AMERICAN CHAMPION AIRCRAFT CORPORATION
ROCHESTER, WISCONSIN 53167

FAA APPROVED

AIRPLANE FLIGHT MANUAL

CHAMPION MODEL 8KCAB

WITH LYCOMING ENGINE AEI0-360-H1B (180 HP)

APPLIES TO SERIAL NUMBERS 762-95, 767-96, 770-96 AND UP

REGISTRATION NUMBER N595AC

SERIAL NUMBER 834-99

THIS MANUAL IS PART OF THE REQUIRED EQUIPMENT AND MUST REMAIN IN THE AIRPLANE AT ALL TIMES.

This AFM distinguishes FAA approved data from unapproved data by noting "FAA APPROVED" in the upper right corner of each page containing such FAA approved data. Other information is provided by American Champion Aircraft Corporation as an addendum to the manual and is included in the unapproved portion of the manual.

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LIMITATIONS: COMPLIANCE WITH THIS SECTION IS MANDATORY

1.1 NORMAL CATEGORY LIMITATIONS

1.1.1 AIRSPEED LIMITATIONS

Speed Designation	Calibrated Airspeed MPH	Calibrated Airspeed Knots	Airspeed Indicator Marking
Maneuvering (V_A) (Gross Weight)	121	105	None
Normal Operating Range	54-160	47-139	Green Arc
Maximum Structural Cruising (V_{NO})	160	139	———
Caution Range	160-200	139-174	Yellow Arc
Never Exceed (V_{NE})	200	174	Red Radial Line

GREEN ARC extends from power-off stall speed (V_{S1}) to maximum structural cruising speed (V_{NO}).

YELLOW ARC extends from maximum structural cruising speed to never-exceed speed (V_{NE}). Operate in this range with caution and only in smooth air.

RED RADIAL LINE marks the never-exceed speed, which is the maximum safe airspeed.

1.1.2 POWERPLANT LIMITATIONS

ENGINE: Lycoming AEIO-360-H1B

ENGINE LIMITS: For all operations, 2700 RPM (180 HP)

FUEL: 91/96 Minimum Grade Aviation Gasoline
100/130 May be Used 100% Of The Time

PROPELLER: Hartzell Constant-Speed Model HC-C2YR-4CF/FC7666A-2
CAUTION: "AVOID CONT. RPM 2000-2250 ALL OPER.

POWERPLANT INSTRUMENT MARKINGS

Instrument	Markings	
Cylinder Head Temperature	Green Arc Red Radial	90-500° F 500° F
Fuel Pressure	Green Arc Red Radial	14-45 psi 14 and 45 psi

POWERPLANT INSTRUMENT MARKINGS (Continued)

Instrument	Markings	
Oil Temperature	Green Arc	100-245° F
	Red Radial	245° F
Oil Pressure	Green Arc	60-100 psi
	Yellow Arc	25-60 psi
	Red Radial	25 psi & 100 psi
Tachometer	Green Arc	500-2000 RPM
	Red Arc	2000-2250 RPM
	Green Arc	2250-2700 RPM
	Red Arc	2600-2700 RPM
	Red Radial	2700 RPM

1.1.3 WEIGHT AND BALANCE

Maximum Gross Weight: 1800 Lbs.

Center-Of-Gravity Limits: (+13.5) to (+18.5) at 1800 Lbs.
(+11.5) to +18.5) at 1550 Lbs. or less
Straight line variation between points given.

DATUM: Wing Leading Edge

Each operator must assure that the airplane is properly loaded. See Section 4.0, Weight and Balance Procedures.

1.1.4 FLIGHT LOAD FACTORS

Maneuvering Load Factors

Positive: +5 G
Negative: -3 G

Gust load factors are less than maneuvering load factors. Maximum load factors for Normal Category operation are shown by the ends of the green arc on the accelerometer. Load factors within the yellow arc range are permitted only in Acrobatic Category.

1.1.5 KINDS OF OPERATION

Only VFR, day or night, operations are approved. Flight into known icing conditions is prohibited.

1.1.6 UNUSEABLE FUEL

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

1.1.7 PLACARDS

In Full View of Pilot

"Normal Category Airspeed Limits

Maneuvering Speed 121 MPH (105 Knots) CAS
Demonstrated Crosswing 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 Cont. RPM
2000-2250 All Oper.
2600-2700 Acro Only"

In Baggage Compartment

"Maximum Baggage 100 Lbs."

On Forward Left Side Window

"Do not Open Above 130 MPH"

"Alternate Emergency Exit Unlatch - Push Out"

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

"Turn Strobe Lights Off When Taxiing In Vicinity Of Other Aircraft Or When Flying in Fog or Clouds. Standard Position Lights To Be Used For All Night Operations."

On Front Seat Rear Leg (Adjustable Front Seat Only)

"Rear Seat P/N 7-1500 or 7-1501 and Rear Control Stick P/N 4-1711 Req'd With This Seat Installation"

On Rear Control Stick (With Adjustable Front Seat Only)

"Rear Stick P/N 4-1711"

On Rear Seat Front Leg (With Adjustable Front Seat Only)

"Rear Seat P/N 7-1500" or "Rear Seat P/N 7-1501"

1.2 ACROBATIC CATEGORY LIMITATIONS

1.2.1 AIRSPEED LIMITATIONS

With the exception of the maneuvering speed (V_A), all airspeed limitations given in Section 1.1.1 are applicable to the Acrobatic Category. For the Acrobatic Category, the maneuvering speed is 132 MPH (CAS) at maximum gross weight (1800 lbs.). Since V_A decreases as operating weight decreases, subtract 3 MPH for each 100 lbs. decrease in operating weight below 1800 lbs. (See Section 2.1.8).

1.2.2 POWERPLANT LIMITATIONS

All powerplant limitations given in Section 1.1.2 are applicable to the Acrobatic Category. In addition, the following limitations apply to the Acrobatic Category:

1. Minimum Acrobatic Oil: 6 Qts.
2. Avoid Extended Right Knife Edge Flight.
3. Avoid 2600-2700 RPM Acrobatic Flight.

1.2.3 WEIGHT AND BALANCE

Maximum Gross Weight: 1800 Lbs.

Center-Of-Gravity Limits: (+13.5) to (+18.5) at 1800 Lbs.
(+11.5) to (+18.5) at 1550 Lbs. or Less

Straight line variation between points given.

DATUM: Wing Leading Edge

Carrying of baggage during acrobatics is prohibited.

Each operator must assure that the airplane is properly loaded. See Section 4.0 for weight and balance procedures.

1.2.4 FLIGHT LOAD FACTOR

Maneuvering Load Factors

Positive: +6 G
Negative: -5 G

Gust load factors are less than maneuvering load factors. Maximum load factors for Acrobatic Category operation are shown by red radial lines on the accelerometer. The accelerometer is required for Acrobatic Category operations.

1.2.5 UNUSEABLE FUEL

Any fuel remaining in the tanks when fuel gauge reads "E" (Empty) cannot safely be used in flight (see Section 1.2.6).

1.2.6 INVERTED FLIGHT

The inverted-fuel header tank provides fuel for at least 2.0 minutes of continuous inverted flight. As much as one minute of positive "g" flight may be required to completely refill an exhausted header tank.

1.2.7 MANEUVERS

BASIC APPROVED ACROBATIC MANEUVERS AND RECOMMENDED ENTRY SPEEDS

MANEUVER	ARESTI SYMBOL	ENTRY SPEED IAS MPH	REMARKS-AIRSPEEDS I.A.S. MPH
Loop Normal - Inverted		140*	Enter 3.5 to 4 G's--Speed At Top Approx. 40 MPH. Exit 3.5 to 4 G's**--Speed 140-150 MPH
Immelman		145*	Enter +4 G's--Speed at Top Approx. 50 MPH. Exit + 1 G
Hammer Head Turn		140*	Enter +4.5 G's--Speed at Top Before Turn 40 MPH. Exit +4.5 G's ** 140 MPH.
Snap Roll Normal & Inverted		90	Enter with Power-Exit with Power No Full or Abrupt use of Flight Controls above V_A
English Bunt		70	Enter with or without Power -3.5 to -4.0 G's** when Pushing Thru From Vertical To Inverted. Exit Inverted 140-150 MPH*
Vertical Slow Roll Up		180*	Enter 180 MPH Level Flight +4.5 Pull Up. Exit 40 MPH- Up Push Over To Level Flight. Caution-Flight Above Vc (160 MPH-CAS) in Smooth Air Only.
Vertical Slow Roll Down		60	Enter 60 MPH Push Over to Vertical Down. Exit 150* MPH Pull Out 4.5 G's** to level flight
Slow or Barrel Roll		130	Use Smooth Application of Controls No Full or Abrupt Use of Controls Above V_A
Outside Loop (Enter from The Top)		70	Enter 70 MPH or Slower With or With-Out Power. Push 3.5 to 4 G's** to Inverted-Speed at the Bottom 140-150 MPH* add Full Power Push Up 3.5 to 4 G's**. Exit Straight & Level 40-50 MPH
Horizontal Eight Inside-Outside		140*	Enter +4 G's Pull Up, Hold 45° Down Inverted, Enter Outside Loop 140 MPH* -3.5 +4 G's**. Exit From 45° Down Normal Flight -- 140 MPH*
Hammer Head Turn (Inverted Entry & Exit)		140*	Enter -3.5 to -4 G's--Speed at Top Before Turn 40 MPH. Exit From Vertical Down -3.5 to -4 G's** to Level Flight Inverted.

Each operator must assure that the airplane is properly loaded. See Section 4.0 for weight and balance procedures.

1.2.4 FLIGHT LOAD FACTOR

Maneuvering Load Factors

Positive: +6 G
Negative: -5 G

Gust load factors are less than maneuvering load factors. Maximum load factors for Acrobatic Category operation are shown by red radial lines on the accelerometer. The accelerometer is required for Acrobatic Category operations.

1.2.5 UNUSEABLE FUEL

Any fuel remaining in the tanks when fuel gauge reads "E" (Empty) cannot safely be used in flight (see Section 1.2.6).

1.2.6 INVERTED FLIGHT

The inverted-fuel header tank provides fuel for at least 2.0 minutes of continuous inverted flight. As much as one minute of positive "g" flight may be required to completely refill an exhausted header tank.

1.2.7 MANEUVERS (Cont.)

BASIC APPROVED ACROBATIC MANEUVERS AND RECOMMENDED ENTRY SPEEDS

MANEUVER	ARESTI SYMBOL	ENTRY SPEED IAS MPH	REMARKS-AIRSPEEDS I.A.S. MPH
Spin Normal or Inverted		Stall	Recover with Positive Movement of stick to Neutral Position & Opposite Rubber Until Rotations Stops—Then Neutral Rudders & Smooth Recovery from Dive to Level Flight. Free Release at Controls is Not Adequate For Recovery. Positive Movement of Controls by the Pilot is Required For Spin Recovery.

NOTE: Refer to Section 2.1.8 for acrobatic operation procedures that apply to all approved maneuvers.

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

NOTE: The following maneuvers are not approved: (1) Tail Slide and (2) Lomcevak.

*No full or abrupt use of flight controls above V_A (Maneuvering Speed).

**Proper use and application of controls and maneuvering load factors are essential to speed control. Improper and/or inadequate application of maneuvering load factors may result in rapid acceleration resulting in unsafe flight situations.

2. PROCEDURES

2.1 NORMAL PROCEDURES

2.1.1 EMERGENCY FUEL PUMP

The emergency electric fuel pump is used only to (1) provide fuel pressure for priming prior to starting engine and (2) provide fuel pressure in case the engine-driven pump fails. The emergency pump should be off during normal flight.

2.1.2 PARACHUTES

Back parachutes may be used by removing back seat cushions.

2.1.3 INVERTED FUEL AND OIL SYSTEMS

The inverted fuel system consists of a 1.5 gal. header tank in the forward cabin with a standpipe to draw fuel from the center of the tank. One-half (0.75 gals.) of the tank capacity is useable in inverted flight. The system is completely automatic; however, sufficient time (see Section 1.2.6) must be allowed between periods of continuous inverted flight to allow the header tank to refill.

The inverted oil system consists of an inverted/upright shuttle valve, an oil/air separator canister and a system of interconnecting lines. This system is completely automatic (see also Section 2.1.7).

Oil pressure may be interrupted momentarily in certain aircraft attitudes or during certain combinations of maneuvers. These interruptions are normal but should not be allowed to extend beyound 15 seconds (avoid extended right knife edge flight).

2.1.4 ROTATING BEACONS AND STROBE LIGHTS

Particularly at night, reflections from clouds, haze or dust can produce optical illusion and intense vertigo. Under these conditions, rotating beacons and strobe lights should be turned off prior to entering.

2.1.5 FUEL SYSTEM

The total useable fuel capacity is 40 gallons, of which approximately 20 gallons is carried in each wing tank. The wing tanks are interconnected both in the vent system and the fuel feed system, and may be considered as one tank. Fuel feeds simultaneously from both tanks and the total fuel quantity in each tank is shown by a right and left tank gauge. The gauges are marked in fractions of the total fuel (E, 1/4, 1/2, 3/4, F) and reads "E" (Empty) with unuseable fuel in the tanks. Fuel tank caps are not vented and must seal completely to prevent a difference in fuel level between the two tanks.

2.1.6 ALTERNATE AIR

Avoid using alternate air on the ground. With alternate air on, induction air is not filtered and abrasive dirt particles may enter the engine. In flight, use alternate air only when icing is suspected, i.e. since heat causes partial loss of power, do not use when landing unless atmospheric conditions indicate that icing is probable, because full power may be needed on a go-around.

2.1.7 COLD WEATHER OPERATION

For operational procedures related to cold weather operation consult the Lycoming Operators Manual. Due to the length of oil lines, special care should be exercised during starting to assure that engine oil pressure is obtained within 30 seconds after start.

It is recommended that the engine compartment be preheated prior to start if the ambient temperature is below 20° F.

2.1.8 ACROBATIC OPERATION

Maneuvering speed (V_A) is maximum speed (for an established operating wt.) at which full and/or abrupt use of the elevator control will not cause load factors in excess of the +6 G's in Normal Operations or -5 G's in Inverted or Outside Operations.

Full and/or abrupt movement of ailerons may be used at speed up to V_A provided that the load factor does not exceed a +4 G's or a -3.2 G's. Use of ailerons above V_A or above +4 G's or -3.2 G's should be smooth and limited to deflections which will cause a roll rate not exceeding that roll rate achieved with full aileron at V_A.

CAUTION: Full abrupt use of the ailerons with simultaneous use of full abrupt elevator at V_A may produce loads in excess of design limits.

Propeller RPM is limited to 2600 RPM maximum during acrobatic maneuvers.

For solo acrobatic operations, determine that the rear seat folding back has restrainer cables to prevent back from folding completely forward and interferring with rear stick movement. Ascertain that all loose or hanging objects are removed from the aircraft or are secured to prevent movement in flight.

2.1.9 OCCUPANT RESTRAINT SYSTEMS

NORMAL CATEGORY OPERATIONS

A standard seat belt and a diagonal shoulder strap is provided for each seat. When rear seat is not occupied, stow shoulder strap by connecting it to seat belt, tightening both the seat belt and strap securely to seat or use Velcro fastener provided on left side panel to secure shoulder strap. When the acrobatic harness is not in use, stow the harness portions as shown in Figure 1.

ACROBATIC CATEGORY OPERATIONS

On aircraft provided with acrobatic harnesses, route the front seat straps and belts per Figure 1.

NOTE: Acro harness does not provide for forward restraint crash protection and therefore should always be used with primary lap belt and shoulder strap.

WEARING FRONT SEAT ACRO HARNESS

ACRO HARNESS ASSEMBLY INCLUDES:

- Double Shoulder Harness with retractor reel.
- Lap belt (L & R portions).
- Groin strap.
- Five point buckle.

Installation:

- Extend shoulder harness from reel.
- Adjust over shoulders and couple to buckle.
- Allow shoulder harness reel to retract and adjust harness placing the buckle above the waist but below the chest.
- Attach both lap belt portions to buckle and tighten.

CAUTION

DO NOT ALLOW SHOULDER HARNESS TO RUN UP BEHIND THE FRONT SEAT BACK WHERE IT MAY POSSIBLY INTERFERE WITH REAR STICK MOVEMENT.

Figure 1

STOWING FRONT SEAT ACRO HARNESS

- Remove back cushion.
- Lay shoulder harness over seat back frame.
- Replace back cushion.
- Lift forward edge of bottom cushion.
- Attach lap belts to buckle and adjust and tighten with buckle at forward edge of seat frame.
- Insure that belts do not interfere with rudder pedal operation.
- Replace forward edge of cushion.

2.1.10 PREFLIGHT CHECK (See Page 16)

1. a. Release controls.
   b. Check ignition switches "OFF".
   c. Check fuel quantity on fuel gauges.
   d. Fuel valve "ON".
   e. Inspect seat belts for condition.
   f. Secure rear seat belt, shoulder harness and all other loose or hanging objects if not in use.
   g. Emergency locator transmitter--armed.

2. a. Check right wing root cover for security.
   b. Check aileron for freedom of movement and security.
   c. Check wing and struts for general condition.

3. a. Check right main wheel for proper inflation.
   b. Visually check fuel quantity, then check filler cap security.

4. a. Check oil level and secure dip stick. Inspect engine compartment for general condition, fuel leaks, oil leaks, etc.
   b. On first flight each day, drain fuel from gascolator.
   c. Check that the oil dip stick access door is properly latched.
   d. Check windshield for cleanness.
   e. Check prop for nicks, and prop spinner for security.
   f. Check prop blade shanks for evidence of excessive bearing grease leakage.
   g. Check air filter for cleanliness and security.

5. a. Check left main wheel for proper inflation.
   b. Visually check left fuel tank quantity, then check filler cap security.
   c. Inspect stall warning vane for freedom.
   d. Inspect fuel vent for stoppage.
   e. Inspect pitot tube for stoppage.

6. a. Check wing root cover for security.
   b. Check aileron for freedom of movement and security.
   c. Check wing and struts for general condition.

7. a. On first flight each day, drain fuel from aft fuselage drain.
   b. Inspect bottom of aircraft for general condition.
   c. Inspect right static port for stoppage.

8. a. Check tail surfaces and brace wires for general condition.
   b. Check control surfaces for freedom of movement and security.
   c. Check tailwheel security and proper inflation.
   d. Inspect left static port for stoppage.

PREFLIGHT INSPECTION
(See Page 15)

2.1.11 PRE-START CHECK

1. Front Seat--Adjust and Secure
2. Seat Belts--Adjust and Secure
3. Fuel Valve Handle--"ON"
4. Brakes--Test and Set
5. Radios and Electrical Equipment--"OFF"

2.1.12 ENGINE START

1. Mixture--"Rich"
2. Alternate Air--Cold
3. Throttle Cracked Open
4. Prime--As Required
5. Propeller Area--Clear
6. Master Switch--"ON"
7. Ignition Switches--"ON"
8. Starter Button--"Start" (Release When Engine Starts)
9. Oil Pressure--Check

2.1.13 COCKPIT PREFLIGHT

1. Cabin Door--Latched
2. Flight Controls--Check For Freedom and Operation
3. Trim Tab--Takeoff Setting
4. Flight Instruments and Radios--Set

2.1.14 ENGINE RUN-UP

1. Throttle Setting-2000 RPM
2. Magnetos--50 RPM differential between Mags, 175 RPM maximum drop
3. Propeller--Check Operation--Full Decrease but not to Exceed 300 RPM drop
4. Alternate Air--Check Operation
5. Engine Instruments--Within Green Arc

2.1.15 TAKEOFF

1. Alternate Air--Cold
2. Mixture--Full Rich
3. Propeller--Full Increase
4. Throttle--Full Open
5. Engine Instruments Within Green Arc

.1.16 CLIMB - (NORMAL)

1. Throttle--Full Open
2. Propeller--2700 RPM
3. Mixture--Rich or Leaned As Required
4. Engine Instruments--Within Green Arc

2.1.17 CRUISING

1. Power--As Desired (2700 RPM Max.)
2. Elevator Trim--Adjust
3. Mixture--Lean To Best Power With 75% Power or Less
4. Engine Instruments--Within Green Arc
5. Alternate Air--As Required

2.1.18 LANDING CHECKLIST

1. Mixture--Rich
2. Alternate Air--Check Operation and Return to Cold (Unless Icing Conditions Exist)
3. Airspeed--75-80 MPH IAS
4. Prop--Full Increase

2.1.19 BALKED LANDING (GO AROUND)

1. Throttle--Full Open
2. Prop Setting--Full Increase
3. Alternate Air--Cold
4. Airspeed--80 MPH
5. Trim--Reset

2.1.20 AFTER LANDING

1. Alternate Air--Cold

2.1.21 SHUTDOWN AND SECURING AIRCRAFT

1. Parking--Into The Wind If Possible
2. Park Brake--Set
3. Radios and Electrical Equipment--"OFF"
4. Mixture--Idle Cut-Off (Pulled Full Out)
5. Ignition and Master Switches--"OFF"
6. Control Lock-Secure Seat Belt Around Front Control Stick

2.1.22 NOISE CHARACTERISTICS

The noise level for this airplane measured in accordance with FAR 36, Appendix F, is 67.2 dB (A) at full throttle, 2700 RPM.

No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are or should be acceptable or unacceptable for operation at, into, or out of, any airport.

2.2 EMERGENCY PROCEDURES

2.2.1 ENGINE RESTART

CAUTION: If propeller ceases to turn, diving will not cause windmilling.

Fuel starvation may occur after a series of inverted maneuvers since the header tank may have had insufficient time to refill. (See Section 1.2.6)

CHECK:

1. Assume ERECT Flight Attitude
2. Throttle--3/4 FORWARD
3. Mixture--FULL FORWARD
4. Propeller--FULL FORWARD
5. Fuel Valve--ON
6. Emergency Fuel Pump--ON
7. Magnetos--ON
8. Master--ON
9. Starter--ENGAGE if Windmill RPM is Insufficient

2.2.2 ALTERNATE AIR

If induction ice is indicated (gradual decrease in manifold pressure), use full alternate air until all ice is dissipated.

2.2.3 FUEL PRESSURE LOSS

For fuel pressure loss or fluctuation turn "ON" the emergency Fuel Pump.

2.2.4 ENGINE FIRE (GROUND)

1. Mixture--Idle Cut-Off
2. Fuel Valve Off
3. Master and Magneto Switches--OFF
4. Cabin Heater Off
5. Evacuate Aircraft
6. Extinguish With Fire Extinguisher

2.2.5 ENGINE FIRE (FLIGHT)

1. Fuel Valve-Off
2. Master Switch-Off
3. Cabin Heaters--Off
4. Accomplish Emergency Landing and Evacuate Aircraft

2.2.6 ELECTRICAL SYSTEM MALFUNCTION/FIRE

The ammeter indicates current to or from the battery.

A steady discharge on the ammeter indicates an inoperative alternator system. Turn off unnecessary electrical equipment to reduce battery drain. Master switch may be turned off to conserve battery power if necessary.

Indication of electrical fire(s) may be wisps of smoke or the smell of hot or burning insulation. Should an electrical fire develop, the following procedures are recommended.

a. Master Switch "OFF"
b. All Electrical Switches "OFF"
c. Open Air Vents or Windows ONLY if Absolutely Necessary For Ventilation

If electrical power is necessary for safety of flight under the above conditions, the following procedures are recommended.

a. Disengage and isolate Each Power Circuit
b. Engage Each Circuit Separately. Allow Sufficient Time to Analyze For Faulty Operation
c. When Faulty Circuit is Identified, Disengage Faulty Circuit
d. Properly Functioning Circuits May Be Re-Engaged
e. Land as Soon as Practicable For Repairs

2.2.7 EMERGENCY EXITS

The right cabin door can be removed by releasing the upper window latches and pulling the safety pin and then pulling up on the red emergency door release handle and pushing door away from aircraft. If necessary, emergency exit may be made from left side of aircraft by opening left window. Force forward portion of window past its hinge stop by pushing hard on forward window frame.

3. PERFORMANCE INFORMATION

3.1 CLIMB SPEEDS

Best Rate-Of-Climb Speed At Sea Level: 80 MPH (70 Knots) CAS
Best Angle-Of-Climb Speed At Sea Level: 58 MPH (50 Knots) CAS

Best rate-of-climb speed decreases 1 MPH per 2000 feet of altitude. Best angle-of-climb speed increases 1 MPH per 1500 feet of altitude.

3.2 SERVICE CEILING

Service Ceiling: 16000 feet

3.3 AIRSPEED SYSTEM CALIBRATION

Indicated airspeed (IAS) is identical to calibrated airspeed (CAS) from stall speed up to 140 MPH. From this speed the following calibration exists.

IAS (MPH)	CAS (MPH)
140	139
150	148
160	158
170	167
180	176
190	185
200	194

4.0 LOADING INFORMATION

Weight and balance data is prepared individually for each airplane. Procedures used in this section have been approved by the FAA.

BAC Addendum Page 3 shows the moment diagram and loading envelope applicable to the Model 8KCAB. A weight and balance report containing the airplane empty weight and moment and the approved equipment list is attached to this manual. These items are explained below.

4.1 MOMENT AND LOADING

The loading envelope shows the allowable limits of total airplane moment from minimum weight to maximum gross weight. The moment diagram gives the moment contribution of the pilot, passenger, fuel, oil and baggage. To find the moment contribution of a 100 pound passenger, for instance, move up vertically along the weight scale to 100 lbs., move down vertically to the moment scale where the moment contribution of 4500 in-lbs is read.

To determine if a particular weight configuration is acceptable, find the total weight and the total moment by summing the contribution of each component including the empty airplane (the oil moment is negative and must be subtracted). On the loading diagram, locate the intersection of a horizontal line at the total weight and a vertical line at the total moment. If this intersection lies within the indicated envelope, the configuration is acceptable (see BAC Addendum Page 3).

4.2 WEIGHT AND BALANCE

The weight and balance report gives the official aircraft empty weight, empty moment, empty C.G. and useful load. The empty weight includes unuseable fuel and undrainable oil (see BAC Addendum Page 4).

4.3 EQUIPMENT

Each item installed on the airplane at the time of weighing is marked with an "X" on the equipment list. The weight and moment arm of each item are also shown. The accelerometer is required for acrobatic category operation only (see BAC Addendum Page 6)

4.4 MOMENT DIAGRAM AND LOADING ENVELOPE

Weight/Balance and Equipment List Revision

Aero-Tech Services, Inc
500 Airport Rd. Suite P Lititz, PA 17543

Aircraft Reg: N595AC
Aircraft Model: 8KCAB
Aircraft S/N: 834-99

This supercedes weight and balance dated: 6/14/1999

Item	Weight	Arm	Moment
Old a/c w&b	1345.5	11.89916	16010.31978
Removed:			
Sky-Tech starter 149-12LS	-8	-44.44	355.52
			0
			0
			0
Installed:			
Sky-Tech starter 149-NL	9.4	-44.44	-417.736
			0
			0
			0
			0
			0
Totals:	1346.9		15948.10378
C.G.		11.84	

New aircraft empty weight: 1346.9
New aircraft empty weight c.g.: 11.84 (inches aft of datum)
New aircraft useful load: 453.1 lbs at 1800 lbs gross weight

Date: 6/7/2013

Authorized signature: _____
Certificate No: AP3129806IA

NOTE: It is the responsibility of the aircraft owner, operator and/or pilot to ensure that the aircraft weight and balance is correct and that the aircraft is loaded properly for flight.

This weight and balance document modifies past existing weight and balance data contained in the Aircraft records. This facility cannot verify that the existing weight and balance data contained in the aircraft records reflects the correct weight and balance of the aircraft. Any inaccuracies in the past will be mathematically carried forward with this document. This facility cannot verify the accuracy of past data and is not responsible for any past weight and balance data or computations.

AMERICAN CHAMPION AIRCRAFT CORPORATION
ROCHESTER, WISCONSIN 53167

WEIGHT AND BALANCE WORKSHEET

MODEL NUMBER 8KCAB (180 HP/CS PROP)
SERIAL NUMBER 834-99
IDENTIFICATION NUMBER N595AC
DATE 6-14-99
SIGNED

Aircraft Leveling Means: Drop plumb line from wing leading edge so that it is 12.18 inches forward of front face fuselage wing strut fitting.

Weight Actual 1341.5 lbs.

1. Left Wheel Weight: 639.5 lbs. Right Wheel Weight: 634.5 lbs.
2. Tail Wheel Weight 67.5 lbs.
3. Total Aircraft Weight (Full Oil): 1341.5 lbs.

$$\text{C.G.} = \frac{(195 \text{ in.}) \times (67.5 \text{ lbs.})}{(1341.5 \text{ lbs.})} + (1.55 \text{ in.}) = 11.36178 \text{ in Aft L.E.}$$

	WEIGHT (lbs.)	ARM (in.)	MOMENT (in. lbs.)
Aircraft Weight With Full Oil	1341.5	11.36178	15241.83
Subtract Drainable Oil (of 19 lbs, 5 lbs is undrainable)	-14	-34	+476
Add 0.75 Gallons Unuseable Fuel (Header Tank)	+4.5	-13	-58.5
Add 2.25 Gallons Unuseable Fuel (Wing Fuel Tanks)	+13.5	+26	+351
TOTALS	1345.5	XXXXXXXX	16010.33

Aircraft Empty C.G. 11.89916 in. aft datum

Useful Load 454.5 lbs.

Datum: Wing Leading Edge

CENTER OF GRAVITY LIMITS:

NORMAL OR ACROBATIC	(+ 13.5 in.)	To	(+18.5 in.)	At 1800 lbs.
CATEGORY	(+ 11.5 in.)	To	(+18.5 in.)	At 1550 lbs or less

Straight line variation between points given

FORM

LOADING SCHEDULE 8KCAB (180 HP/CS PROP)

Add weights and moments of items in MOMENT DIAGRAM to airplane empty weight and moment. (negative oil moment) Locate intersection of total weight and moment on AIRPLANE LOADING ENVELOPE. Any point falling within the envelope meets all balance requirements.

4.6 EQUIPMENT LIST

Suffix Letters on Item Numbers:

R: Required for FAA Certification

S: Standard Equipment

A: Optional Equipment Not Required

O: Optional Equipment Replacing Standard or Required Item

ITEM NO.	X	DESCRIPTION	DRAWING	WT, LB	ARM, IN
1R	X	Engine, Lycoming AEIO-360-H1B	7-1502	301.00	-38.36
2R	X	Propeller, Hartzell HC-C2YR-4CFFC7666A-2	7-1509-1	53.50	-57.50
3S	X	Spinner, Hartzell 836-52	7-1509-1	4.63	-58.83
4R	X	Propeller Governor	7-1509-1	2.50	-22.00
5R	X	Control, Propeller Governor	7-1509-1	1.00	-5.00
6R	X	Pump, Emergency Fuel	7-1502	3.18	-23.40
7R	X	Oil Cooler	7-1502	2.95	-27.18
8R	X	Starter – Sky-Tec	STCSE0021 8NY	8.00	-44.44
9R	X	Alternator	7-1502	10.63	-48.36
10R	X	Voltage Regulator	7-1502	0.65	-22.40
11R	X	Battery, 31 AMP Gell Cell	4-1782	30.81	88.47
12R	X	Relay, Battery	4-1782	0.70	84.00
13R	X	Tachometer, Recording	7-1524	0.66	-3.40
14R	X	Gauge – Combination Manifold / Fuel Pressure	7-1524	1.19	-6.69
15R	X	Gauge – Oil Pressure	7-1524	0.35	-2.80
16R	X	Gauge – Oil Temperature	7-1524	0.57	-13.00
17R	X	Gauge – Ammeter	7-1524	0.26	-2.80
18R	X	Altimeter – Sensitive	7-1524	1.40	-3.30
19R	X	Indicator, Airspeed	7-1524	0.58	-3.00
20R	X	Accelerometer	7-1524	0.40	-3.00

ITEM #	X	DESCRIPTION	DWG	WT, LB	ARM, IN
21R		Compass, Airpath	7-1524	0.77	-4.00
22R	X	Stall Warning System	4-1401	0.85	-0.00
23A		Turn & Bank, Electric	7-1524	2.00	-3.00
24A	X	Turn Coordinator	7-1524	2.00	-3.00
25A	X	Rate of Climb	7-1524	1.00	-3.00
26A		Cylinder Head Temperature	7-1524	1.00	-3.00
27A		Engine Hour Meter	3-1354	0.80	-3.00
28A		Gauge, Outside Air Temperature	7-1415	0.17	8.00
29A	X	Quartz Clock	7-1524	0.25	-2.00
30R	X	Tailwheel, Scott 3200	4-1080	7.80	193.33
31R	X	Brake Cylinder, Cleveland 10-54 (Toe)	4-1624	1.00	-19.63
32R	X	Tire and Tube, 6.00 x 6 x4 Ply Type III (Both Sides)	7-1307	18.50	1.75
33R	X	Wheel and Brake, Cleveland 40-28-30-19 (Both Sides)	7-1307	13.94	2.44
34A		Glider Tow, Schweitzer	7-1143-3	3.94	113.00
35S	X	Wheel Pants (Cleveland Wheels)	4-1474	10.00	2.00
36S		Landing Gear Steps L/R	3-1559	2.00	2.00
37R	X	Position Lights – Wing	3-1512	0.38	17.62
38R	X	Tail Light Rudder	4-1548	0.14	202.80
39R	X	Wing Tip Strobe Light Installation	3-1517	4.25	-2.00
40S	X	Landing Light Cowling	7-1517	0.47	-52.32
41R	X	Filter, Injector Air	7-1517	0.50	-43.00
42R	X	Seat Inst. Front Adjustable	7-1499	15.63	17.25
43R	X	Seat Installation Rear	4-1708	13.63	48.63
44O		Seat Installation Rear Wide	4-1709	18.44	48.63
45O	X	Hooker Harness, Front	3-1660	4.50	17.25

ITEM #	X	DESCRIPTION	DWG	WT, LB	ARM, IN
46O	X	Hooker Harness, Rear	3-1660	4.50	47.63
47R	X	Cargo Net	3-1475	1.00	62.00
48A	X	Emergency Locator Trans. Ameriking AK45	3-1590	3.00	68.38
49A	X	Rear Seat Heater	7-1478	2.25	-6.55
50S	X	Cabin Light	7-1524	0.57	24.00
51A	X	Cabin Speaker	7-1415	1.36	35.00
52A	X	Microphone Telex Tel-66T Front	2-2078	0.38	11.00
53A		Microphone Telex Tel-66T Rear	2-2078	0.38	45.00
54A		Headset Telex A610-1 Rear	2-2078	0.50	45.00
55A		Headset, Flightcom, Blackhawk 5DX Front	2-2078	1.00	11.00
56A		Headset, Flightcom, Blackhawk 5DX Rear	2-2078	1.00	45.00
57A		Antenna, Nav. Meriden BB-16	3-1542	1.19	103.00
58A	X	Antenna, Broadband (Spike Type)	4-1631	0.50	94.00
59A	X	Antenna, GPS		0.50	9.50
60A		King KX155 Nav Com		5.30	-3.00
61A		King KX165 Nav Com		5.65	-3.00
62A		King KY97A Com		2.82	-3.00
63A		King KT76A Transponder		3.25	-3.84
64A		King KI208 Indicator		1.00	-3.00
65A		King KI209 Indicator		1.00	-3.00
66A	X	Garmin GPS 250 XL		3.18	-5.00
67A	X	Garmin Transponder GTX 320		2.14	-5.00
68A	X	EDM 700 EGT/CHT/FF		1.30	-3.00
69A		Corrosion Proofing	CFP-2	5.00	49.40
70A	X	Aileron Spades	3-1669	2.25	46.00

ITEM #	X	DESCRIPTION	DWG	WT, LB	ARM, IN
71A		Directional Gyro		3.00	-3.00
72A		Artificial Horizon		2.50	-3.00
73A		Apollo 820 GPS with Antenna		3.50	-3.00
74A	X	Transponder Antenna		1 oz.	-3.00
75A		Electronics International EGT		7 oz.	-3.00
76A		Troll Avionics FN 200 Cooling Fan		1.20	-3.00
77A		King KLN90 GPS			-3.00
78A		Bose Interface (2 each)		4 oz.	24.50
79A		Bose Headphone System		22 oz.	45.00
80A		Astrotech CC-2 Clock		4 oz.	-3.00
81A		King KX125 Nav/Com		4.63	-3.00
82A	X	Vertical Card Compass – Precision Aviation Inc.		0.52	-3.00
83A		Magellan GPS5000		3.00	-3.00
84A		Suction Gauge		0.22	-3.00
85A		Vacuum Pump		3.00	-27.00
86A		Airwolf Remote Oil Filter		5.00	-22.00
87A		Power Receptical with Bracket		0.25	-3.00
88A		Terra TMA 330D Audio Panel		1.70	-3.00
89A		King KLX 135 GPS/COM		5.00	-3.00
90A	X	PSE PM 1000II ICS		1.00	-3.00
91A		Terra TRT-250 Transponder		1.84	-5.00
92A		Terra AT 3000 Blind Encoder		0.50	-9.00
93A		Terra TX 760 Comm		1.50	-3.00
94A		Speed Kit		1.50	8.00
95A	X	AK-350 Altitude Encoder		0.40	-9.00