg	IAS [knots]	84	85	86	87	88	89	90	90	91	91	92	92	93	93	93
		IAS [km/h]	156	158	160	161	163	165	166	167	168	169	170	171	172	172	173
		CAS [km/h]	159	161	163	164	166	167	168	170	171	172	172	173	174	174	175
		TAS [km/h]	164	166	168	169	171	172	174	175	176	177	178	178	179	179	180
		Fuel cons. [l/hour]	13,5	13,9	14,2	14,5	14,9	15,2	15,6	16,0	16,3	16,7	17,1	17,4	17,8	18,2	18,6
		Endurance [h:m]	8:43	8:31	8:18	8:07	7:55	7:44	7:33	7:23	7:13	7:04	6:54	6:46	6:37	6:29	6:21
		Range [km]	1430	1410	1390	1370	1350	1330	1310	1290	1270	1250	1230	1210	1190	1160	1140
	22,0 inHg	IAS [knots]	80	81	82	83	84	84	85	86	86	87	88	88	88	89	89
		IAS [km/h]	148	150	151	153	155	156	158	159	160	161	162	163	164	164	164
		CAS [km/h]	152	154	155	157	158	160	161	162	163	164	165	166	166	167	167
		TAS [km/h]	156	158	160	162	163	165	166	167	168	169	170	171	171	172	172
		Fuel cons. [l/hour]	11,5	11,9	12,2	12,6	12,9	13,3	13,6	14,0	14,4	14,7	15,1	15,5	15,8	16,2	16,6
		Endurance [h:m]	10:13	9:55	9:39	9:23	9:08	8:53	8:39	8:26	8:13	8:00	7:49	7:37	7:27	7:16	7:06
		Range [km]	1600	1570	1540	1520	1490	1460	1440	1410	1380	1360	1330	1300	1280	1250	1220



MAP			Engine RPM														
			4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500	5600	5700
4000 ft	24,0 inHg	IAS [knots]	90	91	92	93	94	95	96	97	97	98	98	99	99	99	100
		IAS [km/h]	167	169	171	173	175	176	177	179	180	181	182	183	183	184	185
		CAS [km/h]	170	172	173	175	176	178	179	180	181	182	183	184	185	185	186
		TAS [km/h]	180	182	184	186	187	189	190	191	192	193	194	195	196	196	197
		Fuel cons. [l/hour]	17,8	18,1	18,5	18,8	19,1	19,5	19,8	20,2	20,5	20,9	21,2	21,6	21,9	22,3	22,6
		Endurance [h:m]	6:38	6:30	6:23	6:16	6:09	6:03	5:57	5:51	5:45	5:39	5:33	5:28	5:22	5:17	5:12
		Range [km]	1200	1190	1180	1170	1150	1140	1130	1120	1110	1090	1080	1070	1050	1040	1030
	23,0 inHg	IAS [knots]	86	87	88	89	90	91	92	93	93	94	94	95	95	95	96
		IAS [km/h]	160	162	164	166	167	169	170	171	173	174	175	175	176	177	177
		CAS [km/h]	163	165	166	168	170	171	172	173	174	175	176	177	178	178	179
		TAS [km/h]	173	175	177	178	180	181	183	184	185	186	187	188	189	189	190
		Fuel cons. [l/hour]	16,0	16,3	16,7	17,0	17,3	17,7	18,0	18,4	18,7	19,1	19,4	19,8	20,1	20,5	20,8
		Endurance [h:m]	7:22	7:13	7:05	6:56	6:48	6:40	6:32	6:25	6:18	6:11	6:04	5:58	5:51	5:45	5:39
		Range [km]	1280	1260	1250	1240	1230	1210	1200	1180	1170	1150	1140	1120	1110	1090	1070
	22,0 inHg	IAS [knots]	82	83	84	85	86	87	88	88	89	90	90	91	91	91	92
		IAS [km/h]	152	154	156	158	160	161	162	164	165	166	167	168	168	169	170
		CAS [km/h]	156	158	160	161	163	164	165	166	168	169	169	170	171	171	172
		TAS [km/h]	166	167	169	171	173	174	175	177	178	179	180	181	181	182	182
		Fuel cons. [l/hour]	14,1	14,5	14,8	15,2	15,5	15,8	16,2	16,5	16,9	17,2	17,6	17,9	18,3	18,6	19,0
		Endurance [h:m]	8:20	8:09	7:57	7:47	7:36	7:27	7:17	7:08	6:59	6:51	6:42	6:34	6:27	6:19	6:12
		Range [km]	1380	1360	1350	1330	1310	1300	1280	1260	1240	1220	1210	1190	1170	1150	1130
	21,0 inHg	IAS [knots]	78	79	80	81	82	83	84	84	85	85	86	86	87	87	87
		IAS [km/h]	145	147	148	150	152	153	155	156	157	158	159	160	161	161	162
		CAS [km/h]	149	151	153	154	156	157	158	160	161	162	162	163	164	164	165
		TAS [km/h]	158	160	162	164	165	167	168	169	170	171	172	173	174	174	175
		Fuel cons. [l/hour]	12,3	12,6	13,0	13,3	13,7	14,0	14,3	14,7	15,0	15,4	15,7	16,1	16,4	16,8	17,1
		Endurance [h:m]	9:35	9:20	9:05	8:51	8:38	8:25	8:13	8:01	7:50	7:40	7:29	7:20	7:10	7:01	6:52
		Range [km]	1520	1490	1470	1450	1430	1400	1380	1360	1340	1310	1290	1270	1250	1230	1200
	20,0 inHg	IAS [knots]	74	75	76	77	78	79	79	80	81	81	82	82	83	83	83
		IAS [km/h]	137	139	141	143	144	146	147	148	150	151	152	152	153	154	154
		CAS [km/h]	142	144	146	147	149	150	151	153	154	155	155	156	157	157	158
		TAS [km/h]	151	153	155	156	158	159	161	162	163	164	165	166	166	167	168
		Fuel cons. [l/hour]	10,5	10,8	11,1	11,5	11,8	12,2	12,5	12,9	13,2	13,6	13,9	14,3	14,6	15,0	15,3
		Endurance [h:m]	11:16	10:55	10:35	10:16	9:59	9:42	9:26	9:10	8:56	8:42	8:29	8:16	8:04	7:53	7:42
		Range [km]	1700	1670	1640	1610	1580	1550	1520	1490	1460	1430	1400	1370	1340	1320	1290
6000 ft	22,3 inHg	IAS [knots]	85	86	87	88	89	90	91	91	92	93	93	94	94	94	95
		IAS [km/h]	158	160	161	163	165	166	168	169	170	171	172	173	174	175	175
		CAS [km/h]	161	163	164	166	167	169	170	171	172	173	174	175	176	177	177
		TAS [km/h]	176	178	180	182	183	185	186	187	189	190	191	192	192	193	194
		Fuel cons. [l/hour]	16,9	17,2	17,6	17,9	18,2	18,6	18,9	19,2	19,6	19,9	20,2	20,5	20,9	21,2	21,5
		Endurance [h:m]	6:59	6:51	6:43	6:35	6:28	6:21	6:14	6:08	6:02	5:56	5:50	5:44	5:39	5:33	5:28
		Range [km]	1230	1220	1210	1200	1190	1170	1160	1150	1140	1130	1110	1100	1090	1070	1060
	22,0 inHg	IAS [knots]	84	85	86	87	88	88	89	90	91	91	92	92	93	93	93
		IAS [km/h]	155	157	159	161	162	164	165	167	168	169	170	171	172	172	173
		CAS [km/h]	159	160	162	164	165	167	168	169	170	171	172	173	174	174	175
		TAS [km/h]	174	176	177	179	181	182	184	185	186	187	188	189	190	191	191
		Fuel cons. [l/hour]	16,3	16,6	17,0	17,3	17,6	18,0	18,3	18,6	19,0	19,3	19,6	20,0	20,3	20,6	21,0
		Endurance [h:m]	7:14	7:05	6:57	6:49	6:41	6:33	6:26	6:19	6:13	6:06	6:00	5:54	5:48	5:43	5:37
		Range [km]	1260	1240	1230	1220	1210	1200	1180	1170	1160	1150	1130	1120	1100	1090	1080
	21,0 inHg	IAS [knots]	80	81	82	83	84	85	85	86	87	87	88	88	89	89	89
		IAS [km/h]	148	150	152	153	155	157	158	159	161	162	163	164	164	165	166
		CAS [km/h]	152	154	156	157	159	160	161	162	164	165	165	166	167	168	168
		TAS [km/h]	166	168	170	172	173	175	176	178	179	180	181	182	183	183	184
		Fuel cons. [l/hour]	14,6	14,9	15,3	15,6	15,9	16,3	16,6	16,9	17,3	17,6	17,9	18,3	18,6	18,9	19,2
		Endurance [h:m]	8:04	7:54	7:43	7:33	7:24	7:15	7:06	6:58	6:50	6:42	6:35	6:27	6:20	6:14	6:07
		Range [km]	1340	1330	1310	1300	1280	1270	1250	1240	1220	1210	1190	1180	1160	1140	1130
	20,0 inHg	IAS [knots]	76	77	78	79	80	81	81	82	83	83	84	84	85	85	85
		IAS [km/h]	141	142	144	146	148	149	151	152	153	154	155	156	157	158	158
		CAS [km/h]	145	147	149	150	152	153	155	156	157	158	159	160	160	161	161
		TAS [km/h]	159	161	163	165	166	168	169	170	172	173	174	175	175	176	177
		Fuel cons. [l/hour]	12,9	13,2	13,6	13,9	14,2	14,6	14,9	15,2	15,6	15,9	16,2	16,5	16,9	17,2	17,5
		Endurance [h:m]	9:08	8:55	8:41	8:29	8:17	8:06	7:55	7:45	7:35	7:25	7:16	7:07	6:59	6:51	6:43
		Range [km]	1460	1440	1420	1400	1380	1360	1340	1320	1300	1280	1260	1250	1230	1210	1190
	19,0 inHg	IAS [knots]	72	73	74	75	76	77	77	78	79	79	80	80	81	81	82
		IAS [km/h]	133	135	137	139	140	142	143	145	146	147	148	149	150	150	151
		CAS [km/h]	139	141	142	144	145	147	148	149	150	151	152	153	154	154	155
		TAS [km/h]	152	154	156	157	159	160	162	163	164	165	166	167	168	169	169
		Fuel cons. [l/hour]	11,2	11,5	11,9	12,2	12,5	12,9	13,2	13,5	13,8	14,2	14,5	14,8	15,2	15,5	15,8
		Endurance [h:m]	10:32	10:14	9:57	9:40	9:25	9:10	8:56	8:43	8:31	8:19	8:07	7:57	7:46	7:36	7:27
		Range [km]	1600	1570	1550	1520	1500	1470	1450	1420	1400	1380	1350	1330	1310	1280	1260

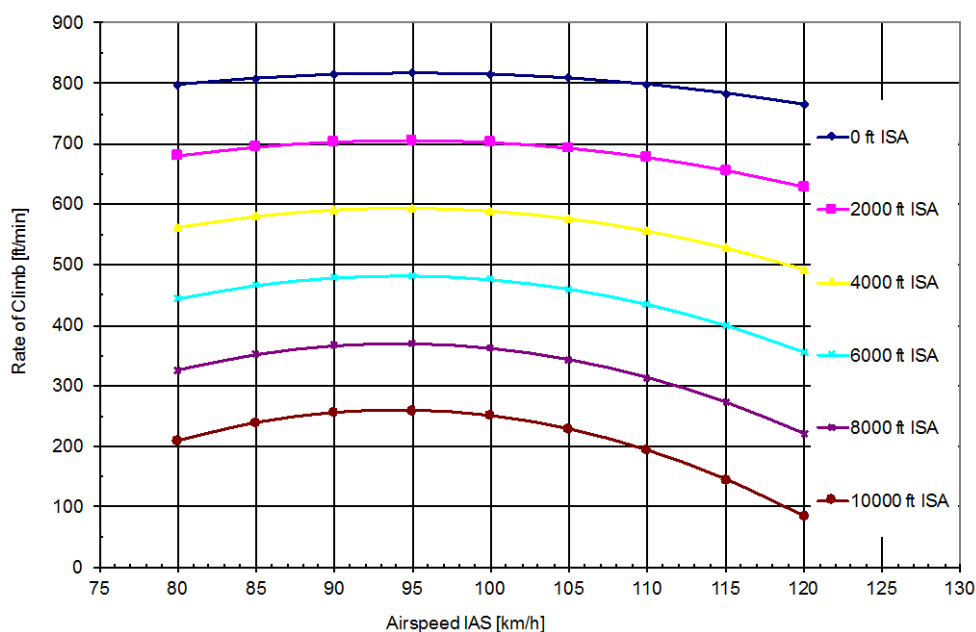
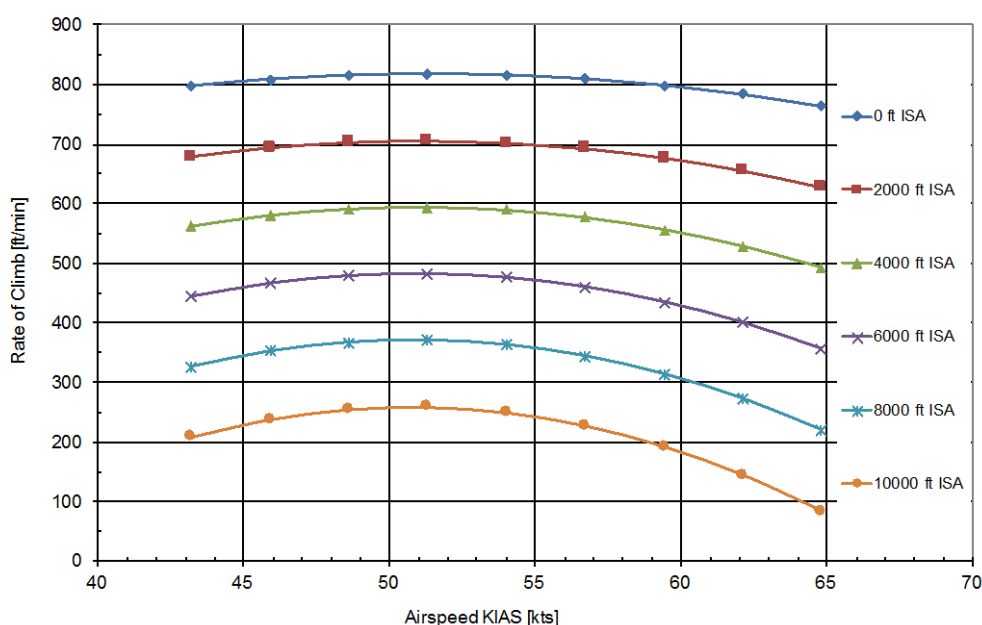


MAP			Engine RPM															
			4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500	5600	5700	
8000 ft	20,7 inHg	IAS [knots]	80	81	82	83	84	85	85	86	87	87	88	88	89	89	90	
		IAS [km/h]	148	150	152	153	155	157	158	159	161	162	163	164	165	165	166	
		CAS [km/h]	152	154	156	157	159	160	161	162	164	165	166	166	167	168	169	
		TAS [km/h]	172	174	175	177	179	180	182	183	185	186	187	188	189	189	190	
		Fuel cons. [l/hour]	16,0	16,3	16,7	17,0	17,3	17,6	18,0	18,3	18,6	18,9	19,2	19,5	19,8	20,1	20,4	
		Endurance [h:m]	7:22	7:13	7:04	6:56	6:48	6:41	6:34	6:27	6:21	6:14	6:08	6:02	5:57	5:51	5:46	
		Range [km]	1270	1250	1240	1230	1220	1210	1200	1180	1170	1160	1150	1140	1120	1110	1100	
	20,0 inHg	IAS [knots]	77	78	79	80	81	82	83	83	84	85	85	86	86	87	87	
		IAS [km/h]	143	145	147	149	150	152	153	154	156	157	158	159	160	160	161	
		CAS [km/h]	148	149	151	153	154	156	157	158	159	160	161	162	163	163	164	
		TAS [km/h]	167	169	170	172	174	175	177	178	180	181	182	183	184	184	185	
		Fuel cons. [l/hour]	14,9	15,2	15,6	15,9	16,2	16,5	16,8	17,2	17,5	17,8	18,1	18,4	18,7	19,0	19,3	
		Endurance [h:m]	7:55	7:45	7:35	7:25	7:16	7:08	7:00	6:52	6:45	6:38	6:31	6:24	6:18	6:12	6:06	
		Range [km]	1320	1310	1290	1280	1270	1250	1240	1230	1210	1200	1190	1170	1160	1140	1130	
	19,0 inHg	IAS [knots]	73	74	75	76	77	78	79	80	80	81	82	82	82	83	83	
		IAS [km/h]	136	138	140	142	143	145	146	148	149	150	151	152	153	154	154	
		CAS [km/h]	141	143	145	146	148	149	151	152	153	154	155	156	156	157	158	
		TAS [km/h]	159	161	163	165	167	168	170	171	172	174	175	176	177	177	178	
		Fuel cons. [l/hour]	13,3	13,7	14,0	14,3	14,6	15,0	15,3	15,6	15,9	16,2	16,5	16,8	17,1	17,5	17,8	
		Endurance [h:m]	8:51	8:38	8:26	8:14	8:03	7:53	7:43	7:34	7:25	7:16	7:08	7:00	6:52	6:45	6:38	
		Range [km]	1410	1400	1380	1360	1340	1330	1310	1300	1280	1260	1250	1230	1210	1200	1180	
	18,0 inHg	IAS [knots]	70	71	72	73	74	74	75	76	77	77	78	78	79	79	79	
		IAS [km/h]	129	131	133	135	136	138	139	141	142	143	144	145	146	147	147	
		CAS [km/h]	135	137	138	140	141	143	144	145	147	148	149	149	150	151	151	
		TAS [km/h]	152	154	156	158	160	161	163	164	165	166	168	169	169	170	171	
		Fuel cons. [l/hour]	11,7	12,1	12,4	12,7	13,1	13,4	13,7	14,0	14,3	14,6	15,0	15,3	15,6	15,9	16,2	
		Endurance [h:m]	10:02	9:46	9:30	9:15	9:02	8:49	8:36	8:25	8:14	8:03	7:53	7:43	7:34	7:25	7:17	
		Range [km]	1530	1510	1490	1460	1440	1420	1400	1380	1360	1340	1320	1300	1280	1260	1250	
	17,0 inHg	IAS [knots]	66	67	68	69	70	71	71	72	73	73	74	74	75	75	76	
		IAS [km/h]	122	124	126	127	129	131	132	134	135	136	137	138	139	140	140	
		CAS [km/h]	129	130	132	134	135	137	138	139	140	141	142	143	144	145	145	
		TAS [km/h]	145	147	149	151	152	154	156	157	158	159	160	161	162	163	164	
		Fuel cons. [l/hour]	10,2	10,5	10,8	11,2	11,5	11,8	12,1	12,4	12,8	13,1	13,4	13,7	14,0	14,3	14,6	
		Endurance [h:m]	11:35	11:13	10:53	10:34	10:16	9:59	9:43	9:29	9:15	9:01	8:49	8:37	8:25	8:14	8:04	
		Range [km]	1680	1650	1620	1590	1570	1540	1510	1490	1460	1440	1410	1390	1370	1340	1320	
	10000ft	19,1 inHg	IAS [knots]	75	76	77	78	78	79	80	81	81	82	83	83	84	84	85
			IAS [km/h]	138	140	142	144	145	147	148	150	151	152	153	154	155	156	157
			CAS [km/h]	143	145	147	148	150	151	152	154	155	156	157	158	159	159	160
			TAS [km/h]	167	169	171	172	174	176	177	179	180	181	183	184	185	185	186
			Fuel cons. [l/hour]	15,1	15,4	15,8	16,1	16,4	16,7	17,0	17,3	17,6	17,9	18,2	18,5	18,8	19,1	19,4
			Endurance [h:m]	7:48	7:38	7:29	7:20	7:11	7:03	6:56	6:48	6:41	6:35	6:28	6:22	6:16	6:11	6:05
			Range [km]	1300	1290	1280	1270	1250	1240	1230	1220	1210	1200	1180	1170	1160	1150	1140
19,0 inHg		IAS [knots]	74	75	76	77	78	79	80	81	81	82	82	83	84	84	84	
		IAS [km/h]	138	140	141	143	145	146	148	149	150	152	153	154	155	155	156	
		CAS [km/h]	143	145	146	148	149	151	152	153	154	155	156	157	158	159	160	
		TAS [km/h]	166	168	170	172	174	175	177	178	180	181	182	183	184	185	186	
		Fuel cons. [l/hour]	15,0	15,3	15,7	16,0	16,3	16,6	16,9	17,2	17,5	17,8	18,1	18,4	18,7	19,0	19,3	
		Endurance [h:m]	7:51	7:41	7:31	7:22	7:14	7:06	6:58	6:51	6:44	6:37	6:31	6:24	6:18	6:13	6:07	
		Range [km]	1310	1290	1280	1270	1260	1250	1230	1220	1210	1200	1190	1170	1160	1150	1140	
18,0 inHg		IAS [knots]	71	72	73	74	75	75	76	77	78	78	79	79	80	80	81	
		IAS [km/h]	131	133	135	137	138	140	141	143	144	145	146	147	148	149	150	
		CAS [km/h]	137	139	140	142	143	145	146	147	148	149	150	151	152	153	154	
		TAS [km/h]	159	161	163	165	167	168	170	171	173	174	175	176	177	178	179	
		Fuel cons. [l/hour]	13,6	13,9	14,2	14,5	14,9	15,2	15,5	15,8	16,1	16,4	16,7	17,0	17,2	17,5	17,8	
		Endurance [h:m]	8:41	8:29	8:17	8:06	7:56	7:46	7:37	7:28	7:20	7:12	7:04	6:57	6:50	6:43	6:37	
		Range [km]	1380	1370	1350	1340	1320	1310	1300	1280	1270	1250	1240	1230	1210	1200	1180	
17,0 inHg		IAS [knots]	67	68	69	70	71	72	73	73	74	75	75	76	76	77	77	
		IAS [km/h]	124	126	128	130	131	133	135	136	137	138	139	140	141	142	143	
		CAS [km/h]	131	133	134	136	137	139	140	141	142	143	144	145	146	147	148	
		TAS [km/h]	152	154	156	158	160	161	163	164	166	167	168	169	170	171	172	
		Fuel cons. [l/hour]	12,1	12,5	12,8	13,1	13,4	13,7	14,0	14,3	14,6	14,9	15,2	15,5	15,8	16,1	16,4	
		Endurance [h:m]	9:43	9:28	9:13	9:00	8:47	8:35	8:24	8:13	8:03	7:54	7:45	7:36	7:27	7:20	7:12	
		Range [km]	1480	1460	1440	1420	1400	1390	1370	1350	1340	1320	1300	1290	1270	1250	1240	
16,0 inHg		IAS [knots]	64	65	66	66	67	68	69	70	70	71	72	72	73	73	74	
		IAS [km/h]	118	120	121	123	125	126	128	129	131	132	133	134	135	136	136	
		CAS [km/h]	125	127	128	130	131	133	134	135	136	137	138	139	140	141	142	
		TAS [km/h]	145	147	149	151	153	154	156	157	159	160	161	162	163	164	165	
		Fuel cons. [l/hour]	10,7	11,0	11,3	11,7	12,0	12,3	12,6	12,9	13,2	13,5	13,8	14,1	14,4	14,7	14,9	
		Endurance [h:m]	11:02	10:42	10:23	10:06	9:50	9:35	9:22	9:08	8:56	8:44	8:33	8:22	8:12	8:03	7:54	
		Range [km]	1600	1580	1550	1530	1500	1480	1460	1440	1420	1400	1380	1360	1340	1320	1300	



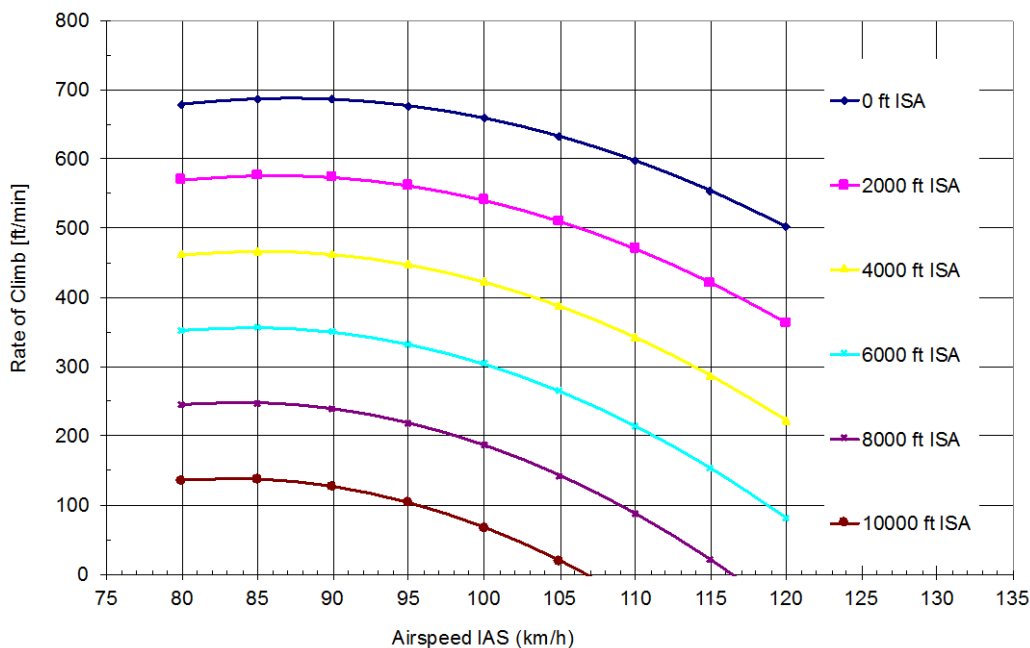
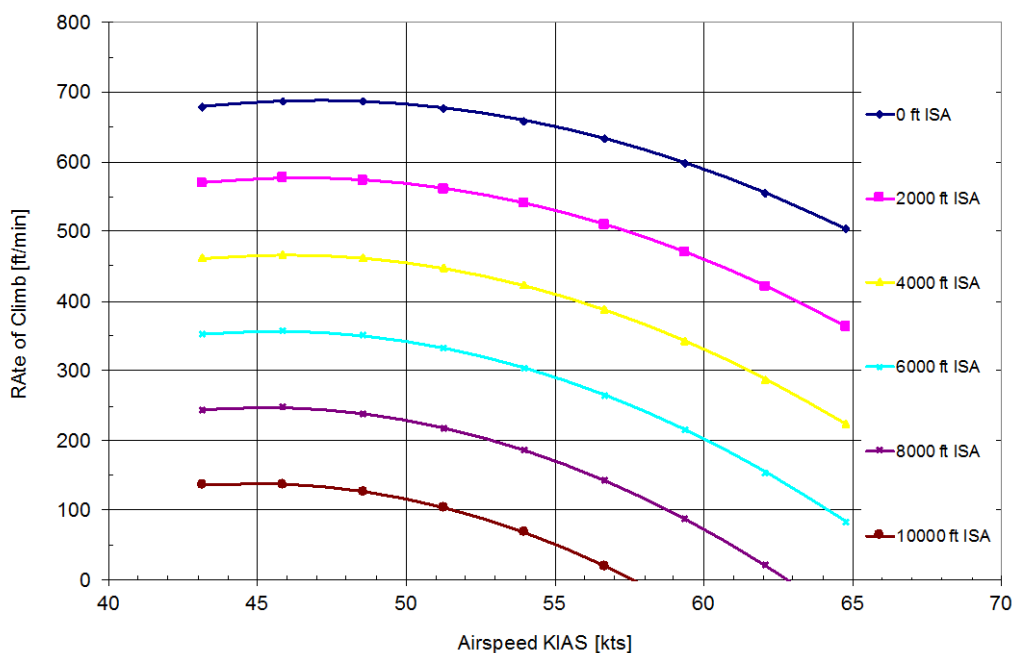
5.3.4 Balked Landing Climb

- Conditions:**
- engine – max. take-off power
 - flaps – LANDING I position (30°)
 - carburetor preheating - OFF
 - airplane weight – 600 kg
 - ambient air temperature - ISA
 - airplane centre of gravity - 27% MAC





- Conditions:**
- engine – max. take-off power
 - flaps – LANDING II position (50°)
 - carburetor preheating – OFF
 - airplane weight – 600 kg
 - ambient air temperature – ISA
 - airplane centre of gravity – 27% MAC



Section 9

Supplement No. 23

KW-31-033 Prop



PILOT'S OPERATING HANDBOOK

Doc. No. ERTC020-10-AS-023



5.3.7 Ceiling

- Conditions:**
- engine
 - propeller
 - flaps
 - airplane weight
 - airplane centre of gravity
 - max. continuous power
 - Woodcomp KW-31-033
 - retracted (0°)
 - 600 kg
 - 27% MAC

Service ceiling 16 320 ft

5.3.8 Noise data

Measured average values of SportStar RTC outside noise according to ICAO – Annex 16:

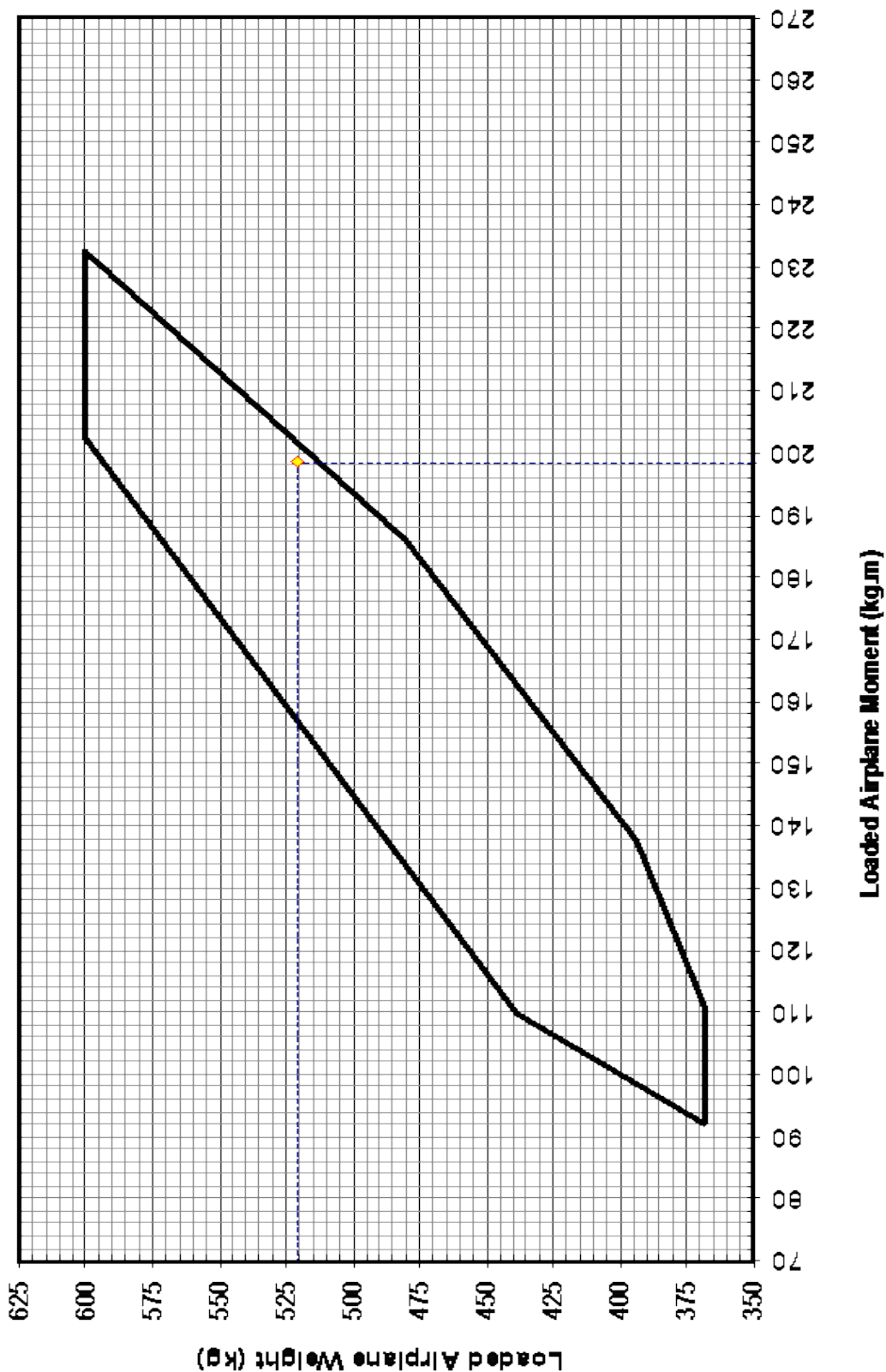
(L_{Amax}) REF = 66.7 ± 1.5 dB(A)

Section 6 – Weight & Balance

No.	Title	Type or P/N	No. of items	Weight [kg]	Arm [m]	Installed
1.	Propeller	Woodcomp KW-31	1	11.40	1.685	✓
2.	Control unit	CS 3-5	1	0.23	-0.014	✓



6.8 CG Moment Envelope of SportStar RTC Airplane





Section 7 – Airplane & System Description

7.10 Power Unit

7.10.8 Propeller

The three-blade, in-flight adjustable KW-31-033 propeller is installed in the airplane. The angle of blade setting is adjusted by a servomotor controlled from the cockpit and it can be adjusted smoothly in the range from the minimum (fine) angle intended for take-off up to the maximum (coarse) angle.

The propeller control unit is located on the central console below the instrument panel. The propeller can operate with either of manual control or with automatic control as a constant speed propeller.

- Automatic control

The prop control unit compares engine rpm with preset value and controls the propeller so that rpm are always within defined tolerance (constant speed).

- Manual control

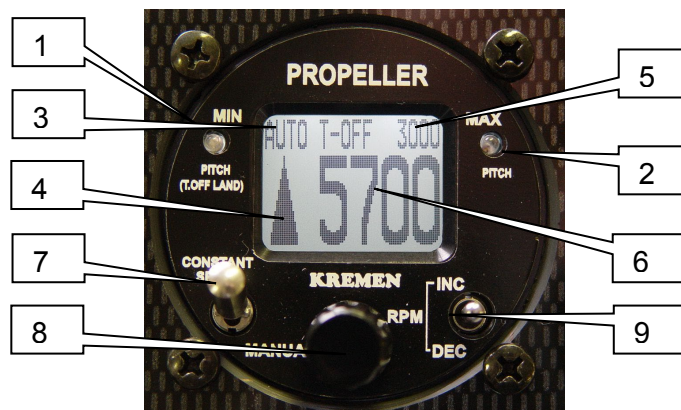
the pilot controls propeller pitch as necessary according to current flight mode.

CAUTION

INCREASE OF ENGINE POWER FROM IDLE TO MAX. TAKE-OFF POWER MUST BE CARRIED OUT CONTINUOUSLY SO THAT THE PROPELLER GOVERNOR KW-31-033 MANAGES TO REGULATE AND PROTECT THE POWER UNIT FROM OVERSPEEDING. THE TIME OF TRANSITION FROM IDLE TO MAX. RPM IS ABOUT 5 SECONDS.

NOTE

Detailed information on propeller operation can be found in „User Manual UM-05 EN – KW-31 Electrical variable aircraft propeller“.

**Propeller control unit**

Operating controls and symbols:

1. Indicator of “minimum propeller pitch reached” in manual and automatic modes.
2. Indicator of “maximum propeller pitch reached” in manual and automatic modes.
3. AUTO is shown confirming that control is in automatic mode (constant speed).
4. Arrow shows change of propeller pitch about to occur:
 Δ decrease of pitch, engine rpm will increase.
 ∇ increase of pitch, engine rpm will decrease.
5. Current engine rpm.
6. Predefined (required) engine rpm; propeller pitch will be constantly adjusted to maintain required engine rpm (constant speed).
7. Switches automatic (constant speed)/manual mode; this switch has detents for two positions.
8. Pitch/rpm setting knob.
9. Propeller control switch:
In manual mode: INC – rpm will increase, DEC – rpm will decrease.



Section 8 – Handling, Servicing & Maintenance

8.2 Airplane Inspection Period

For information on proper propeller maintenance and inspections, please, refer to „User Manual UM-05 EN – KW-31 Electrical variable aircraft propeller“.