

AVIAT AIRCRAFT INC.

AIRPLANE FLIGHT MANUAL

MODEL PITTS S-2SP AIRPLANE



SECTION 1
GENERAL

Preliminary!

**NOT FOR
REAL
WORLD
USE!**

AVIAT AIRCRAFT INC.
PITTS S-2SP

Revised by Ensi Ferrum

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OVERALL DIMENSIONS

Wing Span:
Length:
Height:

20 ft. (6.1m)
17 ft 9 in (5.5m)
6 ft 5 in (1.9m)

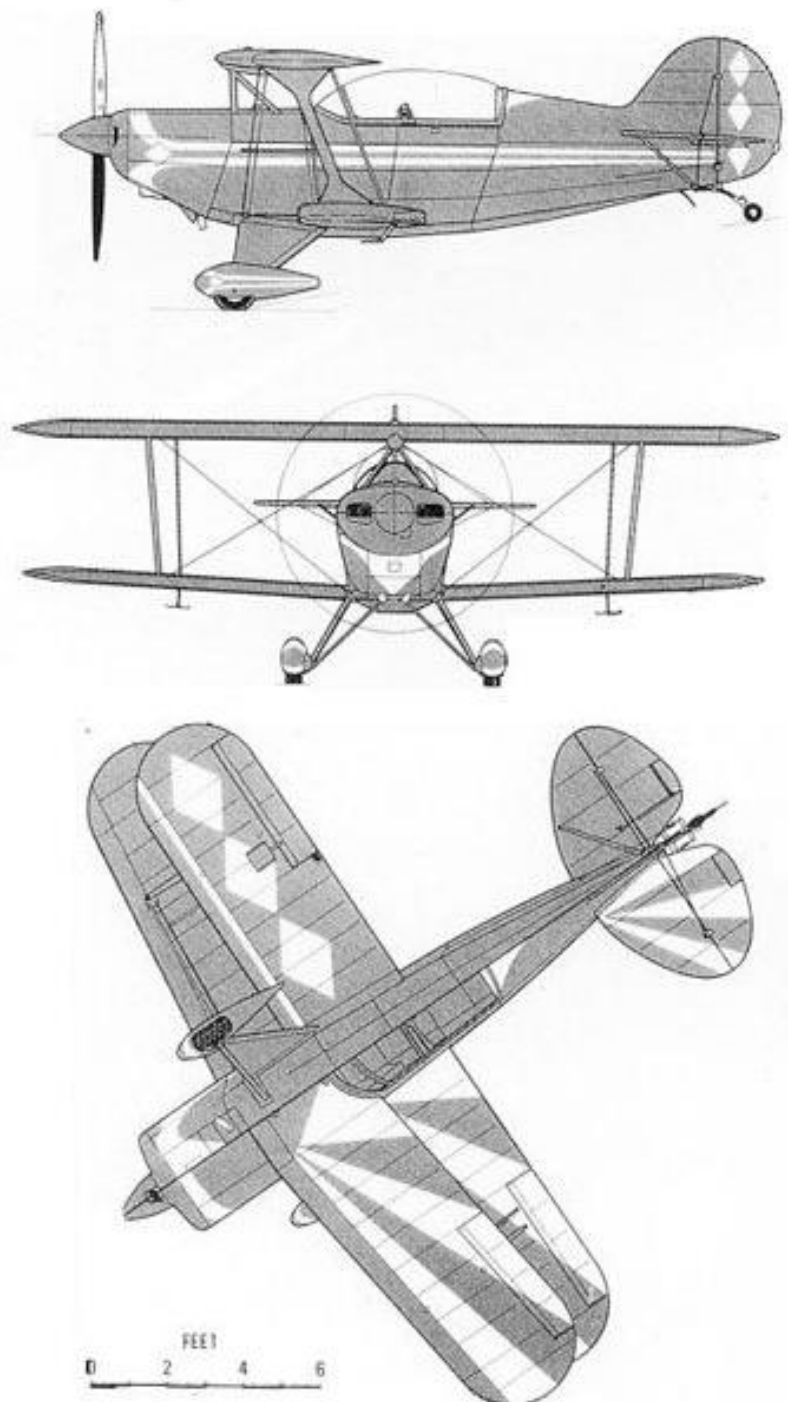


Figure 1-1 Three View

INTRODUCTION

This Airplane Flight Manual contains 10 4 Sections, and includes the material required to be furnished to the pilot by FAR Part 23. It also contains supplemental data supplied by Aviat Aircraft Inc.

Section 1 provides basic data and information of general interest. It also contains definitions or explanations of symbols, abbreviations, and terminology commonly use.

DESCRIPTIVE DATA

ENGINE

Number of Engines:	1
Engine Manufacturer:	Textron Lycoming
Engine Model Number:	AEIO-540-EXP
Engine Type:	Normally aspirated, Direct-drive, air- Cooled, horizontally- opposed, fuel injected, aerobatic with inverted oil, six-cylinder engine with 588 cu. in displacement.
Horsepower Rating & Engine Speed:	310HP @ 2800RPM

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PROPELLERS

Standard

Manufacturer:	Hartzell
Model Number:	HC-C3YR-4AX
Number of Blades:	3 Composite
Diameter Maximum	80 inches (2.03 m)
Minimum	78 inches (1.98 m)
Propeller Pitch settings:	
High:	32° to 34°
Low:	11° + or - .1° @ 30 inch station.
Propeller Type:	Constant speed, Hydraulically actuated, Counter balanced with Hartzell governor, Approved for aerobatic flight.

Optional

Optional propeller installed in new aircraft at Aviat Aircraft per TC, also for retrofit when installed in accordance with serialized Aviat Aircraft Kit.

Manufacturer:	MT-Propeller
Model Number:	MTV-9-B-C/C190-18a
Number of Blades:	3 Composite
Diameter Maximum	75 inches (190 cm)
Minimum	75 inches (190 cm)
Propeller Pitch settings:	
High:	30° + or - 1°
Low:	13° + or - .2° @ 26.18 in (6.5 cm) station.
Propeller Type:	Constant speed and Hydraulically actuated.

FUEL

Approved Fuel Grades (and Colors):

100 (Formerly 100/130) Grade Aviation Fuel (Green)
100LL Grade Aviation Fuel (Blue)

Fuel Capacity

Standard Tanks Normal Flight:

Total Capacity:	35 US gal (132.5 L)
Total Capacity	
main:	20 US gal (75.7L)
wing:	15 US gal (56.8 L)
Total Useable:	34 US gal (128.7 L)

During normal flight conditions.

Standard Tanks Aerobatic Flight:

Total Capacity:	20 US gal (75.7 L)
Total Capacity	
main:	20 US gal (75.7L)
wing:	0 US gal (0.0 L)
Total Useable:	19 US gal (71.9 L)

WARNING NOTE

Do not perform low altitude aerobatics with less than $\frac{1}{4}$ tank of fuel in the main tank. Wing tank is for ferry use only.

MAXIMUM CERTIFIED WEIGHTS

Takeoff

Normal Category: 1325 lbs (601.7 kg)

Aerobatic Category: 1250 lbs (567.0 kg)

Landing: 1325 lbs (601.7 kg)

Baggage Compartment: 20 lbs (9.01 kg)

WARNING NOTE

The maximum weight capacity for baggage area is 20 lbs (9.01 kg).

NO AEROBATIC MANEUVERS WITH BAGGAGE.

STANDARD AIRPLANE WEIGHTS

Standard Empty Weight: 950 lbs (430.9 kg)

Maximum Useful Load

Normal Category: 375 lbs (215.5 kg)

Aerobatics: 300 lbs (136.1 kg)

SPECIFIC LOADINGS

Wing Loading

Normal: 13.6 lb./sp.ft.

Aerobatic: 13 lb./sp.ft.

Power Loading

Normal: 6.5 lb./hp

Aerobatic: 6.25 lb./hp

SYMBOLS, ABBREVIATIONS AND TERMINOLOGY

GENERAL AIRSPEED TERMINOLOGY AND SYMBOLS

KTCAS	Knots Calibrated Airspeed is indicated airspeed corrected for position and instrument error and expressed in knots. Knots calibrated airspeed is equal to KTAS in standard atmosphere at sea level.
KTIAS	Knots Indicated Airspeed is the speed shown on the airspeed indicator and expressed in knots.
KTAS	Knots True Airspeed is the airspeed expressed in knots relative to undisturbed air which is KTCAS corrected for altitude and temperature.
MPHCAS	MPH Calibrated Airspeed is indicated airspeed corrected for position and instrument error and expressed in mph. MPH calibrated airspeed is equal to MPHAS in standard atmosphere at sea level.
MPHIAS	MPH Indicated Airspeed is the speed shown on the airspeed indicator and expressed in knots.
MPHTAS	MPH True Airspeed is the airspeed expressed in mph relative to undisturbed air which is MPHCAS corrected for altitude and temperature.
V_A	Maneuvering Speed is the maximum speed at which you may use abrupt control travel.
V_{NO}	Maximum Structural Cruising Speed is the speed that should not be exceeded except in smooth air, then only with caution.
V_{NE}	Never Exceed Speed is the speed limit that may not be exceeded at any time.
V_S	Stalling Speed is the minimum steady flight speed at which the airplane is controllable.
V_X	Best Angle-of-Climb Speed is the speed which results in the greatest gain of altitude in a given horizontal distance.
V_Y	Best Rate-of-Climb Speed is the speed which results in the greatest gain in altitude in a given time.

GENERAL AIRSPEED TERMINOLOGY AND SYMBOLS

OAT	Outside Air Temperature is the free air static temperature. It is expressed in either degrees Celsius (formerly Centigrade) or degrees Fahrenheit.
Standard Temperature	Standard Temperature is 59° F (15°C) at sea level pressure altitude and decreases by 3.6° F (2°C) for each 1000 feet of altitude.
Pressure Altitude	Pressure Altitude is the altitude read from the altimeter when the altimeter's barometric scale has been set to 29.92 inches of mercury (1013 mb).

ENGINE POWER TERMINOLOGY

BHP	Brake Horsepower is the power developed by the engine.
RPM	Revolutions Per Minute is engine speed.
MP	Manifold Pressure is a pressure measured in the engine induction system and is expressed in inches of mercury (Hg).

AIRPLANE PERFORMANCE AND FLIGHT PLANNING TERMINOLOGY

Demonstrated Crosswind Velocity	Demonstrated Crosswind Velocity is the velocity of the crosswind component for which adequate control of the airplane during takeoff and landing was demonstrated during certification tests. The value shown is not considered to be limiting.
Usable Fuel	Usable Fuel is the fuel available for flight planning.
Unusable Fuel	Unusable Fuel is the quantity of fuel that cannot safely be used in flight.
GPH	Gallons per Hour is the amount of fuel (in gallons) consumed per hour.
NMPG	Nautical Miles Per Gallon is the distance (in nautical miles) which can be expected per gallon of fuel consumed at a specific engine power setting and/or flight configuration.
SMPG	Statute Mile Per Gallon is the distance (in statute miles) which can be expected per gallon of fuel consumed at a specific engine power setting and/or flight configuration.
g	g is acceleration due to gravity.

WEIGHT AND BALANCE TERMINOLOGY

Reference Datum	Demonstrated is an imaginary vertical plane from which all horizontal distances are measured for balance purposes.
Station	Station is a location along the airplane fuselage given in terms of the distance from the reference datum.
Arm	Arm is the horizontal distance from the reference datum to the center of gravity (C.G.) of an item.
Moment	Moment is the product of the weight of an item multiplied by its arm.
Center of Gravity	Center of Gravity is the point at which an airplane, or equivalent, would balance if suspended. It's distance from the reference datum is found by dividing the total moment by the total weight of the airplane.
C.G. Arm	Center of Gravity Arm is the arm obtained by adding the airplane's individual moments and dividing the sum by the total weight.
C.G. Limits	Center of Gravity Limits are the extreme center of gravity locations within which the airplane must be operated at a given weight.
Standard Empty Weight	Standard Empty Weight is the weight of a standard airplane including unusable fuel, full operating fluids and full engine oil.
Basic Empty Weight	Basic Empty Weight is the standard empty weight plus the weight of optional equipment.
Useful Load	Useful Load is the difference between ramp weight and the basic empty weight.
Maximum Ramp Weight	Maximum Ramp Weight is the maximum weight approved for ground maneuver. (It includes the weight of start, taxi and run up fuel.)
Gross (Loaded) Weight	Gross (Loaded) Weight is the loaded weight of the airplane.
Maximum Takeoff Weight	Maximum Takeoff Weight is the maximum weight approved for the start of the takeoff run.
Maximum Landing Weight	Maximum Landing Weight is the maximum weight approved for the landing touchdown.
Tare	Tare is the weight of chocks, blocks, stands, etc. used when weighing an airplane, and is included in the scale readings. Tare is deducted from the scale reading to obtain the actual (net) airplane weight.

CONVERSIONS

Miles Per Hour	X	0.8690	=	Knots
Nautical Miles	X	1.852	=	Kilometers
Feet	X	0.305	=	Meters
Inches	X	0.0254	=	Meters
Inches	X	2.54	=	Centimeters
Inches	X	25.4	=	Millimeters
Feet/Minute	X	0.00508	=	Meter/sec
Gallons (US)	X	3.785	=	Liters
Gallons (Imp)	X	4.546	=	Liters
Quarts (US)	X	0.946	=	Liters
Knots	X	1.852	=	km/h
PSI	X	0.0689	=	Bar
In.Hg	X	33.86	=	Mbar
lb	X	0.453	=	Kg
(°F-32)	X	5/9	=	°C
Knots	X	1.1508	=	MPH
Kilometers	X	0.539	=	Nautical mile
Meters	X	3.281	=	Feet
Meters	X	39.37	=	Inches
Centimeters	X	3.937	=	Inches
Millimeters	X	0.03937	=	Inches
Meter/sec	X	197	=	Feet/minute
Liters	X	0.264	=	Gallons (US)
Liters	X	0.220	=	Gallons (Imp)
Liters	X	1.057	=	Quarts (US)
Km/h	X	0.539	=	Knots
Bar	X	14.51	=	PSI
Mbar	X	0.02953	=	In.Hg
Kg	X	2.205	=	lb
°C	X	9/5+32	=	°F

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INTRODUCTION

Section 2 includes operating limitations, instrument markings, and basic placards necessary for safe operation of the airplane, its engine, standard systems and standard equipment. The limitations included in this section have been approved by the Federal Aviation Administration. When applicable, limitations associated with optional systems or equipment will be included in Section 9.

Note

The airspeeds listed in the Airspeed Limitation chart and the Airspeed Indicator Markings chart are based on Airspeed Calibration data shown in Section 5 with the normal static source, with the exception of the bottom of the green arc on the airspeed indicator. If the alternate static source is being used, ample airspeed margins should be observed to allow for the airspeed calibration variations between the normal and alternate static sources shown in Section 5.*

* Note from the author: Section 5 will not be covered!

Your Pitts is certified under FAA Type Certificate # A8S0 as Pitts Model S-2SP.

FUEL LIMITATIONS

Standard Tanks

Main Tank

Total Fuel:	20 US gal (75.7 L)
Usable Fuel:	19 US gal (71.9 L)
Unusable Fuel:	1 US gal (3.7L)

Auxiliary Tank

Total Fuel:	15 US gal (56.8 L)
Usable Fuel:	15 US gal (56.8 L)
Unusable Fuel:	0 US gallons level flight only (Normal Category)
Unusable Fuel:	15 US gallons level flight only (Aerobatic Category)

Note

The auxiliary tank is usable for cross country flight ONLY. Before draining auxiliary tank into main tank, burn enough fuel in main tank to hold auxiliary fuel or fuel will be transferred overboard.

WARNING

**DO NOT PERFORM LOW ALTITUDE AEROBATICS WITH
LESS THAN ¼ TANK OF FUEL IN MAIN TANK.**

Approved Fuel Grades (and Colors):

- 100LL Grade Aviation Fuel (Blue)
- 100 (Formerly 100/130) Grade Aviation Fuel (Green)

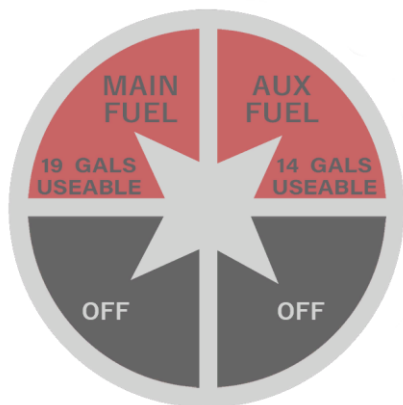
PLACARDS

The following information is displayed in the form of composite or individual placards.

1. In the view of the pilot on the left hand side of the cockpit fairing:

THIS AIRPLANE MUST BE OPERATED AS A NORMAL OR AN ACROBATIC 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 an acrobatic category airplane. For normal category operations refer to the approved Airplane Flight Manual. OPERATIONS LIMITED TO DAY VER CONDITIONS. FLIGHT INTO KNOWN ICING CONDITIONS PROHIBITED.				
APPROVED MANEUVERS AND RECOMMENDED ENTRY SPEEDS:				
MANEUVER	INSIDE		OUTSIDE	
	MAX.	MIN.	MAX.	MIN.
LOOP, (UP)	180	130	180	130
LOOP, (DOWN)	100	70	100	70
SLOW ROLL	180	100	180	100
BARREL ROLL	180	130	180	130
SNAP ROLL	140	90	110	90
HAMMERHEAD	180	130	180	130
LAZY EIGHT	180	140	180	140
CHANDELLE	180	140	180	140
STALLS AND SPINS	(SLOW DECELERATION)			

2. At the fuel selector handle:



3. Adjacent to airspeed indicator:

DESIGN MANEUVER SPEED: 170 KTS
DEMONSTRATED CROSSWIND VELOCITY 20 MPH

4. Adjacent to mixture control:

PULL FOR
LEAN
MIXTURE.

5. Adjacent to engine alternate air control;

PULL FOR
ALTERNATE
AIR.

6. Adjacent to elevator trim control:

NOSE UP
NOSE DOWN

7. Throttle quadrant:

THROTTLE

8. Adjacent to appropriate switches:

ARM	OFF	REFILL	
SMOKE SYTEM		AVIONIQUE	
MASTER SWITCH ON	ALT. FIELD SWITCH ON	BOOST PUMP SWITCH ON	OFF BST. PMP. ALT FLD

9. Adjacent to appropriate circuit breakers:

BST. PMP.
ALT FLD

10. On instrument panel:

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11. Adjacent to propeller governor control:

PROP
PUSH
HIGH
R.P.M.

12. Adjacent to cowl flap control:

COWL
FLAP
PULL
OPEN

13. In view of pilot on cockpit fairing:

FOR FLAT SPINS USE AILERON
WITH THE SPIN FOR RECOVERY

14. In view of pilot on cockpit panel:

NO ACROBATIC MANEUVERS [INCLUDING SPINS] ARE
APPROVED FOR NORMAL CATEGORY OPERATIONS.

AIRSPEED LIMITATIONS

Airspeed Limitations and their operational significance are shown in Figure 2-1.

	SPEED	MPH CAS	KTS CAS	REMARKS
V_{NE}	Never Exceed	218	190	Do not exceed in any operation.
V_{NO}	Normal operation	172	150	Do not exceed except in smooth air.
V_A	Maneuvering	172	150	Do not make full or abrupt control movements above this speed.

Figure 2-1 Airspeed Limitations

AIRSPEED INDICATOR MARKINGS

Airspeed Indicator markings and their color code significance are shown in Figure 2-2.

MARKING	AIRSPEED RANGE	SIGNIFICANCE
GREEN ARC	40 TO 172 MPH 46 TO 150 KTS	Normal operating range. Lower limit is maximum weight VS at most forward C.G.. Upper limit is maximum structural cruising speed.
YELLOW ARC	172 TO 218 MPH 150 TO 90 KTS	Operations must be conducted with caution and only in smooth air.
RED LINE	219 MPH 191 KTS	Maximum speed for all operations.

Figure 2-2 Airspeed Indicator Markings

POWER PLANT LIMITATIONS

Engine Manufacturer:	Textron Lycoming
Engine Model Number:	AEIO-540-EXP
Engine Operating Limits for takeoff and continuous operations:	
Maximum Power:	315 BHP
Maximum Engine Speed:	3000 RPM
Maximum Cylinder Head Temperature:	500°F (260°C)
Maximum Oil Temperature:	245°F (118°C)
Oil Pressure:	
Minimum:	25 PSI (1.7 bar)
Maximum:	100 PSI (6.89 bar)

Standard Propeller

Manufacturer:		Hartzell
Model Number:		HC-C3YR-4AX
Number of Blades:		3 Composite
Diameter	Maximum	80 inches (2.03 m)
	Minimum	78 inches (1.98 m)
Propeller Blade Angle at 30 in (76.2cm) Station		
	High:	32° to 34°
	Low:	11° + or - .1° @ 30 inch station.

Optional Propeller

Optional propeller installed in new aircraft at Aviat Aircraft per TC, also for retrofit when installed in accordance with serialized Aviat Aircraft Kit.

Manufacturer:		MT-Propeller
Model Number:		MTV-9-B-C/C190-18a
Number of Blades:		3 Composite
Diameter	Maximum	75 inches (190 cm)
	Minimum	75 inches (190 cm)
Propeller Blade Angle at 26.18 in (6.5 cm) station		
	High:	30° + or - 1°
	Low:	13° + or - .2°

Note

For European operations only, in the interest of noise abatement or where local noise ordinances may apply the following RPM limitations should be followed:

“2700 RPM max takeoff for five minutes followed by a reduction to 2500 RPM, for continuous cruise power”.

WARNING

It is the responsibility of the pilot to check on performance differences in Section 5 of this manual when the optional propeller is installed. *

* Note from the author: Section 5 will not be covered!

POWER PLANT INSTRUMENT MARKINGS

Power plant instrument markings and their color code significance are shown in Figure 2-3.

INSTRUMENT	RED LINE MIN. LIMIT	GREEN ARC NORMAL OPERATING	YELLOW ARC CAUTION RANGE	RED LINE MAX. LIMIT
TACHOMETER		500 – 3000 RPM		3000 RPM
OIL TEMPERATURE		100°F (38°C) 245°F (118°C)		245°F (118°C)
CYLINDER HEAD				500°F (260°C)
FUEL PRESSURE		0-9 PSI (0-.62 bar)		9 PSI (.62 bar)
OIL PRESSURE	25 PSI	60 – 90 PSI	25 – 60 PSI 90 – 100 PSI	100 PSI

Figure 2-3 Power Plant Instrument Markings

WEIGHT LIMITS

Maximum Takeoff Weight:	1325 lbs (601.0 kg)(Normal Category)
Maximum Landing Weight:	1325 lbs (601.0 kg)(Normal Category)
Maximum Gross Weight:	1325 lbs (601.0 kg)(Normal Category)
	1250 lbs (567.0 kg)(Aerobatic Category)
Maximum Weight in Baggage Compartment:	20 lbs (9.01 kg)

WARNING

NO AEROBATIC MANEUVERS WITH BAGGAGE.

CENTER OF GRAVITY LIMITS

Center of Gravity Range

Normal category

Forward:	FS 86.35 at 1125 lbs. or less, with straight line variation to FS 88.5 at 1325 lbs.
Aft:	FS 90.20 at 1325 lbs. or less

Aerobatic category	
Forward:	FS 86.35 at 1125 lbs. or less, with straight line variation to FS 88.5 at 1250 lbs.
Aft:	FS 90.20 at 1250 lbs. or less

MANEUVER LIMITS

This airplane is certified in the normal category and the aerobatic category. The normal category is applicable to aircraft intended for non-aerobatic operations.

These include any maneuvers incidental to normal flying, stalls, lazy eights, chandelles, and steep turns in which the angle of bank is not more than 60°. The aerobatic category is applicable to aircraft intended for aerobatic operations. These include all maneuvers listed on the approved maneuvers and recommended entry speeds placard and listed in this flight manual.

FLIGHT LOAD FACTOR LIMITS

Normal Category
Aerobatic Category

Positive +3.8 G., Negative -1.52 G.
Positive +6.0 G., Negative -3.0 G.

KINDS OF OPERATIONS

This airplane must be operated as a DAY VFR airplane. FAR Part 91 establishes the minimum required instrumentation and equipment for these operations. The reference to types of flight operations on the operation limitations placard reflects equipment installed at the time of Airworthiness Certificated issuance.

Flight into known icing conditions is prohibited. In cold weather operation and freezing temperatures it is the pilot's duty to make sure that the engine alternate breather is open.

KINDS OF OPERATION EQUIPMENT (KOEL)

		VFR DAY
Electrical Power		
1.	Battery	1
2.	Alternator	1
3.	Ammeter	1
Fire Protection		
1.	Firewall Fuel Shutoff Valve	1
Flight Controls		
1.	Trim Tab Indicator (Elevator)	1
2.	Stall Warn Horn	1
Fuel		
1.	Fuel Quantity Indicator	1
2.	Electric Fuel Boost Pump	1
3.	Engine Fuel Flow Gauge	1
4.	Upper Wing Fuel Tank Valve	1
Ice and Rain Protection		
1.	Alternate Static Air Source	1

SECTION 2
LIMITATIONS

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Navigation		
1.	Sensitive Altimeter	1
2.	Airspeed Indicator	1
3.	Magnetic Compass	1
Instruments		
1.	"G" Meter (Aerobatic flight only)	0
Engine Indicating		
1.	Tachometer	1
2.	Manifold Pressure Gauge	1
3.	Cylinder Head Temperature Gauge (CHT)	1
Engine Oil		
1.	Oil Pressure Indicator	1
2.	Oil Temperature Indicator	1

1. A zero (0) used in the above list means that the equipment and/or system was not required for type certification for that kind of operation.
2. The above equipment list is predicated on a crew of one pilot.
3. Equipment and/or systems in addition to those listed above may be required by the operating regulations.
4. The above list does not include all specific instruments, communications and navigations equipment required by FAR Parts 91 and 135.

SECTION 2
LIMITATIONS

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Operational Checklists

Engine Failures

- Engine Failure During Takeoff Run
- Engine Failure Immediately After Takeoff
- Engine Failure During Flight

Forced Landings

- Emergency Landing Without Engine Power
- Precautionary Landing With Engine Power
- Ditching

Fires

- During Start On Ground
- Engine Fire In Flight

Inadvertent Icing Encounter

ELT Operation

Amplified Procedures

- Engine Failure
- Forced Landing
- Landing without Elevator Control
- Fires
- Emergency Operations in Clouds
- Flight in Icing Conditions
- Static Source Blocked
- Spins

Rough Engine Operation or Loss of Power

- Icing
- Low Oil Pressure

ELT Operation

SECTION 3
EMERGENCY OPERATIONS

Preliminary!

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INTRODUCTION

Section 3 provides checklist and amplified procedures for coping with emergencies that may occur. Emergencies caused by airplane or engine malfunctions are extremely rare if proper preflight inspections and maintenance are practiced. En rout weather emergencies can be minimized or eliminated by careful flight planning and good judgement when unexpected weather is encountered. However, should an emergency arise, the basic guidelines described in this section should be considered and applied as necessary to correct the problem. Emergency procedures associated with ELT and other optional systems can be found in Section 9.

SPEEDS FOR NORMAL OPERATIONS

Engine Failure After Takeoff:	95 MPH (83KTS)
Maneuvering Speed:	154 MPH (134KTS)
Maximum Glide Speed:	95 MPH (83KTS)
Precautionary landing with Engine Power:	95 MPH (83KTS)
Landing Without Engine Power:	95 MPH (83KTS)

OPERATIONAL CHECKLIST

ENGINE FAILURES

ENGINE FAILURE DURING TAKEOFF RUN

1.	Throttle:	Idle
2.	Brakes:	Apply
3.	Mixture:	Idle Cut-off
4.	Ignition Switch:	Off
5.	Master Switch:	Off

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1.	Airspeed:	95 MPH (83KTS)
2.	Mixture:	Idle Cut-off
3.	Fuel Selector Valve:	Off
4.	Ignition Switch:	Off
5.	Master Switch:	Off

ENGINE FAILURE DURING FLIGHT

- | | | |
|---------------------------------|----------------------|----------------|
| 1. | Airspeed: | 95 MPH (83KTS) |
| 2. | Fuel Selector Valve: | On |
| 3. | Fuel Boost Pump: | On |
| 4. | Mixture: | Rich |
| 5. | Ignition Switch: | Both |
| (Start if propeller is stopped) | | |

ENGINE FAILURES

EMERGENCY LANDING WITHOUT ENGINE POWER

- | | | |
|----|----------------------|---|
| 1. | Airspeed: | 95 MPH (83KTS) |
| 2. | Mixture: | Idle Cut-off |
| 3. | Fuel Selector Valve: | Off |
| 4. | Ignition Switch: | Off |
| 5. | Canopy: | Jettison (at pilot's option) |
| 6. | Master Switch: | Off when landing is assured |
| 7. | Touchdown: | Tail wheel first |
| 8. | Brakes: | Apply as needed but control the aircraft. |

PRECAUTIONARY LANDING WITH ENGINE POWER

- | | | |
|----|----------------------|--|
| 1. | Airspeed: | 95 MPH (83KTS) |
| 2. | Selected Field: | Fly Over,
noting terrain and obstructions,
then upon reaching a safe
altitude and airspeed. |
| 3. | Electrical Switches: | Off |
| 4. | Airspeed: | 95 MPH (83KTS) |
| 5. | Canopy: | Jettison (at pilot's option) |
| 6. | Master Switch: | Off |
| 7. | Touchdown: | Tail wheel first |
| 8. | Ignition Switches: | Off |
| 9. | Brakes: | Apply as needed but control the aircraft. |

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DITCHING

1. Radio: Transmit Mayday on 121.5 mhz,
giving location and intentions
2. Power: Establish 300 ft/min descent
at 95 MPH (83KTS).
3. Approach: High Winds, Heavy seas
INTO WIND
Light Wind, Heavy Swells,
PARALLEL TO SWELLS.
4. Canopy: Jettison
5. Touchdown: Level Attitude at established descent.
6. Airplane Evacuate

FIRES

DURING START ON GROUND

1. Cranking: Continue to crank the engine
in an attempt to start the engine
and use any fuel in the lines.
Do not use the boost pump.
Leave the MIXTURE
control in idle cutoff
and set the fuel selector
to OFF.
2. Mixture: Idle Cut-off
3. Fire Extinguisher: Obtain (have ground attendants obtain)
4. Engine: Secure
A. Master Switch: Off
B. Ignition Switch: Off
C. Fuel Selector: Off
5. Fire: Extinguish using fire extinguisher, wool
blanket, or dirt
6. Fire Damage: Inspect, repair
or replace damaged components or
wiring before conducting flight.

ENGINE FIRE IN FLIGHT

1. Mixture: Idle Cut-off
2. Fuel Selector Valve: Off
3. Master Switch: Off
4. Airspeed: 95 MPH (83KTS)
(If fire is not extinguished,
increase glide speed to find
an airspeed which will
provide an incombustible mixture.
If fire is not extinguished and you have a
parachute jettison canopy and leave
aircraft if you have proper altitude.)
5. Forced Landing: Execute
(as described in Emergency Landing
Without Engine Power).

ELECTRICAL FIRE IN FLIGHT

1. Master Switch: Off
2. All Avionic Switches: Off
3. Vents/Cabin Air: Closed
4. Fire Extinguisher: Activate
(if available)

WARNING

After discharging an extinguisher within a closed cabin, ventilate the cabin.

If fire appears out and electrical power is necessary for continuance of flight:

6. Master Switch: On
7. Circuit Breakers: Check for faulty circuit,
do not reset.
8. Radio/Electrical Switches: On one at a time,
with delay after each
until short circuit is localized.
9. Vents/Cabin Air: Open when it is ascertain that
fire is completely extinguished.

INADVERTENT ICING ENCOUNTER

1. Turn back or change altitude to obtain an outside air temperature that is less conducive to icing.
2. Increase engine speed to minimize ice build-up on propeller blades.
3. Watch for signs of air intake ice and apply alternate air as required.
An unexplained loss in manifold pressure could be caused by air intake screen ice.
4. Plan a landing at the nearest airport.
5. With any ice accumulation on the wing leading edges, be prepared for significantly slower stall speed.
6. Approach at 110 to 115 mph depending upon the amount of ice accumulation.
7. Touchdown tail wheel first.

INADVERTENT ICING ENCOUNTER

(Erroneous Instrument Reading Suspected)

- | | | |
|----|-------------------------------|---------------------------------|
| 1. | Alternate Static Source Valve | ON |
| 2. | Airspeed: | Consult placard and AFM Sect 2. |
| 3. | Altitude: | Consult placard and AFM Sect 2. |

WARNING

BEFORE ANY FLIGHT INTO TEMPERATURES BELOW FREEZING CHECK THAT THE ENGINE ALTERNATE BREATHER HOLE IS OPEN AND CLEAR OF OIL OR OTHER FOREIGN MATERIAL.

SECTION 3
EMERGENCY OPERATIONS

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PITTS S-2SP

Preliminary!

Revised by Ensi Ferrum

AMPLIFIED PROCEDURES

Will be added in a later version!

SECTION 3
EMERGENCY OPERATIONS

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INTRODUCTION

Section 4 provides checklist and amplified procedures for the conduct of normal operation. Normal procedures associated with optional systems can be found in Section 9.

SPEEDS FOR NORMAL OPERATIONS

Unless otherwise noted, the following speeds are based on a maximum weight of 1325 lbs (601.0 kg) and may be used for any lesser weight.

Takeoff

Normal Climb Out:	100 MPH (87KTS)
-------------------	-----------------

En route Climb

Normal:	120 MPH (104 KTS)
Best Rate:	95 MPH (83 KTS)
Best Angle:	82 MPH (71 KTS)

Landing Approach

Normal Approach:	95 MPH (83 KTS)
Short Field Approach:	95 MPH (83 KTS)

Balked Landing

Maximum Power:	95 MPH (83 KTS)
----------------	-----------------

Maximum Demonstrated Crosswind Velocity

Takeoff or landing:	20 MPH (17 KTS)
---------------------	-----------------

Demonstrated flight-time inverted is:	10 minutes
---------------------------------------	------------

Engine inverted oil system operation

Refer to the Textron Lycoming Operator's manual.

CHECKLIST PROCEDURES

PREFLIGHT INSPECTION

COCKPIT

- | | | |
|----|------------------|---------------------------------|
| 1. | Control locks: | Remove (if installed) |
| 2. | Ignition Switch: | Off |
| 3. | Master Switch: | Off |
| 4. | Seat Belt: | Check for Wear and security |
| 5. | Loose items: | Secure or remove for aerobatics |
| 6. | Baggage: | Secure |
| 7. | Baggage Door: | Closed and Secure |
| 8. | Battery: | Secure and no leaks |
| 9. | Parking Brake: | On |

EMPENAGE

- | | | |
|----|-----------------------|--|
| 1. | Fabric: | No holes, general condition |
| 2. | Tail surfaces: | Secure and general condition |
| 3. | Tail wheel & springs: | Secure and general condition |
| 4. | Tie-Down: | Disconnect |
| 5. | Control Surfaces: | Check freedom of movement and security |
| 6. | Aux Tank Valve Drain: | Drain, check for water and sediment |

RIGHT WINGS

- | | | |
|----|-----------------------|--|
| 1. | Fabric: | No holes, general condition |
| 2. | Aileron: | Check freedom of movement and security |
| 3. | Spade: | Check security |
| 4. | I Strut: | Check security |
| 5. | Stall Vane: | Check operation |
| 6. | Flying Landing Wires: | No Nicks, and secure |
| 7. | Tie down: | Disconnect |

SECTION 4
NORMAL OPERATIONS

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NOSE

- | | | |
|----|---------------------------------|--|
| 1. | Main wheels: | Proper inflation, wear |
| 2. | Brakes: | Security and line clearance |
| 3. | Alternate Engine Breather Hole: | Open and clean |
| 4. | Propeller and Spinner: | No Nicks, secure and no oil leaks |
| 5. | Air Inlet Screen: | Check for restrictions |
| 6. | Engine Oil Level: | Check; do not operate with less than 9 quarts. Fill to 12 quarts for extended flight |
| 7. | Main Fuel Strainer: | Drain, check for water and sediment |

LEFT WINGS

- | | | |
|----|-----------------------|--|
| 1. | Pitot tube: | |
| 2. | Flying Landing Wires: | No Nicks, and secure |
| 3. | I Struts: | Check security |
| 4. | Aileron: | Check freedom of movement and security |
| 5. | Spades: | Check security |
| 6. | Fabric | No holes, general condition |
| 7. | Tie down: | Disconnect |

BEFORE STARTING ENGINE

- | | | |
|----|--------------------------------|---------------------|
| 1. | Preflight Inspection: | Complete |
| 2. | Canopy: | Closed and locked |
| 3. | Seat Belts/Shoulder Harnesses: | Adjusted and locked |
| 4. | Brakes: | Test and on |
| 5. | Cowl Flaps: | Open |
| 6. | Circuit Breakers: | In |

SECTION 4
NORMAL OPERATIONS

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STARTING ENGINE

COLD START

1. Mixture: Rich
2. Propeller: High RPM
3. Throttle: $\frac{1}{4}$ open
4. Master Switch: On
5. Boost Pump: On, 2-3 sec Max
6. Mixture: Idle cut off
7. Starter Switch: On (Start)
8. Mixture: When engine starts, move mixture control slowly and smoothly to Full Rich
9. Oil Pressure: Check
10. Alternator Field Switch On

HOT START

1. Mixture: Idle cut off
2. Propeller: High RPM
3. Throttle: $\frac{1}{2}$ open
4. Master Switch: On
5. Starter Switch: On (Start)
6. Mixture: When engine starts, move mixture to Full Rich
7. Oil Pressure: Check
8. Alternator Field Switch On

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BEFORE TAKEOFF

1. Canopy: Check locked
2. Brakes: Set
3. Flight Controls: Free and correct
4. Flight Instruments: Set and correct
5. Fuel Selector: On
6. Mixture: Rich if below 5000 feet MSL, lean as required above 5000 feet MSL.
7. Elevator Trim: Takeoff neutral
8. Throttle: 1700 RPM check:
 - a: Propeller: Cycle from high to low RPM, return to high RPM (full in)
9. Throttle: 2200 RPM Check:
 - a: Magnetos: Check (RPM drop should not exceed 175 RPM on either magneto or 60 RPM differential between magnetos)
 - b: Engine Instruments: Check
 - c: Ammeter: Check
10. Avionics: On and set

TAKEOFF

1. Power: Full Throttle 2800 RPM
2. Elevator Control: Lift tail
3. Rotate: 74 MPH (64 KTS)
4. Climb Speed: 100 MPH (87 KTS)
5. Power: As required or desired

EN ROUTE CLIMB

1. Airspeed: 120 MPH (104 KTS)
2. Power: As required or desired
3. Mixture: Rich or lean as needed for required power
4. Cowl Flaps: Open as required for cooling

SECTION 4
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CRUISE

1. Power: 20-24 Inches Hg, 2200 – 2400 RPM
(no more than 75% power)
2. Elevator Trim: Adjust
3. Mixture: Lean
4. Cowl Flaps: Closed or as needed for cooling

DESCENT

1. Power: As desired
2. Mixture: Enrichen as required
3. Cowl Flaps: Closed or as needed for cooling

BEFORE LANDING

1. Seat Belts/Shoulder Harnesses: Adjust lock
2. Fuel selector: Check on
3. Mixture: Rich below 5000 feet MSL
4. Propeller: High RPM

LANDING

NORMAL LANDING

1. Airspeed: 95 MPH (83 KTS)
2. Trim: Adjust
3. Touchdown: Tail wheel first
4. Elevator Control: Full back (up elevator)
5. Braking: Minimum required

BALKED LANDING

1. Power: Full Throttle (2800 RPM)
2. Climb Speed: 95 MPH (83 KTS)
3. Cowl Flaps: Open

AFTER LANDING

1. Cowl Flaps: Open

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NORMAL OPERATIONS

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SECURING AIRPLANE

- | | | |
|----|--------------------------|--------------------|
| 1. | Throttle: | Idle |
| 2. | Avionics: | Off |
| 3. | Mixture: | Idle cut off |
| 4. | Ignition Switch: | Off |
| 5. | Master Switch: | Off |
| 6. | Alternator Field Switch: | Off |
| 7. | Aircraft: | Tie down or Secure |

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