

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. 17270844 N 215 AF

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
Certification Office
FAA Central Region,
Wichita, KS

FAA Approved
SEPT. 25, 1986
Rev. 2 date JUL 06 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. Jensen</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.

2 → 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.

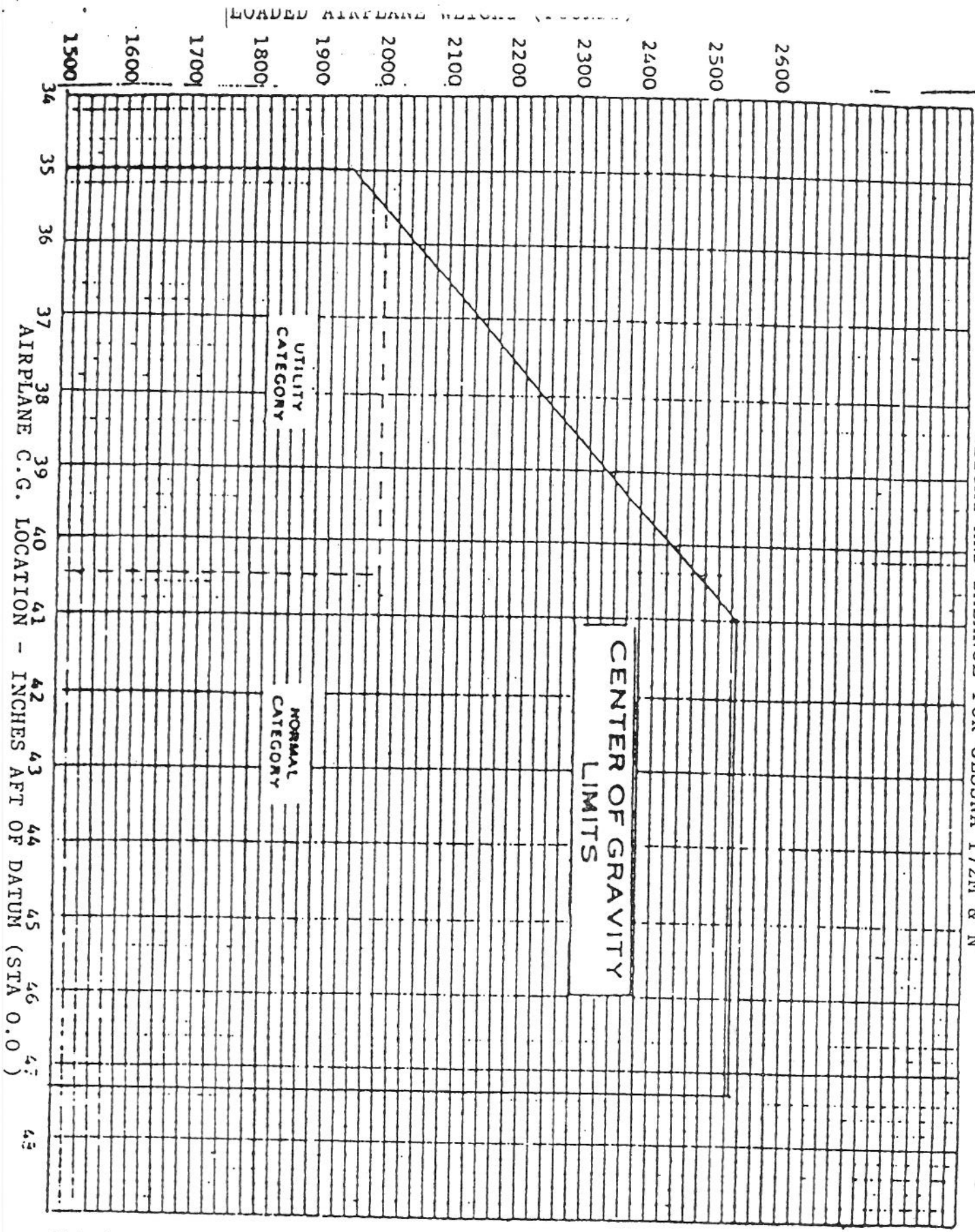
NOTES:

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	565	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

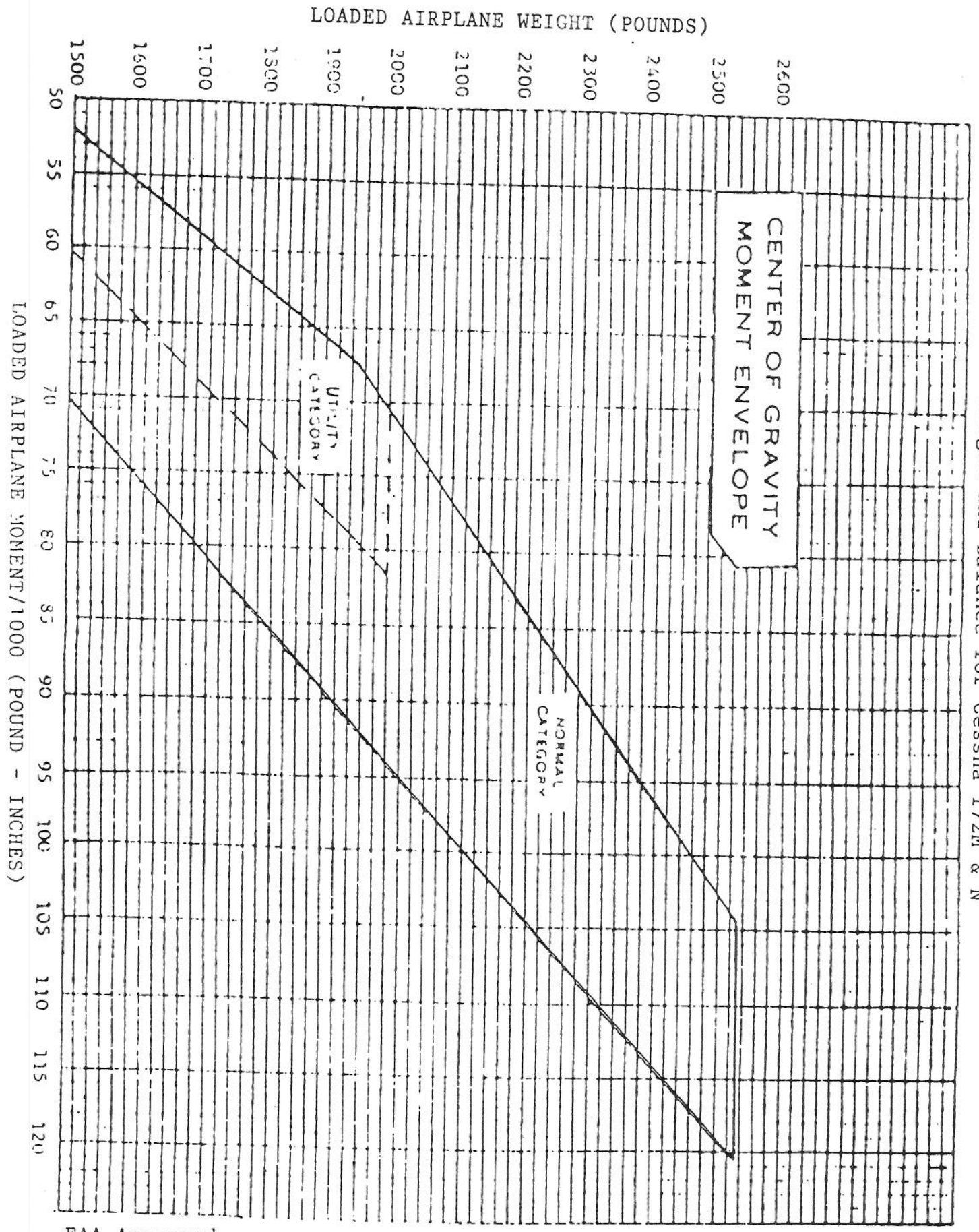
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AIR PLAINS SERVICES CORP.
 WEIGHT AND BALANCE FOR CESSNA 172M & N



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Air Plains Services Corp.
Weight and Balance for Cessna 172M & N



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

Supplemental Type Certificate

(Continuation Sheet)

Information contained herein in re-
SA2196CE is the property of
Plains Services, Corp. This docu-
October 9, 1991
or drawing is authorized only to
used on Aircraft N 215 AF
S/N 7270844 and no other. Any o-
use constitutes fraud.

Number

SA2196CE

Description of Type Design Change, Continued:

Signed L. Robinson

3. 172K (S/N 17257162 through 17259223) and 172L (S/N 17259224 through 17259903 (increase gross weight to 2,500 lbs. per Air Plains Drawings 1728803 (sheet 1 and 2) and 1728806-3; and Installation Instruction 1728806-1 with an FAA approval date of July 12, 1988, or later.
4. 172N increase gross weight to 2,400 lbs. (when STC SA4428SW is not installed) per Mike Kelley Aircraft, Inc. Drawing GW1729105-1 and Installation Instructions 1722400-1, both with an FAA approval date of October 9, 1991, or later.

Limitations and Conditions, Continued:

3. Supplemental Airplane Flight Manual dated September 25, 1986, with Revision 2 dated July 6, 1988, is required equipment for the 172N Serial Numbers 17267585 through 17271034 when this modification is installed.
4. Supplemental Airplane Flight Manual dated September 25, 1986, Revision 2 dated July 6, 1988, is required equipment for the 172M Serial Numbers 17265685 through 17267584 when this modification is installed.
5. Supplemental Airplane Flight Manual dated July 6, 1988, is required equipment for the 172M Serial Numbers 17260759 through 17267684 when this modification is installed.
6. Supplemental Airplane Flight Manual dated July 6, 1988, is required equipment for the 172K and 172L Serial Numbers 17257162 through 17260758 when this modification is installed.
7. Supplemental Airplane Flight Manual dated May 3, 1991, is required equipment for the 172N Serial Numbers 17267585 through 17271034 when modified in accordance with item 4 above.
8. Airplane Flight Manual Supplement dated May 3, 1991, is required equipment for the 172N Serial Numbers 17271035 through 17272884 when modified in accordance with item 4 above.
9. Airplane Flight Manual Supplement dated May 3, 1991, is required equipment for the 172N Serial Numbers 17272885 through 17274009 when modified in accordance with item 4 above.
10. This approval should not be extended to other specific airplanes of this model on which other previously approved modifications are incorporated, unless it is determined that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect upon the airworthiness of the airplane.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

PROHIBITORY INFORMATION

Information contained herein in regard to ~~STC SA2196 CE~~ is the property of Air Plains Services, Corp. This document SA2196 CE drawing is authorized only to be used on Aircraft N 215 AF, S/N 17270844 and no other. Any other use constitutes fraud.

Number

This certificate, issued to

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

Signed L. Z. Robinson

certifies that the change in the type design for the following product with the limitations and conditions

therefor as specified herein meets the airworthiness requirements of Part 3 of the Civil Air Regulations effective November 1, 1949, plus the amendments listed on Type Certificate Data Sheet.

Original Product — Type Certificate Number: 3A12
Make: Cessna
Model: 172K, 172L, 172M, 172N, and 172P

Description of Type Design Change:
1. 172N and 172P increase gross weight to 2,550 lbs, per Mike Kelley Aircraft, Inc. Drawing GW172861 with an FAA approval date of September 25, 1986, or later. 2. 172L (S/N 17259904 through 17260758 increase gross weight to 2,500 lbs. and 172M (S/N 17260579 through 17267584) increase gross weight to 2,550 lbs. per Air Plains Services Drawings 1728803 (sheet 1) and 1728806-3, and Installation Instructions 1728806-2 with an FAA approval date of July 12, 1988; and Drawing 172861 with an FAA approval date of September 25, 1986, or later.

Limitations and Conditions:
1. Installation of STC SA4428SW must be made prior to incorporation of this modification, except 172N airplanes modified per Item 4 below.
2. Airplane Flight Manual (AFM) Supplement dated September 25, 1986, or October 2, 1987, is required equipment for the 172N Serial Numbers 17271035 through 17274009; and AFM Supplement dated October 2, 1987, is required equipment for the 172P when this modification is installed.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: August 1, 1986
Date of issuance: August 6, 1987

Date reissued:
Date amended: 10/2/87; 7/12/88; 5/3/91; 9/9/91; 10/9/91

By direction of the Administrator
Lawrence A. Herron
(Signature)

Lawrence A. Herron, Manager
Wichita Aircraft Certification Office
(Title)



Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number

SA44286 INFORMATION

This certificate, issued to

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

PROPRIETARY INFORMATION
Information contained herein in regard
to the property of Air
Plains Services, Corp. This document
is authorized only to be
used in the flight N 215AF
S/N 17270844 and no other. Any other
use constitutes fraud.
Signed *James Herron*

certifies that the change in the type design for the following product, as shown in the drawing, meets the airworthiness requirements of the Federal Aviation Regulations therefor as specified hereon:

Original Product — Type Certificate Number: 3A12

Make: Cessna

Model: 172I, 172K, 172L, 172M, 172N, 172P

Description of Type Design Change: Installation of Lycoming O-360-A2F, -A3A and O-360-A4A, -A4M, or -A4N engines and McCauley MA170/CPA7660 propeller or Lycoming O-360-A4A, -A4M or -A4N engines and Sensenich 76EM8S propeller in accordance with Drawing 1727601, Sheets 1 through 4, Sheet 4, Rev. C dated July 22, 1981, and Installation Instructions revised January 7, 1980, or Drawing List No. 1727600 dated August 15, 1985, or later "FAA Approved" revisions. Airplane Flight Manual Supplement for airplane Serial Number 17271035 and on dated August 27, 1985, or later "FAA Approved" revisions is also required.

Limitations and Conditions: Cessna 172I must be placarded: Flight with a pilot only requires 10 pounds of ballast at Station 95 (baggage compartment). Sensenich 76EM8S propeller limited to solid crankshaft Lycoming O-360-A4 series engines only. This approval should not be extended to other specific airplanes of these models on which other previously approved modifications are incorporated, unless it is determined that the interrelationship between this change and any of the other previously approved modifications will introduce no adverse effect upon the airworthiness of that airplane.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: March 18, 1976

Date issued: June 26, 1984

Date of issuance: July 24, 1981

November 10, 1987

Date amended: August 27, 1985

September 17, 1987, March 21, 1990

By direction of the Administrator

Lawrence A. Herron

Lawrence A. Herron, Manager
Wichita Aircraft Certification Office



(Title)