



WESTERN REGION TECHNICAL ATTACHMENT  
87-26  
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COMPARATIVE VERIFICATION OF NGM-BASED PERFECT PROG FORECASTS

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Editor's Note: The following information from Gary Carter of TDL compares the new NGM-based perfect prog statistical guidance with LFM-based MOS guidance. Scores for most weather elements show the perfect prog guidance to be very competitive with MOS. A notable exception is the temperature guidance. It has a pronounced cold bias due to the cold bias of the NGM model. Attachments depicting scores from the other regions (attachments 2-4 and 7-9) have been omitted to save space.

Information on how the perfect prog equations were developed and some helpful hints on using perfect prog guidance are contained in "Technical Procedures Bulletin No. 369".

**TAKEOFF DISTANCE**  
**MAXIMUM WEIGHT 2400 LBS**

**SHORT FIELD**

**CONDITIONS:**

Flaps 10°  
Full Throttle Prior to Brake Release  
Paved, Level, Dry Runway  
Zero Wind

**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 tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
4. For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.

WEIGHT LBS	TAKEOFF SPEED KIAS		PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
	LIFT OFF	AT 50 FT		GRND	TOTAL FT	GRND	TOTAL FT	GRND	TOTAL FT	GRND	TOTAL FT	GRND	TOTAL FT
				ROLL FT	TO CLEAR 50 FT OBS	ROLL FT	TO CLEAR 50 FT OBS	ROLL FT	TO CLEAR 50 FT OBS	ROLL FT	TO CLEAR 50 FT OBS	ROLL FT	TO CLEAR 50 FT OBS
2400	51	56	S.L.	795	1460	860	1570	925	1685	995	1810	1065	1945
			1000	875	1605	940	1725	1015	1860	1090	2000	1170	2155
			2000	960	1770	1035	1910	1115	2060	1200	2220	1290	2395
			3000	1055	1960	1140	2120	1230	2295	1325	2480	1425	2685
			4000	1165	2185	1260	2365	1355	2570	1465	2790	1575	3030
			5000	1285	2445	1390	2660	1500	2895	1620	3160	1745	3455
			6000	1425	2755	1540	3015	1665	3300	1800	3620	1940	3990
			7000	1580	3140	1710	3450	1850	3805	2000	4220	...	...
			8000	1755	3615	1905	4015	2060	4480	...	...	...	...

Figure 5-5. Takeoff Distance (Sheet 1 of 2)

Original Issue

CESSNA  
MODEL 172P

**TAKEOFF DISTANCE**  
**2200 LBS AND 2000 LBS**

**SHORT FIELD**

REFER TO SHEET 1 FOR APPROPRIATE CONDITIONS AND NOTES.

WEIGHT LBS	TAKEOFF SPEED KIAS		PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
	LIFT OFF	AT 50 FT		GRND	TOTAL FT	GRND	TOTAL FT	GRND	TOTAL FT	GRND	TOTAL FT	GRND	TOTAL FT
				ROLL FT	TO CLEAR 50 FT OBS	ROLL FT	TO CLEAR 50 FT OBS	ROLL FT	TO CLEAR 50 FT OBS	ROLL FT	TO CLEAR 50 FT OBS	ROLL FT	TO CLEAR 50 FT OBS
2200	49	54	S.L.	650	1195	700	1280	750	1375	805	1470	865	1575
			1000	710	1310	765	1405	825	1510	885	1615	950	1735
			2000	780	1440	840	1545	905	1660	975	1785	1045	1915
			3000	855	1585	925	1705	995	1835	1070	1975	1150	2130
			4000	945	1750	1020	1890	1100	2040	1180	2200	1270	2375
			5000	1040	1945	1125	2105	1210	2275	1305	2465	1405	2665
			6000	1150	2170	1240	2355	1340	2555	1445	2775	1555	3020
			7000	1270	2440	1375	2655	1485	2890	1605	3155	1730	3450
			8000	1410	2760	1525	3015	1650	3305	1785	3630	1925	4005
2000	46	51	S.L.	525	970	565	1035	605	1110	650	1185	695	1265
			1000	570	1060	615	1135	665	1215	710	1295	765	1385
			2000	625	1160	675	1240	725	1330	780	1425	840	1525
			3000	690	1270	740	1365	800	1465	860	1570	920	1685
			4000	755	1400	815	1500	880	1615	945	1735	1015	1865
			5000	830	1545	900	1660	970	1790	1040	1925	1120	2070
			6000	920	1710	990	1845	1070	1990	1150	2145	1235	2315
			7000	1015	1900	1095	2055	1180	2225	1275	2405	1370	2605
			8000	1125	2125	1215	2305	1310	2500	1410	2715	1520	2950

Figure 5-5. Takeoff Distance (Sheet 2 of 2)

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MODEL 172P

SECTION 5  
PERFORMANCE