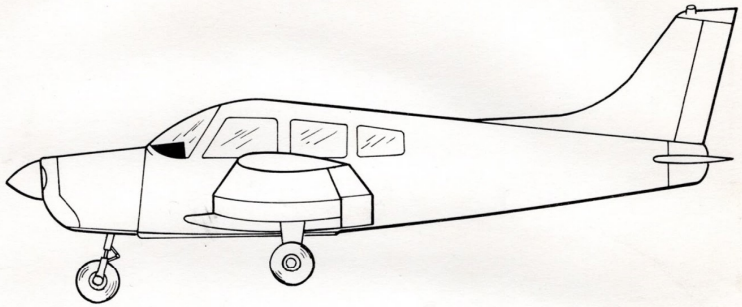
AIRPLANE FLIGHT MANUAL

FOR

CHEROKEE WARRIOR



NOTE

THIS MANUAL MUST BE KEPT IN THE AIRPLANE AT ALL TIMES

MANUFACTURER'S MODEL PA-28-151

MANUFACTURER'S SERIAL 28-7415398

REGISTRATION - N42671

FAA APPROVED BY: H. W. Barnhouse

H. W. BARNHOUSE
PIPER AIRCRAFT CORPORATION
D. O. A. NO. SO-1
VERO BEACH, FLORIDA

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MODEL: PA-28-151

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AIRPLANE FLIGHT MANUAL LOG OF REVISIONS

Revision	Revised Pages	Description and Revision	FAA Approved Date
1	All	Completely revised to printed format for assembly into Pilot's Operating Manual 761 563.	H. W. Barnhouse August 1, 1973
	3-5	Revised spin recovery technique, item 3. c.	
2	3-i	Revised Table of Contents	
	3-1	Revised Item C. Propeller Limitations	
	3-2	Revised Airspeed Range	
	3-7	Revised Stall Speed Chart	
	3-9	Revised List of Supplements	
	3-13	Added page and Supplement B	
	3-14	Added page	
	3-15	Added page and Supplement C	H. W. Barnhouse August 30, 1973
	3-16	Added page	

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AFMS 1085

AIRPLANE FLIGHT MANUAL SUPPLEMENT

FOR PIPER MODEL PA-28-151 CHEROKEE WARRIOR

MODIFIED IN ACCORDANCE WITH STC SA2969SW

Installation of
160 HP Textron Lycoming model
O-320-D2A, -D2B, -D2C, -D3G,
or -E3D (modified) Engine and
Sensenich model 74DM6-0-58 or -60 Propeller

This supplement is FAA approved and must be attached to the FAA-approved Airplane Flight Manual when the aircraft has been modified in accordance with S.T.C. SA2969SW. The information contained in this document supplements or supersedes the Airplane Flight Manual only in those areas listed herein. For limitations, procedures, and performance not contained in this supplement, consult the Airplane Flight Manual.

Approved: for A. J. Merrill, Manager ASW-190
Special Certification Office

Date: NOV 12 1997

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LOG OF REVISIONS

Revision	Pages Affected	Description	Approval
—	—	Original Submittal	

FAA APPROVED
DATE: NOV 12 1997

RAM AIRCRAFT CORPORATION

GENERAL

ENGINE
Textron Lycoming model O-320-D2A, -D2B, -D2C, -D3G, or -E3D (modified per STC SE8987SW)

PROPELLER
Sensenich model 74DM6-0-58 or 74DM6-0-60

LIMITATIONS

ENGINE LIMITS
Maximum continuous.....2650 rpm (150 hp)
Take-off (5 minutes).....2700 rpm (160 hp)

PROPELLER LIMITS
Static RPM at maximum throttle setting.....2450 to 2350 rpm
Diameter.....74.0 to 72.0 inches

ENGINE INSTRUMENT MARKINGS
TACHOMETER
Green arc: 2200 - 2650 rpm
Yellow arc: 2650 - 2700 rpm
Red radial : 2700 rpm

PERFORMANCE

The performance of this airplane, equipped with a Lycoming O-320-D2A, -D2B, -D2C, -D3G, or -E3D (modified per STC SE8987SW) engine, is equal to or better than the original FAA-approved performance.

WEIGHT & BALANCE

No change to center-of-gravity limits.

SECTION I

LIMITATIONS

The following limitations must be observed in the operation of this airplane:

A. ENGINE
Lycoming O-320-E3D

ENGINE LIMITS
For all operations 2700 RPM, 150 HP

B. FUEL
80/87 octane aviation fuel

C. PROPELLER
Sensenich 74DM6, maximum diameter 74 inches. Minimum diameter 72 inches. Static RPM at maximum permissible throttle setting: Not over 2375, not under 2275. No additional tollerance permitted.

McCauley 1C160/EGM7653, maximum diameter 76 inches. Minimum diameter 74.5 inches. Static RPM at maximum permissible throttle setting: Not over 2400, not under 2300. No additional tollerance permitted.

D. POWER INSTRUMENTS

OIL TEMPERATURE	
Green Arc (Normal Operating Range)	75° F to 245° F
Red Line (Maximum)	245° F
OIL PRESSURE	
Green Arc (Normal Operating Range)	60 PSI to 90 PSI
Yellow Arc (Caution Range)	25 PSI to 60 PSI
Red Line (Minimum)	25 PSI
Red Line (Maximum)	90 PSI
FUEL PRESSURE	
Green Arc (Normal Operating Range)	.5 PSI to 8 PSI
Red Line (Minimum)	.5 PSI
Red Line (Maximum)	8 PSI
TACHOMETER	
Green Arc (Normal Operating Range)	500 to 2700 RPM
Red Line (Maximum Continuous Power)	2700 RPM

E. AIRSPEED LIMITATIONS AND AIRSPEED INSTRUMENT MARKINGS (Calibrated Airspeed)

NEVER EXCEED	176 MPH	V_{NE}
MAXIMUM STRUCTURAL CRUISE	140 MPH	V_{NO}
MANEUVERING	124 MPH	V_A
FLAPS EXTENDED	125 MPH	V_{FE}
MAXIMUM POSITIVE LOAD FACTOR	(Normal Category) 3.8	
MAXIMUM POSITIVE LOAD FACTOR	(Utility Category) 4.4	
MAXIMUM NEGATIVE LOAD FACTOR	No inverted maneuvers approved	

AIRSPEED INSTRUMENT MARKINGS

Red Radial Line (Never Exceed)	176 MPH (153 KTS)	
Yellow Arc (Caution Range)	140 MPH to 176 MPH	V_{NE}
(Smooth Air Only)	(122 KTS to 153 KTS)	
Green Arc (Normal Operating Range)	64.5 MPH to 140 MPH	V_{NO}
	(56 KTS to 122 KTS)	
White Arc (Flap Down Range)	58 MPH to 125 MPH	V_{FE}
	(50 KTS to 109 KTS)	

V_{SO}

Best Glide

V_{Glide} 74 MPH

F. MAXIMUM WEIGHT

Normal Category	2325 LBS
Utility Category	1950 LBS

G. BAGGAGE CAPACITY — 200 LBS

H. C. G. RANGE

The datum used is 78.4 inches ahead of wing leading edge at the intersection of the straight and tapered section.

1. Normal Category

Weight (Pounds)	Forward Limit (In. Aft of Datum)	Rearward Limit (In. Aft of Datum)
2325	87.0	93.0
1950	83.0	93.0

2. Utility Category

Weight (Pounds)	Forward Limit (In. Aft of Datum)	Rearward Limit (In. Aft of Datum)
1950	83.0	86.5

Straight line variation between points given.

NOTE

It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. See Weight and Balance Section for proper loading instructions.

I. MANEUVERS

1. Normal Category - All acrobatic maneuvers including spins prohibited.
2. Utility Category - Approved maneuvers for Utility Category only.

	Entry Speed
Steep Turns	124 MPH
Lazy Eights	124 MPH
Chandelles	124 MPH

J. PLACARDS

In full view of the pilot:

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL OR UTILITY CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS.

ALL MARKINGS AND PLACARDS ON THIS AIRPLANE APPLY TO ITS OPERATION AS A UTILITY CATEGORY AIRPLANE. FOR NORMAL AND UTILITY CATEGORY OPERATIONS, REFER TO THE AIRPLANE FLIGHT MANUAL.

NO ACROBATIC MANEUVERS ARE APPROVED FOR NORMAL CATEGORY OPERATIONS. SPINS ARE PROHIBITED FOR NORMAL AND UTILITY CATEGORIES."

In full view of the pilot, the following takeoff and landing check lists will be installed:

TAKEOFF CHECK LIST

Fuel on proper tank	Mixture set	Fasten belts/harness
Electric fuel pump on	Seat backs erect	Trim tab - set
Engine gauges checked		Controls - free
Flaps - set		Door - latched
Carb heat off		

LANDING CHECK LIST

Fuel on proper tank		Flaps - set (125 mph)
Mixture rich	Seat backs erect	Fasten belts/harness
Electric fuel pump on		

Adjacent to upper door latch:

"ENGAGE LATCH BEFORE FLIGHT."

On the instrument panel in full view of the pilot:

"DEMONSTRATED CROSSWING COMPONENT 20 MPH."

On inside of the baggage compartment door:

"BAGGAGE MAXIMUM 200 LBS"
"UTILITY CATEGORY OPERATION - NO BAGGAGE OR AFT PASSENGERS ALLOWED. NORMAL CATEGORY OPERATION - SEE AIRPLANE FLIGHT MANUAL WEIGHT AND BALANCE SECTION FOR BAGGAGE AND AFT PASSENGER LIMITATIONS."

In full view of the pilot:

"ROUGH AIR OR MANEUVERING SPEED - 124 MPH."

"UTILITY CATEGORY OPERATION - NO AFT PASSENGERS ALLOWED."

On the instrument panel in full view of the pilot when the oil cooler winterization kit is installed:

"OIL COOLER WINTERIZATION PLATE TO BE REMOVED WHEN AMBIENT TEMPERATURE EXCEEDS 50° F."

In full view of the pilot:

"UTILITY CATEGORY ONLY."

ACROBATIC MANEUVERS ARE LIMITED TO THE FOLLOWING:

	ENTRY SPEED
SPINS PROHIBITED	
STEEP TURNS	124 MPH
LAZY EIGHTS	124 MPH
CHANDELLES	124 MPH

On the instrument panel in full view of the pilot when the supplementary white strobe lights are installed:

"WARNING - TURN OFF STROBE LIGHTS WHEN TAXIING IN VICINITY OF OTHER AIRCRAFT, OR DURING FLIGHT THROUGH CLOUD, FOG OR HAZE."

SECTION II

PROCEDURES

1. The stall warning system is inoperative with the master switch off.

2. Electric fuel pump must be on for both landing and takeoff.

3. The PA-28-151 airplane is approved under FAA Regulation CAR 3 which prohibits intentional spins for both normal and utility category operation. The following information is noteworthy:

   a. The stall characteristics of the PA-28-151 are normal with the nose pitching down moderately following the stall, occasionally with a moderate roll which can be corrected by normal use of ailerons and rudder against the roll.

   b. Prolonged use of full rudder during stall practice may result in a rapid roll followed by a spin and should be avoided. Recovery from an incipient spin may be effected in less than one additional turn by use of opposite rudder followed by full forward control wheel.

   c. In the event that a fully developed spin is inadvertently experienced, recovery is best made by centering the aileron while using full opposite rudder followed by full forward wheel. The control positions against the spin should be maintained during the entire recovery, which may require several turns and a substantial loss of altitude if the airplane is loaded heavily with a rearward center of gravity.

4. Except as noted above, all operating procedures for this airplane are normal.

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SECTION III

PERFORMANCE

The following performance figures were obtained during FAA type tests and may be realized under conditions indicated with the airplane and engine in good condition and with average piloting technique. All performance is given for 2325 pounds.

Loss of altitude during stalls varied from 100 to 275 feet, depending on configuration and power.

Stalling speeds, in mph, power off, versus angle of bank (Calibrated Airspeed):

Angle of Bank	0°	20°	40°	50°	60°
Flaps Up	64.5 56 KTS	67	74	80	91
Flaps Down	58 50 KTS	60	66	72	82

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SECTION IV

SUPPLEMENTS

NOTE

A FLIGHT MANUAL SUPPLEMENT IS REQUIRED TO BE IN THE AIRPLANE FLIGHT MANUAL ONLY IF THE EQUIPMENT WHICH IS THE SUBJECT OF THE SUPPLEMENT IS INSTALLED.

A. Electric Pitch Trim Installation (With Pitch Trim Switch)

B. AutoControl III Installation

C. AutoFlite II Installation

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A. ELECTRIC PITCH TRIM INSTALLATION (With Pitch Trim Switch)

The following emergency information applies in case of electric pitch trim malfunction:

1. In case of malfunction, disengage electric pitch trim by pushing pitch trim switch on instrument panel to OFF position.
2. In an emergency, electric pitch trim may be overpowered using manual pitch trim.
3. In cruise configuration, malfunction results in 10° pitch change and 200 ft altitude variation.
4. In approach configuration, a malfunction can result in a 5° pitch change and 50 ft altitude loss.

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B. AUTOCONTROL III INSTALLATION

1. LIMITATIONS
   a. Autopilot use is prohibited above 170 MPH-CAS.
   b. Autopilot "OFF" for takeoff and landing.

2. PROCEDURES
   a. Normal Operation
      Refer to the current AutoControl III Owner's Handbook.

   b. Emergency Operation
      (1) In an emergency, the AutoControl III can be disconnected by:
         (a) Pushing the roll "ON-OFF" switch to "OFF."
         (b) Turning aircraft Master Switch "OFF."
      (2) The AutoControl III can be overpowered at either control wheel.
      (3) An autopilot runaway, with a 3 second delay in the initiation of recovery, while operating in a climb, cruise or descending flight could result in a 60° bank and a 320 foot altitude loss measured at 170 MPH CAS in a descent.
      (4) An autopilot runaway, with a 1 second delay in the initiation of recovery, during an approach operation, coupled or uncoupled, could result in a 15° bank and a 20 foot altitude loss.

3. PERFORMANCE
   The airplane performance remains unchanged.

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C. AUTOFLITE II INSTALLATION

1. LIMITATIONS
   a. Autopilot use is prohibited above 170 MPH-CAS.
   b. Autopilot "OFF" for takeoff and landing.

2. PROCEDURES
   a. Normal Operation
      Refer to the current AutoFlite II Owner's Handbook.

   b. Emergency Operation
      (1) In an emergency, the AutoFlite II can be disconnected by:
         (a) Pressing disconnect switch on pilot's control wheel.
         (b) Rocker switch on instrument panel - OFF.
         (c) Turning aircraft Master Switch "OFF."
      (2) Unit may be overpowered manually at either control wheel.
      (3) An autopilot runaway, with a 3 second delay in the initiation of recovery, while operating in a climb, cruise or descending flight could result in a 60° bank and a 320 foot altitude loss measured at 170 MPH CAS in a descent.
      (4) An autopilot runaway, with a 1 second delay in the initiation of recovery, during an approach operation, coupled or uncoupled, could result in a 15° bank and a 20 foot altitude loss.

3. PERFORMANCE
   The airplane performance remains unchanged.

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