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AMERICAN CHAMPION AIRCRAFT  
CORPORATION

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*"Dedicated to Preserving a Classic"*

PILOT'S OPERATING  
MANUAL

SUPER DECATHLON (8KCAB)

S/N 934-2003 and Subsequent

AMERICAN CHAMPION AIRCRAFT CORPORATION

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Model year is indicated by serial number suffix.

## FOREWORD

This manual has been prepared to inform the pilot of features and systems incorporated into the Super Decathlon.

Super Decathlon

Lycoming AEIO-360-180 HP

Constant Speed Propeller

The Super Decathlon has been given the FAA Civil Aircraft Type Designator BL30.

Recommended operating procedures and performance data are provided so that maximum utilization can be obtained with the utmost of safety, economy and serviceability.

It is strongly recommended that the pilot be familiar with the aircraft and this manual prior to flight. It is considered mandatory that the pilot familiarize himself with the Emergency Procedures Section prior to flight.

This manual applies only to the aircraft as indicated on the cover page. Use of this manual with other aircraft is not recommended.

This manual does not replace the FAA Approved Airplane Flight Manual. If an inconsistency exists between the manuals, the FAA Approved Airplane Flight Manual is to be the authority.

The words "WARNING," "CAUTION," and "NOTE" are used throughout the manual with the following definitions:

### WARNING

An operating procedure, practice or condition, etc. which may result in injury or fatality, if not carefully observed or followed.

### CAUTION

An operating procedure, practice or condition, etc. which if not strictly observed, may damage the aircraft or equipment.

### NOTE

An operating procedure, practice or condition, etc. which is essential to emphasize.

LOG OF REVISIONS

AMERICAN CHAMPION AIRCRAFT  
SUPER DECATHLON (8KCAB)

LOG OF REVISIONS

Revision	Pages Affected	Description Change	Date
A	1-2,2,4,7, 2-7,8, 3-12, 4-2,3,4,5,7, 5-5	Updated for 1950lb Gross Weight	1-13-04

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This manual is current as of its issue date and will be revised as necessary by Service Letters published by American Champion Aircraft Corporation. Service Letters are distributed to American Champion Aircraft owners by request. If you do not receive these Service Letters, you must consult with American Champion Aircraft Corporation for information concerning the revision status of this manual. Changes to the manual should be installed and the Log Of Revisions updated immediately after receipt of such revisions. The manual should not be used for operational purposes unless it is maintained in a current status.

## SECTION I OPERATING LIMITATIONS

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### GENERAL

This section lists all powerplant and airframe operating limitations for the Super Decathlon. These limitations are also indicated in the aircraft in the form of placards, instrument color markings and in the FAA Approved Airplane Flight Manual.

**AIRSPPEED LIMITATIONS**

**NOTE**

Limitations are applicable to both Normal and Acrobatic Category except where designated as applying to only one category.

Airspeed Designation	CAS (MPH)	Airspeed Indicator Marking
Never Exceed ( $V_{NE}$ )	200	Red Radial Line
Caution Range	160-200	Yellow Arc
Maximum Structural Cruise ( $V_{NO}$ )	160	End of Green Arc
Normal Operating Range	54-160	Green Arc
Maneuvering ( $V_A$ )		
Normal Category at 1950lb	107	None
Acrobatic Category at 1800lb	132	None

**NOTE**

CAS - Calibrated airspeed is indicated airspeed corrected for position and instrument error

IAS - Indicated airspeed assumes zero instrument error

$V_{NE}$  - Maximum safe airspeed which is not to be exceeded at any time

$V_{NO}$  - Not to be exceeded except in smooth air and then only with caution

$V_A$  - No full or abrupt longitudinal control movements allowed above this airspeed

**POWERPLANT LIMITATIONS AND INSTRUMENT MARKINGS**

Model	Super Decathlon
Engine	AEIO-360-H1B
Propeller	Hartzell Constant Speed HC-C2YR-4CF/FC7666A-2 MT Constant Speed MTV-15-B-C/C188-34 MT Constant Speed MTV-9-B-C/C188-18
Fuel, Minimum Octane Rating (Approved For Continuous Use)	100 / 130
Tachometer (RPM)	
Normal Range (Green Arc)	500-2000, 2250-2600 Hartzell 500-2600 MT
Avoid Continuous Operation (Red Arc)	2000-2250 Hartzell Only
Avoid Aerobatic Operation (Red Arc)	2600-2700
Maximum (Red Radial Line)	2700
Cylinder Head Temperature (°F)	
Normal Range (Green Arc)	90-500
Maximum (Red Radial Line)	500
Oil Temperature (°F)	
Normal Range (Green Arc)	100-245
Maximum (Red Radial Line)	245
Oil Pressure (°F)	
Normal Range (Green Arc)	60-100
Caution (Yellow Arc)	25-60
Maximum (Red Radial Line)	100
Minimum (Red Radial Line)	25
Fuel Pressure (PSI)	
Normal Range (Green Arc)	14-45
Maximum (Red Radial Line)	45
Minimum (Red Radial Line)	14

**WEIGHT AND BALANCE LIMITS**

Model	Super Decathlon
Maximum Gross Weight	1950 lb Normal Category 1800 lb Acrobatic Category
Center of Gravity Range	
Normal Category	+14.7 to +18.5 at 1950 lb +11.5 to +18.5 at 1550 lb or Less Straight Line Variation Between Points Given
Acrobatic Category	+13.5 to +18.5 at 1800 lb +11.5 to +18.5 at 1550 lb or Less Straight Line Variation Between Points Given
Datum	Wing Leading Edge

**FLIGHT LOAD FACTORS**

Category	Load Factor Limits	Accelerometer Marking
Normal, 1950 lb	Positive + 3.8	Green Arc
	Negative - 1.52	Green Arc
Acrobatic, 1800 lb	Positive + 6.0	Red Radial Line
	Negative - 5.0	Red Radial Line

**NOTE**

Maximum load factors for Normal Category operations are shown by the ends of the green arc on the accelerometer. Load factors within the yellow arc up to the red radial lines are permitted only in the Acrobatic Category.



## KINDS OF OPERATION

Only VFR, day or night operations are approved with all required equipment operating as specified in FAR Part 91.

Flight into known icing conditions is prohibited.

Crosswind landings have been demonstrated in 90° crosswinds up to 17 kts (20 mph).

## UNUSABLE FUEL

Any fuel remaining in the tanks when fuel gauge reads "O" or "E" (empty) cannot safely be used in flight.

Acrobatic Category -- The inverted fuel header tank provides fuel for approximately 2.0 minutes of continuous inverted flight. The header tank will automatically refill after approximately one minute of upright, straight and level flight.

## INVERTED FLIGHT

Acrobatic Category -- The header tank provides fuel for approximately two minutes of continuous inverted flight. Monitor oil pressure while inverted. Minimum oil pressure is 60 psi.

## WARNING

Fuel starvation may occur after a series of inverted maneuvers since the header tank may have had insufficient time to refill.

SECTION I  
OPERATING LIMITATIONS

AMERICAN CHAMPION AIRCRAFT  
SUPER DECATHLON (8K003)

MANEUVERS (Refer to Section III Before Attempting Maneuvers)

Maneuvers	Recommended Entry Speed (IAS MPH)
	Super Decathlon
Loop (Normal or Inverted)	140
Immelmann	145
Hammerhead Turn	140
Hammerhead Turn (Inverted Entry & Exit)	140
Snap Roll (Normal or Inverted)	90
English Bunt	70
Vertical 1/2 Slow Roll Up	160
Vertical Slow Roll Up	180
Vertical Slow Roll Down	60
Slow or Barrel Roll	130
Outside Loop (Enter From the Top)	70
Horizontal Eight (Inside - Outside)	140
Spin (Normal or Inverted)	Stall

NOTE

Variations or combinations of the above maneuvers are approved provided that the speed or load factor limitations are not exceeded.

WARNING

Tail slides and Lomcevaks (tumbling maneuvers) are not approved.

No full or abrupt use of flight controls is permitted above maneuvering speed.

**REQUIRED PLACARDS**

See FAA Approved Airplane Flight Manual for placards required in a specific aircraft. The following placards represent a typical airplane.

In Full View Of Pilot

Normal Category Airspeed Limits  
Maneuvering Speed      107 MPH ( 93 Knots) CAS  
Demonstrated Crosswind Velocity -- 20 MPH (17 Knots)

Solo From Front Seat Only. No Acrobatic Maneuvers, Including Spins, Approved In Normal Category. Day Or Night VFR Operation Only. Flight Into Known Icing Prohibited. To Recover From Normal Or Inverted Spin, Use Full Opposite Rudder and Neutralize Elevator.

This Airplane Must Be Operated As a Normal Or Acrobatic Category Airplane In Compliance With The Operating Limitations Stated In The Form Of Placards, Markings, And Manuals. Markings And Placards (Except Accelerometer Markings) Refer To Normal Category Only. See Airplane Flight Manual For Acrobatic Category Information, Weight and Balance Information, And Other Operating Limitations.

**NO SMOKING**

(when ashtrays not installed)

On Tachometer Face

Avoid 2000 - 2250  
Continuous Oper.

Hartzell Only

In Baggage Compartment

Maximum BAGGAGE 100 Lbs.

SECTION I  
OPERATING LIMITATIONS

AMERICAN CHAMPION AIRCRAFT  
SUPER DECATHLON (8KC)

REQUIRED PLACARDS (cont'd)

On Forward Left Side Window

Do Not Open Above 130 MPH

Alternate Emergency Exit  
Unlatch - Force Forward Portion Past Stop

On Fuel Valve Control

Fuel  
40 Gal Useable  
Down "ON"

On Emergency Door Release Handle

EMERGENCY DOOR RELEASE  
PULL PIN -----PULL HANDLE

Adjacent To Fuel Gauge

Fuel In Tank When Gauge Reads "E" (Empty)  
Cannot Be Safely Used In Flight

Adjacent To Strobe Light Switch

**WARNING**  
Turn Off Strobe Lights When Taxiing In  
Vicinity Of Other Aircraft, Or During Flight  
Through Cloud, Fog or Haze.

Standard Position Lights To Be On For All  
Night Operations.

REQUIRED PLACARDS (cont'd)

On Front Seat Rear Leg (Adjustable Front Seat)

Rear Seat P/N 7-1500 Or  
7-1501 And Rear Control  
Stick P/N 4-1711 Req'd.  
With This Seat Install.

On Rear Control Stick

Rear Stick P/N 4-1711

On Rear Seat Front Leg

Rear Seat P/N 7-1500

or

Rear Seat P/N 7-1501

## SECTION II

### EMERGENCY PROCEDURE

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#### GENERAL

This section covers the recommended procedures to follow during emergency and adverse flight conditions. As it is not possible to define every type of emergency that may occur, it is the pilot's responsibility to use sound judgement based on experience and knowledge of the aircraft to determine the best course of action.

#### NOTE

All airspeeds in this section are indicated airspeeds (IAS), unless stated otherwise.

Familiarization and practice of any emergency procedure must be done under the supervision of a qualified flight instructor under carefully controlled conditions. Refer to Section III prior to performing any maneuvers.

**SECTION II  
EMERGENCY PROCEDURES**

**AMERICAN CHAMPION AIRCRAFT  
SUPER DECATHLON (8KCAB)**

**ENGINE FIRE DURING START**

If the fire is believed to be confined to intake or exhaust system (result of flooding engine):

- 1) Continue cranking engine with starter.
- 2) Mixture Control - IDLE CUT-OFF.
- 3) Throttle - FULL OPEN.
- 4) Inspect aircraft thoroughly for damage and cause prior to restart.

If fire persists or is not limited to intake or exhaust system:

- 1) Mixture Control - IDLE CUT-OFF.
- 2) Fuel Shut-Off Valve - OFF.
- 3) Electrical and Magneto Switches - ALL OFF.
- 4) Exit Aircraft.
- 5) Direct fire extinguisher through the bottom of the nose cowl or through the cowl access door.

**ENGINE FIRE IN FLIGHT**

- 1) Mixture Control - IDLE CUT-OFF.
- 2) Fuel Shut-Off Valve - OFF.
- 3) Electrical and Magneto Switches - ALL OFF.
- 4) Cabin Heat - OFF Front and Rear.
- 5) Use hand fire extinguisher if available.
- 6) Land immediately using "Forced Landing Procedures".

**ELECTRICAL FIRE**

An electrical fire is usually indicated by an odor of hot or burning insulation and wisps of smoke.

- 1) Electrical Switches - ALL OFF (leave magneto switches ON).
- 2) Air Vents/Windows - OPEN only if absolutely necessary for smoke removal and ventilation.
- 3) Use hand fire extinguisher if available and necessary.
- 4) If fire continues, land immediately.

If fire/smoke stops and electrical power is required for the remainder of the flight, turn the master switch ON, followed by the desired circuit switch. Allow a minute between turning on each switch in order that the faulty circuit may be located and switched OFF.

### ALTERNATOR / ELECTRICAL FAILURE

An alternator failure is indicated by a steady discharge on the ammeter.

- 1) Master Switch - CYCLE in attempt to reset the overvoltage relay.
- 2) If excessive battery discharge continues, turn OFF all nonessential electrical equipment to conserve battery power.
- 3) Land as soon as practical as the battery will furnish electrical power for a limited time only.

If only one circuit (e.g. Radio) appears to be inoperative, reset circuit breaker.

### NOTE

Engine operation is unaffected by a complete electrical system failure with the exception of the engine starter.

### ENGINE FAILURE ON TAKEOFF

If sufficient runway remains:

- 1) Throttle - CLOSED.
- 2) Land using brakes as required.

If airborne and insufficient runway remains for landing, select the most favorable landing area ahead. Attempt an engine restart if altitude permits using ENGINE AIR RESTART procedures.

If no restart is possible, land in preselected area using FORCED LANDING procedures.

### WARNING

Maintain flying speed at all times and do not attempt to turn back towards the runway unless sufficient altitude has been achieved.



