

SECTION 6
WEIGHT & BALANCE / EQUIPMENT LIST

CESSNA
MODEL 172S

ITEM DESCRIPTION	WEIGHT AND MOMENT TABULATION			
	SAMPLE AIRPLANE		YOUR AIRPLANE	
	Weight (lbs.)	Moment (Lb-ins. /1000)	Weight (lbs.)	Moment (Lb-ins. /1000)
1. Basic Empty Weight (Use the data pertaining to your airplane as it is presently equipped. Includes unusable fuel and full oil)	1642	62.6		
2. Usable Fuel (At 6 Lbs./Gal.)				
53 Gallons Maximum				
30 Gallons (Quantity used for example)	180	8.6		
3. Pilot and Front Passenger (Station 34 to 46)	340	12.6		
4. Rear Passengers	340	24.8		
5. *Baggage Area 1 (Station 82 to 108; 120 Lbs. Max.)	56	4.6		
6. *Baggage Area 2 (Station 108 to 142; 50 Lbs. Max.)				
7. RAMP WEIGHT AND MOMENT (add columns)	2558	113.2		
8. Fuel allowance for engine start, taxi and runup	-8.0	-0.4		
9. TAKEOFF WEIGHT AND MOMENT (Subtract Step 8 from Step 7)	2550	112.8		
10. Locate this point (2550 at 112.8) on the Center of Gravity Moment Envelope, and since this point falls within the envelope, the loading is acceptable. * The maximum allowable combined weight capacity for baggage areas 1 and 2 is 120 pounds.				

Figure 6-5. Sample Loading Problem (Sheet 1 of 2)

-Estimated Takeoff Weight Calculations-

Front Seat Occupants – 430 pounds (lbs.)

Rear Seat Occupants – 130 lbs.

Fuel on Board at Takeoff – 35 gallons (210 lbs.)

Estimated Ramp Weight – 2412 lbs.

Estimated Takeoff Weight – 2404 lbs.

Maximum Allowable Takeoff Weight – 2550 lbs.

CESSNA
MODEL 172S

SECTION 5
PERFORMANCE

**SHORT FIELD TAKEOFF DISTANCE
AT 2400 POUNDS**

CONDITIONS:

Flaps 10°
Full Throttle Prior to Brake Release
Paved, level, dry runway
Zero Wind
Lift Off: 48 KIAS
Speed at 50 Ft: 54 KIAS

Press Alt In Feet	0°C		10°C		20°C		30°C		40°C	
	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst
S. L.	745	1275	800	1370	860	1470	925	1570	995	1685
1000	810	1390	875	1495	940	1605	1010	1720	1085	1845
2000	885	1520	955	1635	1030	1760	1110	1890	1190	2030
3000	970	1665	1050	1795	1130	1930	1215	2080	1305	2230
4000	1065	1830	1150	1975	1240	2130	1335	2295	1430	2455
5000	1170	2015	1265	2180	1360	2355	1465	2530	1570	2715
6000	1285	2230	1390	2410	1500	2610	1610	2805	1725	3015
7000	1415	2470	1530	2685	1650	2900	1770	3125	1900	3370
8000	1560	2755	1690	3000	1815	3240	1950	3500	2095	3790

NOTES:

1. Short field technique as specified in Section 4.
2. Prior to takeoff from fields above 3000 feet elevation, the mixture should be leaned to give maximum RPM in a full throttle, static runup.
3. Decrease distances 10% for each 9 knots headwind. For operation with tail winds up to 10 knots, increase distances by 10% for each 2 knots.
4. For operation on dry, grass runway, increase distances by 15% of the "ground roll" figure.

Figure 5-5. Short Field Takeoff Distance (Sheet 2 of 3)

-Estimated Takeoff Weight Calculations-

KBPK (13 nautical miles, west of accident airport)

METAR KBPK 052153Z AUTO VRB06KT 10SM CLR 26/15 A2988 RMK
AO2 SLP111 T02610150

Pressure Altitude – 967 feet (ft.)

Density Altitude – 2,677 ft.

Temperature – 26C

Variable Wind

Grass Runway (+15% to ground roll)

Estimated ground roll – 1,138 ft.

Total distance to clear 50ft. obstacle – 1,680 ft.

Runway Distance Available – 3,000 ft.