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MEMORANDUM FOR: All MAWG Pilots and Operations Personnel

FROM: Standardization & Evaluation Officer (DOV)

SUBJECT: Operating Information for MAWG Aircraft

The following pages contain data extracted from the Supplemental Type Certificates (STCs) which modify five (5) of the MAWG-assigned C-172 aircraft. The applicable STC document is located in each aircraft, attached as a supplement to the Airplane Flight Manual (AFM), and is required to be carried on each flight.

The data contained in the following pages is not a replacement for the STC, and is intended primarily to be a convenient reference source for the STC data for each aircraft. Operating data for any of the aircraft may change from time to time, and this document may not be as current as that in the aircraft.

The following aircraft are addressed in this document:

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**STC Data: NONE 19**

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**STC Data: NONE 20**



Edward L. Keins, LtCol, CAP  
Standardization & Evaluation

# CAPF 1921 - N98323 - C-172P

Year of Manufacture: 1985

Engine:	Continental O-360	180 HP	
Max Gross TO Wt:	2550	Max Gross Lndg Wt:	2550
Empty Weight:	1592.2	Empty A/C Moment:	60.7
Usable Fuel	40 Gal	240 Lbs	
Major STCs:	Air Plains Services Corp. 180 HP Engine Modification		

### STC Data:

(The following data has been extracted from the STC to provide pertinent operating data for reference and planning only. It is not a substitute for the STC documentation, which must be attached to the AFM and carried in the aircraft. **Consult the official document for detailed operating information.**)

#### Section 1. GENERAL

Engine	180 HP @ 2700 rpm; Max continuous rpm 2540
MGW, TO and Landing	Normal Category 2550 lbs. Utility Category 2100 lbs

#### Section 2. LIMITATIONS

##### Page 2 – 5 AIRSPEED INDICATOR MARKINGS:

White Arc:	40 – 85
Green Arc:	50 - 127
Yellow Arc:	127 - 158
Red Line:	158

##### Page 2 – 4 AIRSPEED LIMITATIONS:

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

##### Page 2 – 5 POWER PLANT LIMITATIONS:

Maximum Power:	180 BHP
Maximum Continuous RPM:	2540 RPM

##### Page 2 – 5 WEIGHT LIMITS:

Maximum Takeoff Wt, Normal	2550 lbs.
Utility	2100 lbs
Maximum Landing Wt, Normal	2550 lbs.
Utility	2100 lbs

##### Page 2 – 7 CENTER OF GRAVITY LIMITS:

###### NORMAL CATEGORY, CG Range

Fwd:	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.
Aft:	47.3 inches aft of datum at all weights.

###### UTILITY CATEGORY, CG Range

Fwd:	35.0 inches aft of datum at 1950 lbs. or less, with straight line variation to 36.5 inches aft of datum at 2100 lbs.
Aft:	40.5 inches aft of datum at all weights.

##### Page 2 – 8 FLIGHT LOAD FACTORS:

###### NORMAL CATEGORY

## CAPF 1921 - N98323 - C-172P

Flight Load Factors (Maximum TO Wt – 2550 lbs):

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

Maneuver 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

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° recommended)

PRECAUTIONARY LANDING WITH ENGINE POWER:

2. Airspeed - - 65 KIAS
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.

### 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 lbs and may be used for any lesser weight.

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## CAPF 1921 - N98323 - C-172P

### Takeoff

Normal Climb Out	75–85 KIAS
Short Field Takeoff, Flaps 10°, Speed at 50 ft	57 KIAS

### Enroute Climb, Flaps Up:

Normal, Sea Level	75–85 KIAS
Normal, 10,000 ft	70–80 KIAS
Best Rate of Climb, Sea Level	76 KIAS
Best Rate of Climb, 10,000 ft	72 KIAS
Best Angle of Climb, Sea Level	62 KIAS
Best Angle of Climb, 10,000 ft	67 KIAS

### Landing Approach:

Normal Approach, Flaps Up	65–75 KIAS
Normal Approach, Flaps 30°	60–70 KIAS
Short Field Approach, Flaps 30°	62 KIAS

### Balked Landing:

Maximum Power, Flaps 20°	60 KIAS
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### 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 – 9 ENROUTE CLIMB

Airspeed - - 75 - 85 KIAS

### PAGE 4 – 9 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)

### PAGE 4-10

#### SHORT FIELD LANDING

1. Airspeed - - 65 - 75 KIAS (flaps UP)
2. Airspeed - - 62 KIAS (until flare)

#### BALKED LANDING

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

### Section 5. PERFORMANCE

#### PAGE 5-21 LANDING DISTANCE – SHORT FIELD

##### NOTES:

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

**CAPF 1922 - N6287T - R-182R**

**CAPF 1922 - N6287T - R-182R**

Year of Manufacture: 1983

Engine:	Lycoming O-540	235 HP	
Max Gross TO Wt:	3100	Max Gross Lndg Wt:	3100
Empty Weight:	1943.2	Empty A/C Moment:	74.0
Usable Fuel	88 Gal	528 Lbs	
Major STCs:	None		

**STC Data: NONE**

Operate in accordance with AFM

# CAPF 1923 - N97313 - C-172P

Year of Manufacture: 1984

Engine:	Continental O-360	180 HP	
Max Gross TO Wt:	2550	Max Gross Lndg Wt:	2550
Empty Weight:	1580.0	Empty A/C Moment:	60.2
Usable Fuel	50 Gal	300 Lbs	
Major STCs:	Penn Yan Aero Services Inc. 180 HP Engine Modification		

### STC Data:

(The following data has been extracted from the STC to provide pertinent operating data for reference and planning only. It is not a substitute for the STC documentation, which must be attached to the AFM and carried in the aircraft. **Consult the official document for detailed operating information.**)

STC Number: SA703GL; Cessna 172P Aircraft S/N: 17276177

An FAA Approved Airplane Flight Manual Supplement is required for aircraft serial numbered 17271035 and up (Configuration 1).

Placards pertaining to normal/utility category operations are appropriate with this modification and must be properly displayed per the original aircraft data certification.

A copy of this STC shall be included in the permanent records of each aircraft modified according to these instructions.

*[From the STC instructions, the following changes/modifications should be noted:]*

#### Tachometer

At sea level (inner green arc)	2100 to2450 rpm
At 5000 ft (middle green arc)	2450 to2700 rpm
At sea level (inner green arc)	2575 to2700 rpm
Maximum permissible (red line)	2700 rpm
Oil temperature gauge	Red radial line at 245°
Oil pressure gauge	Red radial line at 25 psig
	Yellow arc 25 to 60 psig
	Green arc 60 to 90 psig
	Yellow arc 90 to 100 psig
	Red radial line at 100 psig

Maximum Weight 172 N and P 2550 lbs (normal category)

C.G. Range 172 M, N and P

Utility category maximum weight and C.G. range for all models remains as specified in type certificate data sheet 3A12.

### POH and AFM Supplement

#### SECTION 1. GENERAL

##### DESCRIPTIVE DATA

- A. Engine Lycoming O-360-A4A. -A4M, -A4N  
Horsepower rating and speed: 180 BHP at 2700 rpm
- B. Propeller Sensenich 76EM8S5 or 76EM8SPY

#### SECTION 2. LIMITATIONS

- A. The following placard must be displayed in full view of the pilot:

THIS AIRCRAFT HAS BEEN MODIFIED BY THE INSTALLATION OF A 180 HP ENGINE PER STC SA703GL. IT MUST BE OPERATED AS A NORMAL AIRPLANE IN COMPLIANCE WITH

## CAPF 1923 - N97313 - C-172P

THE OPERATING LIMITATIONS AS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS.

- B. For the N model aircraft . . . (not applicable)
- C. The following limits apply to the normal category only

Maximum Gross Weight – 2550 lbs.

C.G. Range - 41.0" to 47.3" at 2550 lbs

35.0" to 47.3" at 1950 lbs or less

Straight line variation between points given.

### SECTION 3. EMERGENCY PROCEDURES

NO CHANGE

### SECTION 4. NORMAL PROCEDURES

NO CHANGE

### SECTION 5. PERFORMANCE

Performance of the Cessna 172 series aircraft, when it is modified by the installation of a 180 HP engine and the gross weight is increased, in accordance with STC SA703GL, will be equal to or better than the basic airplane.

- CAUTION: - The fuel consumption and range/endurance information originally presented for this model do not apply to this STC modification; increased fuel consumption and reduced range/endurance can be expected with the 180 HP engine installed.

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Note from MAWG Standardization and Evaluation:

The above constitutes all published information pertinent to the Penn Yan modification, and represents the applicable contents of the document. It should also be noted that the airspeed indicator markings for  $V_S$  and  $V_{SO}$  (bottom of the white and green arcs) are not adjusted to identify the stall speeds associated with the higher MGW in N97313, as is done in the other modified aircraft.

**It is the opinion of MAWG Stan/Eval that this document is lacking in operational information and ignores the aerodynamic effects of the heavier gross weight limits. Specifically, pilots should be aware of the higher stall speeds associated with the heavier weight, the higher  $V_x$ ,  $V_y$ , and best glide airspeeds, and the effects on maneuvering speed ( $V_A$ ). It is also felt that fuel consumption charts for the 180 HP engine should be available to the pilot, rather than a placard without specifics.**

Consultation with CAP National Headquarters suggested that the following statement be offered: "The manufacturer has not published revised performance data for the 180 HP modification. While the pilot in command is ultimately responsible for the operation of the aircraft, experience with similarly equipped aircraft would indicate that  $V_S$  is likely to be approximately 50 KIAS and  $V_{SO}$  is likely to be approximately 40 KIAS."

MAWG pilots have STCs available for the same modification performed by another company, and have the Cessna-certified data for the C-172Q (N96227), which is identical to that of the other conversion. Since it is not possible to change the STC for this aircraft, and since the data from the other STCs is more conservative on the side of safety, pilots operating this aircraft may wish to consider using the more conservative operating numbers as operational guidance.

# CAPF 1924 – N980CP - C-172R

Year of Manufacture: 1997

Engine:	Continental O-360	180 HP	
Max Gross TO Wt:	2550	Max Gross Lndg Wt:	2550
Empty Weight:	1686.9	Empty A/C Moment:	67.5
Usable Fuel	53 Gal	318 Lbs	
Major STCs:	Air Plains Services Corp. 180 HP Engine Modification		

### STC Data:

(The following data has been extracted from the STC to provide pertinent operating data for reference and planning only. It is not a substitute for the STC documentation, which must be attached to the AFM and carried in the aircraft. **Consult the official document for detailed operating information.**)

### SECTION 1. GENERAL

Engine	180 HP @ 2700 rpm; Max continuous rpm 2540
MGW, TO and Landing	Normal Category 2550 lbs. Utility Category 2200 lbs

### SECTION 2. LIMITATIONS

#### AIRSPEED INDICATOR MARKINGS:

White Arc:	40 – 85
Green Arc:	48 - 129
Yellow Arc:	129 - 163
Red Line:	163

#### AIRSPEED LIMITATIONS:

VA Maneuvering Speed:	
2550 lbs:	105 KIAS
22050 lbs:	98 KIAS
1900 lbs:	90 KIAS

#### POWER PLANT LIMITATIONS:

Maximum Power:	180 BHP
Maximum Continuous RPM:	2700 RPM

#### WEIGHT LIMITS:

Maximum Takeoff Wt, Normal	2550 lbs.
Utility	2200 lbs
Maximum Landing Wt, Normal	2550 lbs.
Utility	2200 lbs

#### CENTER OF GRAVITY LIMITS:

##### NORMAL CATEGORY, CG Range

Fwd:	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.
Aft:	47.3 inches aft of datum at all weights.

##### UTILITY CATEGORY, CG Range

Fwd:	35.0 inches aft of datum at 1950 lbs. or less, with straight line variation to 37.5 inches aft of datum at 2200 lbs.
Aft:	40.5 inches aft of datum at all weights.

#### FLIGHT LOAD FACTORS:

##### NORMAL CATEGORY

## CAPF 1924 – N980CP - C-172R

Flight Load Factors (Maximum TO Wt – 2550 lbs):

Flaps Up +3.8g, -1.52g  
Flaps Down +3.0g

### PLACARDS:

9. Near Airspeed Indicator: MANEUVERING 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

### Maneuver Speed:

2550 lbs 105 KIAS  
2200 lbs 98 KIAS  
1900 lbs 90 KIAS

### Maximum Glide:

2550 lbs 68 KIAS

Precautionary Landing With Engine Power: 65 KIAS

### Landing Without Engine Power:

Wing Flaps Up 70 KIAS  
Wing Flaps Down 65 KIAS

## ENGINE FAILURES:

### ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF:

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

### ENGINE FAILURE DURING FLIGHT (Restart Procedures):

- Airspeed - - 68 KIAS

## FORCED LANDINGS

### EMERGENCY LANDING WITHOUT ENGINE POWER:

- Airspeed - - 70 KIAS (flaps UP)  
65 KIAS (flaps DOWN)
- Wing Flaps - - AS REQUIRED (30° recommended)

### PRECAUTIONARY LANDING WITH ENGINE POWER:

- Airspeed - - 65 KIAS (Flaps 20°)
- Airspeed - - 65 KIAS (Flaps 30°)

## DITCHING

- Wing Flaps - - 20-30 deg.
- Power - - ESTABLISH 300 FPM DESCENT AT 55 KIAS

### NOTE

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

## ICING

### INADVERTENT ICING ENCOUNTER

- Approach at 65 to 75 KIAS depending upon the amount of the accumulation.

## SECTION 4. NORMAL PROCEDURES

### NORMAL PROCEDURES

### AIRSPEEDS FOR NORMAL OPERATION

#### Takeoff

Normal Climb Out 75–85 KIAS  
Short Field Takeoff, Flaps 10°, Speed at 50 ft 56 KIAS

## CAPF 1924 – N980CP - C-172R

### Enroute Climb, Flaps Up:

Normal, Sea Level	75–85 KIAS
Normal, 10,000 ft	70–80 KIAS
Best Rate of Climb, Sea Level	74 KIAS
Best Rate of Climb, 10,000 ft	72 KIAS
Best Angle of Climb, Sea Level	62 KIAS
Best Angle of Climb, 10,000 ft	67 KIAS

### Landing Approach:

Normal Approach, Flaps Up	65–75 KIAS
Normal Approach, Flaps 30°	60–70 KIAS
Short Field Approach, Flaps 30°	61 KIAS

### Balked Landing:

Maximum Power, Flaps 20°	60 KIAS
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### Maximum Recommended Turbulent Air Penetration Speed

2550 lbs	105 KIAS
2200 lbs	98 KIAS
1900 lbs	90 KIAS

### SHORT FIELD TAKEOFF

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

### ENROUTE CLIMB

Airspeed - - 75 - 85 KIAS

### LANDING

#### NORMAL LANDING

1. Airspeed - - 65 - 75 KIAS (flaps UP)
2. (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)

#### BALKED LANDING

2. Alternate Air - - OFF (if pulled)
3. Wing Flaps - - RETRACT TO 20°
4. Climb Speed - - 60 KIAS
5. Wing Flaps - - 10° (until obstacles are cleared)  
RETRACT (after reaching a safe altitude and 65 KIAS).

### Section 5. Performance

See Section 5 of STC containing charts/tables for:

- Cruise Performance
- Stall Speeds
- Short Field Takeoff Distance
- Maximum Rate of Climb
- Time, Fuel, and Distance to Climb
- Cruise Fuel Consumption
- Endurance Profile
- Short Field Landing Distance

# CAPF 1925 – N51295 - C-172P

Year of Manufacture: 1980

Engine:	Continental O-360	180 HP	
Max Gross TO Wt:	2550	Max Gross Lndg Wt:	2550
Empty Weight:	1541.2	Empty A/C Moment:	57.9
Usable Fuel	40 Gal	240 Lbs	
Major STCs:	Air Plains Services Corp. 180 HP Engine Modification		

### STC Data:

(The following data has been extracted from the STC to provide pertinent operating data for reference and planning only. It is not a substitute for the STC documentation, which must be attached to the AFM and carried in the aircraft. **Consult the official document for detailed operating information.**)

### SECTION 1. GENERAL

Engine Change	180 HP @ 2700 rpm; Max continuous rpm 2540
MGW, TO and Landing	Normal Category 2550 lbs. Utility Category 2100 lbs

### SECTION 2. LIMITATIONS

#### Page 2 – 5 AIRSPEED INDICATOR MARKINGS:

White Arc:	40 – 85
Green Arc:	50 - 127
Yellow Arc:	127 - 158
Red Line:	158

#### Page 2 – 4 AIRSPEED LIMITATIONS:

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

#### Page 2 – 5 POWER PLANT LIMITATIONS:

Maximum Power:	180 BHP
Maximum Continuous RPM:	2540 RPM

#### Page 2 – 5 WEIGHT LIMITS:

Maximum Takeoff Wt, Normal	2550 lbs.
Utility	2100 lbs
Maximum Landing Wt, Normal	2550 lbs.
Utility	2100 lbs

#### Page 2 – 7 CENTER OF GRAVITY LIMITS:

**NORMAL CATEGORY, CG Range**

Fwd:	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.
Aft:	47.3 inches aft of datum at all weights.

**UTILITY CATEGORY, CG Range**

Fwd:	35.0 inches aft of datum at 1950 lbs. or less, with straight line variation to 36.5 inches aft of datum at 2100 lbs.
Aft:	40.5 inches aft of datum at all weights.

#### Page 2 – 8 FLIGHT LOAD FACTORS:

**NORMAL CATEGORY**

## CAPF 1925 – N51295 - C-172P

Flight Load Factors (Maximum TO Wt – 2550 lbs):

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

Maneuver 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

PAGE 3 – 4 ENGINE FAILURES:

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF:

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

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° recommended)

PRECAUTIONARY LANDING WITH ENGINE POWER:

2. Airspeed - - 65 KIAS
6. Airspeed - - 65 KIAS

PAGE 3 – 5 DITCHING

4. Wing Flaps - - 20-30°

NOTE

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

PAGE 3 – 7 ICING

INADVERTENT ICING ENCOUNTER

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

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 lbs and may be used for any lesser weight.

Page 4 – 3

Takeoff

Normal Climb Out	75–85 KIAS
Short Field Takeoff, Flaps 10°, Speed at 50 ft	57 KIAS

Enroute Climb, Flaps Up:

Normal, Sea Level	75–85 KIAS
Normal, 10,000 ft	70–80 KIAS
Best Rate of Climb, Sea Level	76 KIAS
Best Rate of Climb, 10,000 ft	72 KIAS
Best Angle of Climb, Sea Level	62 KIAS
Best Angle of Climb, 10,000 ft	67 KIAS

Landing Approach:

Normal Approach, Flaps Up	65–75 KIAS
Normal Approach, Flaps 30°	60–70 KIAS
Short Field Approach, Flaps 30°	62 KIAS

Balked Landing:

Maximum Power, Flaps 20°	60 KIAS
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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 – 9 ENROUTE CLIMB

Airspeed - - 75 - 85 KIAS

PAGE 4 – 9 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)

PAGE 4-10

SHORT FIELD LANDING

1. Airspeed - - 65 - 75 KIAS (flaps UP)
3. Airspeed - - 62 KIAS (until flare)

BALKED LANDING

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

Section 5. PERFORMANCE

PAGE 5-21 LANDING DISTANCE – SHORT FIELD

NOTES:

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

# CAPF 1926 - N66MA - C-172P

Year of Manufacture: 1985

Engine:	Continental O-360	180 HP	
Max Gross TO Wt:	2550	Max Gross Lndg Wt:	2550
Empty Weight:	1628.0	Empty A/C Moment:	63.3
Usable Fuel	50 Gal	300 Lbs	
Major STCs:	Air Plains Services Corp. 180 HP Engine Modification		

### STC Data:

(The following data has been extracted from the STC to provide pertinent operating data for reference and planning only. It is not a substitute for the STC documentation, which must be attached to the AFM and carried in the aircraft. **Consult the official document for detailed operating information.**)

### SECTION 1. GENERAL

Engine Change	180 HP @ 2700 rpm; Max continuous rpm 2540
MGW, TO and Landing	Normal Category 2550 lbs. Utility Category 2100 lbs

### Section 2. LIMITATIONS

#### Page 2 – 5 AIRSPEED INDICATOR MARKINGS:

White Arc:	40 – 85
Green Arc:	50 - 127
Yellow Arc:	127 - 158
Red Line:	158

#### Page 2 – 4 AIRSPEED LIMITATIONS:

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

#### Page 2 – 5 POWER PLANT LIMITATIONS:

Maximum Power:	180 BHP
Maximum Continuous RPM:	2540 RPM

#### Page 2 – 5 WEIGHT LIMITS:

Maximum Takeoff Wt, Normal	2550 lbs.
Utility	2100 lbs
Maximum Landing Wt, Normal	2550 lbs.
Utility	2100 lbs

#### Page 2 – 7 CENTER OF GRAVITY LIMITS:

**NORMAL CATEGORY, CG Range**  
 Fwd: 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.  
 Aft: 47.3 inches aft of datum at all weights.

**UTILITY CATEGORY, CG Range**  
 Fwd: 35.0 inches aft of datum at 1950 lbs. or less, with straight line variation to 36.5 inches aft of datum at 2100 lbs.  
 Aft: 40.5 inches aft of datum at all weights.

#### Page 2 – 8 FLIGHT LOAD FACTORS:

**NORMAL CATEGORY**

## CAPF 1926 - N66MA - C-172P

Flight Load Factors (Maximum TO Wt – 2550 lbs):

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

Maneuver 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

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° recommended)

PRECAUTIONARY LANDING WITH ENGINE POWER:

2. Airspeed - - 65 KIAS
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.

### 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 lbs and may be used for any lesser weight.

Page 4 – 3

## CAPF 1926 - N66MA - C-172P

### Takeoff

Normal Climb Out	75–85 KIAS
Short Field Takeoff, Flaps 10°, Speed at 50 ft	57 KIAS

### Enroute Climb, Flaps Up:

Normal, Sea Level	75–85 KIAS
Normal, 10,000 ft	70–80 KIAS
Best Rate of Climb, Sea Level	76 KIAS
Best Rate of Climb, 10,000 ft	72 KIAS
Best Angle of Climb, Sea Level	62 KIAS
Best Angle of Climb, 10,000 ft	67 KIAS

### Landing Approach:

Normal Approach, Flaps Up	65–75 KIAS
Normal Approach, Flaps 30°	60–70 KIAS
Short Field Approach, Flaps 30°	62 KIAS

### Balked Landing:

Maximum Power, Flaps 20°	60 KIAS
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### 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 – 9 ENROUTE CLIMB

Airspeed - - 75 - 85 KIAS

### PAGE 4 – 9 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)

### PAGE 4-10

#### SHORT FIELD LANDING

1. Airspeed - - 65 - 75 KIAS (flaps UP)
3. Airspeed - - 62 KIAS (until flare)

#### BALKED LANDING

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

### Section 5. PERFORMANCE

#### PAGE 5-21 LANDING DISTANCE – SHORT FIELD

##### NOTES:

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

**CAPF 1926 - N66MA - C-172P**

180HP CESSNA 172 SKYHAWK  
 CRUISE PERFORMANCE  
 Standard Temperature

Pressure Altitude <u>Ft.</u>	<u>RPM</u>	<u>% BHP</u>	<u>GPH</u>
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

**CAPF 1928 - N9633X - C-182R**

**CAPF 1928 - N9633X - C-182R**

Year of Manufacture: 1986

Engine:	Continental O-470	230 HP	
Max Gross TO Wt:	3100	Max Gross Lndg Wt:	2950
Empty Weight:	1806.5	Empty A/C Moment:	68.0
Usable Fuel	88 Gal	528 Lbs	
Major STCs:	None		

**STC Data: NONE**

Operate in accordance with AFM

**CAPF 1929 - N96227 - C-172Q**

**CAPF 1929 - N96227 - C-172Q**

Year of Manufacture: 1983

Engine:	Continental O-360	180 HP	
Max Gross TO Wt:	2550	Max Gross Lndg Wt:	2550
Empty Weight:	1586.7	Empty A/C Moment:	59.4
Usable Fuel	50 Gal	300 Lbs	
Major STCs:	None. This aircraft is factory-certified with a 180 HP engine.		

**STC Data: NONE**

Operate in accordance with AFM