

**SECTION IV
FLIGHT PERFORMANCE**

INDEX

General IV-1
Airspeed Calibration IV-2
Stall Speeds IV-2
Best Glide IV-2
Takeoff Distance IV-3
Time, Fuel and Distance to Climb IV-4
Cruise Performance IV-5
Range and Endurance IV-6
Landing Distance IV-6

GENERAL

This data is to inform the pilot what can be expected from the aircraft in the way of performance and to assist in preflight planning.

Flight performance data has been compiled from both estimated calculations and actual flight test using average piloting techniques, with an aircraft and engine in good operating condition. All information is corrected for standard atmospheric conditions.

Performance may vary from the given data due to the variables present with a specific aircraft and actual flight conditions. The pilot is encouraged to maintain a personal flight log for his aircraft. This will not only provide more accurate preflight planning information for future flights, but also can be used as an indicator in determining the general condition of a particular aircraft.

AIRSPEED CALIBRATION

CAS (MPH)	IAS (MPH)
60	60
70	70
80	80
90	90
100	100
120	120
140	141
160	163
180	184
200	206

NOTE

1. Assumes zero instrument error
2. Maximum gross weight of 1950 lb

STALL SPEEDS

IAS (MPH) Angle of Bank			
0°	20°	40°	60°
56	58	64	76

NOTE

1. Gross weight of 1950 lb
2. Power off

BEST GLIDE

Height AGL (ft)	Distance (sm)
2000	3.4
4000	6.8
6000	10.2
8000	13.6
10000	17.0

1. Best glide airspeeds IAS (MPH), 1950lb–61, 1800lb–58, 1650lb–56
2. Best glide range and airspeeds are substantially affected by headwind or tailwind and updrafts or downdrafts, chart is for still-air only

TAKEOFF DISTANCE

CONDITIONS

1. Level, hard Surface, Dry Runway
2. Zero Wind
3. Aircraft Loaded to 1950 lb

PILOT TECHNIQUE

Refer to “TAKEOFF-OBSTACLE” in Section III

1. Speed at Lift-Off – 50-55 MPH IAS
2. Speed at 50 Feet – 58 MPH IAS

WARNING

The aircraft must be pitched forward to a safe power-off speed should a power failure occur during climb-out; failure to respond immediately may result in a stall at low altitude.

	Distance (ft)									
	0° C		10° C		20° C		30° C		40° C	
Pressure Altitude Ft.	Ground Run	Total To Clear 50 ft.	Ground Run	Total To Clear 50 ft.	Ground Run	Total To Clear 50 ft.	Ground Run	Total To Clear 50 ft.	Ground Run	Total To Clear 50 ft.
0	533	978	564	1032	596	1089	626	1144	656	1198
2000	610	1116	645	1179	678	1240	714	1305	750	1372
4000	706	1292	745	1363	786	1436	826	1510	868	1589
6000	831	1517	876	1599	917	1688	971	1777	1020	1864

NOTE

1. Data presented in this table represents maximum airplane capability at speeds shown and requires aircraft in good operating condition and a proficient pilot.
2. Decrease distance 20% for each 10 MPH of head wind.
3. This data does not consider the effects of takeoff from soft and/or grass fields and takeoff with tail wind. Takeoff performance under these conditions varies substantially. Good pilot judgment must be used under all conditions to ensure safe operation.

TIME, FUEL AND DISTANCE TO CLIMB**CONDITIONS**

1. Standard Temperature
2. Aircraft Loaded to 1950 lb
3. Full Throttle

PILOT TECHNIQUE

Refer to "CLIMB" in Section III

1. Maximum Rate of Climb
2. Lean Only as Required to Maintain Smooth Engine Operation

From Sea Level						
Pressure Altitude (ft)	Standard Temp (° C)	Best Climb Speed (MPH-IAS)	Rate of Climb (fpm)	Time (min)	Fuel (gal)	Distance (sm)
0	15	82	1145	0	0	0
1000	13	81	1075	1	0.2	1
2000	11	81	1006	2	0.5	2
3000	9	80	936	3	0.7	4
4000	7	80	867	4	1.0	5
5000	5	80	797	5	1.3	7
6000	3	79	728	7	1.6	9
7000	1	79	658	8	1.9	10
8000	-1	78	589	10	2.2	12
9000	-3	78	519	11	2.5	15
10000	-5	77	450	13	2.9	17
11000	-7	77	380	16	3.3	20
12000	-9	76	311	19	3.8	24

NOTE

1. Data presented in this table represents maximum airplane capability at speeds shown and requires aircraft in good operating condition and a proficient pilot
2. Distances shown are based on zero wind
3. Allow one gallon fuel for engine start, taxi and takeoff
4. Decrease distance for head wind or increase distance for tail wind with the following increment: $\text{Time (min)} / 60 \times \text{wind component in the direction of flight (MPH)}$

CRUISE PERFORMANCE

CONDITIONS

1. Standard temperature
2. All figures based on gross weight of 1950 lb
3. Recommended lean mixture, see Section III.

Super Decathlon											
% BHP	RPM	M.P	TAS MPH	GPH		% BHP	RPM	M.P	TAS MPH	GPH	
2500 FT					7500 FT						
85	2600	25.3	151	12.5	80	2600	23.0	154	12.0		
80		24.1	147	12.0	75		21.8	151	9.7		
75		23.0	144	9.7	70		20.6	146	9.3		
70		21.8	139	9.3	65		19.5	141	8.8		
65		20.6	136	8.8	60		18.4	136	8.3		
60		19.5	131	8.3	55		17.2	131	7.9		
85	2500	25.9	151	12.3	80	2500	23.6	154	11.8		
80		24.7	147	11.8	75		22.4	151	9.6		
75		23.5	144	9.6	70		21.2	146	9.1		
70		22.3	139	9.1	65		20.0	141	8.7		
65		21.1	136	8.7	60		18.7	136	8.1		
60		19.9	131	8.1	55		17.5	131	7.7		
85	2400	26.5	151	12.2	80	2400	24.3	154	11.5		
80		25.2	147	11.5	75		23.0	151	9.5		
75		24.0	144	9.5	70		21.8	146	8.9		
70		22.8	139	8.9	65		20.5	141	8.5		
65		21.5	136	8.5	60		19.2	136	8.0		
60		20.3	131	8.0	55		18.0	131	7.6		
5000 FT					10000 FT						
80	2600	23.6	151	12.0	70	2600	20.2	150	9.3		
75		22.4	147	9.7	65		19.0	145	8.8		
70		21.3	143	9.3	60		17.8	139	8.3		
65		20.1	139	8.8	55		16.7	133	7.9		
60		18.9	134	8.3	50		15.5	125	7.4		
55		17.7	128	7.9	45		14.3	116	6.9		
80	2500	24.1	151	11.8	70	2500	20.6	150	9.1		
75		22.9	147	9.6	65		19.4	145	8.7		
70		21.7	143	9.1	60		18.2	139	8.1		
65		20.5	139	8.7	55		17.0	133	7.7		
60		19.3	134	8.1	50		15.8	125	7.2		
55		18.1	128	7.7	45		14.3	116	6.8		
80	2400	24.9	151	11.5	70	2400	21.2	150	8.9		
75		23.6	147	9.5	65		20.0	145	8.5		
70		22.3	143	8.9	60		18.7	139	8.0		
65		21.0	139	8.5	55		17.4	133	7.6		
60		19.8	134	8.0	50		16.2	125	7.1		
55		18.5	128	7.6	45		14.3	116	6.7		

NOTE

Speeds shown are based on aircraft with optional strut fairings. Reduce cruise speeds shown by 2% for aircraft not so equipped. Use the engine operator's manual to determine brake horsepower and fuel burn for actual conditions.

RANGE AND ENDURANCE

Range and endurance vary significantly with power, airspeed, and altitude. The “CRUISE PERFORMANCE” chart should be used to determine range and endurance based on power setting, fuel flow, and true airspeed. Allowances should be made for climb fuel, fuel reserves, and any headwind or tailwind component.

LANDING DISTANCE

CONDITIONS:

1. Level, hard surface, dry runway
2. Zero wind
3. Aircraft loaded to 1950 lb

PILOT TECHNIQUE:

Refer to “LANDING-OBSTACLE/SHORT FIELD” in Section III

1. Approach Speed – 65 MPH -IAS
2. Throttle – as required to control descent rate
3. Maximum braking

WARNING

A relatively high rate of descent is possible in this configuration when at full gross weight and the throttle closed. If airspeed is allowed to decrease below the approach speeds shown, landing flare can only be assured with an application of power.

Pressure Altitude Ft.	Distance (ft)									
	0° C		10° C		20° C		30° C		40° C	
	Ground Run	Total To Clear 50 ft.	Ground Run	Total To Clear 50 ft.	Ground Run	Total To Clear 50 ft.	Ground Run	Total To Clear 50 ft.	Ground Run	Total To Clear 50 ft.
0	484	1094	494	1115	502	1137	510	1154	521	1176
2000	503	1137	512	1156	521	1178	531	1200	539	1219
4000	522	1179	532	1201	541	1222	551	1245	559	1265
6000	542	1223	552	1246	562	1268	572	1290	581	1311

NOTE

1. Data presented in this table represents maximum airplane capability at speeds shown and requires aircraft in good operating condition and a proficient pilot.
2. Decrease the distance shown by 20% for each 10 MPH of head wind.