

FAA Approved
Airplane Flight Manual Supplement

DOCUMENT #172-2400-2-FM
For The
Cessna 172N


Serial No. 17271035 to 17272884

Serial No. 17271881 Reg. No. 5512E

This supplement must be attached to the FAA Airplane Flight Manual when STC SA2106CE, which increases the gross weight to 2400 lbs is installed. The information contained herein supplements the information of the basic Airplane Flight Manual. For limitations, procedures, and performance information not contained in this supplement, consult the basic Airplane Flight Manual

1. GENERAL
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6. WEIGHT AND BALANCE

FAA Approved 


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SECTION 1. GENERAL

DESCRIPTIVE DATA

MAXIMUM CERTIFICATED WEIGHTS

Ramp,	Normal	2407 lbs.
	Utility	2007 lbs.
Takeoff,	Normal	2400 lbs.
	Utility	2000 lbs.
Landing,	Normal	2400 lbs.
	Utility	2000 lbs.

SPECIFIC LOADINGS

Wing Loading	13.8 lbs./sq. ft.
Power Loading	15.0 lbs./hp.

SECTION 2. LIMITATIONS

AIRSPEED LIMITATIONS

V_A Maneuvering Speed:

2400 pounds	99 KIAS
2000 pounds	92 KIAS
1600 pounds	82 KIAS

V_{fe} Maximim Flap Extend Speed

10°	100 KIAS
10° - 30°	85 KIAS

FLAP TRAVEL - Limited to 30 Degrees

WEIGHT LIMITS

Maximum Ramp Weight, Normal	2407 lbs.
Utility	2007 lbs.
Maximum Takeoff Weight, Normal	2400 lbs.
Utility	2000 lbs.
Maximum Landing Weight, Norml	2400 lbs.
Utility	2000 lbs.

CENTER OF GRAVITY LIMITS

NORMAL CATEGORY

Center of Gravity Range:

Forward: 35.0 inches aft of datum at 1950 lbs. or less, with straight line variation to 39.5 aft of datum at 2400 lbs.

Aft: 47.3 inches aft of datum at all weights.

Reference Datum: Lower portion of front face of firewall.

UTILITY CATEGORY

Center of Gravity Range: Forward: 35.0 inches aft of datum at 1950 lbs. or less, with straight line variation to 35.5 aft of datum at 2000 lbs.

Aft: 40.5 inches aft of datum at all weights.

Reference Datum: Lower portion of front face of firewall.

SECTION 3. EMERGENCY PROCEDURES

AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure after Takeoff:

Wing Flaps Up 65 KIAS

Wing Flaps Down 60 KIAS

Maneuvering Speed:

2400 lbs 99 KIAS

2000 lbs 92 KIAS

1600 lbs 82 KIAS

Maximum Glide 65 KIAS

Precautionary Landing With Engine Power 60 KIAS

Landing Without Engine Power:

Wing Flaps Up. 65 KIAS

Wing Flaps Down 60 KIAS

All other emergency procedures are the same as the basic airplane with the following exceptions.

EMERGENCY LANDING WITHOUT ENGINE POWER

Wing Flaps -- As **REQUIRED** (30° recommended)

PRECAUTIONARY LANDING WITH ENGINE POWER

Wing Flaps -- As **REQUIRED** (30 deg. recommended)

DITCHING

Wing Flaps -- As **REQUIRED** (30 deg. recommended)

SECTION 4. NORMAL PROCEDURES**SPEEDS FOR NORMAL OPERATION**

Unless otherwise noted, the following speeds are based on a maximum weight of 2400 lbs. and may be used for any lesser weight.

Takeoff:

Normal, Flaps Up 70 - 80 KIAS
 Short Field, Flaps 10 deg, Speed at 50 Feet 56 KIAS

Enroute Climb, Flaps Up:

Normal, Sea Level 75 - 85 KIAS
 Normal, 10,000 Feet 70 - 80 KIAS
 Best Rate of Climb, Sea Level 76 KIAS
 Best Rate of Climb, 10,000 Feet 71 KIAS
 Best Angle of Climb, Sea Level 60 KIAS
 Best Angle of Climb, 10,000 Feet 65 KIAS

Landing Approach:

Normal Approach, Flaps Up 65 - 75 KIAS
 Normal Approach, Flaps 30 deg 60 - 70 KIAS
 Short Field Approach, Flaps 30 deg 61 KIAS

Balked Landing:

Maximum Power, Flaps 20 deg 55 KIAS

Maximum Recommended Turbulent Air Penetration Speed:

2400 lbs 99 KIAS
 2000 lbs 92 KIAS
 1600 lbs 82 KIAS

Maximum Demonstrated Crosswind Velocity:

Takeoff or Landing 15 KNOTS

CHECKLIST PROCEDURES

All procedures are the same as the basic airplane, with the following exceptions:

SHORT FIELD TAKEOFF

Wing Flaps -- 10 deg.

Climb Speed -- 56 KIAS (until all obstacles are cleared)

LANDING**NORMAL LANDING**

1. Airspeed -- 65 - 75 KIAS (flaps up)
2. Wing Flaps -- As Desired (0-10° below 110 KIAS, 10 - 30° below 85 KIAS).
3. Airspeed -- 60 - 70 KIAS (flaps down)

SHORT FIELD LANDING

1. Airspeed -- 65 - 75 KIAS (flaps up)
2. Wing Flaps -- Full Down (30°)
3. Airspeed -- 61 KIAS (until flare)

SECTION 5. PERFORMANCE

STALL SPEEDS

CONDITIONS

Power Off

Notes:

1. Altitude loss during a stall recovery may be as much as 230 feet.
2. KIAS values are approximate.

MOST REARWARD CENTER OF GRAVITY

Angle of Bank

Weight Lbs.	Flap Deflection	Angle of Bank							
		0°		30°		45°		60°	
		KIAS	KCAS	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS
2400	UP	42	51	45	55	50	61	59	72
	10°	38	48	40	52	45	57	54	68
	30°	36	46	38	49	43	55	51	65

MOST FORWARD CENTER OF GRAVITY

Weight Lbs.	Flap Deflection	Angle of Bank							
		0°		30°		45°		60°	
		KIAS	KCAS	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS
2400	UP	47	52	51	56	56	62	66	74
	10°	44	49	47	53	52	58	62	69
	30°	41	46	44	49	49	55	58	65

CRUISE PERFORMANCE

For cruise performance at 2400 Lbs. weight, decrease all true air speed values in Fig. 5-7 by approximately 2 percent.

RANGE PROFILE

For cruise at 2400 Lbs. weight, decrease the range shown in Fig 5-8 and Fig 5-9 by approximately 8 percent.

**TAKEOFF DISTANCE SHORT FIELD
MAXIMUM WEIGHT 2400 LBS**

CONDITIONS:

Flaps 10 deg.
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 ft 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 a dry, grass runway, increase distances by 15% of the "ground roll" figure.

Weight Lbs	Takeoff		Press ALT FT	0°C		10°C		20°C		30°C		40°C		
	Speed KIAS	Lift Off		AT 50 Ft	Grd Roll	Total To Clear 50 FT OBS	Grd Roll	Total To Clear 50 FT OBS	Grd Roll	Total To Clear 50 FT OBS	Grd Roll	Total To Clear 50 FT OBS	Grd Roll	Total 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	-----	-----	-----	-----		
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	2615	
		8000	1125	2125	1215	2305	1310	2500	1410	2715	1520	2950		

MAXIMUM RATE OF CLIMB

Conditions
 Flaps Up
 Full Throttle

Weight Lbs	Pressure Alt. FT.	Climb Speed KIAS	Rate of Climb - FPM			
			-20°C	0°C	20°C	40°C
2400	S.L.	76	805	745	685	625
	2000	75	695	640	580	525
	4000	74	590	535	480	420
	6000	73	485	430	375	320
	8000	72	380	330	275	220
	10,000	71	275	225	175	----
	12,000	70	175	125	----	----

LANDING DISTANCE - SHORT FIELD

Conditions

- Flaps 30°
- Power Off
- Maximum Braking
- Paved, Level, Dry Runway
- Zero Wind

Notes:

1. Short Field technique as specified in Section 4
2. Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots
3. For operation on a dry grass runway, increase distances by 45% of the "ground roll" figure.
4. If a landing with flaps up is necessary, increase the approach speed by 7KIAS and allow 35% longer distances.

Weight Lbs	Speed AT 50 FT KIAS	Press ALT FT	0°C		10°C		20°C		30°C		40°C	
			Grd Roll	Total To Clear 50 FT OBS	Grd Roll	Total To Clear 50 FT OBS	Grd Roll	Total To Clear 50 FT OBS	Grd Roll	Total To Clear 50 FT OBS	Grd Roll	Total To Clear 50 FT OBS
2400	61	S.L	510	1235	530	1265	550	1295	570	1325	585	1350
		1000	530	1265	550	1295	570	1325	590	1360	610	1390
		2000	550	1295	570	1330	590	1360	610	1390	630	1425
		3000	570	1330	590	1360	615	1395	635	1430	655	1460
		4000	595	1365	615	1400	635	1430	660	1470	680	1500
		5000	615	1400	640	1435	660	1470	685	1510	705	1540
		6000	640	1435	660	1470	685	1510	710	1550	730	1580
		7000	665	1475	690	1515	710	1550	735	1590	760	1630
8000	690	1515	715	1555	740	1595	765	1635	790	1675		

SECTION 6: WEIGHT AND BALANCE

