

Air Plains Services Corp.  
P. O. Box 541  
Wellington Airport  
Wellington, KS 67152

Section 9  
Supplements

FAA Approved  
Supplemental Airplane Flight Manual

For

Cessna 172M & N  
Serial No. 17265685 to 17271034  
Serial No. 17269856 N 738BU

The information contained in this Manual is FAA Approved Material, which, along with the FAA Approved placards and instrument markings, is applicable to the operation of the airplane when modified in accordance with STC SA2196CE, which increases the maximum certificated takeoff weight to 2550 lbs. and limits the flap travel to 30 degrees. The airplane must previously have been modified in accordance with STC SA4428SW which installs a 180hp. Lyc. 0-360 series engine and a fixed pitch propeller.

1. GENERAL
2. LIMITATIONS
3. EMERGENCY PROCEDURES
4. NORMAL PROCEDURES
5. PERFORMANCE
6. WEIGHT AND BALANCE

*for* FAA Approved *JM Baker*  
Manager, Wichita Aircraft  
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FAA Approved  
SEPT. 25, 1986  
Rev. 2 date JUL 0 6 1988

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Log of Revisions

Rev.	Pages Affected	Description	FAA Approved	Date
1	1 - 10	Changed Page Numbers Revised Cover Sheet Added Engine Models	G. M. Baker	10/02/87
2	1 - 10	Added M Models Changed name to Air Plains Services Corp.	G. M. Baker	07/06/88
3	3 & 4	Added 0360A4N	<i>B.L. Joensen</i>	3/21/90

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## SECTION 1. General

### DESCRIPTIVE DATA

PAGE 1-3

#### ENGINE

Engine Model Number: O-360-A2F, A3A, A4A, A4M & A4N

Engine Type: Normally aspirated, direct drive, air cooled,  
horizontally opposed, carburetor equipped, four  
cylinder engine with 360 cu. in. displacement.

Horsepower Rating and Engine Speed: 180 rated BHP at 2700RPM  
Maximum Continuous RPM: 2540 RPM

PAGE 1-5

#### MAXIMUM CERTIFICATED WEIGHTS

Takeoff, Normal	2550lbs.
Utility	2000lbs.
Landing, Normal	2550lbs.
Utility	2000lbs.

## SECTION 2. Limitations

FLAP TRAVEL - Limited to 30 degrees.

#### PAGE 2-5 AIRSPEED INDICATOR MARKINGS

Airspeed indicator must be replaced with Cessna P/N C661064-0112, Air Plains Services P/N172861-2 or remarked as follows:

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PAGE 2-5 AIRSPEED INDICATOR MARKINGS, (cont.)

MARKING	KIAS VALUE OR RANGE
White Arc	40-85
Green Arc	50-127
Yellow Arc	127-158
Red Line	158

PAGE 2-4 AIRSPEED LIMITATIONS

VA	Maneuvering Speed:	
	2550 Pounds	105 KIAS
	2150 Pounds	95 KIAS
	1750 Pounds	85 KIAS

PAGE 2-5 POWER PLANT LIMITATIONS

Engine Model Number: O-360-A2F, A3A, A4A, A4M and A4N  
Maximum Power: 180 BHP rating  
Maximum Continuous RPM: 2540 RPM

PAGE 2-6 WEIGHT LIMITS

Maximum Takeoff Weight, Normal	2550lbs.
Utility	2000lbs.
Maximum Landing Weight, Normal	2550lbs.
Utility	2000lbs.

PAGE 2-7 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 41.0 inches aft  
of datum at 2550 lbs.

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PAGE 2-7 CENTER OF GRAVITY LIMITS, (cont.)

UTILITY CATEGORY

Center of Gravity Range:

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

Aft: 40.5 inches aft of datum at all weights.

PAGE 2-8 FLIGHT LOAD FACTORS

NORMAL CATEGORY

Flight Load Factors (Maximum Takeoff Weight - 2550lbs):

Flaps Up.....+3.8g, -1.52g

Flaps Down.....+3.0g

PAGE 2-12 PLACARDS

10. Near airspeed indicator: MANEUVER SPEED - 105 KIAS

SECTION 3. Emergency Procedures

PAGE 3-3 AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure after Takeoff:

Wing Flaps Up.....70 KIAS

Wing Flaps Down.....65 KIAS

Maneuvering Speed:

2550 lbs.....105 KIAS

2150 lbs.....95 KIAS

1750 lbs.....85 KIAS

Maximum Glide:

2550 lbs.....68 KIAS

2150 lbs.....62 KIAS

1750 lbs.....56 KIAS

Precautionary Landing With Engine Power.....65 KIAS

Landing Without Engine Power:

Wing Flaps Up.....70 KIAS

Wing Flaps Down.....65 KIAS

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PAGE 3-4 ENGINE FAILURES

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. Airspeed -- 70 KIAS (flaps UP)  
65 KIAS (flaps DOWN)

PAGE 3-4 ENGINE FAILURE DURING FLIGHT

1. Airspeed -- 75 KIAS

PAGE 3-4 FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

1. Airspeed -- 70 KIAS (flaps UP)  
65 KIAS (flaps DOWN)
5. Wing Flaps -- AS REQUIRED (30 deg recommended)

PRECAUTIONARY LANDING WITH ENGINE POWER

2. Airspeed -- 65 KIAS
5. Wing Flaps -- 30 deg (on final approach).
6. Airspeed -- 65 KIAS

PAGE 3-5 DITCHING

4. Wing Flaps -- 20-30 deg.

NOTE

If no power is available, approach at 70 KIAS with flaps up  
or at 65 KIAS with 10 deg flaps.

PAGE 3-7 ICING

INADVERTENT ICING ENCOUNTER

11. Approach at 80 to 90 KIAS depending upon the amount of  
the accumulation.

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SECTION 4. Normal Procedures

PAGE 4-3 NORMAL PROCEDURES

SPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a maximum weight of 2550 pounds and may be used for any lesser weight.

Page 4-3

Takeoff

Normal Climb Out.....75-85 KIAS  
Short Field Takeoff, Flaps 10 deg, Speed at 50 Feet..57 KIAS

Enroute Climb, Flaps Up:

Normal, Sea Level.....75-85 KIAS  
Normal, 10,000 Feet.....70-80 KIAS  
Best Rate of Climb, Sea Level.....73 KIAS  
Best Rate of Climb, 10,000 Feet.....72 KIAS  
Best Angle of Climb, Sea Level.....62 KIAS  
Best Angle of Climb, 10,000 Feet.....67 KIAS

Landing Approach:

Normal Approach, Flaps Up.....65-75 KIAS  
Normal Approach, Flaps 30 deg.....60-70 KIAS  
Short Field Approach, Flaps 30 deg.....62 KIAS

Balked Landing:

Maximum Power, Flaps 20 deg.....60 KIAS

Maximum Recommended Turbulent Air Penetration Speed:

2550 Lbs.....105 KIAS  
2150 Lbs.....95 KIAS  
1750 Lbs.....85 KIAS

PAGE 4-8 SHORT FIELD TAKEOFF

Climb Speed -- 57 KIAS (until all obstacles are cleared).

PAGE 4-8 ENROUTE CLIMB

Airspeed -- 75-85

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PAGE 4-9 LANDING

NORMAL LANDING

1. Airspeed -- 65-75 KIAS (flaps up)
2. Wing Flaps -- AS DESIRED(0-10 deg. below 110 KIAS, 10-30 deg. 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 (30deg.)
3. Airspeed -- 62 KIAS (until flare)

BALKED LANDING

5. Wing Flaps -- 10 deg. (until obstacles are cleared)  
RETRACT SLOWLY after reaching a safe altitude and 65 KIAS.

Section 5

PAGE 5-21 LANDING DISTANCE - SHORT FIELD

CONDITIONS:  
Flaps 30 deg.

NOTES:

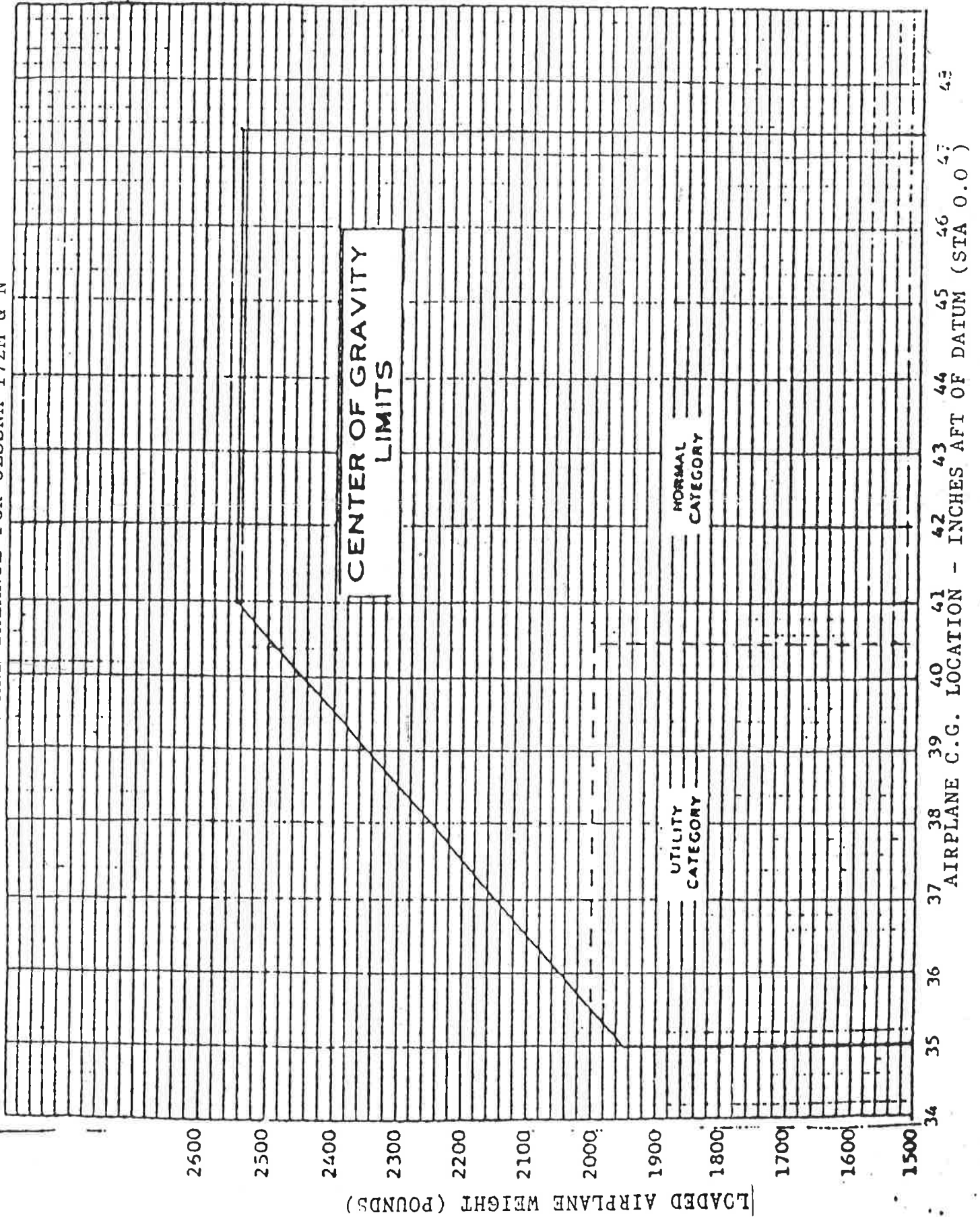
4. If a landing with flaps up is necessary, increase approach speed by 9 kias and allow for 35% longer distance.

WEIGHT LBS	SPEED AT 50 FT KIAS	PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
			GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
2550	62	S.L.	545	1290	565	1320	585	1350	605	1380	625	1415
		1000	555	1320	585	1350	605	1385	625	1420	650	1450
		2000	585	1355	610	1385	630	1420	650	1455	670	1490
		3000	610	1385	630	1425	655	1460	675	1495	695	1530
		4000	630	1425	655	1460	675	1495	700	1535	725	1570
		5000	655	1460	680	1500	705	1535	725	1575	750	1615
		6000	680	1500	705	1540	730	1580	755	1620	780	1660
		7000	705	1545	730	1585	760	1625	785	1665	810	1705
		8000	735	1585	760	1630	790	1670	815	1715	840	1755

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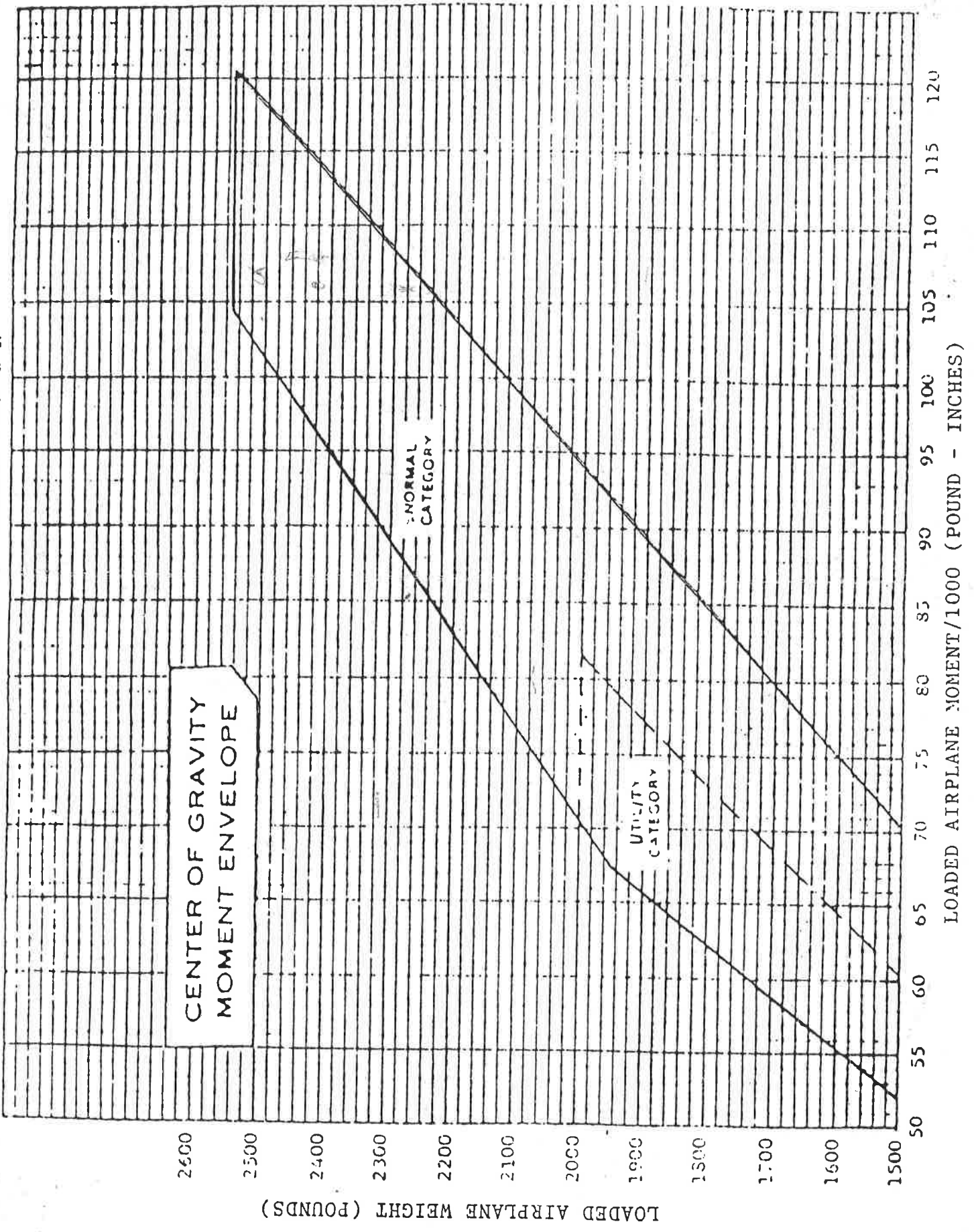


WEIGHT AND BALANCE FOR CESSNA 172M & N



Weight and Balance for Cessna 172M & N

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CENTER OF GRAVITY  
MOMENT ENVELOPE

UTILITY  
CATEGORY

NORMAL  
CATEGORY

LOADED AIRPLANE WEIGHT (POUNDS)

LOADED AIRPLANE MOMENT/1000 (POUND - INCHES)

180HP CESSNA 172 SKYHAWK  
 CRUISE PERFORMANCE  
 Standard Temperature

Pressure Altitude Ft.	RPM	% BHP	GPH
2000	2550	76	10.2
	2500	72	9.6
	2400	64	8.7
	2300	58	7.9
	2200	52	7.2
	2100	46	6.6
4000	2600	76	10.2
	2500	68	9.2
	2400	62	8.3
	2300	55	7.6
	2200	49	6.9
	2100	44	6.3
6000	2650	76	10.1
	2500	69	9.2
	2400	62	8.4
	2300	56	7.7
	2200	53	7.3
8000	2700	76	10.1
	2600	69	9.2
	2500	62	8.4
	2400	56	7.7
	2300	53	7.3
	2200	47	6.7
10000	2700	72	9.6
	2600	65	8.8
	2500	59	8.1
	2400	53	7.4
	2300	48	6.8
12000	2650	65	8.8
	2600	62	8.4
	2500	56	7.7
	2400	51	7.1

